

INDUSTRY PROCESS  
AND AUTOMATION SOLUTIONS



**BONFIGLIOLI**  
**RIDUTTORI**

**V**



**BONFIGLIOLI**



## INFORMAZIONI GENERALI GENERAL INFORMATION ALLGEMEINE INFORMATIONEN INFORMATIONS GENERALES

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Revisioni  
L'indice di revisione del catalogo è riportato a pag. 362.  
Al sito [www.bonfiglioli.com](http://www.bonfiglioli.com) sono disponibili i cataloghi con le revisioni aggiornate.

Revisions  
Refer to page 362 for the catalogue revision index.  
Visit [www.bonfiglioli.com](http://www.bonfiglioli.com) to search for catalogues with latest revision index.

Änderungen  
Das Revisionsverzeichnis des Katalogs wird auf Seite 362 wiedergegeben. Auf unserer Website [www.bonfiglioli.com](http://www.bonfiglioli.com) werden die Kataloge in ihrer letzten, überarbeiteten Version angeboten.

Révisions  
Le sommaire de révision du catalogue est indiqué à la page 362.  
Sur le site [www.bonfiglioli.com](http://www.bonfiglioli.com) des catalogues avec les dernières révisions sont disponibles.



## 1.0 - INTRODUZIONE

Gli oltre 40 anni di esperienza nel settore, hanno permesso a BONFIGLIOLI RIDUTTORI di acquisire una posizione di rilievo nei mercati di tutto il mondo e di proporre, oggi, una delle più vaste offerte di soluzioni per tutte le esigenze delle trasmissioni di potenza.

Dallo studio delle varie caratteristiche applicative, dall'evoluzione delle tecniche progettuali e produttive e dalla formazione del personale, emerge la capacità della BONFIGLIOLI RIDUTTORI di esprimere nei propri prodotti una elevata tecnologia associata ora ad una rigorosa certificazione a garanzia della qualità.

Tutte queste caratteristiche, unitamente ad un approccio strategico che nei confronti della crescente richieste di mercato ha fornito una gamma sempre più ampia di soluzioni differenziate con un vantaggioso rapporto prestazioni / costo, hanno identificato il nome BONFIGLIOLI come sinonimo di riduttori in tutto il mondo.

## 1.0 - INTRODUCTION

*Over 40 years of experience in the field have enabled BONFIGLIOLI RIDUTTORI to win a leading position on global markets and to offer today one of the most comprehensive ranges of solutions meeting all power transmission requirements.*

*Study of application characteristics allied to development of design and production techniques, along with personnel training, are the essential background for BONFIGLIOLI RIDUTTORI's ability in using leading-edge technology now combined with certified quality procedures.*

*The sum of these characteristics backed by a strategic approach offering an increasingly broad range of different cost effective solutions in response to growing market demands, have ensured that the name BONFIGLIOLI RIDUTTORI is synonymous with gearmotors and gearboxes the world over.*

## 1.0 - EINFÜHRUNG

BONFIGLIOLI RIDUTTORI konnte dank der in mehr als 40 Jahren gesammelten Erfahrung im Bau von Getrieben eine herausragende Stellung auf den internationalen Märkten einnehmen und zeichnet sich heute durch eines der größten Angebote an Lösungen für jeden Bedarf bei der Leistungsübertragung aus.

Das eingehende Studium der Anwendungsbedingungen, die kontinuierliche Weiterentwicklung der Planungs und Herstellungstechniken und die gezielte Weiterbildung des Personals sind die Grundlage der hervorragenden technischen Eigenschaften der Produkte von BONFIGLIOLI RIDUTTORI, deren hohe Technologie durch den Qualitätssicherungsnachweis garantiert ist.

Alle diese Merkmale im Verein mit einer Unternehmensstrategie, die darauf abzielte, in Anbetracht der wachsenden Nachfrage ein sich ständig erweiterndes Angebot an Lösungen mit einem äußerst günstigen Preis/Leistungsverhältnis zur Verfügung zu stellen, haben den Namen BONFIGLIOLI in der ganzen Welt zum Synonym für Getriebe werden lassen.

## 1.0 - INTRODUCTION

*Plus de 40 années d'expérience dans le secteur ont permis à BONFIGLIOLI RIDUTTORI d'acquiescer une position de premier plan sur les marchés du monde entier et de proposer aujourd'hui l'une des palettes de solutions les plus importantes pour toutes les exigences de transmission de puissance.*

*La capacité de BONFIGLIOLI RIDUTTORI d'exprimer, à travers ses produits, une technologie élevée associée à une certification rigoureuse en garantie de la qualité émerge de l'étude des différentes caractéristiques d'application, de l'évolution des techniques de conception et de production ainsi que de la formation du personnel.*

*Toutes ces caractéristiques conjointement à une approche stratégique qui, vis à vis des demandes croissantes de marché, a fourni une gamme toujours plus vaste de solutions différenciées avec un rapport performances/coûts très favorable, ont associé le nom BONFIGLIOLI aux réducteurs dans le monde entier.*





a) Personale con una elevata professionalità e competenza, avvalendosi di avanzati sistemi di progettazione, determina lo sviluppo dei prodotti.

b) L'adozione di macchine caratterizzate da una notevole flessibilità produttiva, assicura un flusso di componenti in tempi ristretti e ad un elevato livello qualitativo.

c) Tutti i componenti vengono controllati scrupolosamente con sofisticate attrezzature nell'ambito dell'Organizzazione interna della Qualità, la quale ha la funzione di gestire e migliorare le varie funzioni aziendali.

d) In attrezzatissime sale esperienze, i riduttori vengono sottoposti a cicli di funzionamento che simulano le reali condizioni di esercizio per saggiarne la resistenza e provare nuovi materiali, garantendo la corrispondenza dei dati di catalogo alle reali prestazioni.

a) *Product development is assured by highly professional and competent personnel using state-of-the art design systems.*

b) *Use of machinery noted for its significant production flexibility guarantees a rapid flow of components and top level quality.*

c) *All parts are scrupulously checked on sophisticated equipment as part of the in-house Quality Control Department, which has the task to control and improve company functions.*

d) *In superbly equipped testing rooms, gearboxes undergo operation cycles simulating effective duty conditions aimed at testing both resistance and new materials, to ensure that effective performance matches catalogue data.*

a) Personal mit einem hohen Grad an Professionalität und Kompetenz, das sich bei der Projektierung der modernsten Systeme bedienen kann, bestimmt die Entwicklung der Produkte.

b) Der Einsatz von Maschinen mit beachtlicher Erzeugnisflexibilität gewährleistet einen hohen Durchsatz der Komponenten bei zugleich optimalem qualitativem Niveau.

c) Alle Komponenten werden im Rahmen der werksinternen Qualitätssicherung mit anspruchsvollen Geräten strengsten Prüfungen unterzogen. Es ist die Aufgabe des Qualitätsmanagements, die verschiedenen Qualitätssicherungselemente zu verwalten und ständig den sich ändernden Anforderungen anzupassen.

d) Die Getriebe werden auf bestens ausgestatteten Prüfständen strengen Betriebsprüfungen unterzogen, wobei reale Betriebsbedingungen simuliert werden, um die Widerstandsfähigkeit der verwendeten Werkstoffe zu testen und neue Materialien auszuprobieren, damit die Übereinstimmung der Katalogangaben mit den tatsächlichen Leistungsmerkmalen garantiert werden kann.

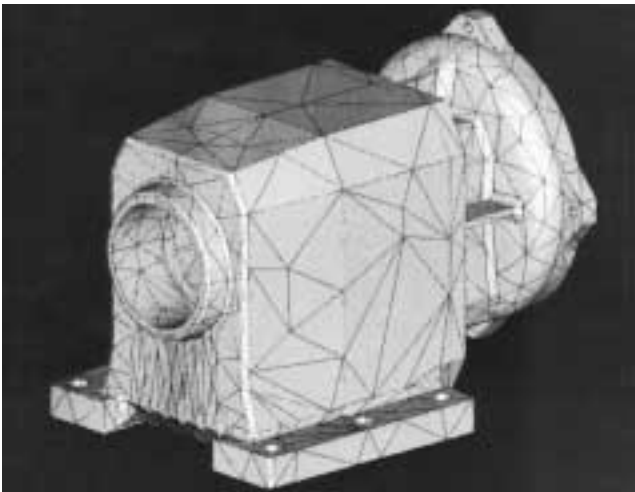
a) *Un personnel, d'un professionnalisme et d'une compétence élevés, utilisant des systèmes de conception très évolués travaille au développement des produits.*

b) *L'adoption de machines caractérisées par une remarquable flexibilité de production, assure un flux de composants dans des délais très courts avec un niveau de qualité élevé.*

c) *Tous les composants sont contrôlés scrupuleusement avec des équipements sophistiqués dans le cadre de l'Organisation interne de la Qualité, dont la fonction est de gérer et d'améliorer les différentes fonctions d'entreprise.*

d) *Dans des salles d'essai hautement équipées, les réducteurs sont soumis à des cycles qui simulent les conditions réelles de fonctionnement pour en tester la résistance et essayer de nouveaux matériaux, en garantissant la correspondance des données du catalogue avec les performances réelles.*

a)



b)



c)



d)





## 2.0 - SIMBOLOGIA E UNITÀ DI MISURA

## 2.0 - SYMBOLS AND UNITS OF MEASURE

## 2.0 - VERWENDETE SYMBOLE UND EINHEITEN

## 2.0 - SYMBOLES ET UNITES DE MESURE

| Simb.<br>Symb.            | U.m.<br>Meßeinh.     | Descrizione                              | Description                                           | Beschreibung                              | Description                                       |
|---------------------------|----------------------|------------------------------------------|-------------------------------------------------------|-------------------------------------------|---------------------------------------------------|
| <b>A<sub>N2</sub></b>     | [N]                  | Carico assiale nominale                  | <i>Permissible axial force</i>                        | Nenn-Axialbelastung                       | <i>Charge axiale nominale</i>                     |
| <b>f<sub>m</sub></b>      | —                    | Fattore di maggiorazione                 | <i>Increased power factor</i>                         | Überdimensionierungsfaktor                | <i>Facteur de majoration</i>                      |
| <b>f<sub>s</sub></b>      | —                    | Fattore di servizio                      | <i>Service factor</i>                                 | Betriebsfaktor                            | <i>Facteur de service</i>                         |
| <b>f<sub>T</sub></b>      | —                    | Fattore termico                          | <i>Thermal factor</i>                                 | Wärmefaktor                               | <i>Facteur thermique</i>                          |
| <b>f<sub>TP</sub></b>     | —                    | Fattore di temperatura                   | <i>Temperature factor</i>                             | Temperaturfaktor                          | <i>Facteur de température</i>                     |
| <b>i</b>                  | —                    | Rapporto di trasmissione                 | <i>Gear ratio</i>                                     | Übersetzung                               | <i>Rapport de réduction</i>                       |
| <b>I</b>                  | —                    | Rapporto di intermittenza                | <i>Cyclic duration factor</i>                         | Relative Einschaltzeit                    | <i>Rapport d'intermittence</i>                    |
| <b>J<sub>C</sub></b>      | [Kgm <sup>2</sup> ]  | Momento di inerzia carico                | <i>Mass moment of inertia of the driven equipment</i> | Massenträgheitsmoment der externen Massen | <i>Moment d'inertie de la charge</i>              |
| <b>J<sub>M</sub></b>      | [Kgm <sup>2</sup> ]  | Momento di inerzia motore                | <i>Motor mass moment of inertia</i>                   | Motorträgheitsmoment                      | <i>Moment d'inertie du moteur</i>                 |
| <b>J<sub>R</sub></b>      | [Kgm <sup>2</sup> ]  | Momento di inerzia riduttore             | <i>Mass moment of inertia for the gear unit</i>       | Getriebeträgheitsmoment                   | <i>Moment d'inertie du réducteur</i>              |
| <b>K</b>                  | —                    | Fattore di accelerazione delle masse     | <i>Mass acceleration factor</i>                       | Massenbeschleunigungsfaktor               | <i>Facteur d'accélération des masses</i>          |
| <b>K<sub>r</sub></b>      | —                    | Costante di trasmissione                 | <i>Transmission element factor</i>                    | Belastungsfaktor der Radiallast           | <i>Constante de transmission</i>                  |
| <b>M<sub>1, 2</sub></b>   | [Nm]                 | Coppia                                   | <i>Torque</i>                                         | Drehmoment                                | <i>Couple</i>                                     |
| <b>M<sub>2max</sub></b>   | [Nm]                 | Coppia max trasmessa                     | <i>Max transmitted torque</i>                         | Max. übertragenes Drehmoment              | <i>Couple maxi. transmis</i>                      |
| <b>M<sub>C 1, 2</sub></b> | [Nm]                 | Coppia di calcolo                        | <i>Calculated torque</i>                              | Berechnetes Drehmoment                    | <i>Couple de calcul</i>                           |
| <b>M<sub>n 1, 2</sub></b> | [Nm]                 | Coppia nominale                          | <i>Rated torque</i>                                   | Nennmoment                                | <i>Couple nominal</i>                             |
| <b>M<sub>r 1, 2</sub></b> | [Nm]                 | Coppia richiesta                         | <i>Torque demand</i>                                  | Benötigtes Drehmoment                     | <i>Couple nécessaire</i>                          |
| <b>n<sub>1, 2</sub></b>   | [min <sup>-1</sup> ] | Velocità                                 | <i>Speed</i>                                          | Abtriebsdrehzahl                          | <i>Vitesse</i>                                    |
| <b>P<sub>1, 2</sub></b>   | [kW]                 | Potenza                                  | <i>Power</i>                                          | Leistung                                  | <i>Puissance</i>                                  |
| <b>P<sub>N 1, 2</sub></b> | [kW]                 | Potenza nominale                         | <i>Rated power</i>                                    | Nennleistung                              | <i>Puissance nominale</i>                         |
| <b>P<sub>R 1, 2</sub></b> | [kW]                 | Potenza richiesta                        | <i>Power demand</i>                                   | Benötigte Leistung                        | <i>Puissance nécessaire</i>                       |
| <b>R<sub>C 1, 2</sub></b> | [N]                  | Carico radiale di calcolo                | <i>Calculated radial force</i>                        | Berechnete Axialbelastung                 | <i>Charge radiale de calcul</i>                   |
| <b>R<sub>N 1, 2</sub></b> | [N]                  | Carico radiale nominale                  | <i>Permissible overhung load</i>                      | Zulässige Radialbelastung                 | <i>Charge radiale nominale</i>                    |
| <b>S</b>                  | —                    | Fattore di sicurezza                     | <i>Safety factor</i>                                  | Sicherheitsfaktor                         | <i>Facteur de sécurité</i>                        |
| <b>t<sub>a</sub></b>      | [°C]                 | Temperatura ambiente                     | <i>Ambient temperature</i>                            | Umgebungstemperatur                       | <i>Température ambiante</i>                       |
| <b>t<sub>f</sub></b>      | [min]                | Tempo di funzionamento a carico costante | <i>Work time at constant load</i>                     | Betriebszeit während nennbetrieb          | <i>Temps de fonctionnement à charge constante</i> |
| <b>t<sub>r</sub></b>      | [min]                | Tempo di riposo                          | <i>Rest time</i>                                      | Stillstandszeit                           | <i>Temps de repos</i>                             |
| <b>η<sub>D</sub></b>      |                      | Rendimento dinamico                      | <i>Dynamic efficiency</i>                             | Dynamischer Wirkungsgrad                  | <i>Rendement dynamique</i>                        |
| <b>η<sub>S</sub></b>      |                      | Rendimento statico                       | <i>Static efficiency</i>                              | Statischer Wirkungsgrad                   | <i>Rendement statique</i>                         |

1 valore riferito all'albero veloce  
2 valore riferito all'albero lento

1 value applies to i/p shaft  
2 value applies to o/p shaft

1 Werte beziehen sich auf die Antriebswelle  
2 Werte beziehen sich auf die Abtriebswelle

1 valeurs pour l'arbre rapide  
2 valeurs pour l'arbre lent



Questo simbolo riporta i riferimenti angolari per l'indicazione della direzione del carico radiale (l'albero è visto di fronte).



Le colonne contrassegnate da questo simbolo indicano i numeri di pagina dove sono riportate le dimensioni.



*This symbol indicates the radial load direction angle references. (shaft front-view).*



*Columns marked with this symbol indicate the reference page showing the dimensions.*



Dieses Symbol gibt die Winkelbezugswerte für die Angabe der Richtung der Radialkräfte an (Stirnsicht der Welle).



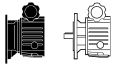
Die mit diesem Symbol gekennzeichneten Spalten geben die Nummern der Seiten mit den Maßangaben der gewählten.



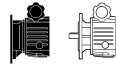
*Ce symbole présente les références angulaires pour l'indication de la direction de la charge radiale (l'arbre est vu de face).*



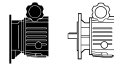
*Les colonnes portant ce symbole indiquent les numéros de page où sont mentionnées les dimensions.*



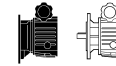
Motore variatore in esecuzione compatta e flangiata



*Compact motor variator with flanged output*



Verstelltriebemotor in kompakter und geflanschter Version.



*Motore variatore esecuzione compatta avec bride.*



Motore elettrico con flangia IEC (B5 o B5R).



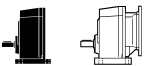
*Electric motor with IEC flange (B5 or B5R).*



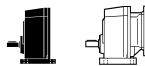
Elektromotor mit Flansch IEC (B5 oder B5R).



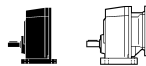
*Moteur électrique avec bride IEC (B5 ou B5R).*



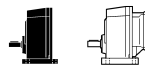
Riduttore monostadio serie S predisposto per accoppiamento al motore variatore compatto e flangiato.



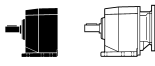
*S single-stage gearbox to fit compact motor variator with flanged output.*



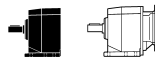
Einstufiges Getriebe der Serie S, vorbereitet für Passung an den kompakten und geflanschten Verstelltriebemotor.



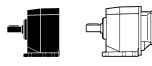
*Réducteur à un étage série S prédisposé pour l'accouplement au moteur variateur compact et avec bride.*



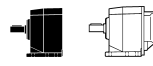
Riduttore coassiale serie C predisposto per accoppiamento al motore variatore compatto e flangiato.



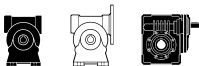
*C in-line gearbox to fit compact motor variator with flanged output.*



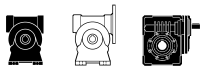
Stirnradgetriebe der Serie C, vorbereitet für Passung an den kompakten und geflanschten Verstelltriebemotor.



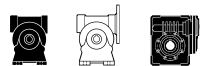
*Réducteur coaxial série C prédisposé pour l'accouplement au moteur variateur compact et avec bride.*



Riduttore a vite senza fine serie VF o W predisposto per accoppiamento al motore variatore compatto e flangiato.



*VF or W worm gearbox to fit compact motor variator with flanged output.*



Schneckengetriebe der Serie VF oder W, vorbereitet für Passung an den kompakten und geflanschten Verstelltriebemotor.



*Réducteur à vis sans fin série VF ou W prédisposé pour l'accouplement au moteur variateur compact et avec bride.*

**INFORMAZIONI GENERALI**

I paragrafi che seguono riportano una serie di informazioni sugli elementi indispensabili per la scelta e il corretto utilizzo dei motovariariduttori. Indicazioni specifiche relative alle varie tipologie di riduttori potranno essere ricercate nei capitoli di pertinenza.

**GENERAL INFORMATION**

*The following headings contain information on essential elements for selection and correct use of motovariator-gearboxes. For specific data on the gearbox range, see the relevant chapters.*

**ALLGEMEINE INFORMATIONEN**

Die folgenden Abschnitte enthalten eine Reihe von Informationen über die Aspekte, die in Hinblick auf die Wahl und den sachgemäßen Betrieb von Verstellgetriebe bemotors unbedingt zu berücksichtigen sind. Die spezifische Informationen über die verschiedenen Getriebearten sind den zugehörigen Kapiteln zu entnehmen.

**INFORMATIONS GENERALES**

*Les paragraphes qui suivent présentent une série d'informations sur les éléments indispensables pour le choix et l'utilisation correcte des motovariaréducteurs. Des indications spécifiques relatives aux différentes typologies de réducteurs pourront être recherchées dans les chapitres respectifs.*

**3.0 - COPPIA IN USCITA****3.1 - Coppia nominale**  
 **$M_{n2}, M_{n2}'$  [Nm]**

È la coppia trasmissibile in uscita con carico continuo uniforme riferita alla velocità in ingresso  $n_1$  e a quella corrispondente in uscita  $n_2, n_2'$ . È calcolata in base ad un fattore di servizio  $f_s = 1$ .

**3.0 - OUTPUT TORQUE****3.1 - Nominal output torque**  
 **$M_{n2}, M_{n2}'$  [Nm]**

*Torque transmitted at the output shaft under uniform load, based on drive speed  $n_1$  and corresponding output speed  $n_2, n_2'$ . Nominal torque is based on service factor  $f_s = 1$ .*

**3.0 - ABTRIEBSMOMENT****3.1 - Nenn-Drehmoment**  
 **$M_{n2}, M_{n2}'$  [Nm]**

Dies ist das an der Abtriebswelle übertragbare Drehmoment bei gleichförmiger Dauerbelastung bezogen auf die Antriebsdrehzahl  $n_1$  und die entsprechende Abtriebsdrehzahl  $n_2, n_2'$ . Das Drehmoment wird auf Grundlage eines Betriebsfaktor  $f_s = 1$  berechnet.

**3.0 - COUPLE EN SORTIE****3.1 - Couple nominal**  
 **$M_{n2}, M_{n2}'$  [Nm]**

*C'est le couple transmissible en sortie avec une charge continue uniforme se référant à la vitesse en entrée  $n_1$  et à celle correspondante en sortie  $n_2, n_2'$ . Il est calculé sur la base d'un facteur de service  $f_s = 1$ .*

**3.2 - Coppia richiesta**  
 **$M_{r2}, M_{r2}'$  [Nm]**

Rappresenta la coppia richiesta dall'applicazione e dovrà sempre essere uguale o inferiore alla coppia in uscita nominale  $M_{n2}, M_{n2}'$  del riduttore scelto.

**3.2 - Required torque**  
 **$M_{r2}, M_{r2}'$  [Nm]**

*This is the torque corresponding to application requirements. It must always be equal to or less than rated output torque  $M_{n2}, M_{n2}'$  of the selected gearbox.*

**3.2 - Verlangtes Drehmoment**  
 **$M_{r2}, M_{r2}'$  [Nm]**

Dies ist das von der Anwendung verlangte Drehmoment, das stets kleiner oder gleich dem Nenn- Abtriebsmoment  $M_{n2}, M_{n2}'$  des gewählten Getriebes sein muß.

**3.2 - Couple requis**  
 **$M_{r2}, M_{r2}'$  [Nm]**

*Il représente le couple requis par l'application et devra toujours être inférieur ou égal au couple en sortie nominal  $M_{n2}, M_{n2}'$  du réducteur choisi.*

**3.3 Coppia di calcolo**  
 **$M_{c2}, M_{c2}'$  [Nm]**

È il valore di coppia da utilizzare per la selezione del motovariariduttore considerando la coppia richiesta  $M_{r2}$  (alla velocità  $n_2, n_2'$  desiderata) e il fattore di servizio  $f_s$  ed è dato dalla formula

**3.3 Calculated torque**  
 **$M_{c2}, M_{c2}'$  [Nm]**

*This is the torque value to be used for selecting the motovariator-gearbox unit considering required torque  $M_{r2}$  (at required  $n_2, n_2'$  speed) and service factor  $f_s$ , and is obtained by applying formula*

**3.3 Soll-Drehmoment**  
 **$M_{c2}, M_{c2}'$  [Nm]**

Dies ist das bei der Wahl des Getriebes zugrundezulegende Drehmoment, wobei das übertragene Drehmoment  $M_{r2}$  und der Betriebsfaktor  $f_s$  zu berücksichtigen sind; das Soll-Drehmoment wird mit folgender Gleichung berechnet:

**3.3 Couple de calcul**  
 **$M_{c2}, M_{c2}'$  [Nm]**

*C'est la valeur de couple à utiliser pour la sélection du réducteur en considérant le couple requis  $M_{r2}$  et le facteur de service  $f_s$  et s'obtient avec la formule*

$$M_{c2} = M_{r2} \cdot f_s \leq M_{n2}$$

(1)

Nei riduttori a vite senza fine, in funzione del particolare cinematismo che determina una trasmissione del moto con un accennato strisciamento, è necessario rivalutare la coppia di calcolo  $M_{c2}$  in base al fattore di temperatura  $f_{tp}$  che in questo tipo di riduttori ha un'incidenza rilevante. La formula (1) verrà modificata come segue:

*In the case of worm gearboxes, depending on the special movement providing drive transmission with pronounced slipping, the calculated torque  $M_{c2}$  must be reconsidered according to the temperature factor  $f_{tp}$  which has a marked influence in this type of gearbox. The formula (1) should be modified as follows:*

Auf den Schneckengetrieben muß wegen des speziellen Getriebes, das eine stark abwälzende Bewegungsübertragung verursacht, das Soll-Drehmoment  $M_{c2}$  unter Bezugnahme des Temperaturfaktors  $f_{tp}$  neu berechnet werden. Dieser hat in Getrieben dieser Art eine wesentliche Bedeutung. Die Formel (1) wird wie folgt verändert:

*Sur les réducteurs à vis sans fin, en fonction de l'organe de mouvement qui détermine une transmission du mouvement avec un frottement accentué, il est nécessaire de redéfinir le couple de calcul  $M_{c2}$  sur la base du facteur de température  $f_{tp}$ , qui a une grande importance sur ce type de réducteur. La formule (1) sera modifiée de la façon suivante :*

$$M_{c2} = M_{r2} \cdot f_s \cdot f_{tp} \leq M_{n2}$$

(2)

La tabella (B1) riporta i valori di  $f_{tp}$  in base al tipo di carico K1, K2, K3 e alla temperatura ambiente riferiti ad una lubrificazione con lubrificante sintetico; fra parentesi sono indicati i valori da adottare nel caso venga utilizzato un lubrificante a base minerale.

*Table (B1) shows the  $f_{tp}$  values according to load type K1, K2, K3 and ambient temperature referred to lubrication with synthetic lubricant. Values to be used if a mineral based lubricant is employed are shown in brackets.*

In der Abbildung (B1) wurden die  $f_{tp}$ -Werte je nach Belastungsart K1, K2, K3 und Umgebungstemperatur angegeben, bezogen auf eine Schmierung mit einem synthetischen Mittel. In Klammern stehen die Werte, die gewählt werden müssen, wenn ein mineralisches Schmiermittel verwendet wird.

*Le tableau (B1) indique les valeurs de  $f_{tp}$  sur la base du type de charge K1, K2, K3 et à température ambiante avec lubrifiant synthétique. Les valeurs à adopter avec lubrifiant minérale sont indiquées entre parenthèses.*



(B1)

| f <sub>tp</sub> Fattore di temperatura / Temperature factor / Temperaturfaktor / Facteur de température |                                                          |                                                  |                                                                                          |             |             |             |
|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------------------------|-------------|-------------|-------------|
| Tipo di carico / Load pattern<br>Belastung / Type de charge                                             |                                                          |                                                  | Temperatura ambiente / Ambient temperature<br>Umgebungstemperatur / Température ambiante |             |             |             |
|                                                                                                         |                                                          |                                                  | 20 °C                                                                                    | 30 °C       | 40 °C       | 50 °C       |
| <b>K1</b>                                                                                               | Carico uniforme<br>Gleichmäßige Belastung                | Uniform load<br>Charge uniforme                  | 1.00 (1.00)                                                                              | 1.00 (1.04) | 1.06 (1.20) | 1.20 (1.50) |
| <b>K2</b>                                                                                               | Carico con urti moderati<br>Belastung mit mäßigen Stößen | Moderate shock load<br>Charge avec chocs modérés | 1.00 (1.00)                                                                              | 1.02 (1.07) | 1.12 (1.28) | 1.30 (1.70) |
| <b>K3</b>                                                                                               | Carico con forti urti<br>Belastung mit starken Stößen    | Heavy shock load<br>Charge avec chocs violents   | 1.00 (1.00)                                                                              | 1.04 (1.08) | 1.17 (1.33) | 1.40 (1.90) |

#### 4.0 - POTENZA NOMINALE P<sub>n1</sub> [kW]

Nelle tabelle di selezione dei motovariatori è la potenza applicata in entrata riferita alla velocità  $n_1$  e considerando un fattore di servizio  $f_s=1$ .

#### 4.0 - RATED POWER P<sub>n1</sub> [kW]

In the motovariator-gearboxes selection charts, this is the applicable input power referred to speed  $n_1$  and considering a service factor  $f_s=1$ .

#### 4.0 - NENN-LEISTUNG P<sub>n1</sub> [kW]

In den Tabellen für die Wahl der Verstelltriebemotors ist die an der Antriebswelle übertragbare Leistung auf die Drehzahl  $n_1$  bezogen und es wurde ein Betriebsfaktor  $f_s=1$  angenommen.

#### 4.0 - PUISSANCE NOMINALE P<sub>n1</sub> [kW]

Dans les tableaux de sélection des motovariateurs, c'est la puissance applicable en entrée se rapportant à la vitesse  $n_1$  et en considérant un facteur de service  $f_s=1$ .

#### 5.0 - POTENZA TERMICA P<sub>t</sub> [kW]

È il valore che indica il limite termico del riduttore ed è la potenza trasmissibile in servizio continuo ad una temperatura ambiente massima di 20°C senza ricorrere ad un raffreddamento ausiliare. Per un tipo di servizio caratterizzato da una breve durata di funzionamento e da un tempo di sosta sufficientemente lungo da consentire il raffreddamento del gruppo, la potenza termica acquista scarsa rilevanza per cui può non essere tenuta in considerazione. Se la temperatura ambiente è diversa da 20°C e se il servizio è intermittente, è possibile correggere il valore di  $P_t$  in base ai fattori termici  $f_t$  riportati nella tabella (B3) verificando però che sia sempre soddisfatta la condizione:

#### 5.0 - THERMAL CAPACITY P<sub>t</sub> [kW]

This value indicates the gearbox's thermal limit and corresponds to the power transmission capacity under continuous duty at a maximum ambient temperature of 20°C without using a supplementary cooling facility. For a duty with short operating periods and sufficiently long pauses to allow the unit to cool, thermal power is not particularly important and therefore it does not need to be taken into consideration. If ambient temperature is different from 20°C and duty is intermittent,  $P_t$  value can be adjusted according to thermal factors  $f_t$  shown in tables (B3) provided you check that the following condition is always satisfied:

#### 5.0 - WÄRMELEISTUNG P<sub>t</sub> [kW]

Dieser Wert steht für die Wärmegrenzleistung des Getriebes und die im Dauerbetrieb übertragbare Leistung bei einer Umgebungstemperatur von 20°C ohne Zusatzkühlung. Bei einem Betrieb, der sich durch eine kurzzeitige Betriebsdauer und eine für die Abkühlung der Gruppe ausreichend lang andauernde Aussetzzeit kennzeichnet, ist die Wärmeleistung von geringer Bedeutung und braucht daher nicht unbedingt berücksichtigt zu werden. Bei einer unter 20°C liegenden Umgebungstemperatur und im Fall eines Aussetzbetriebs kann der Wert  $P_t$  den Wärmefaktoren  $f_t$ , die in der Tabelle (B3) aufgeführt werden, gemäß berechnet werden. Dabei ist jedoch zu überprüfen, ob die folgende Bedingung immer gegeben ist.

#### 5.0 - PUISSANCE THERMIQUE P<sub>t</sub> [kW]

C'est la valeur qui indique la limite thermique du réducteur et c'est la puissance transmissible en service continu, à une température ambiante maximum de 20°C sans recourir à un refroidissement auxiliaire. Pour un type de service caractérisé par une durée de fonctionnement brève et par un temps de pause suffisamment long pour permettre le refroidissement du groupe, la puissance thermique ne revêt qu'une faible importance et peut, par conséquent, ne pas être prise en considération. En cas de température ambiante inférieure à 20°C, en service intermittent, il est possible de majorer la valeur de  $P_t$  en fonction des facteurs thermiques  $f_t$  indiqués dans le tableau (B3), en vérifiant que l'équation suivante soit toujours respectée.

$$P_{r1} \leq P_t \cdot f_t$$

(3)

La tabella (B2) indica i valori della potenza termica attribuiti ai vari tipi di riduttori.

Per i tipi di riduttore e per i rapporti non indicati, la potenza termica è superiore alla potenza meccanica pertanto non va tenuta in considerazione nelle verifiche.

Table (B2) indicates thermal power values according to type of gearbox.

With regard to gearboxes and ratios not shown in the table, in such cases thermal power exceeds mechanical power, therefore it does not need to be considered when checking.

Die Tabelle (B2) zeigt die Werte der thermischen Grenzleistung für die verschiedenen Getriebetypen.

Im Fall von Getriebe und nicht in die Tabelle angegebenen Überprüfungen nicht in Betracht zu ziehen.

Le tableau (B2) indique les valeurs de la puissance thermique, assignées aux divers types de réducteurs.

Pour les types de réducteur et pour les rapports non indiqués, la puissance thermique est supérieure à la puissance mécanique; par la suite on ne devra pas la considérer au moment de la vérification.

(B2)

| n <sub>1</sub><br>[min <sup>-1</sup> ] | P <sub>t</sub> (kW) |     |      |      |      |            |     |     |     |      |      |
|----------------------------------------|---------------------|-----|------|------|------|------------|-----|-----|-----|------|------|
|                                        | S                   |     |      |      |      | C (i ≤ 45) |     |     |     |      |      |
|                                        | 101                 | 201 | 301  | 401  | 501  | 112        | 212 | 312 | 412 | 512  | 612  |
| 1400                                   | 4.9                 | 7.2 | 9.1  | 14.3 | 18.9 | 2.2        | 3.3 | 4.2 | 5.5 | 7.5  | 9.8  |
| 2800                                   | 5.5                 | 7.8 | 10.0 | 15.6 | 20.8 | 3.3        | 4.7 | 6.0 | 7.8 | 10.8 | 13.9 |



(B3)

| $f_t$ |                                                                     |                                                                                                                           |     |     |     |
|-------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|
| $t_a$ | Serv. continuo<br>Continuous duty<br>Dauerbetrieb<br>Serv. continuu | Servizio intermittente / Intermittent duty<br>Aussetzbetrieb / Service intermittent                                       |     |     |     |
|       |                                                                     | Rapporto di intermittenza (I)<br>Cyclic duration factor (I)<br>Relative Einschaltdauer (I)<br>Rapport d'intermittence (I) |     |     |     |
|       |                                                                     | 80%                                                                                                                       | 60% | 40% | 20% |
| 40 °C | 0.8                                                                 | 1.1                                                                                                                       | 1.3 | 1.5 | 1.6 |
| 30 °C | 0.85                                                                | 1.3                                                                                                                       | 1.5 | 1.6 | 1.8 |
| 20 °C | 1.0                                                                 | 1.5                                                                                                                       | 1.6 | 1.8 | 2.0 |
| 10 °C | 1.15                                                                | 1.6                                                                                                                       | 1.8 | 2.0 | 2.3 |

Il rapporto di intermittenza (I)% è dato dal rapporto fra il tempo di funzionamento a carico  $t_f$  e il tempo totale espresso in percentuale:

*The cyclic duration factor (I)% is obtained from the ratio operating time under load  $t_f$  with respect to total time expressed as a percentage:*

Die relative Einschaltdauer (I)% ist das Verhältnis aus der Betriebsdauer unter Last  $t_f$  und der Gesamtbetriebszeit, ausgedrückt in Prozent:

*Le rapport d'intermittence (I)% est donné par le rapport entre la durée de fonctionnement en charge  $t_f$  et le temps total exprimé en pourcentage:*

$$I = \frac{t_f}{t_f + t_r} \cdot 100$$

(4)

#### 6.0 - RAPPORTO DI RIDUZIONE

È una caratteristica del riduttore la cui identificazione si ha nel rapporto:

#### 6.0 - GEAR RATIO

*A gearbox inherent feature, obtained from the following equation:*

#### 6.0 - ÜBERSETZUNG

Dieses Merkmal des Getriebes wird durch das folgende Verhältnis ausgedrückt:

#### 6.0 - RAPPORT DE REDUCTION

*C'est une caractéristique du réducteur dont l'identification est obtenue avec l'équation:*

$$i = \frac{n_1}{n_2}$$

(5)

#### 7.0 - VELOCITÀ ANGOLARE

##### 7.1 - Velocità in entrata $n_1$ [min<sup>-1</sup>]

È la velocità relativa al tipo di motorizzazione scelta; i valori di catalogo si riferiscono alle velocità dei motori elettrici comunemente usati.

#### 7.0 - SPEED

##### 7.1 - Input speed $n_1$ [min<sup>-1</sup>]

*Speed is related to the type of drive unit selected. Catalogue values refer to speed of electric motors normally used.*

#### 7.0 - DREHZAHL

##### 7.1 - Drehzahl Antriebswelle $n_1$ [min<sup>-1</sup>]

Dies ist die vom gewählten Motortyp abhängige Drehzahl. Die Katalogangaben beziehen sich auf die Drehzahl von allgemein-üblichen eintourigen Elektromotoren.

#### 7.0 - VITESSE ANGULAIRE

##### 7.1 - Vitesse d'entrée $n_1$ [min<sup>-1</sup>]

*C'est la vitesse relative au type de motorisation choisie. Les valeurs de catalogue se réfèrent aux vitesses des moteurs électriques communément utilisés.*

##### 7.2 - Velocità in uscita $n_2$ [min<sup>-1</sup>]

È in funzione della velocità in entrata  $n_1$  e del rapporto di riduzione  $i$  secondo la relazione

##### 7.2 - Output speed $n_2$ [min<sup>-1</sup>]

*Calculated from input speed  $n_1$  and transmission ratio  $i$  according to the following equation*

##### 7.2 - Abtriebsdrehzahl $n_2$ [min<sup>-1</sup>]

Sie ist abhängig von der Antriebsdrehzahl  $n_1$  und dem Übersetzungs  $i$  nach folgender Gleichung:

##### 7.2 - Vitesse en sortie $n_2$ [min<sup>-1</sup>]

*Elle varie en fonction de la vitesse d'entrée  $n_1$  et du rapport de reduction  $i$  selon l'équation:*

$$n_2 = \frac{n_1}{i}$$

(6)



## 8.0 - FATTORE DI SERVIZIO $f_s$

È il fattore che tiene in considerazione, con sufficiente approssimazione, la variabilità del carico e gli eventuali urti a cui è sottoposto il riduttore per un determinato tipo di servizio.

Nel grafico della tabella (B4), dall'intersezione della linea corrispondente al numero di inserzioni/ora (avviamenti e arresti) con una delle curve (K1, K2, K3), che identificano la natura del carico in funzione del fattore di accelerazione delle masse K, si potrà leggere nel grafico il valore del fattore di servizio  $f_s$  riferito al numero di ore di funzionamento giornaliere.

Eventuali valori intermedi potranno essere ottenuti per interpolazione.

Il valore di  $f_s$  ottenuto dovrà poi essere confrontato con il fattore di sicurezza S riportato nelle tabelle di selezione verificando la condizione:

## 8.0 - SERVICE FACTOR $f_s$

*This factor takes into consideration, with sufficient approximation, load variations and eventual shocks the gearbox may undergo for a specific type of duty.*

*In the diagram (B4), at the intersection of the line for the number of starts/stops per hour with one of the curves (K1, K2, K3) identifying the type of load based on the acceleration factor of masses K, the value of duty factor  $f_s$  is indicated as a function of daily operating hours. Intermediate values can be obtained by interpolation.*

*The resulting  $f_s$  value is then cross-checked with the safety factor S reported in the selection charts to make sure this condition is satisfied:*

## 8.0 - BETRIEBSFAKTOR $f_s$

Der Betriebsfaktor berücksichtigt die Lastschwankungen und eventuelle Stöße, denen das Getriebe unter bestimmten Anwendungsbedingungen ausgesetzt ist.

In der Graphik von Tabelle (B4) kann man am Schnittpunkt der Senkrechten für die Schaltungen pro Stunde (Starts und Stopps) mit den Kurven (K1, K2, K3), die die Art der Belastung in Abhängigkeit vom Beschleunigungsfaktor der Massen K charakterisieren, den Betriebsfaktor  $f_s$  bezogen auf die täglichen Betriebsstunden ablesen.

Eventuelle Zwischenwerte erhält man durch Interpolation.

Der erhaltene Wert  $f_s$  muß daraufhin mit dem, in den Auswahltabellen aufgeführten Sicherheitswert S verglichen werden, wobei folgende Bedingung überprüft werden muß:

## 8.0 - FACTEUR DE SERVICE $f_s$

*C'est le facteur qui prend en considération avec une approximation suffisante, la variation de la charge et les éventuels chocs auxquels est soumis le réducteur pour un type de service déterminé.*

*Sur le graphique du tableau (B4), à l'intersection de la ligne correspondant au nombre d'insertions/heure (démarrages et arrêts) avec l'une des courbes (K1, K2, K3) qui identifient la nature de la charge en fonction du facteur d'accélération des masses K, on pourra lire sur le graphique la valeur du facteur de service  $f_s$  se référant au nombre d'heures de fonctionnement quotidiennes.*

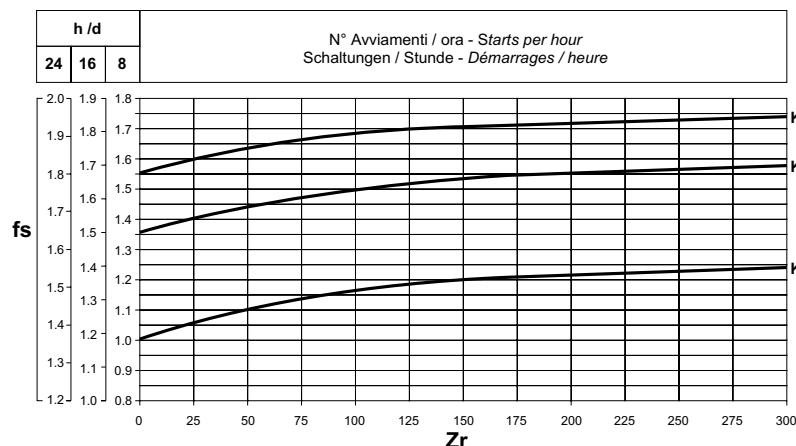
*Les éventuelles valeurs intermédiaires pourront être obtenues par interpolation.*

*La valeur de  $f_s$  obtenue devra ensuite être confrontée avec le facteur de sécurité S indiqué aux tableaux de sélection en vérifiant la condition :*

$$S \geq f_s$$

(7)

(B4)



## 8.1 - Fattore di accelerazione delle masse K

Serve per la determinazione del fattore di servizio e si ricava dalla relazione:

## 8.1 - Acceleration factor of masses K

*Used for establishing the service factor and calculated through the following equation:*

## 8.1 - Beschleunigungsfaktor der Massen K

Dieser Faktor dient zur Bestimmung des Betriebsfaktors und ergibt sich aus folgender Gleichung:

## 8.1 - Facteur d'accélération des masses K

*Il sert pour déterminer le facteur de service et s'obtient avec l'équation suivante :*

$$K = \frac{J_c}{J_m}$$

(8)

dove:

$J_c$  [Kgm<sup>2</sup>]  
momento d'inerzia dinamico delle masse comandate rapportato alla velocità del motore applicato  
 $J_m$  [Kgm<sup>2</sup>]  
momento d'inerzia del motore

where:

$J_c$  [Kgm<sup>2</sup>]  
dynamic moment of inertia of the driven masses in proportion to the speed of the applied motor  
 $J_m$  [Kgm<sup>2</sup>]  
motor moment of inertia

wobei gilt:

$J_c$  [kgm<sup>2</sup>]  
dynamisches Trägheitsmoment der angetriebenen Massen, bezogen auf die Motordrehzahl;  
 $J_m$  [kgm<sup>2</sup>]  
Trägheitsmoment des Motors

où:

$J_c$  [Kgm<sup>2</sup>]  
est le moment d'inertie dynamique des masses entraînées rapporté à la vitesse du moteur appliqué  
 $J_m$  [Kgm<sup>2</sup>]  
est le moment d'inertie du moteur

**K1** carico uniforme  
 $K \leq 0.25$   
**K2** carico con urti moderati  
 $0.25 < K \leq 3$   
**K3** carico con forti urti  
 $3 < K \leq 10$

**K1** uniform load  
 $K \leq 0.25$   
**K2** moderate shock load  
 $0.25 < K \leq 3$   
**K3** heavy shock load  
 $3 < K \leq 10$

**K1** gleichmäßige Belastung  
 $K \leq 0.25$   
**K2** Belastung mit mäßigen Stößen  
 $0.25 < K \leq 3$   
**K3** Belastung mit starken Stößen  
 $3 < K \leq 10$

**K1** charge uniforme  
 $K \leq 0.25$   
**K2** charge avec chocs modérés  
 $0.25 < K \leq 3$   
**K3** charge avec chocs violents  
 $3 < K \leq 10$

Per valori di  $K > 10$  vi invitiamo a contattare il nostro Servizio Tecnico.

*For  $K > 10$  values, please contact our Technical Service.*

Bei Werten für  $K > 10$  bitte unseren Technischen Kundendienst zu Rate ziehen.

*Pour les valeurs de  $K > 10$ , nous vous invitons à contacter notre Service Technique.*



## 9.0 - CARICHI RADIALI

Gli alberi di entrata e uscita dei riduttori possono essere soggetti a carichi radiali (determinati dal tipo di trasmissione realizzata) la cui entità può essere calcolata con la formula:

$R_{c2}$  Carico radiale (N)  
1 = su albero veloce  
2 = su albero lento  
 $M_2$  Coppia sull'albero (Nm)  
 $d$  Diametro (mm) della ruota per catena, ingranaggio, puleggia, ecc.  
 $K_r = 1$  Catena  
 $K_r = 1.25$  Ingranaggio  
 $K_r = 1.5 - 2.0$  Cinghia a V

In base al punto di applicazione, come indicato in tabella (B5), possiamo avere i seguenti casi:

a) applicazione del carico  $R_{c2}$  sulla mezzzeria dell'albero come indicato nella tabella (B5).  
Tale valore potrà essere confrontato direttamente con i dati delle tabelle rispettando la condizione

b) applicazione del carico ad una distanza  $x$  dalla battuta dell'albero come indicato nella tabella (B6).  
La conversione del nuovo valore di carico radiale ammissibile  $R_{x2}$  è data dalla seguente relazione:

valida per  $\frac{L}{2} < x < c$   
 $R_{n2}$  = Carico radiale ammissibile sulla mezzzeria dell'albero [N]  
 $a$  = costante del riduttore  
 $b$  = costante del riduttore  
 $c$  = costante del riduttore  
 $x$  = distanza del carico dalla battuta dell'albero (mm)

(i valori delle costanti  $a, b, c$ , sono riportati nella tabella (B7)).  
Anche in questo caso, la condizione da verificare sarà la seguente:

## 9.0 - RADIAL LOADS

*Gearbox input and output shafts can be subjected to radial loads (determined by the type of transmission used) the extent of which can be calculated with the following formula:*

$R_{c2}$  Radial load (N)  
1 = input shaft  
2 = output shaft  
 $M_2$  Torque (Nm)  
 $d$  Diameter (mm) of sprocket, gear, pulley, etc.  
 $K_r = 1$  Chain  
 $K_r = 1.25$  Gear  
 $K_r = 1.5 - 2.0$  V-belt

*Depending on the application point as shown in table (B5), the following cases are possible:*

a) load  $R_{c2}$  applied on shaft mid-point as indicated in table (B5).  
*This value can be directly compared with table data by observing condition*

b) load applied at distance  $x$  from shaft shoulder as shown in table (B6).  
*Conversion to the new permitted radial load value  $R_{x2}$  is obtained from the following equation:*

valid for  $\frac{L}{2} < x < c$   
 $R_{n2}$  = Permitted radial load on shaft mid-point [N]  
 $a$  = load location factor  
 $b$  = load location factor  
 $c$  = load location factor  
 $x$  = load offset (mm)

*(factors values  $a, b, c$  are shown in table (B7)).  
The following condition must be checked in this case too:*

## 9.0 - RADIALKRÄFTE

Die Antriebs- und Abtriebswellen der Getriebe können Radialkräften ausgesetzt sein (die von der Übertragungsart abhängig sind), deren Ausmaß mit folgender Formel bestimmt werden kann:

$R_{c2}$  Radialkraft (N)  
1 = auf Abtriebswelle  
2 = auf Abtriebswelle  
 $M_2$  Drehmoment an der Welle (Nm)  
 $d$  Durchmesser (mm) des Kettenrad, Zahnrad, Riemenscheibe, usw.  
 $K_r = 1$  Kettenrad  
 $K_r = 1.25$  Zahnrad  
 $K_r = 1.5 - 2.0$  V-Keilriemen

In Abhängigkeit vom Kraftangriffspunkt (siehe Abbildung B5) können sich folgende Fälle ergeben:

a) Kraftangriffspunkt  $R_{c2}$  auf der Mitte des Wellenendes wie in Abbildung (B5).  
Dieser Wert kann direkt mit den Daten der Tabelle verglichen werden, wobei folgende Bedingungen zu beachten ist:

b) Kraftangriffspunkt mit Abstand  $x$  vom Wellenansatz wie in Abbildung (B6).  
Die Konversion des neuen Werts der zulässigen Radialkraft  $R_{x2}$  wird durch folgende Gleichung gegeben:

gültig für  $\frac{L}{2} < x < c$   
 $R_{n2}$  = zulässige Radialkraft auf der Mitte des Wellenendes [N]  
 $a$  = Getriebekonstante  
 $b$  = Getriebekonstante  
 $c$  = Getriebekonstante  
 $x$  = Abstand des Kraftangriffspunktes vom Wellenansatz (mm)

(die Werte der Konstanten  $a, b, c$  sind in Tabelle (B7) angegeben).  
Auch in diesem Fall ist folgende Bedingungen zu gewährleisten:

## 9.0 - CHARGES RADIALES

*Les arbres d'entrée et de sortie des réducteurs peuvent être soumis à des charges radiales (déterminées par le type de transmission réalisée) dont l'entité peut être calculée avec la formule*

$R_{c2}$  Charge radiale (N)  
1 = sur arbre rapide  
2 = sur arbre lent  
 $M_2$  Couple sur l'arbre (Nm)  
 $d$  Diamètre (mm) de la roue à chaîne, engrenage, poulie, etc.  
 $K_r = 1$  Chaîne  
 $K_r = 1.25$  Engrenage  
 $K_r = 1.5 - 2.0$  Courroie en V

*Suivant le point d'application comme indiqué sur le tableau (B5), nous pouvons avoir les cas suivants:*

a) application de la charge  $R_{c2}$  au milieu de l'arbre comme indiqué sur la figure (B5).  
*Cette valeur pourra être directement comparée avec les données des tableaux en respectant la condition :*

b) application de la charge à une distance  $x$  de l'épaule de l'arbre comme indiqué sur la figure (B6).  
*La conversion de la nouvelle valeur de charge radiale admissible  $R_{x2}$  s'obtient avec l'équation suivante :*

valable pour  $\frac{L}{2} < x < c$   
 $R_{n2}$  = Charge radiale admissible au milieu de l'arbre [N]  
 $a$  = constante du réducteur  
 $b$  = constante du réducteur  
 $c$  = constante du réducteur  
 $x$  = distance de la charge à partir de l'épaule de l'arbre (mm)

*(les valeurs des constantes  $a, b, c$ , sont rapportées dans le tableau (B7).  
Dans ce cas également, la condition à vérifier sera la suivante :*

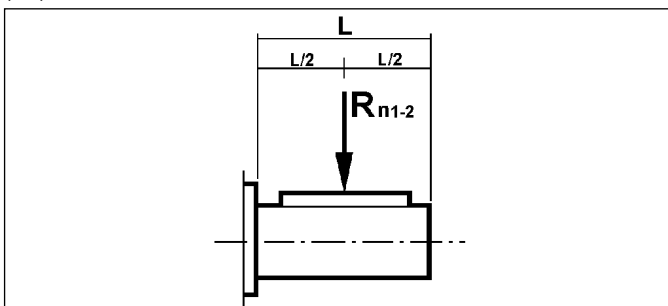
$$R_{c2} = \frac{2000 \cdot M_2 \cdot K}{d} \quad (9)$$

$$R_{c2} \leq R_{n2} \quad (10)$$

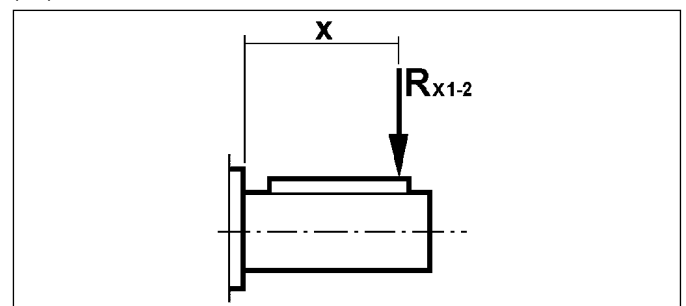
$$R_{x2} = R_{n2} \cdot \frac{a}{b + x} \quad (11)$$

$$R_{c2} \leq R_{x2} \quad (12)$$

(B5)



(B6)





(B7)

|              | Costanti del riduttore / Load location factors<br>Getriebekonstanten / Constantes du réducteur |       |      |
|--------------|------------------------------------------------------------------------------------------------|-------|------|
|              | Albero lento / Output shaft<br>Abtriebswelle / Arbre lent                                      |       |      |
|              | a                                                                                              | b     | c    |
| <b>S 10</b>  | 61                                                                                             | 46    | 200  |
| <b>S 20</b>  | 73.5                                                                                           | 53.5  | 270  |
| <b>S 30</b>  | 91.5                                                                                           | 66.5  | 380  |
| <b>S 40</b>  | 126.5                                                                                          | 96.5  | 600  |
| <b>S 50</b>  | 153.5                                                                                          | 113.5 | 680  |
| <b>C 11</b>  | 46                                                                                             | 26    | 450  |
| <b>C 21</b>  | 53                                                                                             | 28    | 550  |
| <b>C 31</b>  | 60.5                                                                                           | 30.5  | 750  |
| <b>C 35</b>  | 69.5                                                                                           | 34.5  | 800  |
| <b>C 41</b>  | 69.5                                                                                           | 34.5  | 850  |
| <b>C 51</b>  | 76.5                                                                                           | 36.5  | 900  |
| <b>C 61</b>  | 95.5                                                                                           | 45.5  | 1000 |
| <b>C 70</b>  | 114                                                                                            | 54    | 1200 |
| <b>C 80</b>  | 131                                                                                            | 61    | 1500 |
| <b>C 90</b>  | 161                                                                                            | 76    | 2000 |
| <b>C 100</b> | 163.5                                                                                          | 58.5  | 2500 |

|               | Costanti del variatore / Load location factors<br>Verstellgetriebekonstanten / Constantes du<br>variateur |     |     |
|---------------|-----------------------------------------------------------------------------------------------------------|-----|-----|
|               | Albero lento / Output shaft<br>Abtriebswelle / Arbre lent                                                 |     |     |
|               | a                                                                                                         | b   | c   |
| <b>V 0.25</b> | 59                                                                                                        | 48  | 240 |
| <b>V 0.5</b>  | 63                                                                                                        | 48  | 240 |
| <b>V 1</b>    | 75                                                                                                        | 55  | 285 |
| <b>V 2</b>    | 86                                                                                                        | 61  | 335 |
| <b>V 3</b>    | 122                                                                                                       | 92  | 550 |
| <b>V 5.5</b>  | 122                                                                                                       | 92  | 550 |
| <b>V 10</b>   | 154                                                                                                       | 114 | 700 |

|               | Costanti del riduttore / Load location factors<br>Getriebekonstanten / Constantes du réducteur |     |                               |
|---------------|------------------------------------------------------------------------------------------------|-----|-------------------------------|
|               | Albero lento / Output shaft<br>Abtriebswelle / Arbre lent                                      |     | R <sub>n2</sub><br>max<br>[N] |
|               | a                                                                                              | b   |                               |
| <b>VF 44</b>  | 71                                                                                             | 51  | 2500                          |
| <b>VF 49</b>  | 99                                                                                             | 69  | 3450                          |
| <b>W 63</b>   | 132                                                                                            | 102 | 5000                          |
| <b>W 75</b>   | 139                                                                                            | 109 | 6200                          |
| <b>W 86</b>   | 149                                                                                            | 119 | 7000                          |
| <b>W 110</b>  | 173                                                                                            | 136 | 8000                          |
| <b>VF 130</b> | 182                                                                                            | 142 | 13800                         |
| <b>VF 150</b> | 198                                                                                            | 155 | 16000                         |
| <b>VF 185</b> | 220                                                                                            | 170 | 19500                         |
| <b>VF 210</b> | 268                                                                                            | 203 | 34500                         |
| <b>VF 250</b> | 334                                                                                            | 252 | 52000                         |

### 9.1 - Carichi radiali sull'albero lento R<sub>n2</sub>

I valori nominali dei carichi radiali riferiti alla mezzzeria della sporgenza dell'albero lento sono indicati nelle tabelle di selezione dei motovariariduttori; essi sono calcolati rispettivamente in base alla coppia trasmessa M<sub>2</sub> e nelle condizioni più sfavorevoli come orientamento del carico e come senso di rotazione.

Se i valori ammissibili risultassero inferiori a quelli desiderati, vi preghiamo di consultare il nostro servizio tecnico indicando l'esatta direzione del carico e il senso di rotazione dell'albero.

### 9.1 - Radial loads on output shaft R<sub>n2</sub>

*Rated values of radial loads referred to the mid-point of the output shaft extension are shown in the motovariator-gearbox unit selection charts. They are calculated based on transmitted torque M<sub>2</sub> and assuming the most unfavourable conditions in terms of both load angle and direction of rotation of the shaft.*

*If permitted values are below actual values, please consult our technical service reporting exact load orientation and shaft rotation direction.*

### 9.1 - Radialkräfte auf die Abtriebswelle R<sub>n2</sub>

Die Nennwerte der Radialkräfte, die sich auf die Mitte des Wellenendes der Abtriebswelle beziehen, werden in den Auswahltabellen für die Verstellgetriebemotoren angegeben. Diese Werte werden jeweils unter Zugrundelegung des übertragenden Drehmoments M<sub>2</sub> und unter den ungünstigsten Bedingungen, im Hinblick auf die Kraftausrichtung und die Drehrichtung, entsprechend berechnet. Wenn die zulässigen Werte unter den verlangten Werten liegen, bitte unseren Technischen Kundendienst zu Rate ziehen, wobei die exakte Kraftrichtung und die Drehrichtung der Welle anzugeben ist.

### 9.1 - Charges radiales sur l'arbre lent R<sub>n2</sub>

*Les valeurs nominales des charges radiales, référées au milieu de la longueur disponible de l'arbre lent, sont indiquées aux tableaux de sélection des motovariaréducteurs: elles sont calculées respectivement sur la base du couple transmis M<sub>2</sub> et dans les conditions les plus défavorables d'orientation de la charge et du sens de rotation.*

*Si les valeurs admissibles se révélaient inférieures à celles désirées, nous vous prions de consulter notre service technique en indiquant la direction exacte de la charge et le sens de rotation de l'arbre.*

### 10.0 - CARICHI ASSIALI A<sub>n2</sub>

I carichi assiali massimi ammissibili si possono calcolare come segue:

### 10.0 - THRUST LOADS A<sub>n2</sub>

*Maximum permitted thrust loads can be calculated as follows:*

$$A_{n2} = R_{n2} \cdot 0.2$$

Anche in questo caso, in presenza di carichi assiali superiori a quelli ammissibili consultare il nostro servizio tecnico.

*In this case too, if thrust loads exceed permitted value, consult our technical service.*

### 10.0 - AXIALKRÄFTE A<sub>n2</sub>

Die maximal zulässigen Axialkräfte können folgendermaßen berechnet werden:

Auch in diesem Fall bei höheren Axialkräften unseren Technischen Kundendienst zu Rate ziehen.

### 10.0 - CHARGES AXIALES A<sub>n2</sub>

*Les charges axiales maximum admissibles peuvent se calculer comme suit :*

*Dans ce cas également, en présence de charges axiales supérieures à celles admissibles, consulter notre service technique.*



## 11.0 - LUBRIFICAZIONE RIDUTTORI

Un sistema misto bagno d'olio-sbattimento garantisce di regola la lubrificazione dei riduttori.

Per alcune posizioni di montaggio, generalmente caratterizzate da uno dei due assi verticali, opportune precauzioni vengono adottate al fine di garantire una adeguata lubrificazione anche agli organi più sfavoriti.

In alcune grandezze di riduttore il particolare lubrificante adottato, cosiddetto "long life" non richiede alcuna sostituzione per tutto l'arco di vita del riduttore stesso il quale pertanto viene fornito privo dei tappi di carico, scarico e livello.

Il primo riempimento viene effettuato da tutti gli stabilimenti Bonfiglioli esclusivamente con lubrificanti sintetici di marca **SHELL**.

Funzionamenti a temperature ambiente  $t_a$  comprese fra  $-15^\circ\text{C}$  e  $+50^\circ\text{C}$  sono in questo caso ammessi, tenendo presente che l'avviamento a temperature estremamente basse dovrà essere seguito da una fase di riscaldamento a carico molto ridotto. Per temperature inferiori a  $-15^\circ\text{C}$  consigliamo di contattare il ns. Servizio Tecnico.

Riduttori delle taglie superiori sono invece forniti "a secco" e sarà pertanto cura dell'utilizzatore riempirli di lubrificante prima della messa in opera. A questo scopo tali riduttori sono provvisti di tappi di carico, scarico e livello disposti in funzione della posizione di montaggio specificata in fase di ordinativo (illustrata nella specifica sezione di catalogo).

A garanzia di un funzionamento ottimale Bonfiglioli consiglia di eseguire il primo ed i successivi riempimenti ricorrendo sempre alle elevate prestazioni dei lubrificanti **SHELL**.

Confezioni da 4 l di Shell Tivela Oil SC 320 sono disponibili e possono essere ordinate presso la rete di vendita Bonfiglioli.

La tabella (B8) che segue costituisce il riferimento per la scelta della giusta viscosità in rapporto al tipo di riduttore.

## 11.0 - GEARBOX LUBRICATION

*Lubrication of gear units is usually provided through a combination of oil immersion and oil-splash patterns.*

*For some mounting positions, typically those featuring a vertical shaft, provisions are made to guarantee lubrication of even the least favourably located drive components.*

*Smallest gear units are filled in at the factory with a "long life" polyglycol-based lubricant, virtually maintenance-free and thus not requiring oil changes all throughout the operating life of the gearbox. In such a case gear units do not feature oil fill, level and drain plugs.*

*Original filling is provided by all Bonfiglioli assembly facilities exclusively with synthetic-base **SHELL** oil.*

*Under these conditions operation at ambient temperatures  $t_a$  in the range of  $-15^\circ\text{C}$  to  $+50^\circ\text{C}$  is allowed, bearing in mind that at start-up under extremely low temperature progressive loading may be recommended. Should the unit operate at temperatures well below  $-15^\circ\text{C}$  please contact Bonfiglioli's Technical Service for specific directions.*

*Larger size units are instead supplied dry and it will be the customer care to fill them with lubricant prior to putting them into operation. Consequently such units feature oil plugs properly located according to the particular mounting position specified at the ordering stage (coding shown in the specific catalogue section).*

*For a long lasting and trouble-free operation Bonfiglioli recommends that the first fill as well as following replacements are only made using **SHELL** lubricants.*

*4 l cans of Shell Tivela Oil SC 320 are available and can be sourced through Bonfiglioli Riduttori's sales network.*

*For determination of optimal oil specs for gear units originally supplied dry chart (B8) here under is the reference table for selection of the appropriate oil viscosity depending on gearbox type.*

## 11.0 - SCHMIERUNG DES GETRIEBES

Normalerweise sorgt ein kombiniertes System aus Ölbad-Ölumlau für die Gewährleistung der Schmierung der Getriebe.

In einigen Montagepositionen, die im Allgemeinen von einer der beiden senkrechten Achsen gegeben wird, werden, um auch an den ungünstig liegenden Organen eine geeignete Schmierung zu gewährleisten entsprechende Vorsichtsmaßnahmen getroffen.

Bei einigen Getriebegrößen muß das verwendete Schmiermittel, das sogenannte "Long-Life"-Schmiermittel, während der gesamten Lebensdauer des Getriebes nicht mehr gewechselt werden. Aus diesem Grund werden sie auch ohne jeglichen Einfüll- sowie Ablassverschluß und ohne Pegelanzeige geliefert.

Die Füllung erfolgt direkt in den Bonfiglioli-Werken, dabei werden ausschließlich nur synthetische Schmiermittel der Marke **SHELL** verwendet.

In diesem Fall ist der Getriebeeinsatz unter Umgebungstemperaturen  $t_a$  zwischen  $-15^\circ\text{C}$  und  $+50^\circ\text{C}$  zulässig. Hierbei ist jedoch zu berücksichtigen, daß einem Anlaß bei extrem niedrigen Temperaturen eine Aufwärmphase unter besonders geringen Belastungen folgen muß. Bei Temperaturen unter  $-15^\circ\text{C}$  empfehlen wir, sich mit unserem Technischen Kundendienst abzustimmen.

Die größeren Getriebe werden "trocken" geliefert, d.h. der Anwender muß vor der Inbetriebnahme das entsprechende Schmiermittel zugeben.

Zu diesem Zweck sind diese Getriebe mit Einfüll- sowie Ablasschrauben und mit einer Pegelanzeige ausgestattet, die der, bei der Auftragsgebung angegebenen Montageposition (im entsprechenden Abschnitt des Katalogs angegeben) entsprechend angeordnet sind.

Um den optimalen Betrieb gewährleisten zu können, empfiehlt die Bonfiglioli sowohl die Erstbefüllung als auch die nachfolgenden Füllungen mit den stark belastungsfähigen Schmiermitteln der **SHELL** vorzunehmen.

Die 4-Liter-Behälter des "Shell Tivela Oil SC 320" können bei den Verkaufsstellen der Bonfiglioli angefordert werden.

Die nachstehende Tabelle (B8) gibt Bezugswerte für die Auswahl der richtigen Viskositäten im Verhältnis zum Getriebetyp.

## 11.0 - LUBRIFICATION DES REDUCTEURS

Normalement, un système mixte bain d'huile-barbotage garantit la lubrification des réducteurs.

Pour certaines positions de montage, généralement caractérisées par un des deux axes verticaux, des précautions opportunes sont adoptées afin de garantir une lubrification adéquate, même des organes les plus mal placés.

Sur certaines tailles de réducteur, le lubrifiant particulier adopté, de type "long life", ne nécessite aucun remplacement au cours de la durée de vie du réducteur, par conséquent, ce dernier est fourni sans bouchon de remplissage, de vidange et de niveau.

Le premier remplissage est effectué par tous les établissements Bonfiglioli, exclusivement avec des lubrifiants synthétiques de marque **SHELL**.

Dans ce cas, des fonctionnements à des températures ambiantes  $t_a$  comprises entre  $-15^\circ\text{C}$  et  $+50^\circ\text{C}$  sont admis, sans oublier cependant qu'un démarrage à des températures extrêmement faibles doit être suivi d'une phase de réchauffement à charge très réduite. En cas de températures inférieures à  $-15^\circ\text{C}$ , il est conseillé de contacter notre service technique.

Au contraire, les réducteurs de tailles supérieures sont fournis "à sec", par conséquent, l'utilisateur doit se charger de les remplir avec du lubrifiant avant leur mise en service.

Dans ce but, ces réducteurs sont équipés de bouchon de remplissage, de vidange et de contrôle du niveau situés en fonction de la position de montage spécifiée au moment de la commande (voir chapitre spécifique dans le catalogue).

Afin de garantir un fonctionnement optimal, nous vous conseillons d'effectuer le premier remplissage, ainsi que les suivants, en utilisant toujours des lubrifiants **SHELL**, dont les performances sont élevées.

Des bidons de 4 l de Shell Tivela Oil SC 320 sont disponibles et peuvent être commandés dans les points du réseau de vente Bonfiglioli.

Le tableau (B8) suivant constitue une référence concernant le choix de la viscosité correcte en fonction du type de réducteur.



(B8)

| Lubrificante di fornitura originale Bonfiglioli Riduttori / <i>Original Bonfiglioli's lubricant supply</i><br>Schmiermittel der Originalfüllung – Bonfiglioli Riduttori / <i>Lubrifiants de fourniture originale Bonfiglioli Riduttori</i> |                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Riduttori ad ingranaggi elicoidali / <i>Helical and bevel helical gear unit</i><br>Stirnradgetriebe und Kegelradgetriebe / <i>Réducteurs à engrenages hélicoïdaux</i>                                                                      | <b>SHELL Tivela Oil SC 320</b>                                               |
| Riduttori a vite senza fine / <i>Worm gear units</i><br>Schneckengetriebe / <i>Réducteurs à vis sans fin</i>                                                                                                                               | <b>SHELL Tivela Oil SC 320</b>                                               |
| Riduttori a vite s/fine con limitatore di coppia / <i>Worm gear units c/w torque limiter</i><br>Schneckengetriebe mit Drehmomentenbegrenzer / <i>Réducteurs à vis sans fin avec limiteur de couple</i>                                     | <b>SHELL Tivela Oil SD 460</b>                                               |
| Variatori di velocità / <i>Speed variators</i><br>Verstelltriebemotoren / <i>Motovariateurs</i>                                                                                                                                            | <b>SHELL Donax TX (V 0.25...V 0.5)</b><br><b>SHELL Donax TA (V 1...V 10)</b> |

Qualora il lubrificante sintetico, preferibile per le superiori prestazioni, non sia disponibile localmente è consentito, **solo per i riduttori ad ingranaggi elicoidali e non per i riduttori a vite senza fine**, l'uso di lubrificante a base minerale. In questo caso suggeriamo l'uso di **SHELL Omala 220**.

*Should the synthetic lubricant option, preferred performance-wise, not be available locally it is allowed, **for helical and bevel helical units only, not for worm units**, the use of a mineral-base oil. In this case **SHELL Omala 220** must be considered as the preferred option.*

Sollte das bei höheren Leistungsausbringungen empfohlene synthetische Schmiermittel vor Ort nicht verfügbar sein, kann, **nur für die Stirnradgetriebe, Kegelradgetriebe und auf keinen Fall für die Schneckengetriebe**, auch ein Schmiermittel auf Mineralbasis verwendet werden. In diesem Fall empfehlen wir den Einsatz von **SHELL Omala 220**.

*Si le lubrifiant synthétique, préférable pour ses performances supérieures, n'est pas disponible sur place, il est possible **uniquement en ce que concerne les réducteurs à engrenages hélicoïdaux et non les réducteurs à vis sans fin**, d'utiliser un lubrifiant à base minérale. Dans ce cas, nous conseillons d'utiliser **SHELL Omala 220**.*

Bonfiglioli infine raccomanda che, qualora il lubrificante venga scelto al di fuori del tipo SHELL consigliato, questo sia di composizione equivalente in merito alla natura sintetica e alla viscosità, inoltre sia dotato degli opportuni additivi con funzione antischiuma.

*Bonfiglioli finally recommends that should the oil type be selected outside the recommended SHELL range the same is at least of equivalent composition as to the synthetic base and viscosity index besides including the appropriate anti-foam additives.*

Die Bonfiglioli weist letztendlich darauf hin, daß falls man ein von den empfohlenen SHELL-Typen abweichendes Schmiermittel wählen sollte, daß dieses in bezug auf seine synthetische Herkunft und Viskosität gleichwertig zusammengesetzt und darüber hinaus über geeignete Schaumschutzstoffe verfügen sollte.

*Enfin, en cas de choix autre que le type SHELL conseillé, nous vous recommandons de choisir un lubrifiant équivalent, tant du point de vue de la nature synthétique que de la viscosité, de plus, sa composition doit comprendre des additifs anti-mousse appropriés.*

## 12.0 - MANUTENZIONE

I riduttori e variatori forniti con lubrificazione permanente non necessitano di alcuna manutenzione. Per gli altri si consiglia di effettuare una prima sostituzione del lubrificante dopo circa 300 ore di funzionamento provvedendo ad un accurato lavaggio interno del gruppo con adeguati detergenti. Evitare di miscelare olii a base minerale con olii sintetici. Controllare periodicamente il livello del lubrificante effettuando la sostituzione indicativamente agli intervalli riportati nella tabella (B9).

## 12.0 - MAINTENANCE

*Life lubricated gearboxes do not require any maintenance. For other types of gearboxes, the first oil change must take place after about 300 hours of operation, carefully flushing the internal parts of the unit using suitable detergents. Do not mix mineral oils with synthetic oils. Check oil level regularly and change oil at the intervals shown in the table (B9).*

## 12.0 - WARTUNG

Die mit Dauerschmierung gelieferten Getriebe bedürfen keiner Wartung. Bei den übrigen Getrieben wird ein erster Ölwechsel nach ca. 300 Betriebsstunden empfohlen, wobei das Innere der Gruppe sorgfältig mit einem geeigneten Reinigungsmittel zu waschen ist. Mineralöle nicht mit Syntheseölen mischen. Den Ölstand regelmäßig kontrollieren. Die Ölwechsel in den in der Tabelle (B9) angegebenen Fristen durchführen.

## 12.0 - ENTRETIEN

*Les réducteurs fournis avec lubrification permanente n'ont besoin d'aucun entretien. Pour les autres, nous conseillons d'effectuer une première vidange du lubrifiant après les 300 premières heures de fonctionnement en réalisant un lavage soigné à l'intérieur du groupe avec des produits détergents appropriés. Éviter de mélanger les huiles à base minérale avec des huiles synthétiques. Contrôler périodiquement le niveau du lubrifiant en effectuant les vidanges conformément aux intervalles indiqués dans le tableau (B9).*

(B9)

| Temperatura olio / <i>Oil temperature</i><br>Öltemperatur / <i>Température huile</i> | Intervallo di lubrificazione / <i>Oil change interval</i><br>Schmierfrist / <i>Intervalle de lubrification</i> |                                                                                |
|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
|                                                                                      | [h]                                                                                                            |                                                                                |
| [°C]                                                                                 | olio minerale / <i>mineral oil</i><br>Mineralöl / <i>huile minérale</i>                                        | olio sintetico / <i>synthetic oil</i><br>Syntheseöl / <i>huile synthétique</i> |
| < 65                                                                                 | 8000                                                                                                           | 25000                                                                          |
| 65 - 80                                                                              | 4000                                                                                                           | 15000                                                                          |
| 80 - 95                                                                              | 2000                                                                                                           | 12500                                                                          |



### 13.0 - SCELTA

Per selezionare correttamente un motovariatore, è necessario disporre di alcuni dati che abbiamo sintetizzato nella tabella (B10). In particolare, essa potrà essere compilata ed inviata in copia al ns. Servizio Tecnico che provvederà alla ricerca della motorizzazione più idonea alla applicazione indicata.

### 13.0 - SELECTION

*Some fundamental data are necessary to assist the correct selection of a motovariator. The table below (B10) briefly sums up this information. To simplify matters, fill in the table and send a copy to our Technical Service which will select the most suitable drive unit for your application requirements.*

### 13.0 - ANTRIEBSAUSWAHL

Um einen Verstellmotor in korrekter Weise auswählen zu können, muß man über einige grundlegende Daten verfügen, die wir Ihnen in der folgenden Tabelle (B10) zusammengefaßt haben. Eine Kopie dieser vom Kunden ausgefüllten Tabelle kann an unseren Technischen Kundendienst geschickt werden, der dann die für die gewünschte Anwendung geeignete Auslegung wählt.

### 13.0 - SELECTION

*Pour sélectionner correctement un motovariateur, il faut disposer de certaines données fondamentales que nous avons résumées dans le tableau (B10). En particulier, ce dernier pourra être rempli et retourné à notre service technique qui recherchera la motorisation la plus appropriée à l'application indiquée.*

(B10)

|                                                                                                                                                                                                          |                         |                                                                                                                                                                                                    |                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Tipo di applicazione<br>Type of application<br>Anwendung<br>Type d'application                                                                                                                           |                         |                                                                                                                                                                                                    |                        |
| P <sub>r2</sub> Potenza in uscita a n <sub>2</sub> max<br>Output power at n <sub>2</sub> max<br>Abtriebsleistung bei n <sub>2</sub> max<br>Puissance en sortie à n <sub>2</sub> maxi                     | ..... kW                | A <sub>c2</sub> Carico assiale su albero in uscita (+/-)(***)<br>Thrust load on output shaft (+/-)(***)<br>Axialkraft auf Abtriebswelle (+/-)(***)<br>Charge axiale sur arbre de sortie (+/-)(***) | ..... N                |
| P <sub>r2'</sub> Potenza in uscita a n <sub>2</sub> min<br>Output power at n <sub>2</sub> min<br>Abtriebsleistung bei n <sub>2</sub> min<br>Puissance en sortie à n <sub>2</sub> mini                    | ..... kW                | J <sub>c</sub> Momento d'inerzia del carico<br>Moment of inertia of the load<br>Trägheitsmoment der Last<br>Moment d'inertie de la charge                                                          | ..... Kgm <sup>2</sup> |
| M <sub>r2</sub> Momento torcente in uscita a n <sub>2</sub> max<br>Output torque at n <sub>2</sub> max<br>Abtriebsdrehmoment bei n <sub>2</sub> max<br>Moment de torsion en sortie à n <sub>2</sub> maxi | ..... Nm                | t <sub>a</sub> Temperatura ambiente<br>Ambient temperature<br>Umgebungstemperatur<br>Température ambiante                                                                                          | ..... C°               |
| n <sub>2</sub> Velocità di rotazione in uscita max<br>Max.output speed<br>Abtriebsdrehzahl max<br>Vitesse de rotation maxi en sortie                                                                     | ..... min <sup>-1</sup> | Altitudine sul livello del mare<br>Altitude above sea level<br>Höhe ü.d.M.<br>Altitude au-dessus du niveau de la mer                                                                               | ..... m                |
| n <sub>2'</sub> Velocità di rotazione in uscita min<br>Min.output speed<br>Abtriebsdrehzahl min<br>Vitesse de rotation mini en sortie                                                                    | ..... min <sup>-1</sup> | Tipo di servizio in accordo a CEI<br>Duty type to IEC norms<br>Relative Einschaltdauer gemäß CEI<br>Type de service selon CEI                                                                      | S...../.....%          |
| n <sub>1</sub> Velocità di rotazione in entrata max<br>Max.input speed<br>Antriebsdrehzahl max<br>Vitesse de rotation maxi en entrée                                                                     | ..... min <sup>-1</sup> | Z Frequenza di avviamento<br>Starting frequency<br>Schaltungshäufigkeit<br>Fréquence de démarrage                                                                                                  | ..... 1/h              |
| n <sub>1'</sub> Velocità di rotazione in entrata min<br>Min.input speed<br>Antriebsdrehzahl min<br>Vitesse de rotation mini en entrée                                                                    | ..... min <sup>-1</sup> | Tensione di alimentazione motore<br>Motor voltage<br>Nennspannung des Motors<br>Tension de alimentation moteur                                                                                     | ..... V                |
| R <sub>c2</sub> Carico radiale su albero in uscita<br>Radial load on output shaft<br>Radialkraft auf Abtriebswelle<br>Charge radiale sur arbre de sortie                                                 | ..... N                 | Tensione di alimentazione freno<br>Brake voltage<br>Nennspannung der Bremse<br>Tension de alimentation frein                                                                                       | ..... V                |
| x <sub>2</sub> Distanza di applicazione del carico (*)<br>Load application distance (*)<br>Abstand des Kraftangriffspunktes (*)<br>Distance d'application de la charge (*)                               | ..... mm                | Frequenza<br>Frequency<br>Frequenz<br>Fréquence                                                                                                                                                    | ..... Hz               |
| Orientamento del carico in uscita<br>Load orientation at output<br>Orientierung der Last am Abtrieb<br>Orientation de la charge en sortie                                                                |                         | M <sub>B</sub> Coppia frenante<br>Brake torque<br>Bremsmoment<br>Couple de freinage                                                                                                                | ..... Nm               |
| Senso di rotazione albero uscita (O-AO) (**)<br>Output shaft rotation direction (CW-CCW) (**)<br>Drehrichtung der Abtriebswelle (U-GU) (**)<br>Sens de rotation arbre sortie (H-AH) (**)                 | .....                   | Grado di protezione motore<br>Motor protection degree<br>Schutzart des Motors<br>Degré de protection moteur                                                                                        | IP.....                |
|                                                                                                                                                                                                          |                         | Classe di isolamento<br>Insulation class<br>Isolierstoffklasse<br>Classe d'isolation                                                                                                               | .....                  |

(\*) La distanza x<sub>2</sub> è quella compresa fra il punto di applicazione della forza e la battuta dell'albero (se non indicata, si considererà la forza agente sulla mezziera della sporgenza dell'albero).

(\*\*) O = orario; AO = antiorario

(\*\*\*) + = compressione  
- = trazione

(\*) Distance x<sub>2</sub> is between force application point and shaft shoulder (if not indicated the force exerted on the mid-point of the shaft extension will be considered).

(\*\*) CW = clockwise;  
CCW = anticlockwise

(\*\*\*) + = compression  
- = traction

(\*) Der Abstand x<sub>2</sub> ist der Abstand vom Kraftangriffspunkt zum Wellenansatz (wenn nicht anders angegeben, wird davon ausgegangen, daß die Kraft auf der Mitte des Wellenendes angreift).

(\*\*) U = Uhrzeigersinn;  
GU = Gegenurzeigersinn

(\*\*\*) + = Druck  
- = Zug

(\*) La distance x<sub>2</sub> est celle comprise entre le point d'application de la force et l'épaulement de l'arbre (si non précisée l'on considèrera la force agissant au milieu de la saillie de l'arbre).

(\*\*) H = sens horaire;  
AH = sens antihoraire

(\*\*\*) + = compression  
- = traction



### Utilizzo del motovariatore.

La particolarità del variatore meccanico è quella di essere utilizzato fino al limite di coppia consentito senza provocare lo slittamento del cinematismo che lo compone; tale slittamento risulta estremamente dannoso per la durata di vita del variatore. Essendo un cinematismo che trasmette potenze variabili e ricevendo in entrata una potenza costante, è ovvio che ai regimi inferiori la potenza trasmessa è sempre inferiore alla potenza installata in entrata.

Solamente al massimo del numero di giri in uscita del motovariatore è quantificabile l'entità dello sforzo sopportato dal variatore in quanto si può controllare l'assorbimento del motore elettrico.

Qualora questo valore superi il valore riportato sulla targhetta del motore elettrico si può affermare che il motovariatore è sottodimensionato. Questa verifica non si può eseguire quando il variatore non è al massimo dei giri perchè il motore non è impegnato in tutta la sua potenza. Qualora l'assorbimento risulti pari o inferiore a quello indicato sulla targhetta del motore, si può dire che la scelta del motovariatore è corretta.

**E' necessario evidenziare inoltre che il numero di avviamenti massimo consentito senza provocare conseguenze sulla durata del variatore, non deve superare gli 8 - 10 al minuto.**

### Use of the speed variator.

*The distinctive feature of mechanical variators lies in their ability to operate up to the limit of permitted torque while avoiding slippage of the drive mechanism that would otherwise dramatically reduce variator life. Since the drive mechanism transmits variable power and is applied constant power at the input end, obviously transmitted power will always be lower than installed input power in the low rpm range.*

*The amount of stress applied to variator, i.e. can only be measured with the motovariator delivering maximum output speed by measuring the current drawn by the motor.*

*If measured consumption is higher than rated consumption reported on motor plate, one may safely conclude that the motovariator does not meet application requirements. Note that this verification can only be performed when the variator is running at peak rpm, i.e. the motor is operating with full power.*

*When current drawn is equal to or lower than motor rated value, it means that motovariator size has been selected properly.*

**Note that the maximum number of starts allowed to preserve variator life is 8-10 starts per minute.**

### Einsatz der Getriebemotoren.

Die Besonderheit der mechanischen Verstellgetriebe liegt darin, daß sie bis zur Drehmomentengrenze verwendet werden können, ohne daß es dabei zu einer Schlüpfung des entsprechenden Getriebes kommt. Ein solches Schlüpfen wäre im Hinblick auf die Lebensdauer des Verstellgetriebes extrem schädlich. Da es sich um ein Getriebe handelt, das veränderbare Leistungen überträgt und im Antrieb eine konstante Leistung zugeführt bekommt, ist es selbstverständlich, daß in den unteren Drehzahlbereichen die übertragene Leistung immer unter der am Antrieb vorhandenen Leistung liegt.

Nur bei einer maximalen Drehzahl am Abtrieb des Verstellgetriebemotors kann das Ausmaß der auf das Verstellgetriebe einwirkenden Last bemessen werden, da man in diesem Fall die Aufnahme des Elektromotors kontrollieren kann. Sollte dieser Wert den auf dem Schild des Elektromotors angegebenen Wert überschreiten, bedeutet dies, daß der Verstellgetriebemotor unterdimensioniert ist. Die Kontrolle kann nur erfolgen, wenn sich das Verstellgetriebe im maximalen Drehzahlbereich befindet, da andernfalls der Motor nicht über seinen gesamten Leistungsbereich genutzt werden kann. Sollte die Aufnahme als gleich oder niedriger als die Angaben auf dem Schild resultieren, kann man davon ausgehen, daß man das richtige Verstellgetriebe ausgewählt hat.

**Es muß jedoch berücksichtigt werden, daß um die Lebensdauer des Verstellgetriebes nicht zu beeinträchtigen, die max. Zulässige Einschaltungen 8 - 10 pro Minuten nicht überschreiten darf.**

### Utilisation du motovariateur.

La particularité du variateur mécanique est d'être utilisé jusqu'à la limite de couple permise sans provoquer le glissement du cinématisme qui le compose; en effet, ce glissement est extrêmement nuisible pour la durée de vie du variateur. Etant donné que c'est le cinématisme qui transmet des puissances variables tout en recevant une puissance constante en entrée, il est évident qu'à des régimes inférieurs, la puissance transmise est toujours inférieure à la puissance installée en entrée.

L'entité de l'effort supporté par le variateur est quantifiable uniquement au nombre de tours maximum en sortie dans la mesure où il est alors possible de contrôler l'absorption du moteur électrique.

Si cette valeur dépasse la valeur indiquée sur la plaquette du moteur électrique, nous pouvons déduire que le motovariateur est sous dimensionné. Il est impossible d'effectuer cette vérification lorsque le variateur n'est pas au maximum de tours car toute la puissance du moteur n'est pas engagée.

Si l'absorption est égale ou inférieure à celle indiquée sur la plaquette du moteur, nous pouvons déduire que le choix du motovariateur est correct.

**De plus, il est nécessaire de vérifier que le nombre de démarrages maximum autorisé afin d'éviter des conséquences au niveau de la durée du variateur ne dépasse pas 8-10 démarrages par minute.**

### 13.1 Scelta dei motovariariduttori

- Determinare il fattore di servizio  $f_s$  in funzione del tipo di carico (fattore K), del numero di inserzioni/ora  $Z_r$  e del numero di ore di funzionamento.
- Dalla coppia  $M_{r2}$ , conoscendo  $n_2$  e il rendimento dinamico  $\eta_D$ , ricavare la potenza in entrata

### 13.1 Selection of motovariators

- Determine service factor  $f_s$  according to type of load (factor K), number of starts per hour  $Z_r$  and hours of operation.
- Providing torque  $M_{r2}$ , speed  $n_2$  and dynamic efficiency  $\eta_D$  are known, you can obtain input:

### 13.1 Wahl der Verstellgetriebemotoren

- Den Betriebsfaktor  $f_s$  in Abhängigkeit von der Belastungsart (Faktor K), den Schaltungen / Stunde  $Z_r$  und den Betriebsstunden bestimmen.
- Aus dem Drehmoment  $M_{r2}$  mit Hilfe der bekannten Werte für  $n_2$  und dem dynamischen Wirkungsgrad  $\eta_D$  die Antriebsleistung ableiten

### 13.1 Sélection des motovariaréduteurs

- Déterminer le facteur de service  $f_s$  en fonction du type de charge (facteur K), du nombre d'insertions/heure  $Z_r$  et du nombre d'heures de fonctionnement.
- A partir du couple  $M_{r2}$ , en connaissant  $n_2$  et le rendement dynamique  $\eta_D$ , calculer la puissance en entrée

$$P_{r1} = \frac{M_{r2} \cdot n_{2max}}{9550 \cdot \eta_D} \text{ [kW]}$$

(14)

Il valore di  $\eta_D$  per le varie serie di riduttori e variatori è indicato nella tabella (B11):

Value  $\eta_D$  for the different types of gearbox and variators is indicated in table (B11) below:

Der Wert für  $\eta_D$  für die verschiedenen Getriebeserien und Verstellgetriebeserien ist in Tabelle (B11) angegeben:

La valeur de  $\eta_D$ , pour les différentes séries de réducteurs et variateurs, est indiquée dans le tableau (B11):

(B11)

| Serie / Series<br>Serie / Série |  | N° stadi / Reductions / Anz. Stufen / Nombre d'étages de réduction |      |      |
|---------------------------------|--|--------------------------------------------------------------------|------|------|
|                                 |  | 1                                                                  | 2    | 3    |
| V                               |  | 0.85 ( $n_2$ ) - 0.75 ( $n_2'$ )                                   |      |      |
| S                               |  | 0.98                                                               | —    | —    |
| C                               |  | —                                                                  | 0.95 | 0.93 |
| R                               |  | 0.98                                                               | —    | —    |



(B12)

|        |             | $n_1 = 1000 \text{ min}^{-1}$ |    |    |    |    |    |    |    |    |     |     | $n_1' = 190 \text{ min}^{-1}$ |    |    |    |    |    |    |    |    |     |     |
|--------|-------------|-------------------------------|----|----|----|----|----|----|----|----|-----|-----|-------------------------------|----|----|----|----|----|----|----|----|-----|-----|
| VF 44  | i           | 7                             | 10 | 14 | 20 | 28 | 35 | 46 | 60 | 70 | 100 | —   | 7                             | 10 | 14 | 20 | 28 | 35 | 46 | 60 | 70 | 100 | —   |
|        | $\eta_{DR}$ | 85                            | 82 | 78 | 74 | 67 | 64 | 59 | 54 | 51 | 43  | —   | 83                            | 80 | 80 | 72 | 64 | 60 | 55 | 50 | 47 | 39  | —   |
| VF 49  | i           | 7                             | 10 | 14 | 18 | 24 | 28 | 36 | 45 | 60 | 70  | 80  | 7                             | 10 | 14 | 18 | 24 | 28 | 36 | 45 | 60 | 70  | 80  |
|        | $\eta_{DR}$ | 85                            | 82 | 78 | 75 | 71 | 67 | 63 | 59 | 53 | 50  | 47  | 83                            | 80 | 75 | 72 | 68 | 63 | 59 | 55 | 49 | 46  | 43  |
| W 63   | i           | 7                             | 10 | 12 | 15 | 19 | 24 | 30 | 38 | 45 | 60  | 80  | 7                             | 10 | 12 | 15 | 19 | 24 | 30 | 38 | 45 | 64  | 80  |
|        | $\eta_{DR}$ | 86                            | 83 | 81 | 79 | 77 | 74 | 69 | 65 | 62 | 55  | 51  | 84                            | 81 | 79 | 76 | 73 | 70 | 64 | 61 | 58 | 51  | 46  |
| W 75   | i           | 7                             | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80  | 100 | 7                             | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 80  | 100 |
|        | $\eta_{DR}$ | 88                            | 86 | 83 | 80 | 77 | 74 | 68 | 63 | 60 | 54  | 50  | 86                            | 84 | 80 | 77 | 73 | 69 | 63 | 58 | 55 | 49  | 44  |
| W 86   | i           | 7                             | 10 | 15 | 20 | 23 | 30 | 40 | 46 | 56 | 64  | 80  | 7                             | 10 | 15 | 20 | 23 | 30 | 40 | 46 | 56 | 64  | 80  |
|        | $\eta_{DR}$ | 87                            | 85 | 81 | 80 | 79 | 72 | 70 | 68 | 65 | 62  | 58  | 85                            | 82 | 78 | 77 | 75 | 67 | 66 | 63 | 60 | 58  | 53  |
| W 110  | i           | 7                             | 10 | 15 | 20 | 23 | 30 | 40 | 46 | 56 | 64  | 80  | 7                             | 10 | 15 | 20 | 23 | 30 | 40 | 46 | 56 | 64  | 80  |
|        | $\eta_{DR}$ | 88                            | 86 | 83 | 82 | 81 | 74 | 73 | 71 | 68 | 65  | 61  | 86                            | 84 | 80 | 79 | 77 | 70 | 68 | 66 | 63 | 60  | 56  |
| VF 130 | i           | 7                             | 10 | 15 | 20 | 23 | 30 | 40 | 46 | 56 | 64  | 80  | 7                             | 10 | 15 | 20 | 23 | 30 | 40 | 46 | 56 | 64  | 80  |
|        | $\eta_{DR}$ | 88                            | 87 | 84 | 82 | 81 | 77 | 73 | 73 | 70 | 68  | 64  | 86                            | 84 | 81 | 79 | 77 | 72 | 68 | 68 | 65 | 62  | 58  |
| VF 150 | i           | 7                             | 10 | 15 | 20 | 23 | 30 | 40 | 46 | 56 | 64  | 80  | 7                             | 10 | 15 | 20 | 23 | 30 | 40 | 46 | 56 | 64  | 80  |
|        | $\eta_{DR}$ | 89                            | 87 | 85 | 83 | 82 | 77 | 74 | 74 | 71 | 69  | 65  | 87                            | 85 | 83 | 80 | 78 | 73 | 69 | 69 | 66 | 63  | 59  |
| VF 185 | i           | 7                             | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 80 | 100 | —   | 7                             | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 80 | 100 | —   |
|        | $\eta_{DR}$ | 89                            | 88 | 86 | 84 | 81 | 76 | 73 | 71 | 66 | 62  | —   | 88                            | 86 | 84 | 81 | 77 | 71 | 68 | 66 | 60 | 56  | —   |
| VF 210 | i           | 7                             | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 80 | 100 | —   | 7                             | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 80 | 100 | —   |
|        | $\eta_{DR}$ | 89                            | 88 | 86 | 83 | 80 | 75 | 72 | 70 | 65 | 61  | —   | 88                            | 87 | 84 | 81 | 77 | 71 | 68 | 65 | 60 | 56  | —   |
| VF 250 | i           | 7                             | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 80 | 100 | —   | 7                             | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 80 | 100 | —   |
|        | $\eta_{DR}$ | 90                            | 89 | 87 | 85 | 81 | 76 | 73 | 72 | 67 | 63  | —   | 88                            | 87 | 85 | 82 | 79 | 72 | 68 | 68 | 62 | 58  | —   |

**N.B.**

Nel motore variatore, il rendimento complessivo  $\eta_D$  è dato dal prodotto del rendimento del variatore  $\eta_{DV}$  per il rendimento del riduttore  $\eta_{DR}$  ad esso collegato.

**NOTE:**

On motovariators, total efficiency  $\eta_D$  results from the variator efficiency  $\eta_{DV}$  multiplied by the efficiency  $\eta_{DR}$  of the gearbox connected to it.

**MERKE:**

Bei einem Verstellgetriebemotor wird der gesamte Wirkungsgrad  $\eta_D$  vom Wirkungsgradprodukt des Drehzahlwandlers  $\eta_{DV}$  für den Wirkungsgrad des mit diesen verbundenen Getriebes  $\eta_{DR}$  gegeben.

**N.B.**

Dans un motovariateur, le rendement total  $\eta_D$  est donné par le produit du rendement du variateur  $\eta_{DV}$  multiplié par le rendement du réducteur  $\eta_{DR}$  y relié.

$$\eta_D = \eta_{DV} \cdot \eta_{DR}$$

(15)

Nei riduttori ad ingranaggi il rendimento dipende dal numero di stadi mentre la velocità ha scarsa influenza.

Al contrario, nei vite senza fine è necessario considerare una notevole variabilità dei valori del rendimento  $\eta_{DR}$  in base al rapporto di riduzione  $i$  ed alla velocità in entrata  $n_1$  ( $n_1'$ ) come illustrato nella tabella (B12).

The efficiency of gearboxes is normally determined by the number of stages, while it is hardly affected by speed. Conversely, on worm gearboxes the efficiency  $\eta_{DR}$  varies notably depending on reduction ratio  $i$  and input speed  $n_1$  ( $n_1'$ ) as shown in table (B12).

Bei den Zahnradgetrieben hängt der Wirkungsgrad von der Anzahl der Stufen ab, während die Drehzahl hier nur geringen Einfluß hat. Im Gegensatz dazu, ist es bei den Schneckengetrieben erforderlich, eine erhebliche Schwankung der Wirkungsgradwerte  $\eta_{DR}$  in Bezug auf das Untersetzungs- verhältnis  $i$  und der Antriebsdrehzahl  $n_1$  ( $n_1'$ ), wie in der Tabelle (B12) dargestellt, zu berücksichtigen.

Dans les réducteurs à engrenages le rendement dépend du nombre d'étages, la vitesse par contre a peu d'incidence. Au contraire, dans les modèles à vis sans fin il est nécessaire de considérer une remarquable variabilité des valeurs de rendement  $\eta_{DR}$  sur la base du rapport de réduction  $i$  et de la vitesse en entrée  $n_1$  ( $n_1'$ ), comme indiqué au tableau (B12).

c) Ricericare fra le tabelle dei dati tecnici motovariatori quella corrispondente ad una potenza

c) Consult the selection charts and find the table corresponding to power

c) Unter den Tabellen mit den Technischen Daten der Verstellgetriebemotoren die Tabelle auswählen, die folgender Leistung entspricht:

c) Rechercher parmi les tableaux des caractéristiques techniques des motovariateurs celui correspondant à une puissance

$$P_1 \geq P_{r1}$$

(16)

Se non diversamente indicato, la potenza  $P_n$  dei motori riportata a catalogo si riferisce al servizio continuo S1.

Per i motori utilizzati in condizioni diverse da S1, sarà necessario identificare il tipo servizio previsto con riferimento alle Norme CEI 2-3/IEC 34-1.

In particolare, per i servizi da S2 a S8 e per le grandezze motore uguali o inferiori a 132, è possibile ottenere una maggiorazione della potenza rispetto a quella prevista per il servizio continuo, pertanto la condizione da soddisfare sarà:

Unless otherwise specified, power  $P_n$  of motors indicated in the catalogue refers to continuous duty S1.

For motors used in conditions other than S1, the type of duty required by reference to CEI 2-3/IEC 34-1 Standards must be mentioned.

For duties from S2 to S8 in particular and for motor frame 132 or smaller, extra power can be obtained with respect to continuous duty power, consequently the following condition must be satisfied:

Wenn nicht anders angegeben, bezieht sich die im Katalog angegebene Leistung  $P_n$  der Motoren auf Dauerbetrieb S1. Bei Motoren, die unter anderen Bedingungen als S1 eingesetzt werden, muß die vorgesehene Betriebsart unter Bezug auf die CEI-Normen 2-3/IEC 34-1 bestimmt werden.

Insbesondere kann man für die Betriebsarten S2 bis S8 (und für Motorbaugrößen gleich oder niedriger als 132) eine Überdimensionierung der Leistung relativ zu der für den Dauerbetrieb vorgesehenen Leistung erhalten; die zu erfüllende Bedingung ist dann:

Sauf indication contraire la puissance  $P_n$  des moteurs indiquée dans le catalogue se réfère à un service continu S1.

Pour les moteurs utilisés dans des conditions différentes du service S1, il sera nécessaire d'identifier le type de service prévu en se référant aux normes CEI 2-3/IEC 34-1.

En particulier, pour les services de type S2 à S8 ou pour les tailles de moteurs égales ou supérieures à 132 il est possible d'obtenir une majoration de la puissance par rapport à celle prévue pour le service continu. Par conséquent, la condition à satisfaire sera :

$$P_1 \geq \frac{P_{r1}}{f_m}$$

(17)



Il fattore di maggiorazione  $f_m$  è ricavabile dalla tabella (B13).

The adjusting factor  $f_m$  can be obtained from table (B13).

Der Überdimensionierungsfaktor  $f_m$  kann der Tabelle (B13) entnommen werden.

Le facteur de majoration  $f_m$  peut être obtenu en consultant le tableau (B13).

(B13)

|       | SERVIZIO / DUTY / BETRIEB / SERVICE                                           |      |      |                                                                                                                 |      |     |
|-------|-------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------------------------------------|------|-----|
|       | S2                                                                            |      |      | S3*                                                                                                             |      |     |
|       | Durata del ciclo / Cycle duration [min]<br>Zyklusdauer / Durée du cycle [min] |      |      | Rapporto di intermittenza / Cyclic duration factor (I)<br>Relative Einschaltdauer / Rapport d'intermittence (I) |      |     |
|       | 10                                                                            | 30   | 60   | 25%                                                                                                             | 40%  | 60% |
| $f_m$ | 1.35                                                                          | 1.15 | 1.05 | 1.25                                                                                                            | 1.15 | 1.1 |

\* La durata del ciclo dovrà comunque essere uguale o inferiore a 10 minuti; se superiore interpellare il nostro Servizio Tecnico.

\* Cycle duration, in any event, must be 10 minutes or less. If it is longer, please contact our Technical Service.

\* Die Zyklusdauer muß in jedem Fall kleiner oder gleich 10 min sein; wenn sie darüber liegt, unseren Technischen Kundendienst zu Rate ziehen.

\* La durée du cycle devra être égale ou inférieure à 10 minutes. Si supérieure, contacter notre Service Technique.

Rapporto di intermittenza

Cyclic duration factor

Relative Einschaltdauer

Rapport d'intermittence

$$I = \frac{t}{t_f + t_r} \cdot 100$$

(18)

$t_f$  = tempo di funzionamento a carico costante  
 $t_r$  = tempo di riposo

$t_f$  = operating time at constant load  
 $t_r$  = rest time

$t_f$  = Betriebszeit mit konstanter Belastung  
 $t_r$  = Aussetzzeit

$t_f$  = temps de fonctionnement à charge constante  
 $t_r$  = temps de repos

Scegliere poi, in base alla velocità di uscita  $n_2$  ( $n_2'$ ), il motovariariduttore con un fattore di sicurezza  $S$  calcolato maggiore o uguale al fattore di servizio  $f_s$ .  
Le tabelle dei dati tecnici dei motovariariduttori si riferiscono a velocità di motori a 2, 4 e 6 poli (50Hz).

Next, according to output speed  $n_2$  ( $n_2'$ ), select a motovariariductor gear unit having a calculated safety factor  $S$  higher than or equal to service factor  $f_s$ .  
The motovariariductor gear units selection charts refer to 2, 4 and 6 pole motors (50Hz).

Dann auf Grundlage der Abtriebsdrehzahl  $n_2$  ( $n_2'$ ) den Verstellgetriebemotor mit einem Sicherheitsfaktor  $S$  wählen, der größer oder gleich dem Betriebsfaktor  $f_s$  ist. Die Tabellen mit den Technischen Daten der Verstellgetriebemotoren beziehen sich auf die Drehzahlen von Motoren mit 2, 4 und 6 Polen (50Hz).

Choisir ensuite, suivant la vitesse en sortie  $n_2$  ( $n_2'$ ), le motovariariducteur avec un facteur de sécurité calculé  $S$  supérieur ou égal au facteur de service  $f_s$ .  
Les tableaux des caractéristiques techniques des motovariariducteurs se réfèrent aux vitesses de moteurs à 2, 4 et 6 pôles (50 Hz).

#### 14.0 - VERIFICHE

Effettuata la corretta selezione delle motorizzazioni, si consiglia di procedere alle seguenti verifiche:

##### a) Potenza termica

Assicurarsi che la potenza termica del riduttore abbia un valore uguale o maggiore alla potenza richiesta dall'applicazione secondo la relazione (3) a pag. 7, in caso contrario selezionare un riduttore di grandezza superiore oppure provvedere ad applicare un sistema di raffreddamento forzato.

##### b) Coppia massima

Generalmente la coppia massima (intesa come punta di carico istantaneo) applicabile al riduttore non deve superare il 200% della coppia nominale  $M_{n2}$ ; verificare pertanto che tale limite non venga superato adottando, se necessario, opportuni dispositivi per la limitazione della coppia.

#### 14.0 - VERIFICATION

After selecting the drive units, it is recommended to check the following:

##### a) Thermal capacity

Check that thermal capacity of the gear unit is equal to or larger than the power requirement calculated for the application, as specified by equation (3) at page 7. If this condition is not respected, select a larger gearbox or apply a forced cooling system.

##### b) Maximum torque

The maximum torque (intended as instantaneous peak load) applicable to the gearbox must not, in general, exceed 200% of rated torque  $M_{n2}$ . Therefore, check that this limit is not exceeded, using suitable torque limiting devices, if necessary.

#### 14.0 - PRÜFUNGEN

Nach Wahl des Getriebemotors folgende Prüfungen ausführen:

##### a) Thermische Grenzleistung

Sicherstellen, daß die Wärme-grenzleistung ist, größer oder gleich der verlangten Leistung ist, die von der Anwendung nach Gleichung (3) auf S. 7 verlangt wird. Andernfalls ein größer dimensioniertes Getriebe wählen bzw. ein Zwangskühlsystem vorsehen.

##### b) Max. Drehmoment

Im allgemeinen darf das max. Drehmoment (verstanden als momentane Lastspitze), das auf das Getriebe aufgebracht werden kann, 200 % des Nenndrehmoments  $M_{n2}$  nicht überschreiten. Sicherstellen, daß dieser Grenzwert nicht überschritten wird, und nötigenfalls die entsprechenden Vorrichtungen zur Begrenzung des Drehmoments vorsehen.

#### 14.0 - VERIFICATIONS

Après avoir effectué une sélection correcte des motorisations, nous conseillons de procéder aux vérifications suivantes :

##### a) Puissance thermique

S'assurer que la puissance thermique du réducteur ait une valeur supérieure ou égale à la puissance requise par l'application selon l'équation (3) page 7. Dans le cas contraire, sélectionner un réducteur de taille supérieure ou bien prévoir un système de refroidissement forcé.

##### b) Couple maximum

Généralement, le couple maximum (à considérer comme une pointe de charge instantanée) applicable au réducteur ne doit pas dépasser les 200% du couple nominal  $M_{n2}$ . Vérifier par conséquent que cette limite ne soit pas dépassée en adoptant, si nécessaire, des dispositifs adaptés pour limiter le couple.



#### c) Carichi radiali

Verificare che i carichi radiali agenti sugli alberi di uscita rientrino nei valori di catalogo ammessi. Se superiori, aumentare la grandezza del riduttore oppure modificare la supportazione del carico. Ricordiamo che tutti i valori indicati nel catalogo si riferiscono a carichi agenti sulla mezzeria della sporgenza dell'albero in esame per cui, in fase di verifica, è indispensabile tenere conto di questa condizione provvedendo, se necessario, a determinare con le apposite formule il carico ammissibile alla distanza  $x$  desiderata. A tale proposito si rimanda ai paragrafi relativi ai carichi radiali.

#### d) Carichi assiali

Anche gli eventuali carichi assiali dovranno essere confrontati con i valori ammissibili riportati nel catalogo. Se si è in presenza di carichi assiali molto elevati o combinati con carichi radiali, si consiglia di interpellare il ns. servizio tecnico.

#### e) Motori elettrici

Se il motore elettrico è montato dall'utente è necessario accertarsi che la flangia e l'albero siano lavorati con tolleranze che corrispondano a una classe di qualità precisa. Per quanto concerne i motori da accoppiare a variatori con differenziale è indispensabile (per prevenire fuoriuscite di lubrificante) che siano dotati di un anello di tenuta sull'albero e che la flangia sia stagna. Prima di effettuare l'installazione verificare che il senso di rotazione del riduttore/variante corrisponda a quello previsto. Per servizi diversi da S1, con un numero rilevante di inserzioni/ora si dovrà tener conto di un fattore  $Z$  (determinabile con le indicazioni riportate nel capitolo dei motori) il quale definisce il numero max. di avviamenti specifico per l'applicazione in oggetto.

#### c) Radial loads

*Check that radial loads applying on output shafts are within permitted catalogue values. If they are higher, use a larger gearbox or modify system bearing arrangement. Remember that all values mentioned in the catalogue refer to loads applying at mid-point of the shaft under consideration. Therefore, when checking, this condition must be borne in mind and, if necessary, determine permitted load at the required  $x$  distance by means of appropriate equations. In this connection, consult the headings on radial loads.*

#### d) Thrust loads

*Thrust loads, if present, must also be compared to the permitted values indicated in the catalogue. In the event of extremely high thrust loads, or a combination of thrust and radial loads, contact our technical service department.*

#### e) Electric motors

*If the electric motor is to be installed by the User, make sure that the machining tolerance of flange and shaft provides sufficient precision. When a motor is to be fitted to a variator with differential unit, it must be equipped with an oil seal on the shaft and equipped with a flange ensuring proper sealing to avoid lubricant leaks. Before installation, check that direction of rotation of reducer/variator is as specified. For duties other than S1 with considerable number of starts per hour, factor  $Z$  must be considered (it is ascertained by using the information in the motors section). Factor  $Z$  defines the maximum number of starts for the application under consideration.*

#### c) Radialkräfte

Sicherstellen, daß die auf die Abtriebswellen wirkenden Radialkräfte innerhalb der zulässigen Katalogwerte liegen. Wenn sie höher sind, das Getriebe größer dimensionieren bzw. die Abstützung der Last verändern. Wir erinnern daran, daß alle im Katalog angegebenen Werte sich auf Kräfte beziehen, die auf die Mitte des Wellenendes wirken. Diese Tatsache muß bei der Prüfung unbedingt berücksichtigt werden und nötigenfalls muß mit Hilfe der geeigneten Formeln die zulässige Kraft beim gewünschten Abstand  $x$  bestimmt werden. Siehe hierzu die Erläuterungen zu den Radialkräften in diesem Katalog.

#### d) Axialkräfte

Auch die eventuell vorhandenen Axialkräfte müssen mit den im Katalog angegebenen zulässigen Werten verglichen werden. Wenn sehr hohe Axialkräfte wirken oder Axialkräfte in Kombination mit Radialkräften, bitte unseren Technischen Kundendienst zu Rate ziehen.

#### e) Elektromotoren

Wird der Elektromotor vom Kunden montiert, muß man sich darüber vergewissern, daß der Flansch und die Welle mit solchen Toleranzen gearbeitet wurden, die einer präzisen Qualitätsklasse angehören. Was die mittels Differential an die Verstellgetriebe zu passenden Motoren anbelangt, müssen diese unbedingt mit einem Dichtring an der Welle ausgestattet sein und der Flansch muß eine entsprechende Dichte gewährleisten (um einen Schmiermittelverlust vorzubeugen). Vor dem Einbau muß geprüft werden, ob die Umdrehungsrichtung des Getriebes/Verstellgetriebes der vorgesehenen entspricht. Bei anderen Betriebsarten als S1 mit einem hohen Wert für die Schaltungen/Stunde muß der Faktor  $Z$  berücksichtigt werden (er kann mit Hilfe der Angaben im Kapitel Motoren bestimmt werden), der die max. zulässige Anzahl von Schalten für eine bestimmte Anwendung definiert.

#### c) Charges radiales

Vérifier que les charges radiales agissant sur les arbres de sortie se situent dans les valeurs de catalogue admises. Si elles sont supérieures, choisir la taille du réducteur supérieure ou modifier la reprise de charge. Rappelons que toutes les valeurs indiquées dans le catalogue se réfèrent à des charges agissant au milieu de la longueur disponible de l'arbre contrôlé. Par conséquent, en phase de vérification, il est indispensable de prendre en considération cette condition en déterminant, si nécessaire, avec les formules appropriées, la charge admissible à la distance  $x$  désirée. Se reporter à ce propos aux paragraphes relatifs aux charges radiales.

#### d) Charges axiales

Les éventuelles charges axiales devront être comparées avec les valeurs admissibles indiquées dans le catalogue. Si l'on est en présence de charges axiales très élevées ou combinées avec des charges radiales, nous conseillons d'interpeller notre service technique.

#### e) Moteur électriques

Si le moteur électrique est monté par l'utilisateur, il est nécessaire de vérifier que la bride et l'arbre soient usinés avec des tolérances correspondant à une classe de qualité précise. En ce qui concerne les moteurs à accoupler aux variateurs avec différentiel, il est indispensable (afin d'éviter les fuites de lubrifiant) qu'ils soient dotés d'une bague d'étanchéité sur l'arbre et que la bride soit étanche. Avant de procéder à l'installation, vérifier que le sens de rotation du réducteur/varianteur correspond au sens prévu. Pour les services différents de S1, avec un nombre important d'insertions/heure, il faudra prendre en considération un facteur  $Z$  (déterminé à l'aide des informations reportées dans le chapitre des moteurs) qui définit le nombre maximum de démarrages spécifique pour l'application concernée.

### 15.0 - INSTALLAZIONE

È molto importante, per l'installazione del riduttore/variante, attenersi alle seguenti norme:

- a) Assicurarsi che il fissaggio del riduttore/variante, sia stabile onde evitare qualsiasi vibrazione. Installare (se si prevedono urti, sovraccarichi prolungati o possibili bloc-

### 15.0 - INSTALLATION

*The following installation instructions for gearboxes/variators must be observed:*

- a) *Make sure that the gearbox/variator is correctly secured to avoid vibrations. If shocks, overloading, or the possibility of locking are expected, install hydraulic cou-*

### 15.0 - INSTALLATION

Für die Installation des Getriebes/Verstellgetriebes ist es äußerst wichtig, daß folgende Normen beachtet werden:

- a) Sicherstellen, daß die Befestigung des Getriebes/Verstellgetriebes stabil ist, damit keine Schwingungen entstehen. Wenn es voraussichtlich zu Stößen, länger-

### 15.0 - INSTALLATION

Il est très important, pour l'installation du réducteur/varianteur, de se conformer aux règles suivantes :

- a) S'assurer que la fixation du réducteur/varianteur soit stable afin d'éviter toute vibration. Installer (en cas de chocs, de surcharges prolongées ou de blocages) des



caggi) giunti idraulici, frizioni, limitatori di coppia, ecc..

plings, clutches, torque limiters, etc.

dauernden Überlasten oder zu Blockierungen kommen kann, sind entsprechende Schutzelemente wie hydraulische Kupplungen, Kupplungen, Rutschkupplungen usw. zu installieren.

coupleurs hydrauliques, des embrayages, des limiteurs de couple etc...

- b) Durante la verniciatura si dovranno proteggere i piani lavorati e il bordo esterno degli anelli di tenuta per evitare che la vernice ne essichi la gomma, pregiudicando la tenuta del paraolio stesso.
- b) *Before paint coating the unit, the machined surfaces and the outside face of the oilseals must be masked to prevent paint drying out the rubber and jeopardising the sealing function.*
- b) Beim Lackieren die bearbeiteten Flächen und die Dichtungen schützen, damit der Anstrichstoff nicht dem Kunststoff angreift und somit die Dichtigkeit der Ölabdichtungen in Frage gestellt wird.
- b) *En phase de peinture, il faudra protéger les plans usinés et le bord extérieur des bagues d'étanchéité pour éviter que la peinture ne dessèche le caoutchouc, ce qui risque de nuire à l'efficacité du joint.*
- c) Gli organi che vanno calettati sugli alberi di uscita del riduttore devono essere lavorati con tolleranza ISO H7 per evitare accoppiamenti troppo bloccati che, in fase di montaggio potrebbero danneggiare irreparabilmente il riduttore stesso. Inoltre, per il montaggio e lo smontaggio di tali organi si consiglia l'uso di adeguati tiranti ed estrattori utilizzando il foro filettato posto in testa alle estremità degli alberi.
- c) *Parts assembled on the gearbox output shafts must be machined to ISO H7 tolerance to prevent interference fits that could damage the gearbox itself. Further, to mount or demount such parts, employ suitable pullers or extraction devices using the tapped hole located at the top of the shaft extension.*
- c) Die Organe, die mit einer Keilverbindung auf der Abtriebswelle des Getriebes befestigt werden, müssen mit einer Toleranz ISO H7 gearbeitet sein, um allzu fest blockierte Verbindungen zu vermeiden, die eventuell zu einer irreparablen Beschädigung des Getriebes während des Einbaus führen könnten. Außerdem sind beim Ein- und Ausbau dieser Organe geeignete Zugschrauben und Abzieher zu verwenden, wobei die Gewindebohrung an den Köpfen der Wellen zu verwenden ist.
- c) *Les organes qui sont calés sur les arbres de sortie du réducteur doivent être réalisés avec une tolérance ISO H7 pour éviter les accouplements trop serrés qui, en phase de montage, pourraient endommager irréremédiablement le réducteur. En outre, pour le montage et le démontage de ces organes, nous conseillons d'utiliser un outillage et des extracteurs appropriés en utilisant le trou taraudé situé en extrémité d'arbre.*
- d) Le superfici di contatto dovranno essere pulite e trattate con adeguati protettivi prima del montaggio, onde evitare l'ossidazione e il conseguente bloccaggio delle parti.
- d) *Mating surfaces must be cleaned and treated with suitable protective products before assembling to avoid oxidation and, as a result, seizure of parts.*
- d) Die Berührungsflächen müssen sauber sein und vor der Montage mit einem geeigneten Schutzmittel behandelt werden, um Oxidierung und die daraus folgende Blockierung der Teile zu verhindern.
- d) *Les surfaces de contact devront être propres et traitées avec des produits de protections appropriés avant le montage afin d'éviter l'oxydation et par suite le blocage des pièces.*
- e) L'accoppiamento all'albero di uscita cavo del riduttore (tolleranza G7/H7) viene normalmente eseguito con perni lavorati con tolleranza h6. Dove il tipo di applicazione lo richieda, si può prevedere un accoppiamento con una leggera interferenza (G7/H7 - j6).
- e) *Coupling to the gearbox output hollow shaft (tolerance G7) is usually effected with shafts machined to h6 tolerance. If the type of application requires it, coupling with a slight interference fit (G7 - j6) is possible.*
- e) Die Verbindung mit der Abtriebshohlwelle des Getriebes (Toleranz G7) wird normalerweise mit Zapfen mit Toleranz h6 hergestellt. Wo die Anwendungsart dies verlangt, kann man die Verbindung mit einem leichten Übermaß ausführen (G7 - j6).
- e) *L' accouplement à l'arbre de sortie creux du réducteur (tolérance G7) est habituellement réalisé avec des arbres exécutés à la tolérance h6. Lorsque le type d'application le demande, on peut prévoir un accouplement avec une légère interférence (G7 - j6).*
- f) Prima della messa in funzione della macchina, accertarsi che la posizione del livello del lubrificante sia conforme alla posizione di montaggio del riduttore e che la viscosità sia adeguata al tipo del carico (vedi tabella B9).
- f) *Before starting up the machine, make sure that oil level conforms to the gear unit mounting position, and that viscosity is suitable for the load involved (see table B9).*
- f) Vor Inbetriebnahme der Maschine sicherstellen, daß die Anordnung der Füllstandschraube der Einbaulage angemessen ist, und die Viskosität des Schmiermittels der Belastungsart entspricht (siehe Tabelle B9).
- f) *Avant la mise en marche de la machine, s'assurer que la position du niveau du lubrifiant soit conforme à la position de montage du réducteur et que la viscosité soit appropriée au type de charge (voir tableau B9).*

## 16.0 - STOCCAGGIO

Il corretto stoccaggio dei prodotti ricevuti richiede l'esecuzione delle seguenti attività:

- a) Escludere aree all'aperto, zone esposte alle intemperie o con eccessiva umidità.
- b) Interporre sempre tra il pavimento ed i prodotti, pianali lignei o di altra natura, atti ad impedire il diretto contatto col suolo.
- c) Per periodi di stoccaggio superiori ai 60 giorni, le superfici interessate agli accoppiamenti quali flange, alberi e giunti, devono essere protette con

## 16.0 - STORAGE

Observe the following instructions to ensure correct storage of delivered products:

- a) *Do not store outdoors, in areas exposed to weather or with excessive humidity.*
- b) *Always place boards in wood or other material between floor and products, to avoid direct contact with the floor.*
- c) *For storage periods of over 60 days, all machined surfaces such as flanges, shafts and couplings must be protected with a suitable an-*

## 16.0 - LAGERUNG

Die korrekte Lagerung der Antriebe erfordert folgende Vorkehrungen:

- a) Die Produkte nicht im Freien lagern und nicht in Räumen, die der Witterung ausgesetzt sind, oder eine hohe Feuchtigkeit aufweisen.
- b) Die Produkte nie direkt auf dem Boden, sondern auf Unterlagen aus Holz oder einem anderen Material lagern.
- c) Bei Lagerzeiten von mehr als 60 Tagen die Oberflächen für die Verbindung, wie Flansche, Wellen oder Kupplungen mit einem geeigneten

## 16.0 - STOCKAGE

Un correct stockage des produits reçus nécessite de respecter les règles suivantes :

- a) *Exclude les zones à ciel ouvert, les zones exposées aux intempéries ou avec humidité excessive.*
- b) *Interposer dans tous les cas entre le plancher et les produits des planches de bois ou des supports d'autre nature empêchant le contact direct avec le sol.*
- c) *Pour les périodes de stockage supérieures à 60 jours, les surfaces concernées par les liaisons telles que les brides, les arbres et les accou-*



idoneo prodotto antiossidante (Mobilarma 248 od equivalente).

*ti-oxidation product (Mobilarma 248 or equivalent product).*

Oxidations- schutzmittel behandeln (Mobilarma 248 oder ein äquivalentes Mittel).

*plements doivent être protégés avec un produit antioxydant spécial (Mobilarma 248 ou équivalent).*

- d) Per periodi di stoccaggio previsti superiori ai 6 mesi, i prodotti devono essere oggetto delle seguenti attività:
- d1)  
I prodotti forniti con lubrificazione permanente dovranno avere le parti lavorate esterne e quelle di accoppiamento ricoperte di grasso atto ad evitare ossidazioni.
- d2)  
I prodotti forniti privi di lubrificante, oltre alle attività descritte al punto d1), dovranno essere posizionati con il tappo di sfiato nella posizione più alta e riempiti di olio. I riduttori, prima del loro utilizzo, dovranno essere riempiti con la corretta quantità e tipo di lubrificante previsto.
- d) *The following measures must be taken in respect of products for which the expected storage period exceeds 6 months:*
- d1)  
*For life lubricated products, the external machined parts must be greased to prevent oxidation.*
- d2)  
*In addition to the measures at point d1), products supplied without oil must be positioned with the breather plug high up, and be filled with oil. Before using the gearboxes, restore the correct quantity of recommended oil.*
- d) Bei Lagerzeiten von mehr als 6 Monaten müssen folgende Vorkehrungen getroffen werden:
- d1)  
Bei den Produkten mit Dauerschmierung müssen die maschinell bearbeiteten Außenseiten und die Verbindungsflächen mit Fett vor Oxidation geschützt werden.
- d2)  
Die Produkte ohne Schmiermittel müssen wie unter Punkt d1) behandelt werden und außerdem mit nach oben gerichteter Entlüftungsschraube gelagert und mit Öl gefüllt werden. Die Getriebe müssen vor ihrer Verwendung mit der angegebenen Menge des vorgesehenen Schmiermittels gefüllt werden.
- d) *Pour les périodes de stockage prévues supérieures à 6 mois, les produits doivent être objet des contrôles suivants :*
- d1)  
*les produits fournis avec lubrification permanente devront avoir les parties externes usinées ainsi que celles de liaison recouvertes de graisse pour éviter les oxydations.*
- d2)  
*les produits fournis sans lubrifiant, outre les opérations décrites au point d1), devront être positionnés avec le bouchon d'évent dans la position la plus haute et remplis d'huile. Les réducteurs, avant d'être utilisés, devront être remplis avec la juste quantité et type de lubrifiant prévu.*

#### 17.0 - CONDIZIONI DI FORNITURA

I riduttori e i variatori vengono forniti come segue:

- a) già predisposti per essere installati nella posizione di montaggio come definito in fase di ordine;
- b) collaudati secondo specifiche interne;
- c) appositamente imballati;
- d) le superfici di accoppiamento non sono verniciate;
- e) provvisti di dadi e bulloni per montaggio motori per la versione IEC(dove previsto);
- f) tutti i riduttori/variatori sono forniti con protezioni in plastica sugli alberi;
- g) già provvisti di lubrificante (dove previsto);
- h) già verniciati (dove previsto);
- i) già provvisti di golfare di sollevamento (dove previsto).

#### 17.0 - SUPPLY CONDITIONS

*Units are supplied as follows:*

- a) *ready for installation in the mounting position specified when ordering;*
- b) *tested to manufacturer specifications;*
- c) *appropriately packed;*
- d) *mating machined surfaces are not paint coated;*
- e) *IEC-flanged units are supplied complete with bolts for fastening the motor;*
- f) *all gearboxes/variators are supplied with plastic protection on shafts;*
- g) *oil filled (if applicable);*
- h) *paint coated (where applicable);*
- i) *fitted with lifting hook (if applicable).*

#### 17.0 - LIEFERBEDINGUNGEN

Die Getriebe und Verstellgetriebe werden in folgendem Zustand geliefert:

- a) schon bereit für die Montage in der bei Bestellung festgelegten Einbaulage;
- b) nach werksinternen Spezifikationen geprüft;
- c) ordnungsgemäss verpackt;
- d) die Verbindungsflächen sind nicht lackiert;
- e) ausgestattet mit Schrauben und Muttern für die Montage der Motoren (Version mit Adapter für IEC-Motoren, falls vorgesehen);
- f) alle Getriebe/Verstellgetriebe werden mit Kunststoffschutz auf den Wellen geliefert;
- g) Schmiermittel (falls vorgesehen) bereits vorhanden;
- h) bereits lackiert (falls vorgesehen);
- i) mit Transportierring zum Anheben (falls vorgesehen).

#### 17.0 - CONDITIONS DE LIVRAISON

*Les réducteurs et les variateurs sont livrés comme suit :*

- a) *déjà prédisposés pour être installés dans la position de montage comme défini en phase de commande ;*
- b) *testés selon les spécifications internes ;*
- c) *emballés comme il se doit ;*
- d) *les surfaces de liaison ne sont pas peintes ;*
- e) *équipés d'écrous et de boulons pour le montage des moteurs normalisés pour la version CEI ;*
- f) *tous les réducteurs/variateurs sont fournis avec des embouts de protections en plastique sur les arbres ;*
- g) *déjà dotés de lubrifiant (quand cela est prévu) ;*
- h) *déjà peints (quand cela est prévu) ;*
- i) *déjà dotés d'un crochet de levage (quand cela est prévu).*

#### 18.0 - SPECIFICHE DELLA VERNICE

Le specifiche della vernice applicata sui riduttori e variatori (dove previsto) potranno essere richieste alle filiali o ai distributori che hanno fornito i gruppi.

#### 18.0 - PAINT SPECIFICATIONS

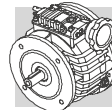
*Paint specifications for paint applied to gearboxes and variators (where appropriate) may be requested from the branches or dealers that supplied the units.*

#### 18.0 - ANGABEN ZU DEN ANSTRICHSTOFFE

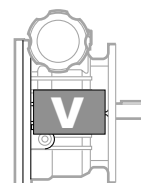
Die Spezifikationen des Lackes, der auf den Getriebe und Verstellgetriebe (wo erforderlich) verwendet wurde, können bei den Filialen oder Verkaufsstellen, die die Gruppen geliefert haben, angefordert werden.

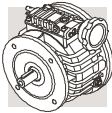
#### 18.0 - SPECIFICATIONS DE LA PEINTURE

*Les spécification de la peinture appliquée sur les réducteurs et les variateurs pourront, le cas échéant, être demandées aux filiales ou aux distributeurs ayant fourni les groupes.*



**19.0 - MOTOVARIATORI**  
***MOTOVARIATOR***  
**VERSTELLGETRIEBEMOTOREN**  
***MOTOVARIEURS***





## 19.1 - Caratteristiche costruttive

## 19.1 - Design characteristics

## 19.1 - Baumerkmale

## 19.1 - Caracteristiques de construction

| V 0.25                                                                                                                                                                                                                                                                                                                                                         | V 0.5                                                                                                                                                                                                                                                                                                                                                                                        | V 1                                                                                                                                                                                                                                                                                                                                                                                                   | V 2                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Casse in ghisa ad alta resistenza (Alluminio per V 0.25)</li> <li>• Campo di variazione 1:5.5</li> <li>• Campo di variazione con differenziale <math>\infty</math></li> <li>• Ingombri contenuti</li> <li>• Affidabilità</li> <li>• Lunga durata</li> <li>• Assenza di manutenzione</li> <li>• Economicità</li> </ul> | <ul style="list-style-type: none"> <li>• <i>High-resistance cast-iron cases (Aluminium for V 0.25)</i></li> <li>• <i>Speed range 1:5.5</i></li> <li>• <i>Variation range differential <math>\infty</math></i></li> <li>• <i>Compactness</i></li> <li>• <i>Reliability</i></li> <li>• <i>Extended life</i></li> <li>• <i>Maintenance-free</i></li> <li>• <i>Cost effectiveness</i></li> </ul> | <ul style="list-style-type: none"> <li>• Gehäuse aus hochwiderstandsfähigem Gußeisen (Aluminiumgehäuse für V 0.25)</li> <li>• Verstellbereich 1:5,5</li> <li>• Bei einer Ausführung mit Differential: Verstellbereich <math>\infty</math></li> <li>• kleine Abmasse</li> <li>• hohe Zuverlässigkeit</li> <li>• lange Lebensdauer</li> <li>• Wartungsfreiheit</li> <li>• Wirtschaftlichkeit</li> </ul> | <ul style="list-style-type: none"> <li>• <i>Carter en fonte à résistance élevée (Aluminium pour V 0.25)</i></li> <li>• <i>Plage de variation 1:5.5</i></li> <li>• <i>Plage de variation avec différentiel <math>\infty</math></i></li> <li>• <i>Encombrements limités</i></li> <li>• <i>Fiabilité</i></li> <li>• <i>Longévité</i></li> <li>• <i>Absence d'entretien Economie</i></li> </ul> |

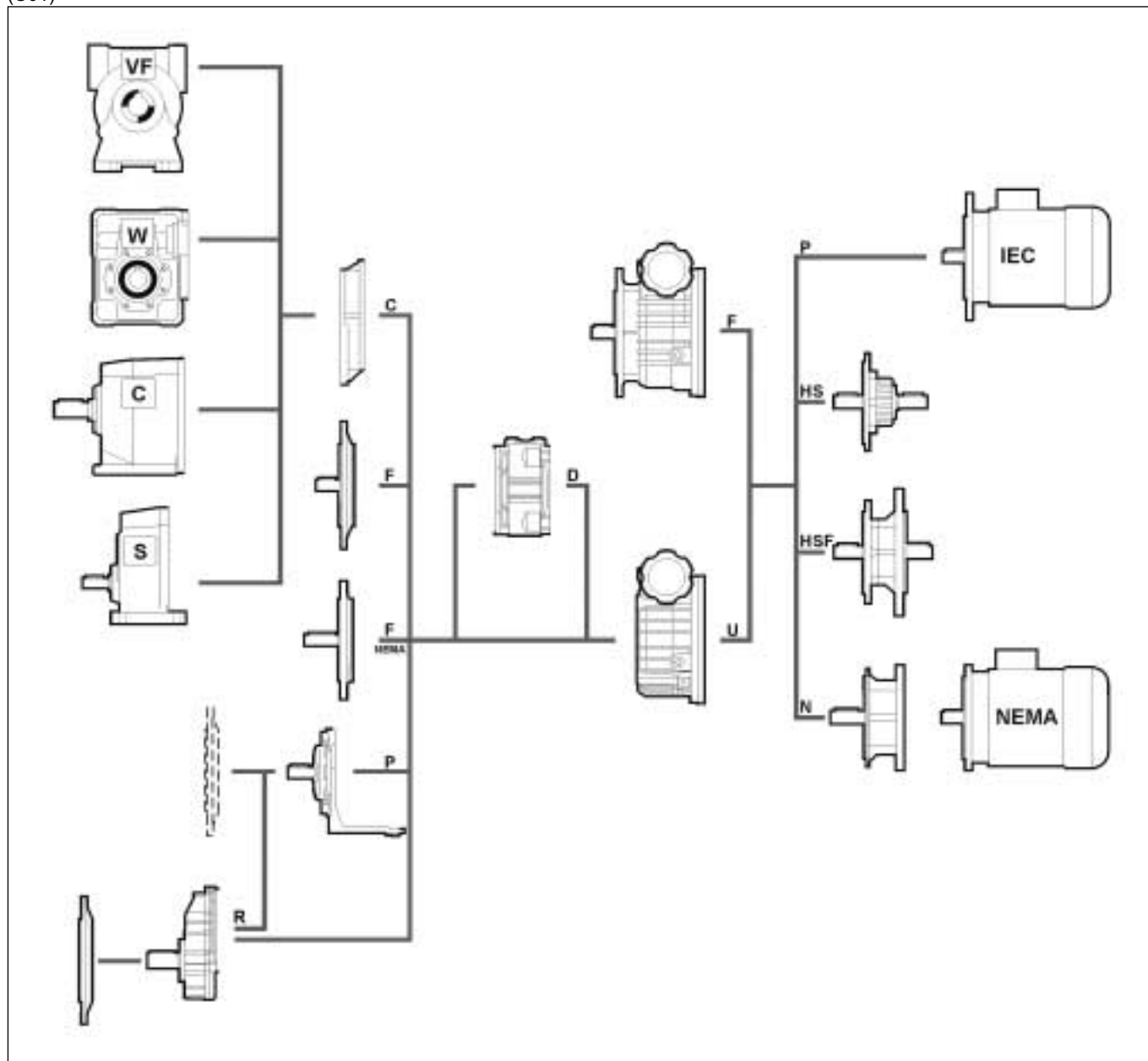
I modelli V 0.25...V 2 sono disponibili in varie forme costruttive e possono essere abbinati direttamente ai riduttori della BONFIGLIOLI RIDUTTORI come raffigurato nella tabella (C01).

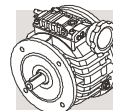
V 0.25...V 2 models are available in different configurations all matching with the gear units of BONFIGLIOLI RIDUTTORI. See chart (C01).

Die Verstellgetriebe der Serie V 0.25...V 2 sind in unterschiedlichen Bauformen erhältlich und können mit verschiedenen anderen Getriebenserien kombiniert werden; siehe dazu Tabelle (C01).

Tous les variateurs de la série V 0.25...V 2 peuvent être accouplés aux réducteurs de BONFIGLIOLI RIDUTTORI ainsi qu'il est illustré au tableau (C01).

(C01)





### V 3

### V 5.5

### V 10

Casse in ghisa ad alta resistenza

- Campo di variazione 1:5.5
- Campo di variazione con differenziale  $\infty$
- Ingombri contenuti
- Affidabilità
- Lunga durata
- Assenza di manutenzione
- Economicità

*High-resistance cast-iron cases*

- *Speed range 1:5.5*
- *Variation range defferential  $\infty$*
- *Compactness*
- *Reliability*
- *Extended life*
- *Maintenance-free*
- *Cost effectiveness*

Gehäuse aus hochwiderstandsfähigem Gußeisen

- Verstellbereich 1:5,5
- Bei einer Ausführung mit Differential: Verstellbereich  $\infty$
- kleine Abmasse
- hohe Zuverlässigkeit
- lange Lebensdauer
- Wartungsfreiheit
- Wirtschaftlichkeit

*Carter en fonte à résistance élevée*

- *Plage de variation 1:5.5*
- *Plage de variation avec différentiel  $\infty$*
- *Encombrements limités*
- *Fiabilité*
- *Longévité*
- *Absence d'entretien*
- *Economie*

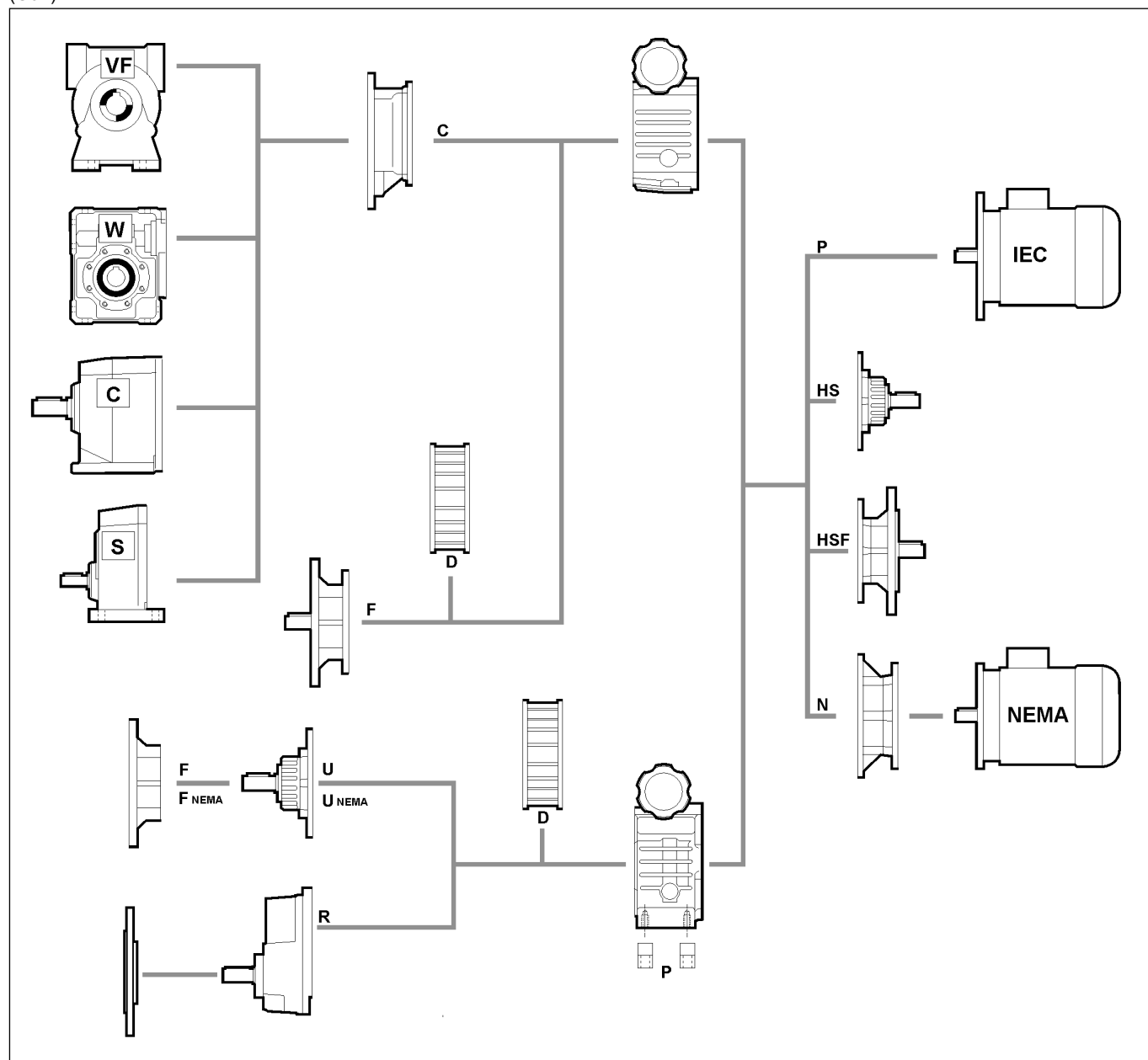
I modelli V 3...V 10 sono disponibili in varie forme costruttive e possono essere abbinati direttamente ai riduttori della BONFIGLIOLI RIDUTTORI come raffigurato nella tabella (C02).

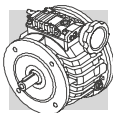
*V 3...V 10 models are available in different configurations all matching with the gear units of BONFIGLIOLI RIDUTTORI. See chart (C02).*

Die Verstellgetriebe der Serie V 3...V 10 sind in unterschiedlichen Bauformen erhältlich und können mit verschiedenen anderen Getriebenserien kombiniert werden; siehe dazu Tabelle (C02).

*Tous les variateurs de la série V 3...V 10 peuvent être accouplés aux réducteurs de BONFIGLIOLI RIDUTTORI ainsi qu'il est illustré au tableau (C02).*

(C02)





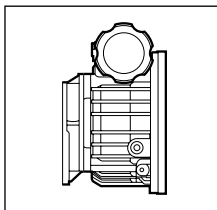
## 19.2 - Forme costruttive

## 19.2 - Versions

## 19.2 - Bauformen

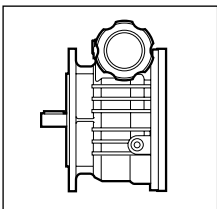
## 19.2 - Formes de construction

## V\_

**C**

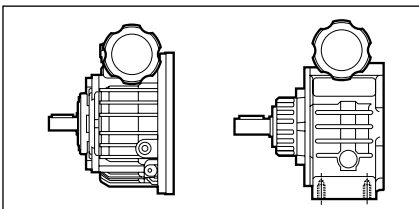
V 0.25...V 10

La forma costruttiva C è prevista esclusivamente per il collegamento diretto ai riduttori serie S, C, VF, W.  
*Version C is only available for direct connection to gearboxes of the series S, C, VF and W.*  
 Die Bauform C ist dabei ausschließlich für den direkten Anschluß an die Getriebe S, C, VF, W vorgesehen.  
 La forme de construction C est uniquement prévue pour l'accouplement direct aux réducteurs S, C, VF, W.

**F**

V 0.25...V 10

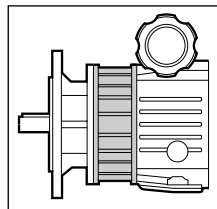
Con flangia integrale  
*Flange mount*  
 Mit Flansch  
 Avec bride

**U**

V 0.25...V 2 (\*)

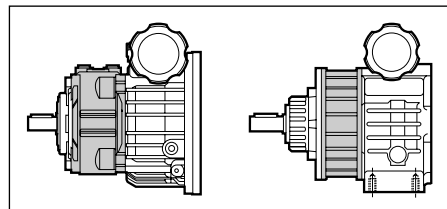
V 3...V 10

Con albero sporgente  
*Solid output shaft*  
 Mit freier Welle im Ausgang  
 Avec arbre sortant

**F**

VD 3...VD 10

Differenziale e flangia  
*Differential + mounting flange*  
 Differential und Flansch  
 Différentiel et bride

**U**

VD 0.5...VD 2(\*)

VD 3...VD 10

Differenziale e albero sporgente  
*Differential + solid output shaft*  
 Differential und freier Welle  
 Différentiel et arbre sortant

(\*) La forma costruttiva U, per i variatori V 0.25...V 2, deve essere obbligatoriamente completata con uno dei fissaggi sotto indicati (F, P, ecc.).

(\*) For models V 0.25...V 2 the U version **MUST** mandatorily be completed with one of the fittings listed here under (F, P, etc.).

(\*) Die Bauform U, für die Verstellgetriebe V 0.25...V 2, muß verbindlich mit einer von den u.g. Befestigungen (F, P, usw) ergänzt werden.

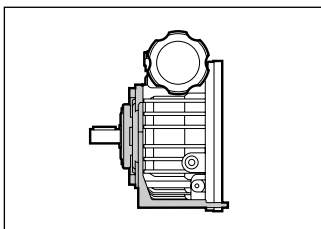
(\*) La forme constructive U, pour les variateurs V 0.25... V 2, doit obligatoirement être complétée avec un des fixages sous indiqués (F, P, etc.).

## Tipo di fissaggio per versione U

## Fittings for U version

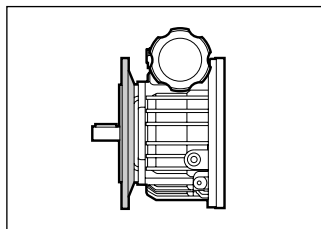
## Montagemöglichkeit für die Bauform U

## Type de fixation pour la forme de construction U

**P**

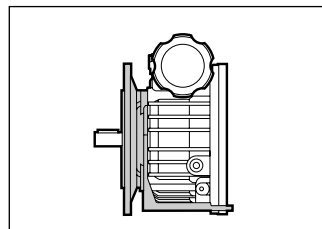
V 0.25...V 10

Con piedi riportati  
*With bolt-on feet*  
 Mit Füßen  
 Avec adjonction de pieds

**F (IEC)**

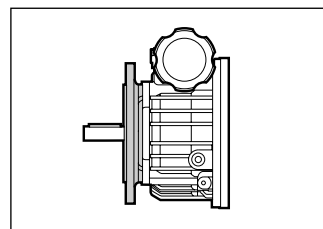
V 0.25...V 10

Con flangia riportata  
*With bolt-on flange*  
 Mit Flansch  
 Avec adjonction d'une bride

**PF (IEC)**

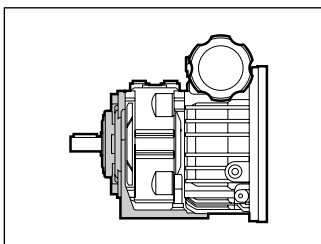
V 0.25...V 2

Con flangia e piedi riportati  
*With bolt-on flange and feet*  
 Mit Flansch und Füßen  
 Avec adjonction d'une bride et de pieds

**F NEMA**

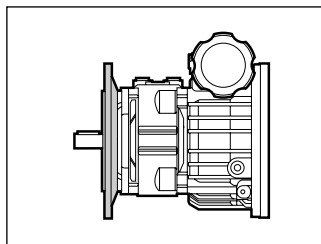
V 0.25...V 10

Con flangia riportata NEMA  
*With bolt-on Nema flange*  
 Mit NEMA Flansch  
 Avec adjonction d'une bride NEMA

**P**

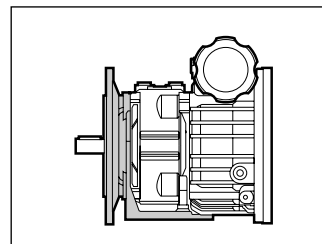
VD 0.5...VD 10

Esecuzione con differenziale e piedi riportati  
*With bolt-on feet and differential*  
 Ausführung mit Differential und Füßen  
 Réalisation avec différentiel et adjonction de pieds

**F (IEC)**

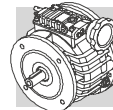
VD 0.5...VD 10

Esecuzione con differenziale e flangia riportata  
*With bolt-on flange and differential*  
 Ausführung mit Differential und Flansch  
 Réalisation avec différentiel et adjonction d'une bride

**PF (IEC)**

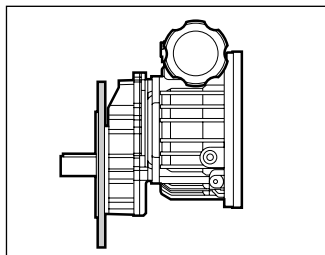
VD 0.5...VD 10

Esecuzione con differenziale, flangia e piedi riportati  
*With bolt-on flange, feet and differential*  
 Ausführung mit Differential und Flansch und Füßen  
 Réalisation avec différentiel et adjonction d'une bride et de pieds



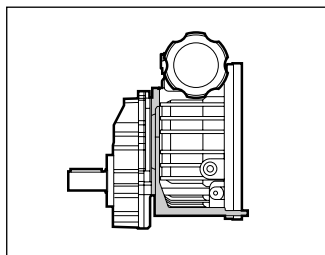
## VR\_

### VR\_B3B...



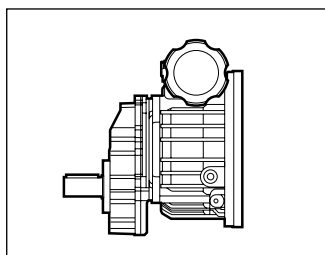
#### **F** VR 0.25...VR 10

Con flangia  
*Flanged*  
Mit Flansch  
*Avec bride*



#### **P** VR 0.25...VR 10

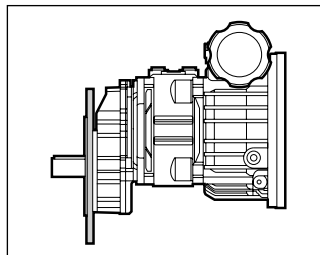
Con piedi  
*Footed*  
Mit Füßen  
*Avec pieds*



#### **U** VR 0.25...VR 2

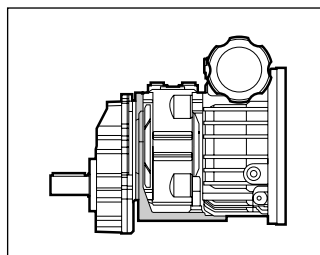
Con cassa universale  
*Universal mount*  
Mit Universalgehäuse  
*Avec carter universel*

### VRD\_B3B...



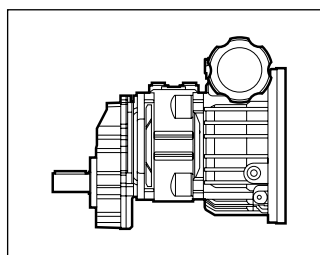
#### **F** VRD 0.5...VRD 10

Con differenziale e flangia  
*Flanged unit with differential*  
Mit Differential und Flansch  
*Avec différentiel et bride*



#### **P** VRD 0.5...VRD 10

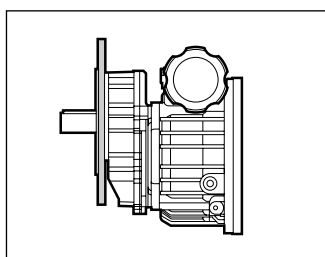
Esecuzione con differenziale e piedi  
*Footed unit with differential*  
Ausführung mit Differential und Füßen  
*Réalisation avec différentiel et pieds*



#### **U** VRD 0.5...VRD 2

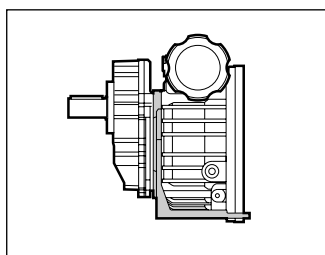
Con differenziale e cassa universale  
*Universal mount with differential*  
Mit Differential und Universalgehäuse  
*Avec différentiel et carter universel*

### VR\_B3A...



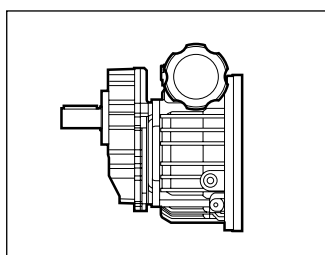
#### **F** VR 0.25...VR 10

Con flangia  
*Flanged*  
Mit Flansch  
*Avec bride*



#### **P** VR 0.25...VR 10

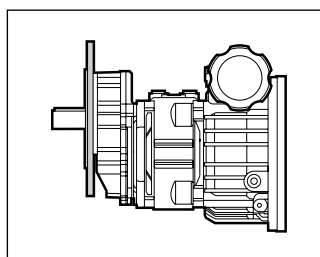
Con piedi  
*Footed*  
Mit Füßen  
*Avec pieds*



#### **U** VR 0.25...VR 2

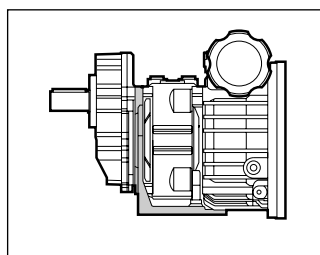
Con cassa universale  
*Universal mount*  
Mit Universalgehäuse  
*Avec carter universel*

### VRD\_B3A...



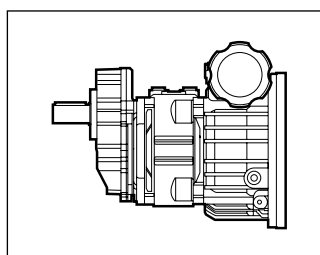
#### **F** VRD 0.5...VRD 10

Con differenziale e flangia  
*Flanged unit with differential*  
Mit Differential und Flansch  
*Avec différentiel et bride*



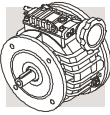
#### **P** VRD 0.5...VRD 10

Esecuzione con differenziale e piedi  
*Footed unit with differential*  
Ausführung mit Differential und Füßen  
*Réalisation avec différentiel et pieds*



#### **U** VRD 0.5...VRD 2

Con differenziale e cassa universale  
*Universal mount with differential*  
Mit Differential und Universalgehäuse  
*Avec différentiel et carter universel*



### 19.3 - Designazione

### 19.3 - Designation

### 19.3 - Bezeichnung

### 19.3 - Désignation

**V D 0.5 U F71 D14 P71 B3 A 1 PDN SCT ....**

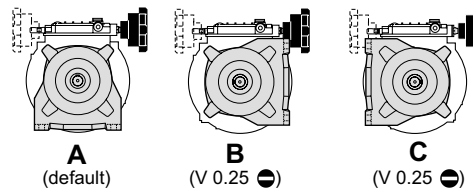
OPZIONI / OPTIONS  
OPTIONEN / OPTIONS

TIPO DI COMANDO / REMOTE CONTROL TYPE  
VERSTELLEINRICHTUNG / TYPE DE COMMANDE  
**A, VG, VA, VAG, SCT (3Æ), TC (1Æ)**

SONDA RILEVATRICE / SPEED SENSOR  
MEßSONDE / SONDE DE DETECTION  
**PDN, PDNA, PDP**

POSIZIONE DISPOSITIVO DI COMANDO / SPEED KNOB POSITION  
EINBAULAGE DER VERSTELLEINRICHTUNG / POSITION COMMANDE  
**1 (default), 2 (V 3...V 10)**

POSIZIONE PIEDI RIPORTATI / BOLT-ON FEET POSITION  
EINBAULAGE DER FÜßEN / POSITION DE MONTAGE DE PIEDS  
(V 0.25...V 2)



POSIZIONE DI MONTAGGIO / MOUNTING POSITION  
MOTOR BAUFORM / FORME DE CONSTRUCTION DU MOTEUR  
**B3 (default), B6, B7, B8, V5, V6**

40

CONFIGURAZIONE INGRESSO / INPUT CONFIGURATION  
BEZEICHNUNG DER ANTRIEBSSEITE / DESIGNATION ENTREE

- P (IEC)** - predisposizione IEC / *Provided with IEC motor adaptor*  
vorbereitet für den Anbau eines IEC-Motors / *prédisposé IEC*
- HS** - albero cilindrico / *solid input shaft* / freier Antriebswelle / *arbre rapide sortant*
- HSF** - albero cilindrico e flangia riportata / *solid input shaft and bolt-on flange*  
freier Antriebswelle und Flansch / *arbre rapide sortant et adjonction de bride*
- N (NEMA)** - predisposizione motore NEMA / *provided with Nema motor adaptor*  
vorbereitet für den Anschluß eines NEMA-Motors / *prédisposé moteur NEMA*

DIAMETRO ALBERO LENTO / OUTPUT SHAFT DIAMETRE  
ABTRIEBSWELLE DURCHMESSER / DIAMETRE ARBRE LENT

**D +** diametro in mm / *diameter in mm* / Durchmesser in mm / *diamètre en mm* (**11,14,...**)

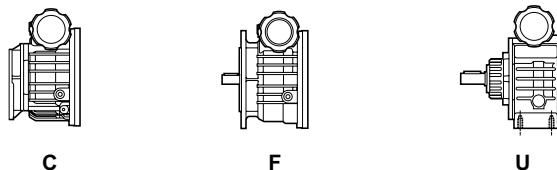
**IMP** albero in pollici / *inch series shaft* / Nema-Welle / *arbre NEMA*

TIPO DI FISSAGGIO (per gruppi tipo U) / OUTPUT CONFIGURATION (only for U version)

MONTAGEMÖGLICHKEIT (ausschließlich für die Bauform U) / TIPE DE FIXATION (pour forme de construction U)

- F (IEC)** - flangia IEC riportata / *bolt-on IEC flange* / Flansch IEC / *adjonction de bride IEC*
- P** - piedi riportati / *bolt-on feet* / Füßen / *adjonction de pieds*
- PF (IEC)** - piedi + flangia IEC riportata / *feet and bolt-on IEC flange*  
Füßen und Flansch IEC / *adjonction de pieds et de bride IEC*
- F (NEMA)** - flangia NEMA / *NEMA flange mounted* / NEMA Flansch / *bride Nema*

FORMA COSTRUTTIVA / VERSION / BAUFORM / VERSION



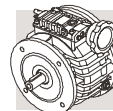
GRANDEZZA VARIATORE / VARIATOR SIZE / BAUGRÖSSE / TAILLE VARIATEUR

**0.25, 0.5, 1, 2, 3, 5.5, 10**

DIFFERENZIALE / DIFFERENTIAL / DIFFERENTIAL / DIFFERENTIEL  
**D**

VARIATORE / VARIATOR TYPE / VERSTELLGETRIEBETYP / TYPE VARIATEUR

**V**



MOTORE / MOTOR  
MOTOR / MOTEUR

FRENO / BRAKE  
BREMSE / FREIN

**BN 71A 4 R 230/400-50 IP54 CLF B5 FD 3.5 R SB 220SA .....**

OPZIONI  
OPTIONS  
OPTIONEN  
OPTIONS

311

ALIMENTAZ. FRENO  
BRAKE SUPPLY  
BREMSVERSORGUN-  
GSSPANNUNG  
ALIMENTATION FREIN

324

TIPO ALIMENTATORE  
RECTIFIER TYPE  
GLEICHRICHTERTYP  
TYPE ALIMENTATEUR  
**NB, NBR, SB, SBR**

LEVA DI SBLOCCO FRENO  
BRAKE HAND RELEASE  
BREMSENTLÜFTUNGSHABEL  
LEVIER DE DEBLOCAGE FREIN  
**R, RM**

COPPIA FRENANTE / BRAKE TORQUE  
BREMSMOMENT / COUPLE FREIN

331  
335  
339

TIPO FRENO / BRAKE TYPE  
BRESENTYP / TYPE DE FREIN

**FD** (freno c.c./d.c. brake / Gleichstrombremse / frein c.c.)  
**FA, BA** (freno c.a./a.c. brake / Wechselstrombremse  
frein c.a.)

FORMA COSTRUTTIVA / MOTOR EXECUTION  
BAUFORM / FORME DE CONSTRUCTION  
**B5**

CLASSE ISOLAMENTO / INSULATION CLASS  
ISOLATIONSKLASSE / CLASSE ISOLATION  
**CL F** standard; **CL H** (option)

GRADO DI PROTEZIONE / PROTECTION CLASS  
SCHUTZKLASSE / DEGRE DE PROTECTION

**IP55** standard (IP54 autofr./brake motor / für Bremsmotoren / motor frein)

TENSIONE-FREQUENZA / VOLTAGE-FREQUENCY  
SPANNUNG-FREQUENZ / TENSION-FREQUENCE

295

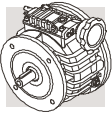
FLANGIA E ALBERO RIDOTTI / REDUCED FLANGE AND SHAFT  
VERKLEINERTEM FLANSCH UND VERKLEINERTER WELLE / BRIDE ET ARBRE REDUITS

NUMERO DI POLI / NUMBER OF POLES / POLZAHL / N.bre POLES  
**2, 4, 6**

GRANDEZZA MOTORE / MOTOR SIZE / MOTORBAUGRÖSSE / TAILLE MOTEUR  
**63 - 132** ( motore IEC / IEC motor / IEC motoren / moteur CEI)

MOTORE / MOTOR TYPE / MOTORTYP / TYPE MOTEUR

**BN** = trifase IEC / IEC 3-phase / IEC-Motor (Dreiphasen) / 3 phasé CEI



**VR D 0.5 F 6.3 P71 B3A A 1 PDN SCT .....**

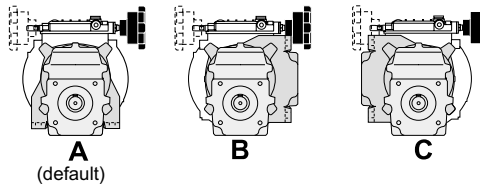
OPZIONI / OPTIONS  
OPTIONEN / OPTIONS

TIPO DI COMANDO / REMOTE CONTROL TYPE  
VERSTELLEINRICHTUNG / TYPE DE COMMANDE  
**A, VG, VA, VAG, SCT (3Æ), TC (1Æ)**

SONDA RILEVATRICE / SPEED SENSOR  
MEßSONDE / SONDE DE DETECTION  
**PDN, PDNA, PDP**

POSIZIONE DISPOSITIVO DI COMANDO / SPEED KNOB POSITION  
EINBAULAGE DER VERSTELLEINRICHTUNG / POSITION COMMANDE  
**1 (default), 2 (V 3...V 10)**

POSIZIONE PIEDI RIPORTATI / BOLT-ON FEET POSITION  
EINBAULAGE DER FÜßEN / POSITION DE MONTAGE DE PIEDS  
(V 0.25...V 2)



POSIZIONE DI MONTAGGIO / MOUNTING POSITION  
MOTOR BAUFORM / FORME DE CONSTRUCTION DU MOTEUR  
**B3A (default), B6A, B7A, B8A, V5A, V6A**  
**B3B, B6B, B7B, B8B, V5B, V6B**

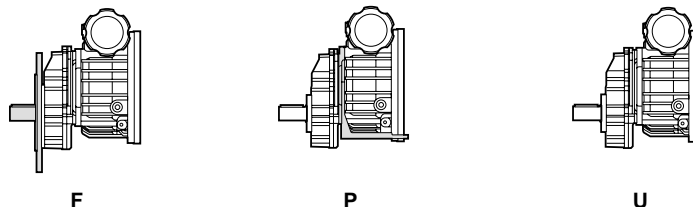
40

CONFIGURAZIONE INGRESSO / INPUT CONFIGURATION  
BEZEICHNUNG DER ANTRIEBSSEITE / DESIGNATION ENTREE

- P (IEC)** - predisposizione IEC / Provided with IEC motor adaptor  
vorbereitet für den Anbau eines IEC-Motors / prédisposé IEC
- HS** - albero cilindrico / solid input shaft  
freier Antriebswelle / arbre rapide sortant
- HSF** - albero cilindrico e flangia riportata / solid input shaft and bolt-on flange  
freier Antriebswelle und Flansch / arbre rapide sortant et adjonction de bride
- N (NEMA)** - predisposizione motore NEMA / provided with NEMA motor adaptor  
vorbereitet für den Anschluß eines NEMA-Motors / prédisposé moteur NEMA

RAPPORTO DI RIDUZIONE / GEAR RATIO / ÜBERSETZUNG / RAPPORT DE REDUCTION

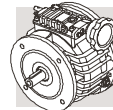
FORMA COSTRUTTIVA / VERSION / BAUFORM / VERSION



GRANDEZZA / FRAME SIZE / BAUGRÖSSE / TAILLE  
**0.25, 0.5, 1, 2, 3, 5.5, 10**

DIFFERENZIALE / DIFFERENTIAL / DIFFERENTIAL / DIFFERENTIEL  
**D**

SERIE / VARIATOR TYPE / VERSTELLGETRIEBETYP / SERIE VARIATEUR  
**VR**



MOTORE / MOTOR  
MOTOR / MOTEUR

FRENO / BRAKE  
BREMSE / FREIN

**BN 71A 4 R 230/400-50 IP54 CLF B5 FD 3.5 R SB 220SA ....**

OPZIONI  
OPTIONS  
OPTIONEN  
OPTIONS

311

ALIMENTAZ. FRENO  
BRAKE SUPPLY  
BREMSVERSORGUN-  
GSSPANNUNG  
ALIMENTATION FREIN

324

TIPO ALIMENTATORE  
RECTIFIER TYPE  
GLEICHRICHTERTYP  
TYPE ALIMENTATEUR  
**NB, NBR, SB, SBR**

LEVA DI SBLOCCO FRENO  
BRAKE HAND RELEASE  
BREMSENTLÜFTUNGSHABEL  
LEVIER DE DEBLOCAGE FREIN  
**R, RM**

COPPIA FRENANTE / BRAKE TORQUE  
BREMSMOMENT / COUPLE FREIN

331  
335  
339

TIPO FRENO / BRAKE TYPE  
BRESENTYP / TYPE DE FREIN

**FD** (freno c.c./d.c. brake / Gleichstrombremse / frein c.c.)  
**FA, BA** (freno c.a./a.c. brake / Wechselstrombremse  
frein c.a.)

FORMA COSTRUTTIVA / MOTOR EXECUTION  
BAUFORM / FORME DE CONSTRUCTION  
**B5**

CLASSE ISOLAMENTO / INSULATION CLASS  
ISOLATIONSKLASSE / CLASSE ISOLATION  
**CL F** standard; **CL H** (option)

GRADO DI PROTEZIONE / PROTECTION CLASS  
SCHUTZKLASSE / DEGRE DE PROTECTION

**IP55** standard (IP54 autofr./brake motor / für Bremsmotoren / motor frein)

TENSIONE-FREQUENZA / VOLTAGE-FREQUENCY  
SPANNUNG-FREQUENZ / TENSION-FREQUENCE

295

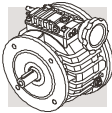
FLANGIA E ALBERO RIDOTTI / REDUCED FLANGE AND SHAFT  
VERKLEINERTEM FLANSCH UND VERKLEINERTER WELLE / BRIDE ET ARBRE REDUITS

NUMERO DI POLI / NUMBER OF POLES / POLZAHL / N.bre POLES  
**2, 4, 6**

GRANDEZZA MOTORE / MOTOR SIZE / MOTORBAUGRÖSSE / TAILLE MOTEUR  
**63 - 132** ( motore IEC / IEC motor / IEC motoren / moteur CEI)

MOTORE / MOTOR TYPE / MOTORTYP / TYPE MOTEUR

**BN** = trifase IEC / IEC 3-phase / IEC-Motor (Dreiphasen) / 3 phasé CEI



## 19.4 - Opzioni

### PV

Anelli di tenuta in Viton.

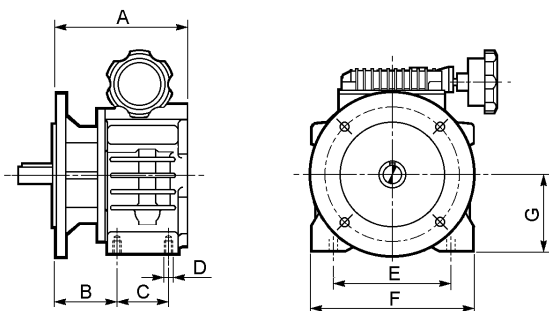
### SO

I Variatori V 0.25...V 10 solitamente forniti con lubrificante da Bonfiglioli Riduttori sono forniti privi di lubrificante.

Questa opzione non è prevista per i variatori con differenziale VD 0.5...VD 10 con ingresso P(IEC) in quanto normalmente forniti privi di lubrificante.

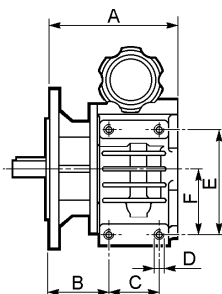
### CU

A richiesta si può fornire il variatore/motovariatore con cassa universale con piano di appoggio spianato e relativi fori di fissaggio. Questa opzione è disponibile esclusivamente per la forma costruttiva F nelle grandezze V3...V5.5 normalmente fornite con cassa priva di piani di appoggio e fori di fissaggio.



### FL

L'opzione FL comprende la succitata opzione CU a questa aggiungendo la lavorazione dei due piani laterali più la foratura e maschiatura dei fori di fissaggio. Questa opzione è disponibile per le forme costruttive F e U nelle grandezze V 3... V 10 normalmente fornite con cassa priva di tali lavorazioni.



## 19.4 - Options

### PV

Viton oil seals.

### SO

Variators V 0.25...V 10, usually filled with oil by Bonfiglioli Riduttori, are delivered without no lubricant.

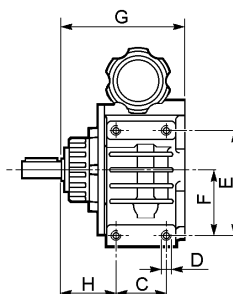
The above option is not available for variators with differential unit VBG VD 0.5...VD 10 with IEC adapter P(IEC), since they are usually delivered without lubricant.

### CU

On request, flange mounted (F version) V units in sizes 3 through 5.5, usually supplied with no fixing holes, can be supplied with machined bottom surface with drilled and tapped holes.

### FL

The FL option incorporates the CU option only adding the extra machining plus drilling and tapping of holes on side surfaces. Available for the F and U configuration of V units, size 3 through 10, usually supplied without side machining.



## 19.4 - Optionen

### PV

Dichtringe aus Viton.

### SO

Die üblicherweise von Bonfiglioli Riduttori mit Schmiermittel gelieferten Verstellgetriebe V 0.25...V 10 werden ohne Schmiermittel geliefert. Diese Option ist für die Verstellgetriebe mit Differential VD 0.5...VD 10 mit Antrieb P(IEC) nicht vorgesehen, da sie standardmäßig ohne Schmiermittel geliefert werden.

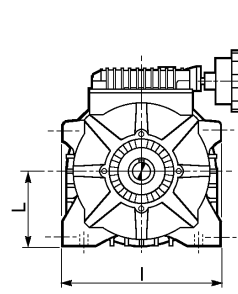
### CU

Auf Anfrage kann das Verstellgetriebe bzw. der Verstellgetriebemotor mit einem Universalgehäuse mit bearbeitetem Boden und Montagebohrungen geliefert werden. Diese Option ist ausschließlich für die Bauform F in den Baugrößen V 3...V5.5 verfügbar, die normalerweise mit einem unbearbeiteten Gehäuse ohne Montagebohrungen ausgeliefert werden.

|       | A   | B  | C   | D      | E   | F   | G   |
|-------|-----|----|-----|--------|-----|-----|-----|
| V 3   | 215 | 79 | 120 | M12x22 | 200 | 272 | 132 |
| V 5.5 | 215 | 79 | 120 | M12x22 | 200 | 272 | 132 |

### FL

Auf Anfrage kann das Verstellgetriebe bzw. der Verstellgetriebemotor mit einem Universalgehäuse mit bearbeiteten Seitenflächen und Montagebohrungen geliefert werden. Diese Option ist für die Bauformen F und U in den Baugrößen V 3... V 10 verfügbar, die normalerweise mit einem unbearbeiteten Gehäuse ausgeliefert werden.



## 19.4 - Options

### PV

Bagues d'étanchéité en Viton.

### SO

Les variateurs V 0.25...V 10 habituellement fournis avec du lubrifiant Bonfiglioli Riduttori sont fournis sans lubrifiant.

Cette option n'est pas prévue pour les variateurs avec différentiel VD 0.5...VD 10 avec entrée P(IEC) dans la mesure où ils sont normalement fournis sans lubrifiant.

### CU

Sur demande, le variateur/motovariateur en carter universel avec plan d'appui usiné et orifices de fixation correspondants est disponible. Cette option est disponible uniquement pour la forme de construction F, dans les tailles V 3...V 5 normalement fournies en carter sans plan d'appui et orifices de fixation.

### FL

Sur demande, le variateur/motovariateur en carter universel avec flancs latéraux usinés et orifices de fixation correspondants est disponible. Cette option est disponible uniquement pour les formes de construction F et U, dans les tailles V 3... V 10 normalement fournies en carter ne présentant pas de type d'usinage.

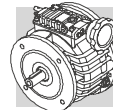
|       | A     | B     | C   | D      | E   | F   | G     | H     | I   | L   |
|-------|-------|-------|-----|--------|-----|-----|-------|-------|-----|-----|
| V 3   | 215   | 79    | 120 | M12x22 | 165 | 95  | 213   | 77    | 264 | 132 |
| V 5.5 | 215   | 79    | 120 | M12x22 | 165 | 95  | 213   | 77    | 264 | 132 |
| V 10  | 255.5 | 102.5 | 132 | M12x30 | 220 | 110 | 254.5 | 101.5 | 340 | 170 |

N.B. Le dimensioni non riportate si possono rilevare da pag. 52 a pag. 83.

NOTE: missing sizes are indicated at page 52 through 83.

ACHTUNG: Die nicht aufgeführten Maße sind auf den Seiten 52 zu finden 83.

N.B. : Les dimensions non mentionnées sont indiquées de la page 52 à la page 83.



## PDN

A richiesta si può fornire il variatore con predisposizione al rilevamento di giri digitale incorporato all'interno del variatore con sonda rilevatrice di tipo NPN.

L'applicabilità alle varie configurazioni di variatore e il diametro della sonda sono rilevabili nella tabella (C03).

Caratteristiche sonda rilevatrice:

Sonda di prossimità induttiva schermata NPN in contenitore filettato con indicatore a led dello stato di uscita e cavo di connessione (lunghezza approssimativa 2 m.).

La portata massima del segnale è di circa 10 m., per distanze superiori consultare il ns. Servizio tecnico commerciale.

## PDN

*On request a digital speed detector can be supplied. Sensor is NPN type.*

*Availability of the option as well as plug threading are shown in table (C03).*

*Features of the speed sensor:*

*NPN shielded inductive proximity sensor housed into a threaded plug complete with led indicator for operation mode and connecting cable (approx. 2 m long).*

*Max. signal capacity is approx 10 m, for longer distance please contact our Service Dept.*

*The built-in phonic wheel is 10 pulses per turn rated.*

## PDN

Auf Anfrage kann das Verstellgetriebe bzw. der Verstellgetriebemotor für eine digitale Drehzahlmittlung vorbereitet werden. Diese ist im Verstellgetriebe eingebaut und arbeitet mit einer Meßsonde vom Typ NPN. Die Anbaumöglichkeiten an die verschiedenen Konfigurationen der Verstellgetriebe und der Masse können der Tabelle (C03) entnommen werden.

Merkmale der Meßsonde:

Abgeschirmte induktive NPN-Näherungssonde in einem Gehäuse mit LED-Anzeige für den Abtriebszustand inklusive Anschlußkabel (ca. 2 m Länge).

Die maximale Reichweite des Signals beträgt etwa 10 m; bei größeren Entfernungen wenden Sie sich bitte an unseren technischen Kundendienst.

## PDN

*Sur demande, le variateur/motovariateur avec sonde de détection de type NPN permettant la détection digitale du nombre de tours est disponible.*

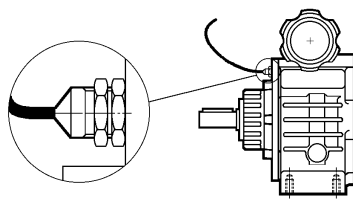
*Les possibilités d'application aux différentes configurations de variateur ainsi que le diamètre de la sonde sont indiqués dans le tableau (C03).*

*Caractéristiques sonde de détection :*

*Sonde de proximité inductive blindée NPN dans un conteneur fileté avec indicateur à DEL de l'état de sortie et câble de branchement (longueur approximative 2 m).*

*La portée du signal est d'environ 10 m, pour des distances supérieures, contacter notre Service Après-Vente.*

*La roue phonique fournie 10 impulsions par minute.*



## PDP

Con caratteristiche generali come l'opzione precedente PDN ma con sonda di prossimità induttiva schermata PNP in contenitore filettato con indicatore a led dello stato di uscita e cavo di connessione (lunghezza approssimativa 2 m.).

## PDP

*Option is similar to PDN and only differs by the type of sensor which is PNP (positive - negative - positive) instead.*

*Same features as for plug, led indicator, phonic wheel and cable (~ 2 m. long).*

## PDP

Technische wie die vorhergehende PDN-Option, aber mit abgeschirmter induktiver PNP-Näherungssonde in einem Gehäuse mit LED-Anzeige für den Abtriebszustand inklusive Anschlußkabel (ca. 2 m Länge).

## PDP

*Principales caractéristiques identiques à l'option PDN précédente mais avec sonde de proximité inductive blindée PNP dans un conteneur fileté avec indicateur à DEL de l'état de sortie et câble de branchement (longueur approximative 2 m).*

## (C03)

| Grandezza variatore<br>Size unit<br>Baugröße<br>Verstellgetriebe<br>Taille variateur | Sonda<br>Plug thread<br>Sonde<br>Sonde<br>(NPN/PNP) | Forme costruttive / Versions<br>Bauformen / Formes de construction |     |    |     |
|--------------------------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------|-----|----|-----|
|                                                                                      |                                                     | V_                                                                 |     |    |     |
|                                                                                      |                                                     | F                                                                  | UP  | UF | UPF |
| <b>V 0.25</b>                                                                        | M8x1                                                |                                                                    | A   |    | A   |
|                                                                                      |                                                     |                                                                    | B # |    | B # |
|                                                                                      |                                                     |                                                                    | C # |    | C # |
| <b>V 0.5</b><br><b>VD 0.5</b>                                                        | M8x1                                                |                                                                    | A   |    | A   |
|                                                                                      |                                                     |                                                                    | B # |    | B # |
|                                                                                      |                                                     |                                                                    | C # |    | C # |
| <b>V 1</b><br><b>VD 1</b>                                                            | M10x1                                               |                                                                    | A   |    | A   |
|                                                                                      |                                                     |                                                                    | B # |    | B # |
|                                                                                      |                                                     |                                                                    | C # |    | C # |
| <b>V 2</b><br><b>VD 2</b>                                                            | M10x1                                               |                                                                    | A   |    | A   |
|                                                                                      |                                                     |                                                                    | B # |    | B # |
|                                                                                      |                                                     |                                                                    | C # |    | C # |

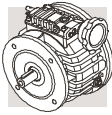
| Grandezza variatore<br>Size unit<br>Baugröße<br>Verstellgetriebe<br>Taille variateur | Sonda<br>Plug thread<br>Sonde<br>Sonde<br>(NPN/PNP) | Forme costruttive / Versions<br>Bauformen / Formes de construction |   |     |
|--------------------------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------|---|-----|
|                                                                                      |                                                     | V_                                                                 |   |     |
|                                                                                      |                                                     | F                                                                  | U | P   |
| <b>VR 0.25</b>                                                                       | M8x1                                                |                                                                    |   | A   |
|                                                                                      |                                                     |                                                                    |   | B # |
|                                                                                      |                                                     |                                                                    |   | C # |
| <b>VR 0.5</b><br><b>VRD 0.5</b>                                                      | M8x1                                                |                                                                    |   | A   |
|                                                                                      |                                                     |                                                                    |   | B # |
|                                                                                      |                                                     |                                                                    |   | C # |
| <b>VR 1</b><br><b>VRD 1</b>                                                          | M10x1                                               |                                                                    |   | A   |
|                                                                                      |                                                     |                                                                    |   | B # |
|                                                                                      |                                                     |                                                                    |   | C # |
| <b>VR 2</b><br><b>VRD 2</b>                                                          | M10x1                                               |                                                                    |   | A   |
|                                                                                      |                                                     |                                                                    |   | B # |
|                                                                                      |                                                     |                                                                    |   | C # |

| Grandezza variatore<br>Size unit<br>Baugröße<br>Verstellgetriebe<br>Taille variateur | Sonda<br>Plug thread<br>Sonde<br>Sonde<br>(NPN/PNP) | Forme costruttive / Version<br>Bauformen / Formes de construction |         |            |     |         |
|--------------------------------------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------|---------|------------|-----|---------|
|                                                                                      |                                                     | V_                                                                |         |            | V_D |         |
|                                                                                      |                                                     | F                                                                 | U-UF-UP | UF<br>Nema | F   | U-UF-UP |
| <b>V 3</b>                                                                           | M12x1                                               |                                                                   |         |            |     | #       |
|                                                                                      |                                                     |                                                                   |         |            | #   | #       |
|                                                                                      |                                                     |                                                                   |         |            | #   | #       |
| <b>V 5.5</b>                                                                         | M12x1                                               |                                                                   |         |            | #   | #       |
|                                                                                      |                                                     |                                                                   |         |            | #   | #       |
|                                                                                      |                                                     |                                                                   |         |            | #   | #       |
| <b>V 10</b>                                                                          | M12x1                                               |                                                                   |         |            | #   | #       |
|                                                                                      |                                                     |                                                                   |         |            | #   | #       |
|                                                                                      |                                                     |                                                                   |         |            | #   | #       |

A - B - C  
Posizione piedi riportati  
Bolt-on feet position  
Einbaulage der Füßen  
Position de montage de pieds

Applicazioni disponibili  
Option availability  
Zur Verfügung stehende Anwendungen  
Applications disponibles

#  
Esecuzioni speciali a richiesta  
Special executions on demand  
Sonderausführungen auf Anfrage  
Executions speciaux sur demande



## 19.5 - Tipi di comando

I variatori possono essere dotati di vari tipi di comando, manuali o elettrici, per la variazione della velocità.  
Nel presente capitolo riportiamo i tipi disponibili, le relative caratteristiche e la loro designazione. Di seguito è riportato un esempio di designazione che evidenzia un tipo di comando.

## 19.5 - Speed control types

Variators can be equipped with different types of speed controls, either manual or electric, for a stepless speed variation. This chapter deals with features and designations for the speed control devices available. The following example highlights a specific type of remote speed control.

## 19.5 - Verstellrichtungen

Die Verstellgetriebe können mit verschiedenen manuellen oder elektrischen Verstellrichtungen zur Änderung der Drehzahl ausgestattet werden.  
Im vorliegenden Kapitel werden die zur Verfügung stehenden Typen, die entsprechenden Merkmale und ihre Bezeichnungen aufgeführt. Im Folgenden ist ein Beispiel für eine Ausführung einer Verstellrichtung dargestellt.

## 19.5 - Type de commande

Les variateurs peuvent être équipés de différents types de commandes, manuelles ou électriques, pour la variation de la vitesse.  
Les types disponibles, leurs caractéristiques ainsi que leur désignation sont indiqués dans ce chapitre. Un exemple de désignation, qui illustre un type de commande, est indiqué ci-après.

V 0.5 U F71 D14 P71 B3 1

SCT

Tipi di comando / Control type / Verstellrichtungstyp / Type de commande

N.B. Per i tipi di comando elettrici devono essere sempre indicate tensione e frequenza scegliendole fra quelle disponibili a catalogo.

Note: On specifying remote controls, select voltage and frequency value among those available in the catalogue.

ACHTUNG: Für die elektrischen Verstellrichtungstypen müssen immer die Spannung und die Frequenz angegeben werden; die unter den im Katalog aufgeführten Werten auszuwählen sind.

N.B. : En ce qui concerne les types de commandes électriques, il est nécessaire de toujours indiquer la tension et la fréquence, après les avoir choisies parmi les disponibilités du catalogue.

## Volantino di comando

Il volantino di comando per regolazione manuale è fornito di serie quando in designazione non è specificato alcun altro tipo di comando.

## Speed setting handwheel

When no particular control type is specified, the speed knob is supplied as the standard control device.

## Handsteuerrad

Das Handrad für die manuelle Drehzahlregulierung gehört zur serienmäßigen Lieferausstattung, wenn kein anderer Verstellrichtungstyp spezifiziert wurde.

## Volant de commande

Le volant de commande pour le réglage manuel est fourni de série lorsqu'aucun autre type de commande n'est indiqué dans la désignation.

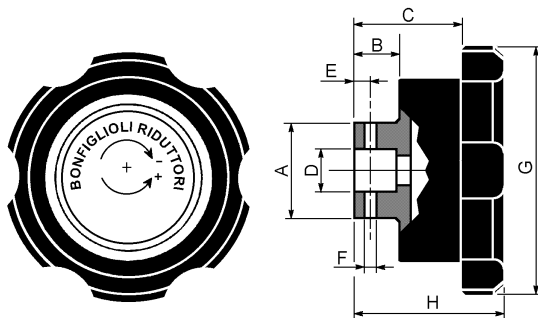
**IMPORTANTE:** Il volantino non deve mai essere azionato a motore fermo.

**IMPORTANT:** The handwheel **MUST NOT** be turned when the variator is at standstill.

**WICHTIG:** Das Handrad darf bei stehendem Verstellgetriebemotor niemals betätigt werden.

**IMPORTANT :** Le volant de commande à main ne doit jamais être actionné moteur à l'arrêt.

Tipi di comando / Control type  
Verstellrichtungstyp / Type de commande



Dimensioni del codolo di attacco volantino sulla vite di comando.

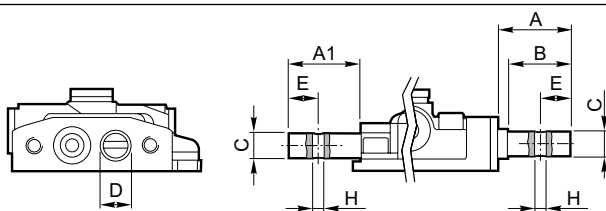
Dimensions of the speed control shaft extension.

|        | A    | B    | C    | D  | E | F   | G   | H    |
|--------|------|------|------|----|---|-----|-----|------|
| V 0.25 | 31.5 | 14.5 | 35.5 | 10 | 5 | 4.4 | 83  | 50.0 |
| V 0.5  | 31.5 | 14.5 | 35.5 | 10 | 5 | 4.4 | 83  | 50.0 |
| V 1    | 31.5 | 14.5 | 35.5 | 10 | 5 | 4.4 | 83  | 50.0 |
| V 2    | 31.5 | 14.5 | 35.5 | 10 | 5 | 4.4 | 83  | 50.0 |
| V 3    | 31.5 | 18.5 | 39.5 | 14 | 5 | 4.4 | 109 | 56.5 |
| V 5.5  | 31.5 | 18.5 | 39.5 | 14 | 5 | 4.4 | 109 | 56.5 |
| V 10   | 31.5 | 18.5 | 39.5 | 14 | 5 | 4.4 | 109 | 56.5 |

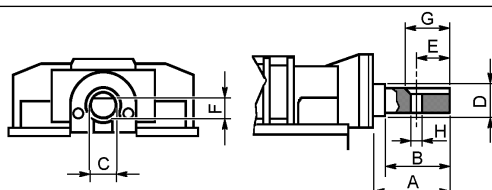
Maße des Anschlußzapfens des Handrads an die Steuerungsschraube.

Dimension de la queue de fixation volant sur la vis de commande.

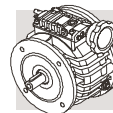
V 0.25 - V 0.5 - V 1 - V 2



V 3 - V 5.5 - V 10



|        | A    | A1   | B  | C <sub>g7</sub> | D  | E  | F  | G    | H <sub>H7</sub> |
|--------|------|------|----|-----------------|----|----|----|------|-----------------|
| V 0.25 | 25   | 28.5 | 21 | 10              | 12 | 12 | —  | —    | 4               |
| V 0.5  | 25   | 28.5 | 21 | 10              | 12 | 12 | —  | —    | 4               |
| V 1    | 25   | 28.5 | 21 | 10              | 12 | 12 | —  | —    | 4               |
| V 2    | 25   | 28.5 | 21 | 10              | 12 | 12 | —  | —    | 4               |
| V 3    | 31.5 | —    | 29 | 14              | 14 | 15 | 12 | 17.5 | 4               |
| V 5.5  | 31.5 | —    | 29 | 14              | 14 | 15 | 12 | 17.5 | 4               |
| V 10   | 35   | —    | 34 | 14              | 15 | 15 | 12 | 17.5 | 4               |



## Volantino di comando con indicatore gravitazionale

Con la designazione sotto riportata viene fornito il volantino di comando per regolazione manuale corredato di un indicatore di posizione a reazione gravitazionale che indica, su una doppia scala graduata, i giri compiuti dal volantino stesso durante il movimento di rotazione. Questo indicatore può operare solo con l'asse orizzontale o avente piccoli angoli di inclinazione (max. 15°).

**IMPORTANTE:** Il volantino non deve mai essere azionato a motore fermo.

## Speed knob with gravitational turns indicator

By specifying the VG code a speed knob complete with gravitational turns indicator, manually operated, is supplied. The handwheel features a double graduated scale counting the number of revolutions corresponding to the speed adjustment. Due to the gravitational operation the device only works horizontally or under small incline angles (max. 15°).

**WARNING:** Never turn the speed control knob when variator is at standstill.

## Handrad mit Schleppanzeige

Bei Angabe der unten aufgeführten Bezeichnung wird das Handrad für die manuelle Regulierung mit einer Lageanzeige geliefert. Dieses Instrument zeigt auf einer doppelten Gradskala die vom Handrad durchgeführten Umdrehungen an. Es kann nur in waagrecht liegender Achse oder mit leicht davon abweichenden Neigungswinkeln arbeiten (max. 15°).

**WICHTIG:** Das Handrad darf bei stehendem Verstellgetriebemotor niemals betätigt werden.

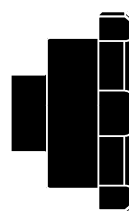
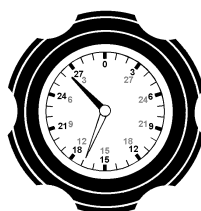
## Volant de commande avec indicateur gravitationnel

La désignation indiquée ci-après permet la fourniture du volant de commande pour réglage manuel équipé d'un indicateur de position à réaction gravitationnelle qui indique, sur une double échelle graduée, les tours effectués par le volant durant le mouvement de rotation. Cet indicateur peut opérer uniquement avec l'axe horizontal ou ayant de faibles angles d'inclinaison (max. 15°).

**IMPORTANT :** Le volant de commande à main ne doit jamais être actionné moteur à l'arrêt.

Tipo di comando  
Control type  
Verstelleinrichtungstyp  
Type de commande

**VG**



La tabella (C04) riporta il numero di giri (nv) del volantino di comando in relazione al numero di giri in uscita al variatore e alla posizione del volantino stesso (1-2). I dati (indicativi) sono riferiti ai motorvariatori con una velocità in entrata di 1400 min<sup>-1</sup> (motori a 4 poli) e dotati dei tipi di comando VG e VAG.

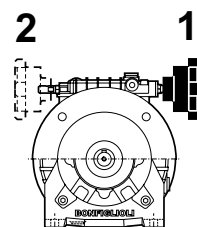
The table (C04) below shows relation between the number of turns of the speed knob (nv) and output speed of variator, depending on position of handwheel (1-2). Data are indicative only and relate to variators driven by 4 pole motors ( $n_1=1400 \text{ min}^{-1}$ ) equipped by either VG or VAG speed knob.

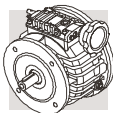
Die Tabelle (C04) zeigt die Umdrehungen (nv) des Handrades im Verhältnis zur Umdrehungszahl am Verstellgetriebeabtrieb und zur Lage des Handrads (1 – 2) selbst. Die Daten beziehen sich auf Verstellgetriebemotoren mit einer Antriebsdrehzahl von 1400 min<sup>-1</sup> (vierpolige Motoren), die mit den Verstelleinrichtungen VG und VAG ausgestattet sind. Bei den Angaben handelt es sich um ungefähre Werte.

Le tab. (C04) indique le nombre de tours (nv) du volant de commande en fonction du nombre de tours en sortie du variateur et de la position du volant (1-2). Les caractéristiques (indicatives) concernent des motorvariateurs avec une vitesse en entrée de 1400 min<sup>-1</sup> (moteurs à 4 pôles) et dotés des types de commande VG et VAG.

(C04)

| nv | V 0.25 |       | V 0.5 |       | V 1   |       | V 2   |       | V 3 - V 5.5 |      | V 10 |      |
|----|--------|-------|-------|-------|-------|-------|-------|-------|-------------|------|------|------|
|    | 1 / 2  | 1 / 2 | 1 / 2 | 1 / 2 | 1 / 2 | 1 / 2 | 1 / 2 | 1 / 2 | 1           | 2    | 1    | 2    |
| 0  | 910    | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  |             | 1000 |      | 1000 |
| 1  | 840    | 947   | 970   | 970   | 970   | 970   | 970   | 970   | 955         |      |      | 961  |
| 2  | 794    | 894   | 937   | 942   | 937   | 942   | 937   | 942   | 908         |      |      | 923  |
| 3  | 737    | 843   | 902   | 918   | 902   | 918   | 902   | 918   | 856         | 190  |      | 887  |
| 4  | 681    | 794   | 867   | 885   | 867   | 885   | 867   | 885   | 808         | 208  |      | 852  |
| 5  | 630    | 750   | 837   | 857   | 837   | 857   | 837   | 857   | 762         | 234  |      | 813  |
| 6  | 578    | 703   | 804   | 831   | 804   | 831   | 804   | 831   | 719         | 262  |      | 783  |
| 7  | 529    | 656   | 772   | 801   | 772   | 801   | 772   | 801   | 679         | 286  |      | 750  |
| 8  | 480    | 615   | 735   | 770   | 735   | 770   | 735   | 770   | 643         | 312  |      | 716  |
| 9  | 435    | 575   | 708   | 742   | 708   | 742   | 708   | 742   | 601         | 339  |      | 681  |
| 10 | 390    | 535   | 680   | 718   | 680   | 718   | 680   | 718   | 561         | 367  |      | 650  |
| 11 | 344    | 496   | 656   | 695   | 656   | 695   | 656   | 695   | 524         | 395  |      | 615  |
| 12 | 302    | 458   | 628   | 670   | 628   | 670   | 628   | 670   | 486         | 424  |      | 583  |
| 13 | 262    | 422   | 600   | 646   | 600   | 646   | 600   | 646   | 450         | 455  |      | 551  |
| 14 | 210    | 387   | 574   | 622   | 574   | 622   | 574   | 622   | 412         | 487  |      | 520  |
| 15 | 190    | 352   | 548   | 600   | 548   | 600   | 548   | 600   | 379         | 516  |      | 488  |
| 16 |        | 318   | 523   | 579   | 523   | 579   | 523   | 579   | 339         | 549  |      | 458  |
| 17 |        | 286   | 497   | 556   | 497   | 556   | 497   | 556   | 301         | 580  |      | 428  |
| 18 |        | 253   | 473   | 532   | 473   | 532   | 473   | 532   | 269         | 610  |      | 399  |
| 19 |        | 222   | 450   | 511   | 450   | 511   | 450   | 511   | 235         | 643  |      | 372  |
| 20 |        | 190   | 426   | 490   | 426   | 490   | 426   | 490   | 190         | 676  |      | 344  |
| 21 |        |       | 402   | 470   | 402   | 470   | 402   | 470   |             | 708  |      | 316  |
| 22 |        |       | 380   | 450   | 380   | 450   | 380   | 450   |             | 741  |      | 288  |
| 23 |        |       | 358   | 428   | 358   | 428   | 358   | 428   |             | 777  |      | 262  |
| 24 |        |       | 336   | 410   | 336   | 410   | 336   | 410   |             | 810  |      | 234  |
| 25 |        |       | 315   | 391   | 315   | 391   | 315   | 391   |             | 843  |      | 212  |
| 26 |        |       | 297   | 371   | 297   | 371   | 297   | 371   |             | 881  |      | 190  |
| 27 |        |       | 276   | 353   | 276   | 353   | 276   | 353   |             | 915  |      |      |
| 28 |        |       | 256   | 333   | 256   | 333   | 256   | 333   |             | 952  |      |      |
| 29 |        |       | 235   | 315   | 235   | 315   | 235   | 315   |             |      |      |      |
| 30 |        |       | 215   | 295   | 215   | 295   | 215   | 295   |             |      |      |      |
| 31 |        |       | 200   | 277   | 200   | 277   | 200   | 277   |             |      |      |      |
| 32 |        |       | 190   | 259   | 190   | 259   | 190   | 259   |             |      |      |      |
| 33 |        |       |       | 241   |       | 241   |       | 241   |             |      |      |      |
| 34 |        |       |       | 223   |       | 223   |       | 223   |             |      |      |      |
| 35 |        |       |       | 205   |       | 205   |       | 205   |             |      |      |      |
| 36 |        |       |       | 190   |       | 190   |       | 190   |             |      |      |      |





## Comando ortogonale

Il comando ortogonale permette un orientamento del comando diverso dallo standard grazie alla possibilità di essere ruotato con un angolo di 180° e permette inoltre l'utilizzo di prolungamenti del comando qualora il variatore sia posizionato in zone di difficile accesso. È previsto in tre esecuzioni con le seguenti designazioni:

- **A:** con codolo di attacco,
- **VA:** con volantino per regolazione manuale,
- **VAG:** con volantino e indicatore di posizione gravitazionale.

**IMPORTANTE:** Il comando ortogonale non deve mai essere azionato a motore fermo.

Tipo di comando  
Control type  
Verstelleinrichtungstyp  
Type de commande

**A**

Tipo di comando  
Control type  
Verstelleinrichtungstyp  
Type de commande

**VA**

Tipo di comando  
Control type  
Verstelleinrichtungstyp  
Type de commande

**VAG**

Le caratteristiche dell'indicatore gravitazionale sono riportate nel paragrafo 21.0  
Gravitational turns indicator features are indicated at paragraph 21.0  
Die Merkmale der Lageanzeige sind im Paragraphen 21.0 aufgeführt.  
Les caractéristiques de l'indicateur gravitationnel sont indiquées au paragraphe 21.0

## Angular speed control device

The 90° extended drive shaft allows speed adjustment under any angle within a 180° range. The free shaft end (code A) also provides for manual speed adjustment, through an extended shaft, when the variator is out of reach or hard to access. The device is available in three configurations coded as following:

- **A:** with free shaft end
- **VA:** with manual speed knob
- **VAG:** with speed knob and gravitational turns indicator.

**IMPORTANT:** Never operate the speed control device when variator is at standstill.

## Verstelleinrichtung mit Handrad in rechtwinkliger Anordnung

Die rechtwinklige Verstelleinrichtung ermöglicht ein vom Standard abweichendes Ausrichten des Handrades, da es um einen Winkel von 180° gedreht werden kann. Darüber hinaus erlaubt sie den Einsatz von Verlängerungen für den Fall, in denen das Verstellgetriebe in schwer zugänglichen Bereichen untergebracht wurde. Sie ist in drei Ausführungen mit folgenden Bezeichnungen lieferbar:

- **A:** mit Anschlußzapfen,
- **VA:** mit Handrad für manuelle Regulierung,
- **VAG:** mit Handrad und Lageanzeige.

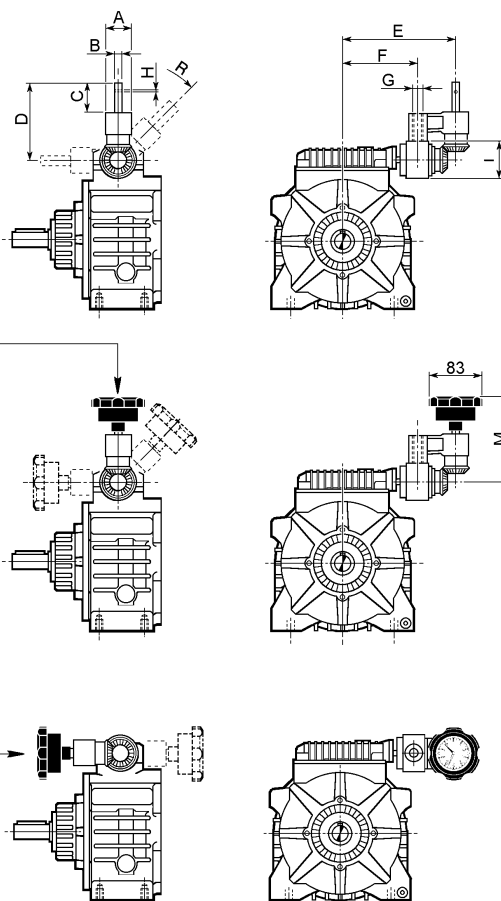
**WICHTIG:** Die Winkelverstellung darf bei stehendem Verstellgetriebemotor niemals betätigt werden.

## Commande orthogonale

La commande orthogonale permet une orientation de la commande différente de l'orientation standard car il est possible de la tourner avec un angle de 180°, de plus, elle permet l'utilisation de rallonges de la commande lorsque le variateur est positionné dans une zone difficile d'accès. Trois réalisations sont prévues, avec les désignations suivantes :

- **A :** avec queue de fixation
- **VA :** avec volant de réglage manuel
- **VAG :** avec volant et indicateur de position gravitationnel.

**IMPORTANT :** La commande orthogonale ne doit jamais être actionnée motovariateur à l'arrêt.



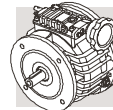
|               | A  | B <sub>g7</sub> | C  | D  | E     | F     | G      | H | I  | M   | R    |
|---------------|----|-----------------|----|----|-------|-------|--------|---|----|-----|------|
| <b>V 0.25</b> | 25 | 12              | 33 | 81 | 122   | 85    | M10x15 | 4 | 38 | 114 | 180° |
| <b>V 0.5</b>  | 25 | 12              | 33 | 81 | 122   | 85    | M10x15 | 4 | 38 | 114 | 180° |
| <b>V 1</b>    | 25 | 12              | 33 | 81 | 140   | 103   | M10x15 | 4 | 38 | 114 | 180° |
| <b>V 2</b>    | 25 | 12              | 33 | 81 | 144   | 107   | M10x15 | 4 | 38 | 114 | 180° |
| <b>V 3</b>    | 25 | 12              | 33 | 81 | 162.5 | 125.5 | M10x15 | 4 | 38 | 114 | 180° |
| <b>V 5.5</b>  | 25 | 12              | 33 | 81 | 162.5 | 125.5 | M10x15 | 4 | 38 | 114 | 180° |
| <b>V 10</b>   | 25 | 12              | 33 | 81 | 183.5 | 146.5 | M10x15 | 4 | 38 | 114 | 180° |

N.B. Definita la posizione di utilizzo del comando ortogonale utilizzare il foro G per l'arresto antirrotazione.

Note: once the orientation of the right angle control is fixed, use the hole G to lock position.

ACHTUNG: Wurde die Einbaulage der rechtwinkligen Verstelleinrichtung einmal festgelegt, muß die Arretierung der Bohrung G verwendet werden.

N.B. : Une fois définie la position d'utilisation de la commande orthogonale, utiliser l'orifice G pour l'arrêt anti-rotation.



## Servocomando elettrico a distanza SERVOCOM

Il servocomando elettrico SERVOCOM è costituito da un motore asincrono trifase 230/400V 50 Hz e da un riduttore a vite senza fine con limitatore di coppia. È provvisto di un limitatore di coppia che disimpegna il motorino pilota quando vengono raggiunte le velocità massima e minima del variatore (tempo max. d'intervento 6-8 s.).

**IMPORTANTE:** Il servocomando non deve mai essere azionato a motovariatore fermo.

## Electric remote control - SERVOCOM

The SERVOCOM drive consists basically of 230/400V 50 Hz three-phase AC motor and a worm gearbox with torque limiter. The torque limiter switches the pilot motor off when the max or min speed setting is reached. Delay is 6-8 s.

**WARNING:** never operate the remote control when the variator is at standstill.

## Elektrische Servo-Fernverstelleinrichtung SERVOCOM

Die elektrische Servo-Fernverstelleinrichtung SERVOCOM besteht aus einem dreiphasigen Asynchronmotor 230/400V und einem Schnekenuntersetzungsgetriebe mit Rutschkupplung als Drehmomentbegrenzung. Durch die Rutschkupplung wird der Steuermotor bei Erreichung der Höchstoder Mindestgeschwindigkeit des Verstellgetriebes abgestellt (maximale Eingriffszeit 6-8 Sek.).

**ACHTUNG:** Bei stehendem Verstellgetriebemotor darf die Servoverstelleinrichtung niemals betätigt werden.

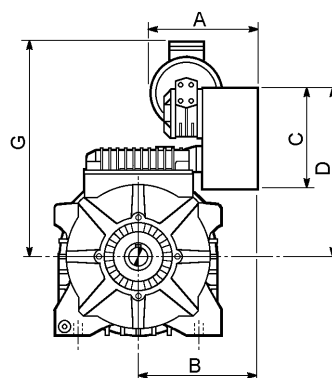
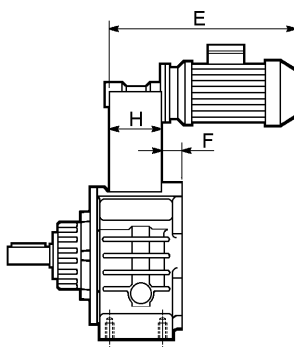
## Servocommande électrique à distance SERVOCOM

La servocommande électrique SERVOCOM est constituée d'un moteur asynchrone triphasé 230/400V 50Hz et d'un réducteur à vis sans fin avec limiteur de couple. Elle est aussi pourvue d'un limiteur de couple qui désactive le moteur pilote lorsque les vitesses minimum et maximum du variateur sont atteintes (temps maxi. d'intervention 6-8 s.).

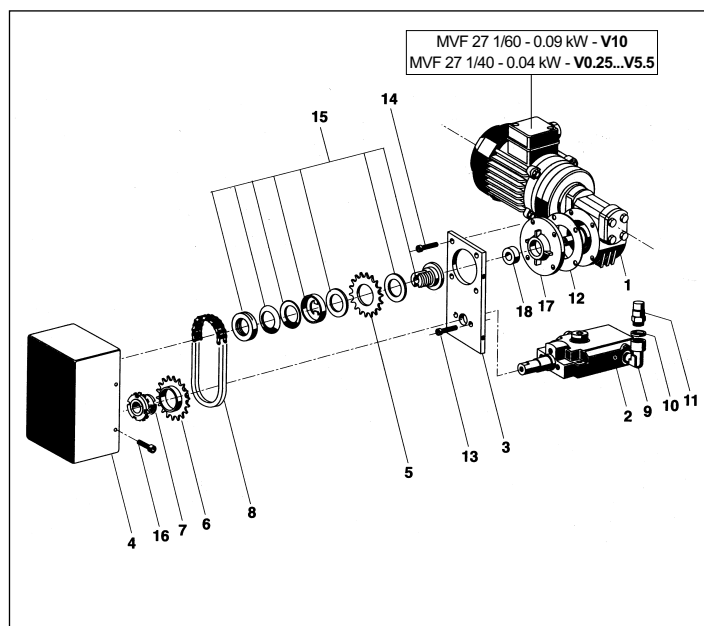
**IMPORTANT :** La servocommande ne doit jamais être actionnée lorsque le motovariateur est arrêté.

Tipo di comando  
Control type  
Verstelleinrichtungstyp  
Type de commande

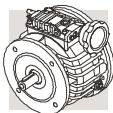
## SCT



|        | A   | B   | C     | D     | E     | F    | G   | H  |
|--------|-----|-----|-------|-------|-------|------|-----|----|
| V 0.25 | 119 | 102 | 129.5 | 166.5 | 229.5 | 12   | 234 | 72 |
| V 0.5  | 119 | 102 | 129.5 | 174.5 | 229.5 | 15   | 242 | 72 |
| V 1    | 119 | 120 | 129.5 | 193.5 | 232   | 26   | 261 | 77 |
| V 2    | 119 | 124 | 129.5 | 209.5 | 232   | 41   | 277 | 77 |
| V 3    | 141 | 169 | 130   | 247   | 227   | 57.5 | 318 | 67 |
| V 5.5  | 141 | 169 | 130   | 247   | 227   | 57.5 | 318 | 67 |
| V 10   | 141 | 177 | 130   | 303   | 253   | 74.5 | 374 | 67 |



|    |                           |                     |                                   |                        |
|----|---------------------------|---------------------|-----------------------------------|------------------------|
| 1  | Servomotore               | Servo motor         | Servomotor                        | Servomoteur            |
| 2  | Coperchio di comando      | Speed control cover | Abdeckung der Verstelleinrichtung | Couvercle de commande  |
| 3  | Supporto                  | Support             | Montageplatte                     | Support                |
| 4  | Coperchio di chiusura     | Protection cover    | Schutzhaube                       | Couvercle de fermeture |
| 5  | Ruota per catena          | Chain sprocket      | Kettenrad                         | Roue pour chaîne       |
| 6  | Ruota per catena          | Chain sprocket      | Kettenrad                         | Roue pour chaîne       |
| 7  | Calettatore               | Cone Clamping       | Spannbüchse                       | Moyeu de serrage       |
| 8  | Catena                    | Chain               | Kette                             | Chaîne                 |
| 9  | Raccordo angolare         | Angular pipe        | Winkelverschraubung               | Raccord coudé          |
| 10 | Guarnizione               | Gasket              | Dichtung                          | Joint plat             |
| 11 | Tappo sfiato              | Breather plug       | Entlüftungsstopfen                | Bouchon de purge       |
| 12 | Linguetta                 | Key                 | Paßfeder                          | Clavette               |
| 13 | Vite                      | Bolt                | Schraube                          | Vis                    |
| 14 | Vite                      | Bolt                | Schraube                          | Vis                    |
| 15 | Limitatore di coppia      | Torque limiter      | Rutschkupplung                    | Vis d'arrêt            |
| 16 | Vite                      | Bolt                | Schraube                          | Vis                    |
| 17 | Coperchio di collegamento | Connection cover    | Verbindungsdecke                  | Bride de liaison       |



## Elettrocomando a bassa tensione con finecorsa elettronici TELECOM

L' elettrocomando TELECOM, è costituito da un servomotore alimentato a 24 Vdc installato sul variatore e da una scheda logica di controllo, con fine corsa elettronici incorporati, installabile nell'armadio elettrico a bordo macchina. È disponibile nelle grandezze V 0.25...V 2.

### CARATTERISTICHE TECNICHE:

- Alimentazione e pilotaggio secondo le più severe normative vigenti.
- Ingombri e pesi contenuti.
- Precisione di regolazione.
- Arresto istantaneo su battute meccaniche eseguito tramite la scheda elettronica di controllo.
- Controllo elettronico con memoria non volatile delle informazioni di funzionamento indipendente dall'alimentazione generale della macchina.
- Ottimizzazione dell'erogazione di coppia nelle varie fasi del funzionamento (avviamento, rotazione, arresto, inversione).
- Cablaggio semplificato rispetto agli attuali servocomandi di uso corrente.
- Alimentazione 24 Vdc/18Vac.
- Possibilità di pilotaggio da PLC.

### IMPORTANTE:

L'elettrocomando non deve mai essere azionato a motoriatore fermo.

## Low voltage remote control with electronic limit switches - TELECOM

The TELECOM electric control consists of a 24 Vdc servo motor installed on the variator and a logic control board with in-built electronic limit switches, which can be installed in the machine cabinet. Available in size units V 0.25 through V 2.

### TECHNICAL FEATURES:

- Power supply and piloting in compliance with strictest current regulations
- Space and cost effectiveness
- Fine adjustment of speed
- Immediate stop at travelends through electronic control board
- Electronic check with solid state memory for operating conditions independent from machine main power supply
- Torque optimization during the various operating modes (start, rotation, stop and reversal)
- Simplified wiring, if compared with current servo controls
- 24 Vdc/18Vac power supply
- Piloting through PLC possible

### IMPORTANT:

never operate the electrocontrol when the motor variator is at standstill.

## Niederspannungs-Verstelleinrichtung TELECOM mit elektronischen Endschaltern

Die TELECOM Verstelleinrichtung besteht aus einem mit 24 VDC gespeisten Servomotor, der auf dem Verstellgetriebe installiert ist, und aus einer Kontrollkarte mit eingebauten elektronischen Endschaltern, die im Schaltschrank installiert werden kann. Sie steht für die Baugrößen V 0.25...V 2 zur Verfügung.

### TECHNISCHE MERKMALE:

- Ausführung nach neuesten geltenden Richtlinien.
- Kleine Maße und Gewichte.
- Präzise Einstellmöglichkeit.
- Sofortiger Halt bei Blockage, gesteuert über die elektronische Kontrollkarte.
- Elektronische Kontrolle mit nicht selbstlöschendem Speicher der Betriebsinformationen, die vom Anschluß der Maschine unabhängig ist.
- Optimierung der Drehmomentabgabe in den verschiedenen Betriebsphasen (Start, Umdrehung, Stillstand, Umkehr).
- Vereinfachte Verkabelung im Vergleich zu den heutigen allgemein üblichen Servoverstelleinrichtungen.
- Anschluß 24VDC / 18 VAC.
- Möglichkeit der Verstellung über PLC.

### ACHTUNG:

Bei stehendem Verstellgetriebemotor darf die Servoverstelleinrichtung niemals in Betrieb gesetzt werden.

## Electrocommande à basse tension avec fins de course électroniques TELECOM

L'électrocommande TELECOM est constituée d'un servomoteur alimenté en 24 Vcc installé sur le variateur et d'une carte logique de contrôle avec dispositifs de fin de course électroniques incorporés, à installer dans l'armoire électrique à côté de la machine. Disponible dans les tailles V 0.25...V 2.

### CARACTERISTIQUES TECHNIQUES

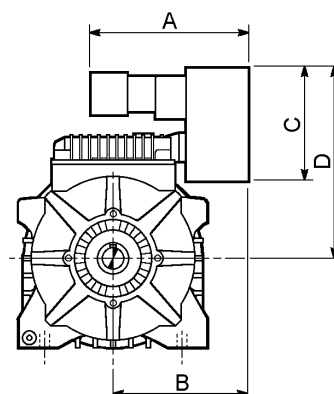
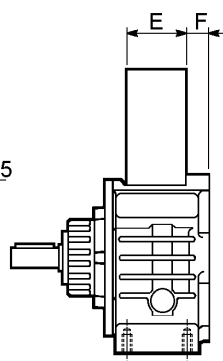
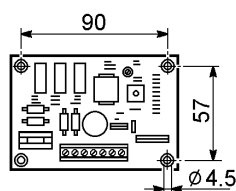
- alimentation et pilotage dans le respect des plus sévères normes en vigueur.
- Encombrements et poids limités.
- Précision de réglage.
- Arrêt instantané sur butées mécaniques au moyen de la carte électronique de contrôle.
- Contrôle électronique avec mémoire non volatile des informations de fonctionnement indépendante de l'alimentation général de la machine.
- Optimisation de la distribution de couple au cours des différentes phases de fonctionnement (démarrage, rotation, arrêt, inversion).
- Câblage simplifié par rapport aux servocommandes les plus utilisées actuellement.
- Alimentation 24 Vcc/18 Vca.
- Possibilité de pilotage depuis PLC.

### IMPORTANT :

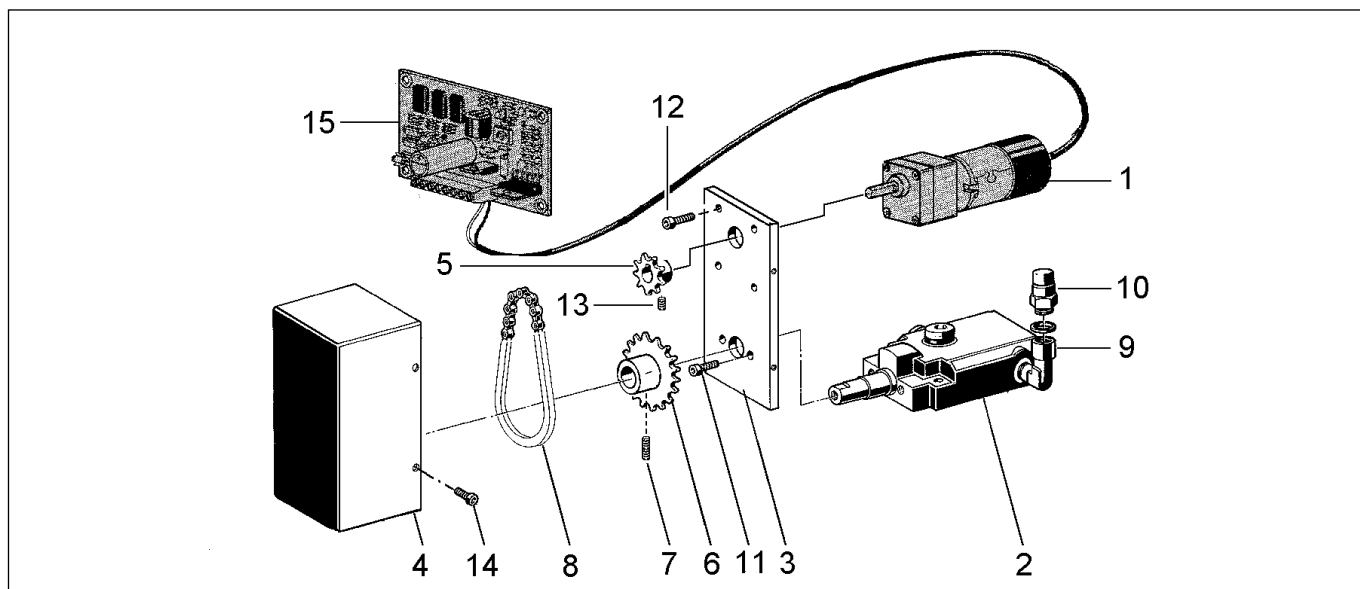
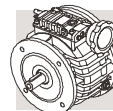
L'électrocommande ne doit jamais être actionnée lorsque le motovariateur est arrêté.

Tipo di comando  
Control type  
Verstelleinrichtungstyp  
Type de commande

**TC**



|               | A   | B   | C   | D   | E    | F  |
|---------------|-----|-----|-----|-----|------|----|
| <b>V 0.25</b> | 120 | 92  | 104 | 144 | 73.5 | 13 |
| <b>V 0.5</b>  | 120 | 92  | 104 | 152 | 73.5 | 15 |
| <b>V 1</b>    | 120 | 110 | 104 | 171 | 78.5 | 27 |
| <b>V 2</b>    | 120 | 114 | 104 | 187 | 78.5 | 42 |



|    |                       |                     |                                     |                        |
|----|-----------------------|---------------------|-------------------------------------|------------------------|
| 1  | Servomotore           | Servo motor         | Servomotor                          | Servomoteur            |
| 2  | Coperchio di comando  | Speed control cover | Abdeckung der Verstellereinrichtung | Couvercle de commande  |
| 3  | Supporto              | Support             | Montageplatte                       | Support                |
| 4  | Coperchio di chiusura | Closing cover       | Schutzhaube                         | Couvercle de fermeture |
| 5  | Pignone per catena    | Chain sprocket      | Kettenrad                           | Roue pour chaîne       |
| 6  | Ruota per catena      | Chain wheel         | Kettenrad                           | Roue pour chaîne       |
| 7  | Grano                 | Grub screw          | Gewindestift                        | Vis sans tête          |
| 8  | Catena                | Chain               | Kette                               | Chaîne                 |
| 9  | Raccordo angolare     | L-pipe              | Winkelverschraubung                 | Raccord coudé          |
| 10 | Tappo sfiato          | Breather plug       | Entlüftungsstopfen                  | Bouchon de purge       |
| 11 | Vite                  | Bolt                | Schraube                            | Vis                    |
| 12 | Vite                  | Bolt                | Schraube                            | Vis                    |
| 13 | Grano                 | Grub screw          | Gewindestift                        | Vis sans tête          |
| 14 | Vite                  | Bolt                | Schraube                            | Vis                    |
| 15 | Scheda elettronica    | Electronic card     | Steuerkarte                         | Carte électronique     |

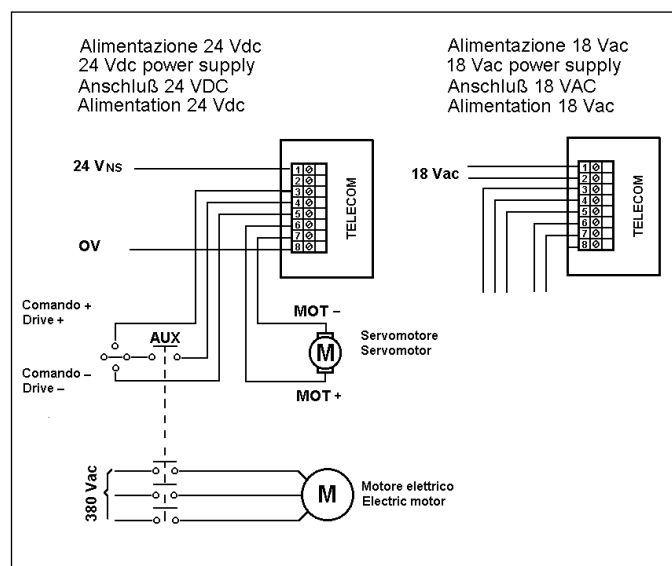
Negli schemi seguenti riportiamo i collegamenti da effettuare per il corretto funzionamento dell'elettrocomando TELECOM.

The following diagrams show wiring for proper operation of the TELECOM electric control.

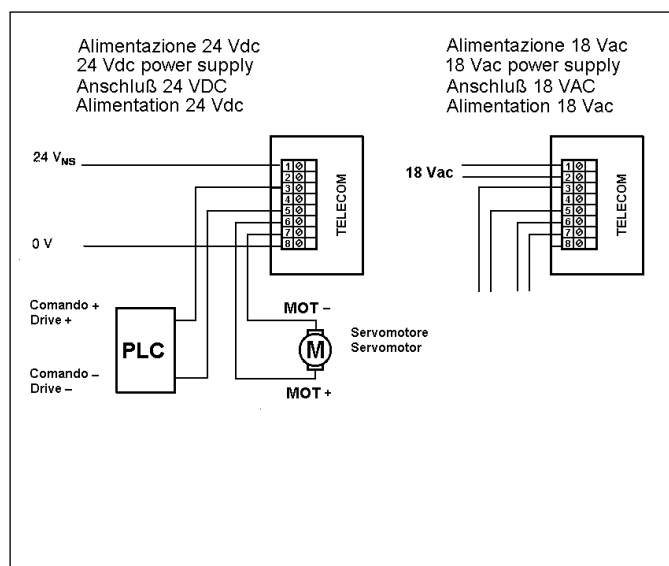
In den folgenden Plänen sind die Anschlüsse aufgeführt, die für die korrekte Funktion der Verstellereinrichtung TELECOM vorgesehen werden müssen.

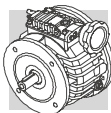
Les schémas suivants indiquent les branchements à effectuer pour obtenir un fonctionnement correct de l'électrocommande TELECOM.

Schema di collegamento con comando ausiliario (non fornito)  
Wiring diagram with auxiliary control (not supplied)  
Anschlußschema mit Hilfsverstellereinrichtung (nicht im Lieferumfang)  
Schéma de branchement avec commande auxiliaire (non fournie)



Schema di collegamento con comando da PLC (non fornito)  
Wiring diagram with drive on PLC (not supplied)  
Anschlußschema mit Verstellung über PLC (nicht im Lieferumfang)  
Schéma de branchement avec commande depuis PLC (non fournie)





## 19.6 - Lubrificazione variatori

La lubrificazione dei variatori V e VD avviene per sbattimento dell'olio. Prima della messa in funzione dei variatori accertarsi della presenza di olio al loro interno assicurandosi che esso compaia nella spia di livello. I variatori/motovariatori, se non diversamente specificato in fase di ordine, vengono forniti con il quantitativo di olio per la specifica posizione di montaggio come indicato nelle tabelle (C05) e (C06).

**Si consiglia di specificare sempre in fase di ordine la posizione di montaggio desiderata.**

### VD

Tutti i variatori con differenziale VD completi di motore vengono forniti con carico di olio. Tutti i variatori con differenziale VD in configurazione P... (IEC), vengono forniti privi di olio. In questo caso l'utente dovrà provvedere al riempimento immettendo le quantità di olio indicate nelle tabelle (C05-C06) e dovrà utilizzare motori elettrici con l'anello di tenuta lato albero e la flangia di accoppiamento al variatore a tenuta di olio.

**Benchè i variatori siano abbinabili a qualsiasi motore normalizzato IEC, BONFIGLIOLI raccomanda che siano utilizzati solo motori originali, provvisti di anelli di tenuta per l'olio.**

I variatori V 0.25 e V 0.5 vengono forniti completi di olio lubrificante "long life" sintetico **Shell Donax TX**. Eventuali sostituzioni o rabbocchi dovranno essere effettuati utilizzando lo stesso tipo di prodotto.

## 19.6 - Lubrication of variators

*Variators V and VD are splash-lubricated. Before putting the variator into operation make sure there is oil inside up to the sight glass level. Unless otherwise specified in the order, the variators are filled with an oil quantity suitable for B3 mounting position.*

**To avoid further manipulation it is strongly recommended that the actual mounting position is specified in the ordering code.**

### VD

*Motorized VD variators featuring the differential unit are factory filled with oil unlike VD variators with the IEC motor adapter (P...) which are supplied dry and must be filled with oil prior to be put into operation.*

*Proper oil quantity is shown in table (C05-C06) and relates to actual mounting position.*

**Although speed variators can match any IEC motors, BONFIGLIOLI recommends the use of genuine motors only, complete with shaft oil seals.**

*Variator units V 0.25 and V 0.5 are factory filled with "long life" synthetic oil **Shell Donax TX**. Use same oil when topping up or refilling.*

## 19.6 - Schmierung der Verstellgetriebe

Die Schmierung der Verstellgetriebe V und VD erfolgt durch Tauchschnierung im Ölbad. Vor der Inbetriebnahme der Verstellgetriebe muß geprüft werden, ob sie bis zur Ölstandskontrolle mit Öl gefüllt sind. Falls im Auftrag nicht anderweitig angegeben, werden die Verstellgetriebe mit der für die Einbaulage B3 vorgeschriebenen Ölmenge geliefert.

**Es wird in jedem Fall geraten, bei der Bestellung immer die gewünschte Einbaulage anzugeben.**

### VD

Alle Verstellgetriebe mit Differential VD und Motor, sind bei Lieferung mit Öl gefüllt. Alle Verstellgetriebe mit Differential V-D für den Anbau eines IEC-Motors werden ohne Öl geliefert. Wenn der Kunde die Getrieb selbst mit Öl füllt, müssen die in Tabelle (C05-C06) angegebenen Ölmengen verwendet werden. Die zu verwendenden Motoren müssen einen Dichtring auf der Seite der Welle haben und der Flansch zur Kopplung an das Verstellgetriebe muß öldicht sein.

**Es wird empfohlen, die Verstellgetriebe mit Differential mit öldichten BONFIGLIOLI RIDUTTORI Motoren zu kaufen.**

Die Verstellgetriebe V 0.25 und V 0.5 werden mit Schmieröl **Shell Donax TX** geliefert. Eventuelle Ölwechsel oder Nachfüllungen müssen unter Anwendung des gleichen Produkttyps erfolgen.

## 19.6 - Lubrification variateurs

*La lubrification des variateurs V et VD s'effectue par barbotage de l'huile. Avant la mise en service des variateurs/motovariateurs, vérifier la présence d'huile à l'intérieur en contrôlant que celle-ci apparaisse dans le témoin de niveau. Les variateurs/motovariateurs, sauf spécification contraire au moment de la commande, sont fournis avec une quantité d'huile relative à la position de montage B3.*

**Dans tous les cas, il est conseillé de toujours spécifier la position de montage désirée au moment de la commande.**

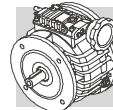
### VD

*Tous les variateurs avec différentiel VD avec moteur sont fournis avec le plein d'huile. Tous les variateurs avec différentiel VD en configuration P... (IEC) sont fournis sans huile. Dans ce cas, l'utilisateur doit effectuer le remplissage en versant la quantité d'huile indiquée dans le tableau (C05-C06) et doit utiliser des moteurs électriques avec bague d'étanchéité côté arbre et bride d'accouplement au variateur étanche à l'huile.*

**Dans tous les cas, il est conseillé d'acquérir des variateurs avec différentiel avec moteurs avec étanchéité à l'huile BONFIGLIOLI RIDUTTORI.**

*Les variateurs V 0.25 et V 0.5 sont fournis avec de l'huile lubrifiante "long life" **Shell Donax TX**. Utiliser le même type d'huile pour les éventuels vidanges ou remplissages.*

| Shell Donax TX (Caratteristiche indicative / indicative features / Anhaltswerte / Caractéristiques indicatives)                  |          |                    |       |
|----------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|-------|
| Massa volumica / density / Volumenmasse / Masse volumique                                                                        | ISO 3675 | kg/dm <sup>3</sup> | 0.852 |
| Viscosità cinematica a 40°C / kinematic viscosity at 40°C / Kinematische Viskosität bei 40°C<br>Viscosité cinématique à 40°C     | ISO 3104 | cSt                | 34    |
| Viscosità cinematica a 100°C / kinematic viscosity at 100°C / Kinematische Viskosität bei 100°C<br>Viscosité cinématique à 100°C | ISO 3104 | cSt                | 7.4   |
| Indice di viscosità / viscosity index / Viskositätsindex / Indice de viscosité                                                   | ISO 2909 | -                  | 196   |
| Punto di infiammabilità / flash point / Entflammungspunkt / Point d'inflammabilité                                               | ISO 2592 | °C                 | 198   |
| Punto di scorrimento / pour point / Stockpunkt / Point de glissement                                                             | ISO 3016 | °C                 | -48   |



I variatori V 1...V 10 vengono forniti completi di olio lubrificante minerale **Shell Donax TA**. Eventuali sostituzioni o rabbocchi potranno essere effettuati utilizzando lubrificanti compatibili.

Variator units V 1 through V 10 are factory filled with mineral oil **Shell Donax TA**. Use same type of oil when topping up or refilling.

Die Verstellgetriebe V 1...V 10 werden mit dem Schmieröl **Shell Donax TA** geliefert. Ein eventueller Wechsel oder ein etwaiges Auffüllen sollte unter Verwendung der Schmiermittel erfolgen.

Les variateurs V 1...V 10 sont fournis avec de l'huile lubrifiante **Shell Donax TA**. Utiliser le même type d'huiles pour les éventuels vidanges ou remplissages.

| Shell Donax TA (Caratteristiche indicative / indicative features / Anhaltswerte / Caractéristiques indicatives)                  |          |                    |       |
|----------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|-------|
| Massa volumica / density / Volumenmasse / Masse volumique                                                                        | ISO 3675 | kg/dm <sup>3</sup> | 0.873 |
| Viscosità cinematica a 40°C / kinematic viscosity at 40°C / Kinematische Viskosität bei 40°C<br>Viscosité cinématique à 40°C     | ISO 3104 | cSt                | 37.3  |
| Viscosità cinematica a 100°C / kinematic viscosity at 100°C / Kinematische Viskosität bei 100°C<br>Viscosité cinématique à 100°C | ISO 3104 | cSt                | 7.0   |
| Indice di viscosità / viscosity index / Viskositätsindex / Indice de viscosité                                                   | ISO 2909 | -                  | 151   |
| Punto di infiammabilità / flash point / Entflammungspunkt / Point d'inflammabilité                                               | ISO 2592 | °C                 | 196   |
| Punto di scorrimento / pour point / Stockpunkt / Point de glissement                                                             | ISO 3016 | °C                 | -42   |

Riduzione **R** lubrificata "a vita" con grasso **Shell TVX Compound B**.

Tutti i variatori sono forniti con carica di lubrificante, ad eccezione dei tipi **VD\_P(IEC)**.

Il tappo di sfiato, fornito a corredo, va posizionato come indicato nelle tabelle (C05 - C06).

Helical reduction **R** is grease lubed "for life" with **Shell TVX Compound B**.

All speed variators are factory filled with lubricant, with the only exception of units type **VD\_P(IEC)**.

The breather plug, supplied along with every unit, shall be located as per the schemes (C05) and (C06).

Die Vorstufe **R** ist mit Fett Typ **Shell TVX Compound B** gefüllt.

Alle Verstellgetriebe sind ab Werk mit Öl gefüllt, außer dem Typ **VD\_P(IEC)**.

Der Entlüftungsstopfen, der jedem Getriebe beiliegt, muss entsprechend der obige Skizze montiert werden.

Réduction **R** avec lubrification permanente au moyen de graisse **Shell TVX Compound B**.

Tous les variateurs sont fournis avec le lubrifiant, à l'exception des modèles **VD\_P (IEC)**.

Le bouchon d'évent, fourni avec chaque variateur, doit être positionné comme indiqué dans les schémas (C05 - C06).



Non mescolare olii di natura diversa.



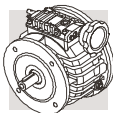
Do not mix synthetic oil with mineral oil.



Auf keinen Fall darf synthetisches Öl mit mineralischem gemischt werden !



Ne pas mélanger huiles de nature différente.



Posizioni di montaggio

Mounting positions

Einbaulagen

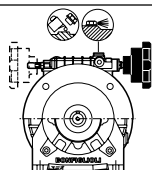
Positions de montage

(C05)

## V 0.25 - V 0.5

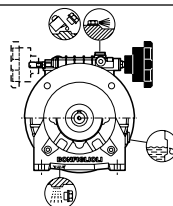
## V 1 - V 2

B3



|                      |      |
|----------------------|------|
| V 0.25 F             | 0.14 |
| V 0.5 F              | 0.18 |
| V 0.25 U / VR 0.25 _ | 0.12 |
| V 0.5 U _ / VR 0.5 _ | 0.15 |
| VD 0.5 U _ / VRD 0.5 | 0.30 |

Oil Donax TX (for life)

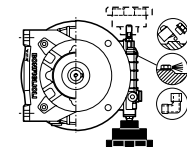


|                  |      |
|------------------|------|
| V 1 F            | 0.30 |
| V 2 F            | 0.40 |
| V 1 U / VR 1 _   | 0.25 |
| V 2 U _ / VR 2 _ | 0.32 |
| VD 1 U / VRD 1   | 0.35 |
| VD 2 U _ / VRD 2 | 0.46 |

Oil Donax TA (2000-3000 hrs.)

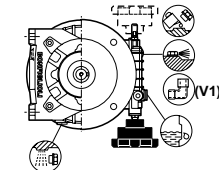


B6



|                      |      |
|----------------------|------|
| V 0.25 F             | 0.14 |
| V 0.5 F              | 0.18 |
| V 0.25 U / VR 0.25 _ | 0.12 |
| V 0.5 U _ / VR 0.5 _ | 0.15 |
| VD 0.5 U _ / VRD 0.5 | 0.30 |

Oil Donax TX (for life)

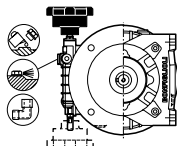


|                  |      |
|------------------|------|
| V 1 F            | 0.30 |
| V 2 F            | 0.40 |
| V 1 U / VR 1 _   | 0.25 |
| V 2 U _ / VR 2 _ | 0.32 |
| VD 1 U / VRD 1   | 0.35 |
| VD 2 U _ / VRD 2 | 0.46 |

Oil Donax TA (2000-3000 hrs.)

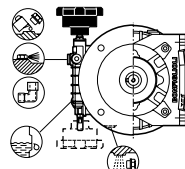


B7



|                      |      |
|----------------------|------|
| V 0.25 F             | 0.14 |
| V 0.5 F              | 0.18 |
| V 0.25 U / VR 0.25 _ | 0.12 |
| V 0.5 U _ / VR 0.5 _ | 0.15 |
| VD 0.5 U _ / VRD 0.5 | 0.30 |

Oil Donax TX (for life)

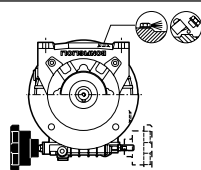


|                  |      |
|------------------|------|
| V 1 F            | 0.30 |
| V 2 F            | 0.40 |
| V 1 U / VR 1 _   | 0.25 |
| V 2 U _ / VR 2 _ | 0.32 |
| VD 1 U / VRD 1   | 0.35 |
| VD 2 U _ / VRD 2 | 0.46 |

Oil Donax TA (2000-3000 hrs.)

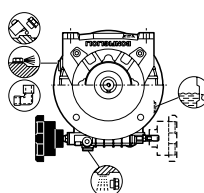


B8



|                      |      |
|----------------------|------|
| V 0.25 F             | 0.14 |
| V 0.5 F              | 0.18 |
| V 0.25 U / VR 0.25 _ | 0.12 |
| V 0.5 U _ / VR 0.5 _ | 0.15 |
| VD 0.5 U _ / VRD 0.5 | 0.30 |

Oil Donax TX (for life)

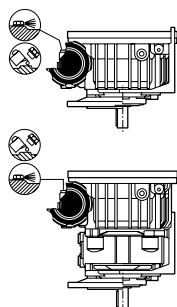


|                  |      |
|------------------|------|
| V 1 F            | 0.30 |
| V 2 F            | 0.40 |
| V 1 U / VR 1 _   | 0.25 |
| V 2 U _ / VR 2 _ | 0.32 |
| VD 1 U / VRD 1   | 0.35 |
| VD 2 U _ / VRD 2 | 0.46 |

Oil Donax TA (2000-3000 hrs.)

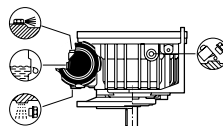


V5



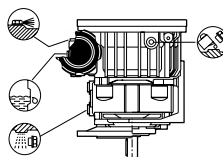
|                      |      |
|----------------------|------|
| V 0.25 F             | 0.28 |
| V 0.5 F              | 0.30 |
| V 0.25 U / VR 0.25 _ | 0.22 |
| V 0.5 U _ / VR 0.5 _ | 0.27 |

Oil Donax TX (for life)



|                  |      |
|------------------|------|
| V 1 F            | 0.58 |
| V 2 F            | 0.78 |
| V 1 U / VR 1 _   | 0.40 |
| V 2 U _ / VR 2 _ | 0.54 |

Oil Donax TA (2000-3000 hrs.)

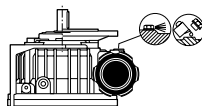


|                  |      |
|------------------|------|
| VD 1 U / VRD 1   | 1.00 |
| VD 2 U _ / VRD 2 | 1.5  |

Oil Donax TA (2000-3000 hrs.)

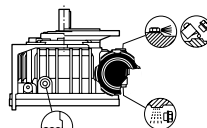


V6



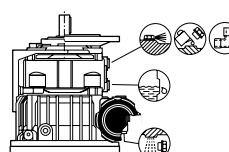
|                      |      |
|----------------------|------|
| V 0.25 F             | 0.14 |
| V 0.5 F              | 0.18 |
| V 0.25 U / VR 0.25 _ | 0.12 |
| V 0.5 U _ / VR 0.5 _ | 0.15 |

Oil Donax TX (for life)



|                  |      |
|------------------|------|
| V 1 F            | 0.30 |
| V 2 F            | 0.40 |
| V 1 U / VR 1 _   | 0.25 |
| V 2 U _ / VR 2 _ | 0.32 |

Oil Donax TA (2000-3000 hrs.)



|                  |      |
|------------------|------|
| VD 1 U / VRD 1   | 0.50 |
| VD 2 U _ / VRD 2 | 0.70 |

Oil Donax TA (2000-3000 hrs.)



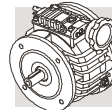
Tappo di sfiato  
Breather plug  
Entlüftungstopfen  
Bouchon d'évent

Tappo di carico  
Filler plug  
Einfüllstopfen  
Bouchon de remplissage

Tappo di scarico  
Drain plug  
Ablassstopfen  
Bouchon de vidange

Tappo di livello  
Level plug  
Ölstandsstopfen  
Bouchon de niveau

Raccordo orientabile  
90° elbow  
90° Winkel  
Raccord coudé



Posizioni di montaggio

Mounting positions

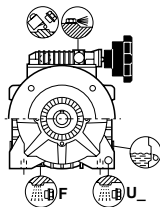
Einbaulagen

Positions de montage

(C06)

## V 3 - V 5.5

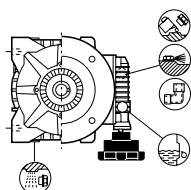
B3



|                                           |      |
|-------------------------------------------|------|
| V 3 F - V 5.5 F_                          | 0.70 |
| V 3 U / VR 3<br>V 5.5 U / VR 5.5          | 1.0  |
| VD 3 F<br>VD 5.5 F_                       | 1.3  |
| VD 3 U / VRD 3 U<br>VD 5.5 U / VRD 5.5 U_ | 1.6  |

Oil Donax TA (2000-3000 hrs.)

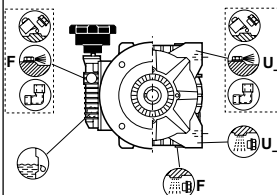
B6



|                                           |      |
|-------------------------------------------|------|
| V 3 F - V 5.5 F_                          | 0.90 |
| V 3 U / VR 3<br>V 5.5 U / VR 5.5          | 1.0  |
| VD 3 F<br>VD 5.5 F_                       | 1.3  |
| VD 3 U / VRD 3 U<br>VD 5.5 U / VRD 5.5 U_ | 1.6  |

Oil Donax TA (2000-3000 hrs.)

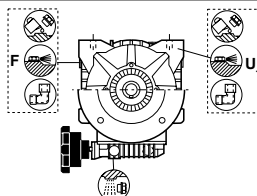
B7



|                                           |      |
|-------------------------------------------|------|
| V 3 F - V 5.5 F_                          | 0.90 |
| V 3 U / VR 3<br>V 5.5 U / VR 5.5          | 1.0  |
| VD 3 F<br>VD 5.5 F_                       | 1.3  |
| VD 3 U / VRD 3 U<br>VD 5.5 U / VRD 5.5 U_ | 1.6  |

Oil Donax TA (2000-3000 hrs.)

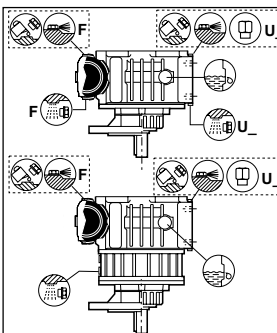
B8



|                                           |     |
|-------------------------------------------|-----|
| V 3 F - V 5.5 F_                          | 1.0 |
| V 3 U / VR 3<br>V 5.5 U / VR 5.5          | 1.3 |
| VD 3 F<br>VD 5.5 F_                       | 1.6 |
| VD 3 U / VRD 3 U<br>VD 5.5 U / VRD 5.5 U_ | 1.9 |

Oil Donax TA (2000-3000 hrs.)

V5



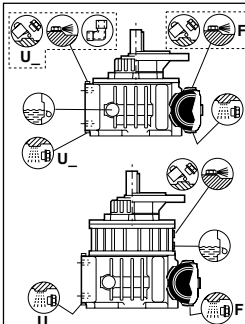
|                                  |     |
|----------------------------------|-----|
| V 3 F - V 5.5 F_                 | 2.1 |
| V 3 U / VR 3<br>V 5.5 U / VR 5.5 | 2.0 |

Oil Donax TA (2000-3000 hrs.)

|                                           |     |
|-------------------------------------------|-----|
| VD 3 F<br>VD 5.5 F_                       | 4.5 |
| VD 3 U / VRD 3 U<br>VD 5.5 U / VRD 5.5 U_ | 4.8 |

Oil Donax TA (2000-3000 hrs.)

V6



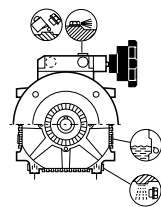
|                                  |     |
|----------------------------------|-----|
| V 3 F - V 5.5 F_                 | 1.0 |
| V 3 U / VR 3<br>V 5.5 U / VR 5.5 | 1.3 |

Oil Donax TA (2000-3000 hrs.)

|                                           |     |
|-------------------------------------------|-----|
| VD 3 F<br>VD 5.5 F_                       | 2.8 |
| VD 3 U / VRD 3 U<br>VD 5.5 U / VRD 5.5 U_ | 3.0 |

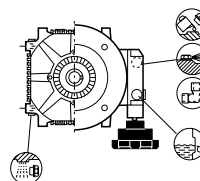
Oil Donax TA (2000-3000 hrs.)

## V 10



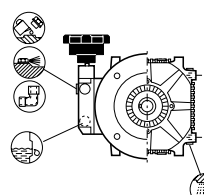
|                                 |     |
|---------------------------------|-----|
| V 10 F<br>V 10 U_ / VR 10       | 1.8 |
| VD 10 F<br>VD 10 U_ / VRD 10 U_ | 2.0 |

Oil Donax TA (2000-3000 hrs.)



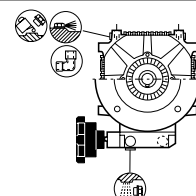
|                                 |     |
|---------------------------------|-----|
| V 10 F<br>V 10 U_ / VR 10       | 1.8 |
| VD 10 F<br>VD 10 U_ / VRD 10 U_ | 2.0 |

Oil Donax TA (2000-3000 hrs.)



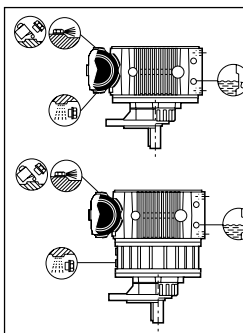
|                                 |     |
|---------------------------------|-----|
| V 10 F<br>V 10 U_ / VR 10       | 1.8 |
| VD 10 F<br>VD 10 U_ / VRD 10 U_ | 2.0 |

Oil Donax TA (2000-3000 hrs.)



|                                 |     |
|---------------------------------|-----|
| V 10 F<br>V 10 U_ / VR 10       | 2.1 |
| VD 10 F<br>VD 10 U_ / VRD 10 U_ | 2.1 |

Oil Donax TA (2000-3000 hrs.)

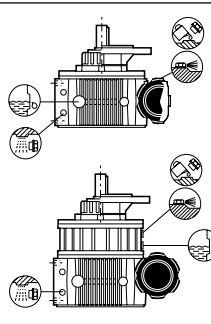


|                           |     |
|---------------------------|-----|
| V 10 F<br>V 10 U_ / VR 10 | 3.2 |
|---------------------------|-----|

Oil Donax TA (2000-3000 hrs.)

|                              |     |
|------------------------------|-----|
| VD 10 F<br>VD 10 U_ / VRD 10 | 8.5 |
|------------------------------|-----|

Oil Donax TA (2000-3000 hrs.)

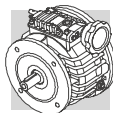


|                           |     |
|---------------------------|-----|
| V 10 F<br>V 10 U_ / VR 10 | 2.8 |
|---------------------------|-----|

Oil Donax TA (2000-3000 hrs.)

|                              |     |
|------------------------------|-----|
| VD 10 F<br>VD 10 U_ / VRD 10 | 7.0 |
|------------------------------|-----|

Oil Donax TA (2000-3000 hrs.)



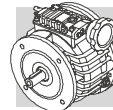
# 19.7 - Tabelle dati tecnici

# 19.7 - Rating charts

# 19.7 - Tabelle-technische daten

# 19.7 - Tableaux caracteristiques techniques

| V <sub>—</sub>      |                                           |                                        |                                          |                                         |                                    |                                             |                                              |                                                                                     |                                                                                         |                                                                                              |
|---------------------|-------------------------------------------|----------------------------------------|------------------------------------------|-----------------------------------------|------------------------------------|---------------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| P <sub>1</sub> (kW) | n <sub>2</sub><br>min <sup>-1</sup>       | n <sub>2</sub> '<br>min <sup>-1</sup>  | M <sub>2</sub><br>Nm                     | M <sub>2</sub> '<br>Nm                  | R <sub>n1</sub><br>N               | R <sub>n2</sub><br>N                        | R <sub>n2</sub> '<br>N                       |  | IEC  |           |
| <b>0.12</b>         | 604                                       | 125                                    | 1.4                                      | 3.7                                     | 400                                | 900                                         | 1200                                         | V 0.25_                                                                             | P63                                                                                     | BN63B6 52-53                                                                                 |
| <b>0.18</b>         | 604<br>910                                | 125<br>190                             | 2.0<br>1.5                               | 4.0<br>4.0                              | 400<br>350                         | 900<br>780                                  | 1200<br>1200                                 | V 0.25_<br>V 0.25_                                                                  | P63<br>P63                                                                              | BN71A6R 52-53<br>BN63B4 52-53                                                                |
| <b>0.25</b>         | 663<br>910<br>1000<br>1820                | 125<br>190<br>190<br>380               | 3.0<br>1.8<br>2.0<br>1.0                 | 8.0<br>4.0<br>5.0<br>2.6                | 430<br>350<br>370<br>300           | 1100<br>780<br>970<br>620                   | 1800<br>1200<br>1700<br>1060                 | V 0.5_<br>V 0.25_<br>V 0.5_<br>V 0.25_                                              | P71<br>P63<br>P71<br>P63                                                                | BN71B6 56-57<br>BN63C4 52-53<br>BN71A4 56-57<br>BN63B2 52-53                                 |
| <b>0.37</b>         | 663<br>1000<br>1820                       | 125<br>190<br>380                      | 4.0<br>3.0<br>1.5                        | 8.0<br>8.0<br>4.0                       | 430<br>370<br>300                  | 1100<br>970<br>620                          | 1800<br>1700<br>1060                         | V 0.5_<br>V 0.5_<br>V 0.25_                                                         | P71<br>P71<br>P63                                                                       | BN71C6 56-57<br>BN71B4 56-57<br>BN63C2 52-53                                                 |
| <b>0.55</b>         | 663<br>663<br>1000<br>1000<br>2000        | 125<br>125<br>190<br>190<br>380        | 6.0<br>6.0<br>4.5<br>4.5<br>2.0          | 8.0<br>16.0<br>8.0<br>12.0<br>5.0       | —<br>750<br>—<br>650<br>520        | 960<br>1530<br>840<br>1330<br>750           | 1670<br>2680<br>1460<br>2330<br>1350         | V 0.5_<br>V 1_<br>V 0.5_<br>V 1_<br>V 0.5_                                          | P80<br>P80<br>P80<br>P80<br>P71                                                         | BN80B6 56-57<br>BN80B6 60-61<br>BN80A4 56-57<br>BN80A4 60-61<br>BN71B2 56-57                 |
| <b>0.75</b>         | 663<br>1000<br>1000<br>2000               | 125<br>190<br>190<br>380               | 8.0<br>6.0<br>6.0<br>3.0                 | 16.0<br>16.0<br>8.0<br>8.0              | 750<br>650<br>—<br>520             | 1530<br>1330<br>840<br>750                  | 2680<br>2330<br>1460<br>1350                 | V 1_<br>V 1_<br>V 0.5_<br>V 0.5_                                                    | P80<br>P80<br>P80<br>P71                                                                | BN80C6 60-61<br>BN80B4 60-61<br>BN80B4 56-57<br>BN71C2 56-57                                 |
| <b>1.1</b>          | 596<br>663<br>900<br>1000<br>2000<br>2000 | 125<br>125<br>190<br>190<br>380<br>380 | 12.0<br>12.0<br>9.1<br>9.0<br>4.5<br>4.5 | 16.0<br>32<br>16.0<br>24<br>8.0<br>12.0 | —<br>1240<br>—<br>1080<br>—<br>870 | 1580<br>2030<br>1380<br>1770<br>670<br>1050 | 2660<br>3530<br>2320<br>3070<br>1160<br>1850 | V 1_<br>V 2_<br>V 1_<br>V 2_<br>V 0.5_<br>V 1_                                      | P90<br>P90<br>P90<br>P90<br>P80<br>P80                                                  | BN90L6 60-61<br>BN90L6 64-65<br>BN90S4 60-61<br>BN90S4 64-65<br>BN80B2 56-57<br>BN80B2 60-61 |
| <b>1.5</b>          | 663<br>900<br>1000<br>2000<br>2000        | 125<br>190<br>190<br>380<br>380        | 16.0<br>12.0<br>12.0<br>6.0<br>6.0       | 35<br>16.0<br>32<br>8.0<br>16.0         | 1240<br>—<br>1080<br>—<br>870      | 2030<br>1380<br>1770<br>370<br>1050         | 3530<br>2320<br>3070<br>1160<br>1850         | V 2_<br>V 1_<br>V 2_<br>V 0.5_<br>V 1_                                              | P90<br>P90<br>P90<br>P80<br>P80                                                         | BN100LA6R 64-65<br>BN90LA4 60-61<br>BN90LA4 64-65<br>BN80C2 56-57<br>BN80C2 60-61            |
| <b>1.8</b>          | 1000                                      | 190                                    | 14.0                                     | 35                                      | 1080                               | 1770                                        | 3070                                         | V 2_                                                                                | P90                                                                                     | BN90LB4 64-65                                                                                |
| <b>2.2</b>          | 663<br>1000                               | 125<br>190                             | 24<br>16.0                               | 56<br>40                                | 2220<br>1930                       | 3220<br>2790                                | 5600<br>4860                                 | V 3_<br>V 3_                                                                        | P112<br>P100                                                                            | BN112M6 68-69<br>BN100LA4 68-69                                                              |
| <b>3.0</b>          | 1000                                      | 190                                    | 24                                       | 56                                      | 1930                               | 2790                                        | 4860                                         | V 3_                                                                                | P100                                                                                    | BN100LB4 68-69                                                                               |
| <b>4.0</b>          | 663<br>1000                               | 125<br>190                             | 43<br>32                                 | 86<br>72                                | 2640<br>1930                       | 4020<br>2790                                | 7000<br>4860                                 | V 10_<br>V 5.5_                                                                     | P132<br>P112                                                                            | BN132MA6 76-77<br>BN112M4 72-73                                                              |
| <b>5.5</b>          | 663<br>1000                               | 125<br>190                             | 63<br>43                                 | 116<br>86                               | 2640<br>2300                       | 4020<br>3500                                | 7000<br>6080                                 | V 10_<br>V 10_                                                                      | P132<br>P132                                                                            | BN132MB6 76-77<br>BN132S4 76-77                                                              |
| <b>7.5</b>          | 1000                                      | 190                                    | 58                                       | 116                                     | 2300                               | 3500                                        | 6080                                         | V 10_                                                                               | P132                                                                                    | BN132MA4 76-77                                                                               |
| <b>9.2</b>          | 1000                                      | 190                                    | 72                                       | 144                                     | 2300                               | 3500                                        | 6080                                         | V 10_                                                                               | P132                                                                                    | BN132MB4 76-77                                                                               |



## VD\_

| P <sub>1</sub> (kW) | n <sub>2</sub><br>min <sup>-1</sup> | n <sub>2</sub> '<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2max</sub><br>Nm | R <sub>n1</sub><br>N | R <sub>n2</sub><br>N | R <sub>n2max</sub><br>N |  |  |  |
|---------------------|-------------------------------------|---------------------------------------|----------------------|-------------------------|----------------------|----------------------|-------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>0.25</b>         | 663                                 | 0                                     | 3.0                  | 8.0                     | 430                  | 1100                 | 1800                    | VD 0.5_ P71                                                                         | BN71B6                                                                              | 80-81                                                                               |
|                     | 1000                                | 0                                     | 2.0                  | 5.0                     | 370                  | 970                  | 1700                    | VD 0.5_ P71                                                                         | BN71A4                                                                              | 80-81                                                                               |
| <b>0.37</b>         | 663                                 | 0                                     | 4.0                  | 8.0                     | 430                  | 1100                 | 1800                    | VD 0.5_ P71                                                                         | BN71C6                                                                              | 80-81                                                                               |
|                     | 1000                                | 0                                     | 3.0                  | 8.0                     | 370                  | 970                  | 1700                    | VD 0.5_ P71                                                                         | BN71B4                                                                              | 80-81                                                                               |
| <b>0.55</b>         | 663                                 | 0                                     | 6.0                  | 16.0                    | 750                  | 1530                 | 2680                    | VD 1_ P80                                                                           | BN80B6                                                                              | 80-81                                                                               |
|                     | 1000                                | 0                                     | 4.5                  | 12.0                    | 650                  | 1330                 | 2330                    | VD 1_ P80                                                                           | BN80A4                                                                              | 80-81                                                                               |
|                     | 2000                                | 0                                     | 2.0                  | 5.0                     | 520                  | 750                  | 1350                    | VD 0.5_ P71                                                                         | BN71B2                                                                              | 80-81                                                                               |
| <b>0.75</b>         | 663                                 | 0                                     | 8.0                  | 16.0                    | 750                  | 1530                 | 2680                    | VD 1_ P80                                                                           | BN80C6                                                                              | 80-81                                                                               |
|                     | 1000                                | 0                                     | 6.0                  | 16.0                    | 650                  | 1330                 | 2330                    | VD 1_ P80                                                                           | BN80B4                                                                              | 80-81                                                                               |
|                     | 2000                                | 0                                     | 3.0                  | 8.0                     | 520                  | 750                  | 1350                    | VD 0.5_ P71                                                                         | BN71C2                                                                              | 80-81                                                                               |
| <b>1.1</b>          | 663                                 | 0                                     | 12.0                 | 32                      | 1240                 | 2030                 | 3530                    | VD 2_ P90                                                                           | BN90L6                                                                              | 80-81                                                                               |
|                     | 1000                                | 0                                     | 9.0                  | 24                      | 1080                 | 1770                 | 3070                    | VD 2_ P90                                                                           | BN90S4                                                                              | 80-81                                                                               |
|                     | 2000                                | 0                                     | 4.5                  | 12.0                    | 870                  | 1050                 | 1850                    | VD 1_ P80                                                                           | BN80B2                                                                              | 80-81                                                                               |
| <b>1.5</b>          | 663                                 | 0                                     | 16.0                 | 35                      | 1240                 | 2030                 | 3530                    | VD 2_ P90                                                                           | BN100LA6R                                                                           | 80-81                                                                               |
|                     | 1000                                | 0                                     | 12.0                 | 32                      | 1080                 | 1770                 | 3070                    | VD 2_ P90                                                                           | BN90LA4                                                                             | 80-81                                                                               |
|                     | 2000                                | 0                                     | 6.0                  | 16.0                    | 870                  | 1050                 | 1850                    | VD 1_ P80                                                                           | BN80C2                                                                              | 80-81                                                                               |
| <b>1.8</b>          | 1000                                | 0                                     | 14.0                 | 35                      | 1080                 | 1770                 | 3070                    | VD 2_ P90                                                                           | BN90LB4                                                                             | 80-81                                                                               |
| <b>2.2</b>          | 663                                 | 0                                     | 24                   | 56                      | 2220                 | 3220                 | 5600                    | VD 3_ P112                                                                          | BN112M6                                                                             | 80-81                                                                               |
|                     | 1000                                | 0                                     | 16.0                 | 40                      | 1930                 | 2790                 | 4860                    | VD 3_ P100                                                                          | BN100LA4                                                                            | 80-81                                                                               |
| <b>3.0</b>          | 1000                                | 0                                     | 24                   | 56                      | 1930                 | 2790                 | 4860                    | VD 3_ P100                                                                          | BN100LB4                                                                            | 80-81                                                                               |
| <b>4.0</b>          | 663                                 | 0                                     | 43                   | 86                      | 2640                 | 4020                 | 7000                    | VD 10_ P132                                                                         | BN132MA6                                                                            | 80-81                                                                               |
|                     | 1000                                | 0                                     | 32                   | 72                      | 1930                 | 2790                 | 4860                    | VD 5.5_ P112                                                                        | BN112M4                                                                             | 80-81                                                                               |
| <b>5.5</b>          | 663                                 | 0                                     | 63                   | 116                     | 2640                 | 4020                 | 7000                    | VD 10_ P132                                                                         | BN132MB6                                                                            | 80-81                                                                               |
|                     | 1000                                | 0                                     | 43                   | 86                      | 2300                 | 3500                 | 6080                    | VD 10_ P132                                                                         | BN132S4                                                                             | 80-81                                                                               |
| <b>7.5</b>          | 1000                                | 0                                     | 58                   | 116                     | 2300                 | 3500                 | 6080                    | VD 10_ P132                                                                         | BN132MA4                                                                            | 80-81                                                                               |
| <b>9.2</b>          | 1000                                | 0                                     | 72                   | 144                     | 2300                 | 3500                 | 6080                    | VD 10_ P132                                                                         | BN132MB4                                                                            | 80-81                                                                               |

NB.

Il numero di giri a cui è riferita la coppia  $M_{2max}$  è ricavabile dalle curve di coppia riportate nelle tabelle (C07-C08-C09).

I carichi radiali in entrata al variatore (ingresso HS)  $R_{n1}$  e i carichi in uscita  $R_{n2}$  indicati in tabella sono da considerare applicati sulla mezziera dell'albero. Per carichi la cui linea d'azione non coincide con la mezziera dell'albero in esame, effettuare le verifiche riportate a pag. 10.

NOTE.

RPM for torque  $M_{2max}$  can be obtained from the torque diagrams shown in tables (C07-C08-C09).

Radial loads applied at variator input (HS input)  $R_{n1}$  and output loads  $R_{n2}$  indicated in the table are referred to mid-point of shaft. Where loads are applied at any other position of shaft, follow procedure detailed on page 10 to verify compatibility.

HINWEIS:

Die Drehzahl auf die sich das Drehmoment  $M_{2max}$  bezieht, ist den in der Tabelle (C07-C08-C09) angegebenen Drehmomentkurven zu entnehmen.

Die in der Tabelle angegebenen Radialkräfte am Antrieb des Verstellgetriebes (Antrieb HS)  $R_{n1}$  und die Lasten im Abtrieb  $R_{n2}$  sind als auf die Wellenmitte applizierte Kräfte zu kalkulieren. Für Kräfte, deren Wirkungslinie nicht mit der Mitte der zur Frage stehenden Welle übereinstimmt, sind die auf Seite 10 angeführten Kontrollen vorzunehmen.

NB.

On peut obtenir le nombre des tours, auquel le couple  $M_{2max}$  se réfère, grâce aux courbes de couple indiquées sur le tableau (C07-C08-C09).

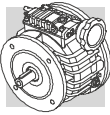
Il faut considérer les charges radiales en entrée sur le variateur (entrée HS)  $R_{n1}$  et les charges en sortie  $R_{n2}$  indiquées sur le tableau comme appliquées au milieu de l'arbre. Pour les charges dont la ligne d'action ne coïncide pas avec le milieu de l'arbre concerné, effectuer les vérifications indiquées à page 10.

**AVVERTENZA:** Si sconsiglia l'utilizzo del variatore con velocità in ingresso inferiori a 300 min<sup>-1</sup>.

**WARNING:** The use of variator with input speeds lower than 300 rpm is NOT recommended.

**HINWEIS:** Von einem Einsatz des Verstellgetriebes mit einer Antriebsgeschwindigkeit unter 300 min<sup>-1</sup> wird abgeraten.

**N.B. :** Il n'est pas conseillé d'utiliser le variateur avec une vitesse en entrée inférieure à 300 min<sup>-1</sup>.



Le tabelle seguenti riportano i diagrammi di coppia dei motovariatori V e VD.

Per facilitarne la comprensione riportiamo un esempio con alcune indicazioni sui dati riportati.

The tables below show the torque diagrams for motovariators V and VD.

An example diagram reporting corresponding data is provided for better clarity.

Die nachstehenden Tabellen geben die Diagramme der Drehmomente an den Verstellgetrieben V und V\_D wieder.

Zum leichteren Verständnis, führen wir ein Beispiel unter Grundlage der angegebenen Daten auf.

Les tableaux suivants indiquent les diagrammes de couple des motovariateurs V et VD.

Par soucis de clarté voici un exemple avec des indications sur les données énoncées.

|                                                                                                                                     |                               |         |              |              |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------|--------------|--------------|
| Tipo e ingresso variatore<br>Variator type and input<br>Typ und Antrieb des<br>Verstellgetriebemotor<br>Type et entrée du variateur | <b>V 0.5_P71</b>              |         | T1           | T2           |
|                                                                                                                                     | $n_1 = 2800 \text{ min}^{-1}$ | $M_2 =$ | 3.0 - 8.0 Nm | 2.0 - 5.0 Nm |
|                                                                                                                                     |                               | $P_1 =$ | 0.75 kW      | 0.55 kW      |

Velocità in entrata al motovariatore  
Motovariator input speed  
Geschwindigkeit im Antrieb am  
Verstellgetriebemotor  
Vitesse en entrée sur le motovariateur

Coppia (Nm) in uscita al motovariatore  
Motovariator output torque (Nm)  
Drehmoment (Nm) im Abtrieb am  
Verstellgetriebemotor  
Couple (Nm) en sortie du  
motovariateur

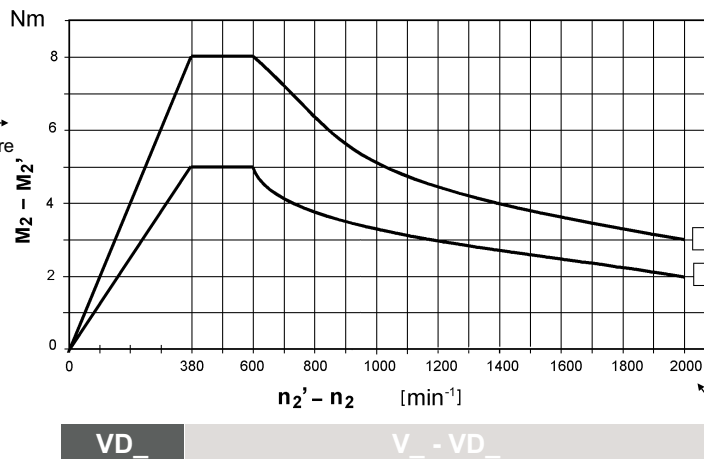
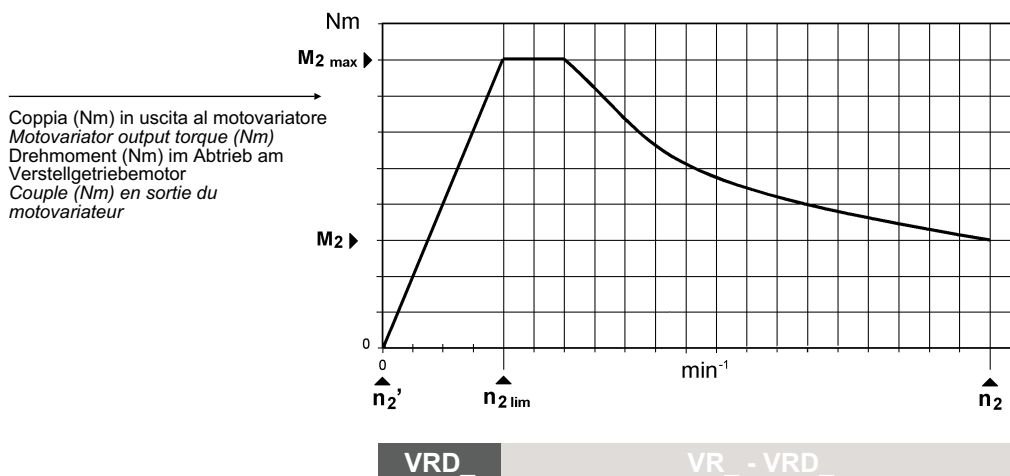


Diagramma riferito a 0.75 kW  
Curve refers to 0.75 kW  
Diagramm bezüglich 0,75 kW  
Diagramme référé à 0,75 kW

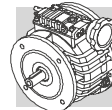
Diagramma riferito a 0.55 kW  
Curve refers to 0.55 kW  
Diagramm bezüglich 0,55 kW  
Diagramme référé à 0,55 kW

Velocità in uscita al motovariatore  
Motovariator output speed  
Geschwindigkeit am Abtrieb des  
Verstellgetriebemotors  
Vitesse en sortie du motovariateur



Coppia (Nm) in uscita al motovariatore  
Motovariator output torque (Nm)  
Drehmoment (Nm) im Abtrieb am  
Verstellgetriebemotor  
Couple (Nm) en sortie du  
motovariateur

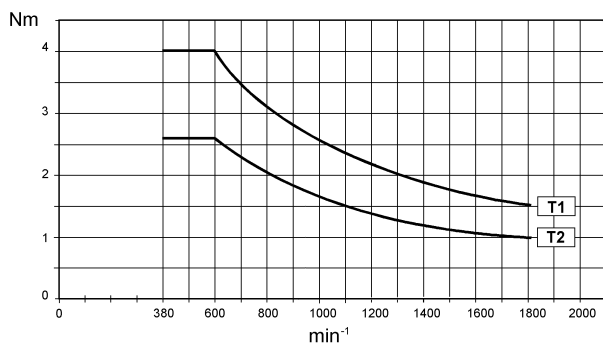
Velocità in uscita al motovariatore  
Motovariator output speed  
Geschwindigkeit am Abtrieb des  
Verstellgetriebemotors  
Vitesse en sortie du motovariateur



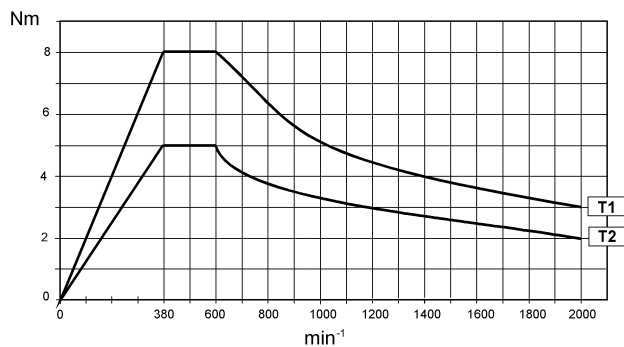
(C07)

**$n_1 = 2800$**

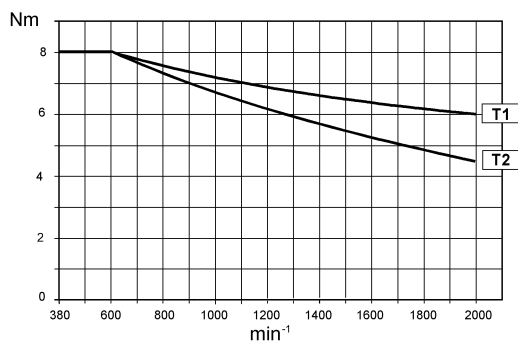
| V 0.25_P63                    | T1     |              | T2           |
|-------------------------------|--------|--------------|--------------|
|                               | $M_2=$ | 1.5 - 4.0 Nm | 1.0 - 2.6 Nm |
|                               | $P_1=$ | 0.37 kW      | 0.25 kW      |
| $n_1 = 2800 \text{ min}^{-1}$ |        |              |              |



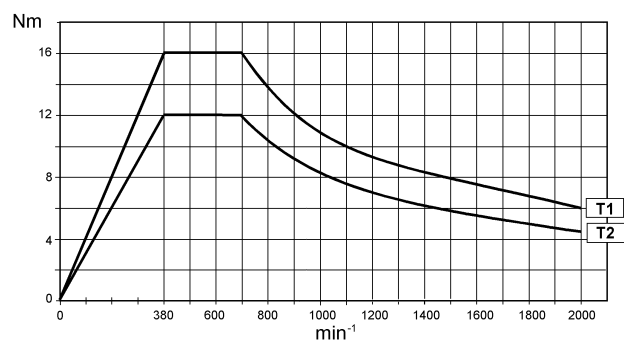
| V 0.5_P71                     | T1     |              | T2           |
|-------------------------------|--------|--------------|--------------|
|                               | $M_2=$ | 3.0 - 8.0 Nm | 2.0 - 5.0 Nm |
|                               | $P_1=$ | 0.75 kW      | 0.55 kW      |
| $n_1 = 2800 \text{ min}^{-1}$ |        |              |              |



| V 0.5_P80                     | T1     |              | T2           |
|-------------------------------|--------|--------------|--------------|
|                               | $M_2=$ | 6.0 - 8.0 Nm | 4.5 - 8.0 Nm |
|                               | $P_1=$ | 1.5 kW       | 1.1 kW       |
| $n_1 = 2800 \text{ min}^{-1}$ |        |              |              |



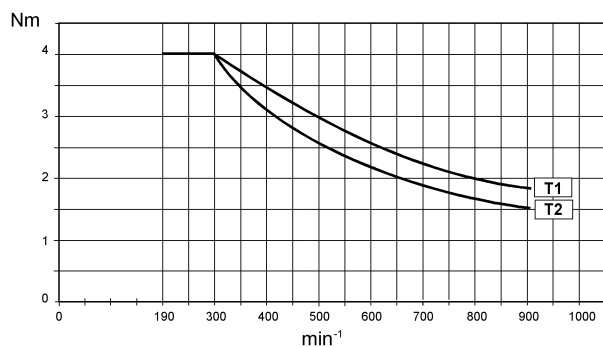
| V 1_P80                       | T1     |               | T2            |
|-------------------------------|--------|---------------|---------------|
|                               | $M_2=$ | 6.0 - 16.0 Nm | 4.5 - 12.0 Nm |
|                               | $P_1=$ | 1.5 kW        | 1.1 kW        |
| $n_1 = 2800 \text{ min}^{-1}$ |        |               |               |



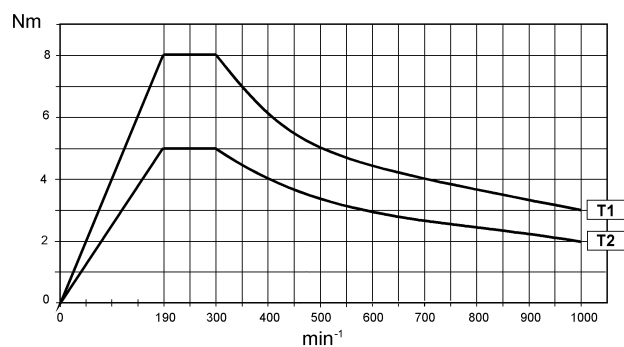
(C08)

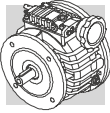
**$n_1 = 1400$**

| V 0.25_P63                    | T1     |              | T2           |
|-------------------------------|--------|--------------|--------------|
|                               | $M_2=$ | 1.8 - 4.0 Nm | 1.5 - 4.0 Nm |
|                               | $P_1=$ | 0.25 kW      | 0.18 kW      |
| $n_1 = 1400 \text{ min}^{-1}$ |        |              |              |



| V 0.5_P71                     | T1     |              | T2           |
|-------------------------------|--------|--------------|--------------|
|                               | $M_2=$ | 3.0 - 8.0 Nm | 2.0 - 5.0 Nm |
|                               | $P_1=$ | 0.37 kW      | 0.25 kW      |
| $n_1 = 1400 \text{ min}^{-1}$ |        |              |              |



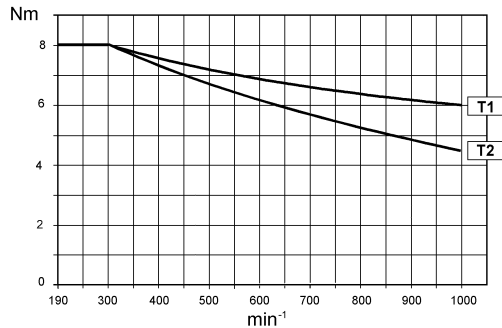


(C08)

**$n_1 = 1400$**

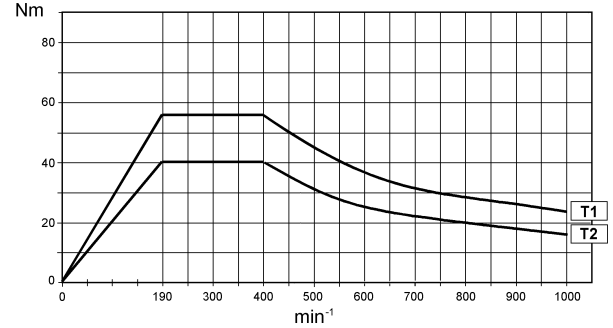
| V 0.5_P80 | T1           | T2           |
|-----------|--------------|--------------|
| $M_2 =$   | 6.0 - 8.0 Nm | 4.5 - 8.0 Nm |
| $P_1 =$   | 0.75 kW      | 0.55 kW      |

**$n_1 = 1400 \text{ min}^{-1}$**



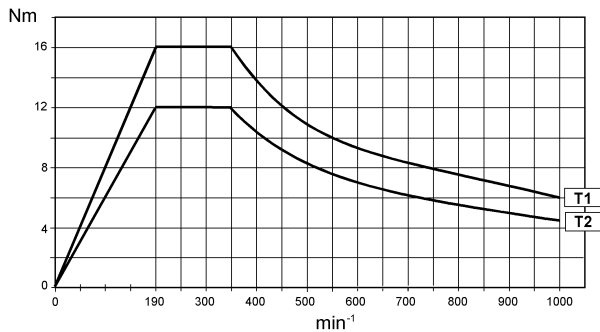
| V 3_P100 | T1         | T2           |
|----------|------------|--------------|
| $M_2 =$  | 24 - 56 Nm | 16.0 - 40 Nm |
| $P_1 =$  | 3.0 kW     | 2.2 kW       |

**$n_1 = 1400 \text{ min}^{-1}$**



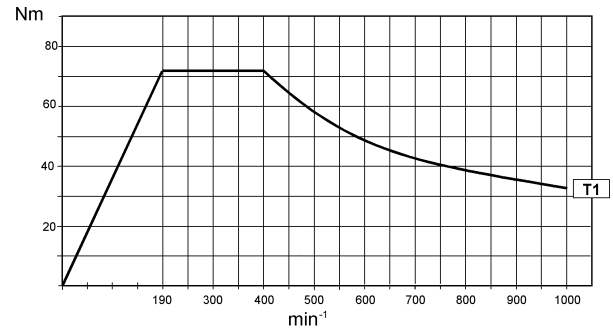
| V 1_P80 | T1            | T2            |
|---------|---------------|---------------|
| $M_2 =$ | 6.0 - 16.0 Nm | 4.5 - 12.0 Nm |
| $P_1 =$ | 0.75 kW       | 0.55 kW       |

**$n_1 = 1400 \text{ min}^{-1}$**



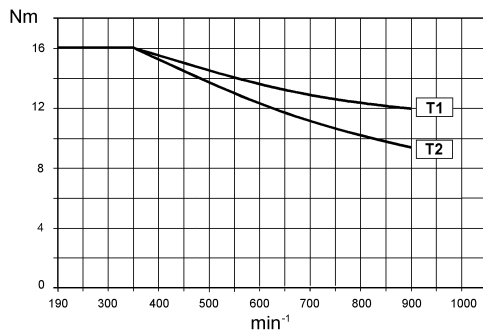
| V 5.5_P112 | T1         |
|------------|------------|
| $M_2 =$    | 32 - 72 Nm |
| $P_1 =$    | 4.0 kW     |

**$n_1 = 1400 \text{ min}^{-1}$**



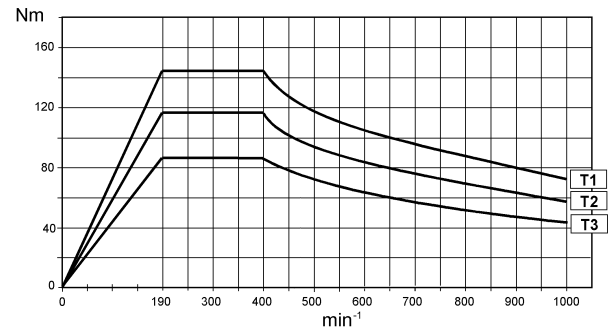
| V 1_P90 | T1             | T2            |
|---------|----------------|---------------|
| $M_2 =$ | 12.0 - 16.0 Nm | 9.1 - 16.0 Nm |
| $P_1 =$ | 1.1 kW         | 1.1 kW        |

**$n_1 = 1400 \text{ min}^{-1}$**



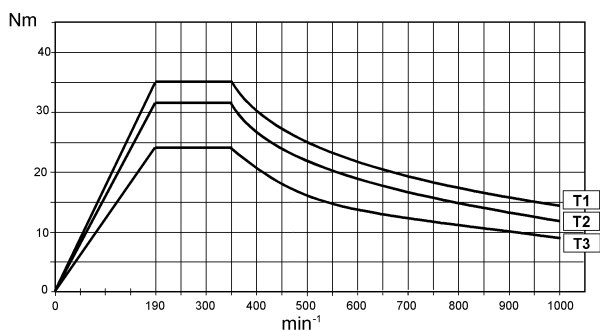
| V 10_P132 | T1          | T2          | T3         |
|-----------|-------------|-------------|------------|
| $M_2 =$   | 72 - 144 Nm | 58 - 116 Nm | 43 - 86 Nm |
| $P_1 =$   | 9.2 kW      | 7.5 kW      | 5.5 kW     |

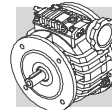
**$n_1 = 1400 \text{ min}^{-1}$**



| V 2_P90 | T1           | T2           | T3          |
|---------|--------------|--------------|-------------|
| $M_2 =$ | 14.0 - 35 Nm | 12.0 - 32 Nm | 9.0 - 24 Nm |
| $P_1 =$ | 1.8 kW       | 1.5 kW       | 1.1 kW      |

**$n_1 = 1400 \text{ min}^{-1}$**

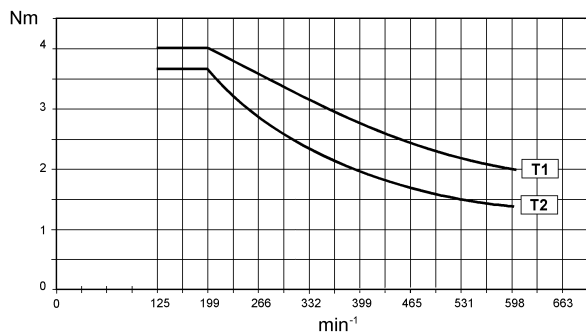




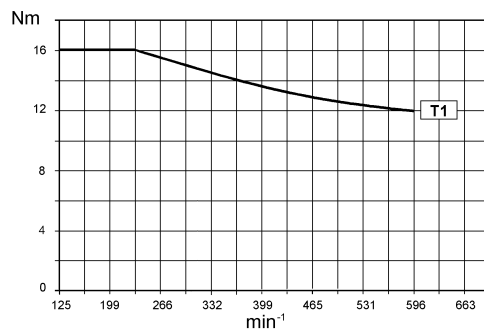
(C09)

**$n_1 = 900$**

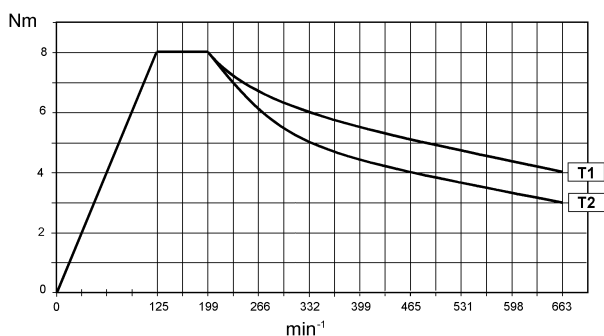
| V 0.25_P63                   | T1             |              | T2           |
|------------------------------|----------------|--------------|--------------|
|                              | M <sub>2</sub> | 2.0 - 4.0 Nm | 1.4 - 3.7 Nm |
| $n_1 = 900 \text{ min}^{-1}$ | P <sub>1</sub> | 0.18 kW      | 0.12 kW      |



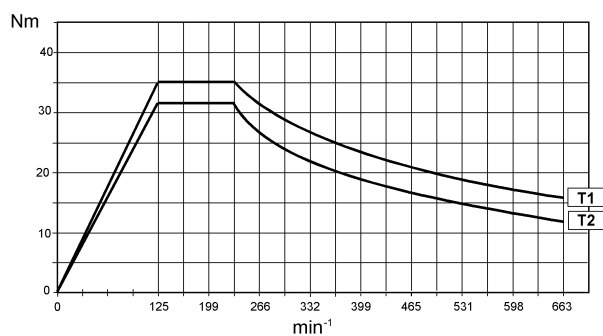
| V 1_P90                      | T1             |                |
|------------------------------|----------------|----------------|
|                              | M <sub>2</sub> | 12.0 - 16.0 Nm |
| $n_1 = 900 \text{ min}^{-1}$ | P <sub>1</sub> | 1.1 kW         |



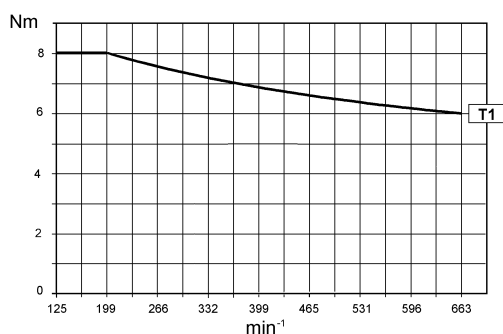
| V 0.5_P71                    | T1             |              | T2           |
|------------------------------|----------------|--------------|--------------|
|                              | M <sub>2</sub> | 4.0 - 8.0 Nm | 3.0 - 8.0 Nm |
| $n_1 = 900 \text{ min}^{-1}$ | P <sub>1</sub> | 0.37 kW      | 0.25 kW      |



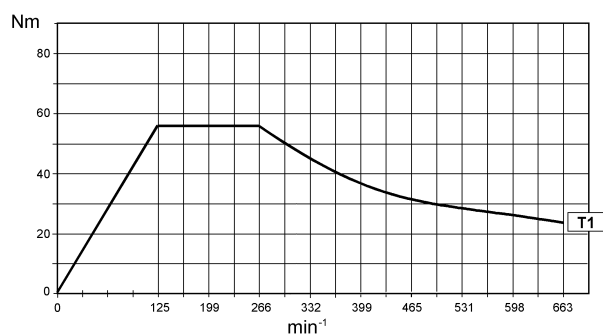
| V 2_P90                      | T1             |              | T2           |
|------------------------------|----------------|--------------|--------------|
|                              | M <sub>2</sub> | 16.0 - 35 Nm | 12.0 - 32 Nm |
| $n_1 = 900 \text{ min}^{-1}$ | P <sub>1</sub> | 1.5 kW       | 1.1 kW       |



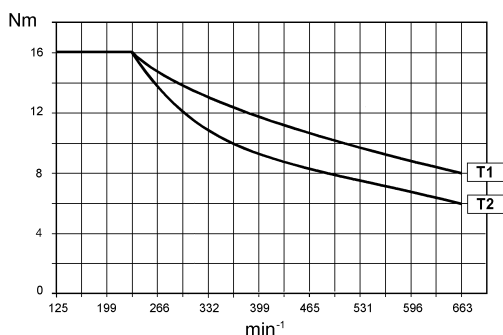
| V 0.5_P80                    | T1             |              |
|------------------------------|----------------|--------------|
|                              | M <sub>2</sub> | 6.0 - 8.0 Nm |
| $n_1 = 900 \text{ min}^{-1}$ | P <sub>1</sub> | 0.55 kW      |



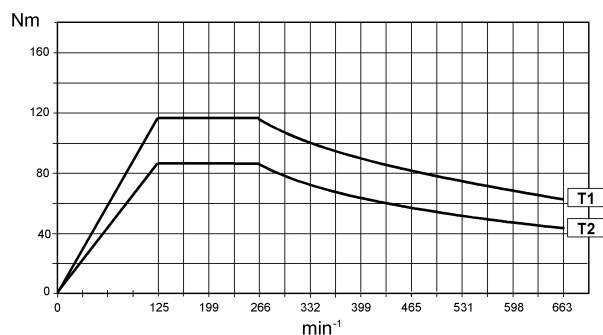
| V 3_P112                     | T1             |            |
|------------------------------|----------------|------------|
|                              | M <sub>2</sub> | 24 - 56 Nm |
| $n_1 = 900 \text{ min}^{-1}$ | P <sub>1</sub> | 2.2 kW     |

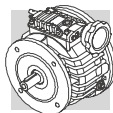


| V 1_P80                      | T1             |               | T2            |
|------------------------------|----------------|---------------|---------------|
|                              | M <sub>2</sub> | 8.0 - 16.0 Nm | 6.0 - 16.0 Nm |
| $n_1 = 900 \text{ min}^{-1}$ | P <sub>1</sub> | 0.75 kW       | 0.55 kW       |



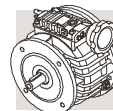
| V 10_P132                    | T1             |             | T2         |
|------------------------------|----------------|-------------|------------|
|                              | M <sub>2</sub> | 63 - 116 Nm | 43 - 86 Nm |
| $n_1 = 900 \text{ min}^{-1}$ | P <sub>1</sub> | 5.5 kW      | 4.0 kW     |





## VR\_

| P <sub>1</sub> (kW) | n <sub>2</sub><br>min <sup>-1</sup> | n <sub>2</sub> '<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2</sub> '<br>Nm | R <sub>n1</sub><br>N | R <sub>n2</sub><br>N | R <sub>n2</sub> '<br>N | i   |             | IEC       |       |
|---------------------|-------------------------------------|---------------------------------------|----------------------|------------------------|----------------------|----------------------|------------------------|-----|-------------|-----------|-------|
| <b>0.12</b>         | 96                                  | 19.8                                  | 8.6                  | 22                     | 400                  | 1550                 | 2600                   | 6.3 | VR 0.25_P63 | BN63B6    | 54-55 |
|                     | 156                                 | 32                                    | 5.3                  | 13.6                   | 400                  | 1300                 | 2200                   | 3.9 | VR 0.25_P63 | BN63B6    | 54-55 |
|                     | 244                                 | 50                                    | 3.4                  | 8.7                    | 400                  | 1150                 | 1900                   | 2.5 | VR 0.25_P63 | BN63B6    | 54-55 |
| <b>0.18</b>         | 96                                  | 19.8                                  | 12.3                 | 24                     | 400                  | 1500                 | 2600                   | 6.3 | VR 0.25_P63 | BN71A6R   | 54-55 |
|                     | 144                                 | 30.2                                  | 9.3                  | 24                     | 350                  | 1350                 | 2250                   | 6.3 | VR 0.25_P63 | BN63B4    | 54-55 |
|                     | 156                                 | 49                                    | 5.7                  | 14.7                   | 350                  | 1300                 | 1900                   | 3.9 | VR 0.25_P63 | BN63B4    | 54-55 |
|                     | 235                                 | 32                                    | 7.6                  | 14.7                   | 400                  | 1100                 | 2200                   | 3.9 | VR 0.25_P63 | BN71A6R   | 54-55 |
|                     | 244                                 | 50                                    | 4.9                  | 9.4                    | 400                  | 1000                 | 1900                   | 2.5 | VR 0.25_P63 | BN71A6R   | 54-55 |
|                     | 367                                 | 77                                    | 3.6                  | 9.4                    | 350                  | 950                  | 1650                   | 2.5 | VR 0.25_P63 | BN63B4    | 54-55 |
| <b>0.25</b>         | 105                                 | 19.8                                  | 18.5                 | 40                     | 430                  | 1500                 | 2550                   | 6.3 | VR 0.5_P71  | BN71B6    | 58-59 |
|                     | 144                                 | 30.2                                  | 11.1                 | 24                     | 350                  | 1350                 | 2250                   | 6.3 | VR 0.25_P63 | BN63C4    | 54-55 |
|                     | 159                                 | 30                                    | 12.3                 | 30                     | 370                  | 1300                 | 2250                   | 6.3 | VR 0.5_P71  | BN71A4    | 58-59 |
|                     | 171                                 | 32                                    | 11.4                 | 29                     | 430                  | 1250                 | 2200                   | 3.9 | VR 0.5_P71  | BN71B6    | 58-59 |
|                     | 235                                 | 49                                    | 6.8                  | 14.7                   | 350                  | 1150                 | 1900                   | 3.9 | VR 0.25_P63 | BN63C4    | 54-55 |
|                     | 258                                 | 49                                    | 7.6                  | 18.4                   | 370                  | 1100                 | 1900                   | 3.9 | VR 0.5_P71  | BN71A4    | 58-59 |
|                     | 267                                 | 50                                    | 7.3                  | 18.8                   | 430                  | 1100                 | 1900                   | 2.5 | VR 0.5_P71  | BN71B6    | 58-59 |
|                     | 289                                 | 60                                    | 6.2                  | 15.6                   | 300                  | 1000                 | 1800                   | 6.3 | VR 0.25_P63 | BN63B2    | 54-55 |
|                     | 367                                 | 77                                    | 4.4                  | 9.4                    | 350                  | 950                  | 1650                   | 2.5 | VR 0.25_P63 | BN63C4    | 54-55 |
|                     | 403                                 | 77                                    | 4.9                  | 11.8                   | 370                  | 950                  | 1650                   | 2.5 | VR 0.5_P71  | BN71A4    | 58-59 |
|                     | 470                                 | 98                                    | 3.8                  | 9.6                    | 300                  | 900                  | 1550                   | 3.9 | VR 0.25_P63 | BN63B2    | 54-55 |
|                     | 734                                 | 153                                   | 2.4                  | 6.1                    | 300                  | 790                  | 1300                   | 2.5 | VR 0.25_P63 | BN63B2    | 54-55 |
| <b>0.37</b>         | 105                                 | 19.8                                  | 25                   | 40                     | 430                  | 1450                 | 2550                   | 6.3 | VR 0.5_P71  | BN71C6    | 58-59 |
|                     | 159                                 | 30                                    | 18.5                 | 40                     | 370                  | 1300                 | 2200                   | 6.3 | VR 0.5_P71  | BN71B4    | 58-59 |
|                     | 171                                 | 32                                    | 15.2                 | 29                     | 430                  | 1250                 | 2200                   | 3.9 | VR 0.5_P71  | BN71C6    | 58-59 |
|                     | 258                                 | 49                                    | 11.4                 | 29                     | 370                  | 1100                 | 1900                   | 3.9 | VR 0.5_P71  | BN71B4    | 58-59 |
|                     | 267                                 | 50                                    | 9.7                  | 18.8                   | 430                  | 1100                 | 1900                   | 2.5 | VR 0.5_P71  | BN71C6    | 58-59 |
|                     | 289                                 | 60                                    | 9.3                  | 24                     | 300                  | 1050                 | 1800                   | 6.3 | VR 0.25_P63 | BN63C2    | 54-55 |
|                     | 403                                 | 77                                    | 7.3                  | 18.8                   | 370                  | 950                  | 1650                   | 2.5 | VR 0.5_P71  | BN71B4    | 58-59 |
|                     | 470                                 | 98                                    | 5.7                  | 14.7                   | 300                  | 900                  | 1500                   | 3.9 | VR 0.25_P63 | BN63C2    | 54-55 |
|                     | 734                                 | 153                                   | 3.6                  | 9.4                    | 300                  | 800                  | 1300                   | 2.5 | VR 0.25_P63 | BN63C2    | 54-55 |
| <b>0.55</b>         | 103                                 | 19.5                                  | 38                   | 70                     | 750                  | 1350                 | 2300                   | 6.4 | VR 1_P80    | BN80B6    | 62-63 |
|                     | 156                                 | 29.6                                  | 28                   | 65                     | 650                  | 1150                 | 1970                   | 6.4 | VR 1_P80    | BN80A4    | 62-63 |
|                     | 168                                 | 32                                    | 23                   | 60                     | 750                  | 1150                 | 1950                   | 3.9 | VR 1_P80    | BN80B6    | 62-63 |
|                     | 254                                 | 48                                    | 17.4                 | 45                     | 650                  | 1000                 | 1700                   | 3.9 | VR 1_P80    | BN80A4    | 62-63 |
|                     | 274                                 | 52                                    | 14.2                 | 37                     | 750                  | 990                  | 1650                   | 2.4 | VR 1_P80    | BN80B6    | 62-63 |
|                     | 317                                 | 60                                    | 12.3                 | 30                     | 520                  | 1000                 | 1750                   | 6.3 | VR 0.5_P71  | BN71B2    | 58-59 |
|                     | 413                                 | 79                                    | 10.7                 | 28                     | 650                  | 850                  | 1450                   | 2.4 | VR 1_P80    | BN80A4    | 62-63 |
|                     | 517                                 | 98                                    | 7.6                  | 18.4                   | 520                  | 900                  | 1500                   | 3.9 | VR 0.5_P71  | BN71B2    | 58-59 |
|                     | 806                                 | 153                                   | 4.9                  | 11.8                   | 520                  | 750                  | 1300                   | 2.5 | VR 0.5_P71  | BN71B2    | 58-59 |
| <b>0.75</b>         | 103                                 | 19.5                                  | 50                   | 70                     | 750                  | 1250                 | 2300                   | 6.4 | VR 1_P80    | BN80C6    | 62-63 |
|                     | 156                                 | 29.6                                  | 28                   | 65                     | 650                  | 1150                 | 1970                   | 6.4 | VR 1_P80    | BN80B4    | 62-63 |
|                     | 168                                 | 32                                    | 23                   | 60                     | 750                  | 1150                 | 1950                   | 3.9 | VR 1_P80    | BN80C6    | 62-63 |
|                     | 254                                 | 48                                    | 23                   | 60                     | 650                  | 990                  | 1650                   | 3.9 | VR 1_P80    | BN80B4    | 62-63 |
|                     | 274                                 | 52                                    | 19.0                 | 37                     | 750                  | 980                  | 1650                   | 2.4 | VR 1_P80    | BN80C6    | 62-63 |
|                     | 317                                 | 60                                    | 18.5                 | 40                     | 520                  | 1000                 | 1750                   | 6.3 | VR 0.5_P71  | BN71C2    | 58-59 |
|                     | 413                                 | 78                                    | 14.2                 | 37                     | 650                  | 870                  | 1450                   | 2.4 | VR 1_P80    | BN80B4    | 62-63 |
|                     | 517                                 | 98                                    | 11.4                 | 29                     | 520                  | 850                  | 1500                   | 3.9 | VR 0.5_P71  | BN71C2    | 58-59 |
|                     | 806                                 | 153                                   | 7.3                  | 18.8                   | 520                  | 780                  | 1300                   | 2.5 | VR 0.5_P71  | BN71C2    | 58-59 |
| <b>1.1</b>          | 101                                 | 19.0                                  | 77                   | 150                    | 1240                 | 2600                 | 4300                   | 6.6 | VR 2_P90    | BN90L6    | 66-67 |
|                     | 152                                 | 28.9                                  | 58                   | 140                    | 1080                 | 2400                 | 3600                   | 6.6 | VR 2_P90    | BN90S4    | 66-67 |
|                     | 163                                 | 31                                    | 48                   | 123                    | 1240                 | 2300                 | 3700                   | 4.1 | VR 2_P90    | BN90L6    | 66-67 |
|                     | 246                                 | 47                                    | 36                   | 93                     | 1080                 | 2000                 | 3400                   | 4.1 | VR 2_P90    | BN90S4    | 66-67 |
|                     | 280                                 | 53                                    | 28                   | 72                     | 1240                 | 1950                 | 3400                   | 2.4 | VR 2_P90    | BN90L6    | 66-67 |
|                     | 312                                 | 59                                    | 28                   | 60                     | 870                  | 900                  | 1500                   | 6.4 | VR 1_P80    | BN80B2    | 62-63 |
|                     | 422                                 | 80                                    | 21                   | 54                     | 1080                 | 1950                 | 2950                   | 2.4 | VR 2_P90    | BN90S4    | 66-67 |
|                     | 508                                 | 96                                    | 17.4                 | 45                     | 870                  | 800                  | 1300                   | 3.9 | VR 1_P80    | BN80B2    | 62-63 |
|                     | 826                                 | 157                                   | 10.7                 | 28                     | 870                  | 680                  | 1150                   | 2.4 | VR 1_P80    | BN80B2    | 62-63 |
| <b>1.5</b>          | 101                                 | 19.0                                  | 103                  | 150                    | 1240                 | 2300                 | 4300                   | 6.6 | VR 2_P90    | BN100LA6R | 66-67 |
|                     | 152                                 | 28.9                                  | 77                   | 140                    | 1080                 | 2150                 | 3600                   | 6.6 | VR 2_P90    | BN90LA4   | 66-67 |
|                     | 163                                 | 31                                    | 64                   | 135                    | 1240                 | 2200                 | 3400                   | 4.1 | VR 2_P90    | BN100LA6R | 66-67 |
|                     | 246                                 | 47                                    | 48                   | 123                    | 1080                 | 1950                 | 3000                   | 4.1 | VR 2_P90    | BN90LA4   | 66-67 |
|                     | 280                                 | 53                                    | 37                   | 79                     | 1240                 | 1950                 | 2950                   | 2.4 | VR 2_P90    | BN100LA6R | 66-67 |
|                     | 312                                 | 59                                    | 38                   | 60                     | 870                  | 900                  | 1500                   | 6.4 | VR 1_P80    | BN80C2    | 62-63 |
|                     | 423                                 | 80                                    | 28                   | 72                     | 1080                 | 1850                 | 2850                   | 2.4 | VR 2_P90    | BN90LA4   | 66-67 |
|                     | 508                                 | 96                                    | 23                   | 55                     | 870                  | 780                  | 1300                   | 3.9 | VR 1_P80    | BN80C2    | 62-63 |
|                     | 826                                 | 157                                   | 14                   | 37                     | 870                  | 680                  | 1150                   | 2.4 | VR 1_P80    | BN80C2    | 62-63 |



## VR\_

| P <sub>1</sub> (kW) | n <sub>2</sub><br>min <sup>-1</sup> | n <sub>2</sub> '<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2</sub> '<br>Nm | R <sub>n1</sub><br>N | R <sub>n2</sub><br>N | R <sub>n2</sub> '<br>N | i   |  |  |  |       |
|---------------------|-------------------------------------|---------------------------------------|----------------------|------------------------|----------------------|----------------------|------------------------|-----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|
| 1.8                 | 152                                 | 28.9                                  | 90                   | 140                    | 1080                 | 2000                 | 3600                   | 6.6 | VR 2_                                                                               | P90                                                                                 | BN90LB4                                                                             | 66-67 |
|                     | 246                                 | 47                                    | 56                   | 120                    | 1080                 | 1900                 | 3000                   | 4.1 | VR 2_                                                                               | P90                                                                                 | BN90LB4                                                                             | 66-67 |
|                     | 422                                 | 80                                    | 33                   | 79                     | 1080                 | 1700                 | 2750                   | 2.4 | VR 2_                                                                               | P90                                                                                 | BN90LB4                                                                             | 66-67 |
| 2.2                 | 104                                 | 19.5                                  | 151                  | 300*                   | —                    | —                    | —                      | 6.4 | VR 3_                                                                               | P112                                                                                | BN112M6                                                                             | 70-71 |
|                     | 156                                 | 29.7                                  | 100                  | 243                    | —                    | —                    | —                      | 6.4 | VR 3_                                                                               | P100                                                                                | BN100LA4                                                                            | 70-71 |
|                     | 169                                 | 32                                    | 92                   | 209                    | —                    | —                    | —                      | 3.9 | VR 3_                                                                               | P112                                                                                | BN112M6                                                                             | 70-71 |
|                     | 254                                 | 48                                    | 62                   | 149                    | —                    | —                    | —                      | 3.9 | VR 3_                                                                               | P100                                                                                | BN100LA4                                                                            | 70-71 |
|                     | 281                                 | 53                                    | 56                   | 126                    | —                    | —                    | —                      | 2.4 | VR 3_                                                                               | P112                                                                                | BN112M6                                                                             | 70-71 |
|                     | 424                                 | 81                                    | 37                   | 90                     | —                    | —                    | —                      | 2.4 | VR 3_                                                                               | P100                                                                                | BN100LA4                                                                            | 70-71 |
| 3.0                 | 156                                 | 29.7                                  | 151                  | 280*                   | —                    | —                    | —                      | 6.4 | VR 3_                                                                               | P100                                                                                | BN100LB4                                                                            | 70-71 |
|                     | 254                                 | 48                                    | 92                   | 209                    | —                    | —                    | —                      | 3.9 | VR 3_                                                                               | P100                                                                                | BN100LA4                                                                            | 70-71 |
|                     | 424                                 | 81                                    | 56                   | 126                    | —                    | —                    | —                      | 2.4 | VR 3_                                                                               | P100                                                                                | BN100LA4                                                                            | 70-71 |
| 4.0                 | 105                                 | 19.8                                  | 259                  | 504                    | —                    | —                    | —                      | 6.3 | VR 10_                                                                              | P132                                                                                | BN132MA6                                                                            | 78-79 |
|                     | 156                                 | 29.7                                  | 201                  | 280*                   | —                    | —                    | —                      | 6.4 | VR 5.5_                                                                             | P112                                                                                | BN112M4                                                                             | 74-75 |
|                     | 163                                 | 31                                    | 166                  | 326                    | —                    | —                    | —                      | 4.1 | VR 10_                                                                              | P132                                                                                | BN132MA6                                                                            | 78-79 |
|                     | 254                                 | 48                                    | 123                  | 250*                   | —                    | —                    | —                      | 3.9 | VR 5.5_                                                                             | P112                                                                                | BN112M4                                                                             | 74-75 |
|                     | 280                                 | 53                                    | 97                   | 190                    | —                    | —                    | —                      | 2.4 | VR 10_                                                                              | P132                                                                                | BN132MA6                                                                            | 78-79 |
|                     | 349                                 | 66                                    | 80                   | 152                    | —                    | —                    | —                      | 1.9 | VR 10_                                                                              | P132                                                                                | BN132MA6                                                                            | 78-79 |
| 5.5                 | 424                                 | 81                                    | 74                   | 161                    | —                    | —                    | —                      | 2.4 | VR 5.5_                                                                             | P112                                                                                | BN112M4                                                                             | 74-75 |
|                     | 105                                 | 19.8                                  | 377                  | 680*                   | —                    | —                    | —                      | 6.3 | VR 10_                                                                              | P132                                                                                | BN132MB6                                                                            | 78-79 |
|                     | 158                                 | 30                                    | 266                  | 516                    | —                    | —                    | —                      | 6.3 | VR 10_                                                                              | P132                                                                                | BN132S4                                                                             | 78-79 |
|                     | 163                                 | 31                                    | 244                  | 439                    | —                    | —                    | —                      | 4.1 | VR 10_                                                                              | P132                                                                                | BN132MB6                                                                            | 78-79 |
|                     | 246                                 | 47                                    | 166                  | 326                    | —                    | —                    | —                      | 4.1 | VR 10_                                                                              | P132                                                                                | BN132S4                                                                             | 78-79 |
|                     | 280                                 | 53                                    | 142                  | 256                    | —                    | —                    | —                      | 2.4 | VR 10_                                                                              | P132                                                                                | BN132MB6                                                                            | 78-79 |
|                     | 349                                 | 66                                    | 113                  | 205                    | —                    | —                    | —                      | 1.9 | VR 10_                                                                              | P132                                                                                | BN132MB6                                                                            | 78-79 |
| 7.5                 | 422                                 | 80                                    | 97                   | 190                    | —                    | —                    | —                      | 2.4 | VR 10_                                                                              | P132                                                                                | BN132S4                                                                             | 78-79 |
|                     | 526                                 | 100                                   | 80                   | 152                    | —                    | —                    | —                      | 1.9 | VR 10_                                                                              | P132                                                                                | BN132S4                                                                             | 78-79 |
|                     | 158                                 | 30                                    | 348                  | 680*                   | —                    | —                    | —                      | 6.3 | VR 10_                                                                              | P132                                                                                | BN132MA4                                                                            | 78-79 |
|                     | 246                                 | 47                                    | 224                  | 439                    | —                    | —                    | —                      | 4.1 | VR 10_                                                                              | P132                                                                                | BN132MA4                                                                            | 78-79 |
|                     | 422                                 | 80                                    | 131                  | 256                    | —                    | —                    | —                      | 2.4 | VR 10_                                                                              | P132                                                                                | BN132MA4                                                                            | 78-79 |
| 9.2                 | 526                                 | 100                                   | 105                  | 205                    | —                    | —                    | —                      | 1.9 | VR 10_                                                                              | P132                                                                                | BN132MA4                                                                            | 78-79 |
|                     | 158                                 | 30                                    | 431                  | 680*                   | —                    | —                    | —                      | 6.3 | VR 10_                                                                              | P132                                                                                | BN132MB4                                                                            | 78-79 |
|                     | 246                                 | 47                                    | 278                  | 540*                   | —                    | —                    | —                      | 4.1 | VR 10_                                                                              | P132                                                                                | BN132MB4                                                                            | 78-79 |
|                     | 422                                 | 80                                    | 162                  | 317                    | —                    | —                    | —                      | 2.4 | VR 10_                                                                              | P132                                                                                | BN132MB4                                                                            | 78-79 |
|                     | 526                                 | 100                                   | 130                  | 254                    | —                    | —                    | —                      | 1.9 | VR 10_                                                                              | P132                                                                                | BN132MB4                                                                            | 78-79 |

\* Coppia massima ammissibile

\* Max. torque transmissible

\* Max. Drehmoment

\* Couple maxi transmissible

NB.

I carichi radiali in entrata al variatore (ingresso HS) R<sub>n1</sub> e i carichi in uscita R<sub>n2</sub> indicati in tabella sono da considerare applicati sulla mezzzeria dell'albero. Per carichi la cui linea d'azione non coincide con la mezzzeria dell'albero in esame, effettuare le verifiche riportate a pag. 10.

NOTE.

Radial loads applied at variator input (HS input) R<sub>n1</sub> and output loads R<sub>n2</sub> indicated in the table are referred to mid-point of shaft. Where loads are applied at any other position of shaft, follow procedure detailed on page 10 to verify compatibility.

HINWEIS:

elle angegebenen Radialkräfte am Antrieb des Verstellgetriebes (Antrieb HS) R<sub>n1</sub> und die Lasten im Abtrieb R<sub>n2</sub> sind als auf die Wellenmitte applizierte Kräfte zu kalkulieren. Für Kräfte, deren Wirkungslinie nicht mit der Mitte der zur Frage stehenden Welle übereinstimmt, sind die auf Seite 10 angeführten Kontrollen vorzunehmen.

NB.

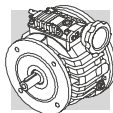
Il faut considérer les charges radiales en entrée sur le variateur (entrée HS) R<sub>n1</sub> et les charges en sortie R<sub>n2</sub> indiquées sur le tableau comme appliquées au milieu de l'arbre. Pour les charges dont la ligne d'action ne coïncide pas avec le milieu de l'arbre concerné, effectuer les vérifications indiquées à page 10.

**AVVERTENZA:** Si sconsiglia l'utilizzo del variatore con velocità in ingresso inferiori a 300 min<sup>-1</sup>.

**WARNING:** The use of variator with input speeds lower than 300 rpm is NOT recommended.

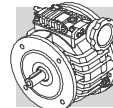
**HINWEIS:** Von einem Einsatz des Verstellgetriebes mit einer Antriebsgeschwindigkeit unter 300 min<sup>-1</sup> wird abgeraten.

**N.B. :** Il n'est pas conseillé d'utiliser le variateur avec une vitesse en entrée inférieure à 300 min<sup>-1</sup>.



## VRD

| P <sub>1</sub> (kW) | n <sub>2</sub><br>min <sup>-1</sup> | n <sub>2</sub> lim<br>min <sup>-1</sup> | n <sub>2</sub> '<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2</sub> max<br>Nm | R <sub>n1</sub><br>N | R <sub>n2</sub><br>N | R <sub>n2</sub> max<br>N | i         |  | IEC  |  |       |
|---------------------|-------------------------------------|-----------------------------------------|---------------------------------------|----------------------|--------------------------|----------------------|----------------------|--------------------------|-----------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|
| 0.25                | 105                                 | 19.8                                    | 0                                     | 18.5                 | 40                       | 430                  | 1500                 | 2550                     | 6.3       | VRD 0.5_                                                                            | P71                                                                                     | BN71B6                                                                              | 82-83 |
|                     | 159                                 | 30                                      | 0                                     | 12.3                 | 30                       | 370                  | 1300                 | 2250                     | 6.3       | VRD 0.5_                                                                            | P71                                                                                     | BN71A4                                                                              | 82-83 |
|                     | 171                                 | 32                                      | 0                                     | 11.4                 | 29                       | 430                  | 1250                 | 2200                     | 3.9       | VRD 0.5_                                                                            | P71                                                                                     | BN71B6                                                                              | 82-83 |
|                     | 258                                 | 49                                      | 0                                     | 7.6                  | 18.4                     | 370                  | 1100                 | 1900                     | 3.9       | VRD 0.5_                                                                            | P71                                                                                     | BN71A4                                                                              | 82-83 |
|                     | 267                                 | 50                                      | 0                                     | 7.3                  | 18.8                     | 430                  | 1100                 | 1900                     | 2.5       | VRD 0.5_                                                                            | P71                                                                                     | BN71B6                                                                              | 82-83 |
|                     | 289                                 | 60                                      | 0                                     | 6.2                  | 15.6                     | 300                  | 1000                 | 1800                     | 6.3       | VRD 0.25_                                                                           | P63                                                                                     | BN63B2                                                                              | 82-83 |
|                     | 403                                 | 77                                      | 0                                     | 4.9                  | 11.8                     | 370                  | 950                  | 1650                     | 2.5       | VRD 0.5_                                                                            | P71                                                                                     | BN71A4                                                                              | 82-83 |
|                     | 470                                 | 98                                      | 0                                     | 3.8                  | 9.6                      | 300                  | 900                  | 1550                     | 3.9       | VRD 0.25_                                                                           | P63                                                                                     | BN63B2                                                                              | 82-83 |
| 734                 | 153                                 | 0                                       | 2.4                                   | 6.1                  | 300                      | 790                  | 1300                 | 2.5                      | VRD 0.25_ | P63                                                                                 | BN63B2                                                                                  | 82-83                                                                               |       |
| 0.37                | 105                                 | 19.8                                    | 0                                     | 25                   | 40                       | 430                  | 1450                 | 2550                     | 6.3       | VRD 0.5_                                                                            | P71                                                                                     | BN71C6                                                                              | 82-83 |
|                     | 159                                 | 30                                      | 0                                     | 18.5                 | 40                       | 370                  | 1300                 | 2200                     | 6.3       | VRD 0.5_                                                                            | P71                                                                                     | BN71B4                                                                              | 82-83 |
|                     | 171                                 | 32                                      | 0                                     | 15.2                 | 29                       | 430                  | 1250                 | 2200                     | 3.9       | VRD 0.5_                                                                            | P71                                                                                     | BN71C6                                                                              | 82-83 |
|                     | 258                                 | 49                                      | 0                                     | 11.4                 | 29                       | 370                  | 1100                 | 1900                     | 3.9       | VRD 0.5_                                                                            | P71                                                                                     | BN71B4                                                                              | 82-83 |
|                     | 267                                 | 50                                      | 0                                     | 9.7                  | 18.8                     | 430                  | 1100                 | 1900                     | 2.5       | VRD 0.5_                                                                            | P71                                                                                     | BN71C6                                                                              | 82-83 |
|                     | 289                                 | 60                                      | 0                                     | 9.3                  | 24                       | 300                  | 1050                 | 1800                     | 6.3       | VRD 0.25_                                                                           | P63                                                                                     | BN63C2                                                                              | 82-83 |
|                     | 403                                 | 77                                      | 0                                     | 7.3                  | 18.8                     | 370                  | 950                  | 1650                     | 2.5       | VRD 0.5_                                                                            | P71                                                                                     | BN71B4                                                                              | 82-83 |
|                     | 470                                 | 98                                      | 0                                     | 5.7                  | 14.7                     | 300                  | 900                  | 1500                     | 3.9       | VRD 0.25_                                                                           | P63                                                                                     | BN63C2                                                                              | 82-83 |
| 734                 | 153                                 | 0                                       | 3.6                                   | 9.4                  | 300                      | 800                  | 1300                 | 2.5                      | VRD 0.25_ | P63                                                                                 | BN63C2                                                                                  | 82-83                                                                               |       |
| 0.55                | 103                                 | 19.5                                    | 0                                     | 38                   | 70                       | 750                  | 1350                 | 2300                     | 6.4       | VRD 1_                                                                              | P80                                                                                     | BN80B6                                                                              | 82-83 |
|                     | 156                                 | 29.6                                    | 0                                     | 28                   | 65                       | 650                  | 1150                 | 1970                     | 6.4       | VRD 1_                                                                              | P80                                                                                     | BN80A4                                                                              | 82-83 |
|                     | 168                                 | 32                                      | 0                                     | 23                   | 60                       | 750                  | 1150                 | 1950                     | 3.9       | VRD 1_                                                                              | P80                                                                                     | BN80B6                                                                              | 82-83 |
|                     | 254                                 | 48                                      | 0                                     | 17.4                 | 45                       | 650                  | 1000                 | 1700                     | 3.9       | VRD 1_                                                                              | P80                                                                                     | BN80A4                                                                              | 82-83 |
|                     | 274                                 | 52                                      | 0                                     | 14.2                 | 37                       | 750                  | 990                  | 1650                     | 2.4       | VRD 1_                                                                              | P80                                                                                     | BN80B6                                                                              | 82-83 |
|                     | 317                                 | 60                                      | 0                                     | 12.3                 | 30                       | 520                  | 1000                 | 1750                     | 6.3       | VRD 0.5_                                                                            | P71                                                                                     | BN71B2                                                                              | 82-83 |
|                     | 413                                 | 79                                      | 0                                     | 10.7                 | 28                       | 650                  | 850                  | 1450                     | 2.4       | VRD 1_                                                                              | P80                                                                                     | BN80A4                                                                              | 82-83 |
|                     | 517                                 | 98                                      | 0                                     | 7.6                  | 18.4                     | 520                  | 900                  | 1500                     | 3.9       | VRD 0.5_                                                                            | P71                                                                                     | BN71B2                                                                              | 82-83 |
| 806                 | 153                                 | 0                                       | 4.9                                   | 11.8                 | 520                      | 750                  | 1300                 | 2.5                      | VRD 0.5_  | P71                                                                                 | BN71B2                                                                                  | 82-83                                                                               |       |
| 0.75                | 103                                 | 19.5                                    | 0                                     | 50                   | 70                       | 750                  | 1250                 | 2300                     | 6.4       | VRD 1_                                                                              | P80                                                                                     | BN80C6                                                                              | 82-83 |
|                     | 156                                 | 29.6                                    | 0                                     | 28                   | 65                       | 650                  | 1150                 | 1970                     | 6.4       | VRD 1_                                                                              | P80                                                                                     | BN80B4                                                                              | 82-83 |
|                     | 168                                 | 32                                      | 0                                     | 23                   | 60                       | 750                  | 1150                 | 1950                     | 3.9       | VRD 1_                                                                              | P80                                                                                     | BN80C6                                                                              | 82-83 |
|                     | 254                                 | 48                                      | 0                                     | 23                   | 60                       | 650                  | 990                  | 1650                     | 3.9       | VRD 1_                                                                              | P80                                                                                     | BN80B4                                                                              | 82-83 |
|                     | 274                                 | 52                                      | 0                                     | 19.0                 | 37                       | 750                  | 980                  | 1650                     | 2.4       | VRD 1_                                                                              | P80                                                                                     | BN80C6                                                                              | 82-83 |
|                     | 317                                 | 60                                      | 0                                     | 18.5                 | 40                       | 520                  | 1000                 | 1750                     | 6.3       | VRD 0.5_                                                                            | P71                                                                                     | BN71C2                                                                              | 82-83 |
|                     | 413                                 | 78                                      | 0                                     | 14.2                 | 37                       | 650                  | 870                  | 1450                     | 2.4       | VRD 1_                                                                              | P80                                                                                     | BN80B4                                                                              | 82-83 |
|                     | 517                                 | 98                                      | 0                                     | 11.4                 | 29                       | 520                  | 850                  | 1500                     | 3.9       | VRD 0.5_                                                                            | P71                                                                                     | BN71C2                                                                              | 82-83 |
| 806                 | 153                                 | 0                                       | 7.3                                   | 18.8                 | 520                      | 780                  | 1300                 | 2.5                      | VRD 0.5_  | P71                                                                                 | BN71C2                                                                                  | 82-83                                                                               |       |
| 1.1                 | 101                                 | 19.0                                    | 0                                     | 77                   | 150                      | 1240                 | 2600                 | 4300                     | 6.6       | VRD 2_                                                                              | P90                                                                                     | BN90L6                                                                              | 82-83 |
|                     | 152                                 | 28.9                                    | 0                                     | 58                   | 140                      | 1080                 | 2400                 | 3600                     | 6.6       | VRD 2_                                                                              | P90                                                                                     | BN90S4                                                                              | 82-83 |
|                     | 163                                 | 31                                      | 0                                     | 48                   | 123                      | 1240                 | 2300                 | 3700                     | 4.1       | VRD 2_                                                                              | P90                                                                                     | BN90L6                                                                              | 82-83 |
|                     | 246                                 | 47                                      | 0                                     | 36                   | 93                       | 1080                 | 2000                 | 3400                     | 4.1       | VRD 2_                                                                              | P90                                                                                     | BN90S4                                                                              | 82-83 |
|                     | 280                                 | 53                                      | 0                                     | 28                   | 72                       | 1240                 | 1950                 | 3400                     | 2.4       | VRD 2_                                                                              | P90                                                                                     | BN90L6                                                                              | 82-83 |
|                     | 312                                 | 59                                      | 0                                     | 28                   | 60                       | 870                  | 900                  | 1500                     | 6.4       | VRD 1_                                                                              | P80                                                                                     | BN80B2                                                                              | 82-83 |
|                     | 422                                 | 80                                      | 0                                     | 21                   | 54                       | 1080                 | 1950                 | 2950                     | 2.4       | VRD 2_                                                                              | P90                                                                                     | BN90S4                                                                              | 82-83 |
|                     | 508                                 | 96                                      | 0                                     | 17.4                 | 45                       | 870                  | 800                  | 1300                     | 3.9       | VRD 1_                                                                              | P80                                                                                     | BN80B2                                                                              | 82-83 |
| 826                 | 157                                 | 0                                       | 10.7                                  | 28                   | 870                      | 680                  | 1150                 | 2.4                      | VRD 1_    | P80                                                                                 | BN80B2                                                                                  | 82-83                                                                               |       |
| 1.5                 | 101                                 | 19.0                                    | 0                                     | 103                  | 150                      | 1240                 | 2300                 | 4300                     | 6.6       | VRD 2_                                                                              | P90                                                                                     | BN100LA6R                                                                           | 82-83 |
|                     | 152                                 | 28.9                                    | 0                                     | 77                   | 140                      | 1080                 | 2150                 | 3600                     | 6.6       | VRD 2_                                                                              | P90                                                                                     | BN90LA4                                                                             | 82-83 |
|                     | 163                                 | 31                                      | 0                                     | 64                   | 135                      | 1240                 | 2200                 | 3400                     | 4.1       | VRD 2_                                                                              | P90                                                                                     | BN100LA6R                                                                           | 82-83 |
|                     | 246                                 | 47                                      | 0                                     | 48                   | 123                      | 1080                 | 1950                 | 3000                     | 4.1       | VRD 2_                                                                              | P90                                                                                     | BN90LA4                                                                             | 82-83 |
|                     | 280                                 | 53                                      | 0                                     | 37                   | 79                       | 1240                 | 1950                 | 2950                     | 2.4       | VRD 2_                                                                              | P90                                                                                     | BN100LA6R                                                                           | 82-83 |
|                     | 312                                 | 59                                      | 0                                     | 38                   | 60                       | 870                  | 900                  | 1500                     | 6.4       | VRD 1_                                                                              | P80                                                                                     | BN80C2                                                                              | 82-83 |
|                     | 423                                 | 80                                      | 0                                     | 28                   | 72                       | 1080                 | 1850                 | 2850                     | 2.4       | VRD 2_                                                                              | P90                                                                                     | BN90LA4                                                                             | 82-83 |
|                     | 508                                 | 96                                      | 0                                     | 23                   | 55                       | 870                  | 780                  | 1300                     | 3.9       | VRD 1_                                                                              | P80                                                                                     | BN80C2                                                                              | 82-83 |
| 826                 | 157                                 | 0                                       | 14                                    | 37                   | 870                      | 680                  | 1150                 | 2.4                      | VRD 1_    | P80                                                                                 | BN80C2                                                                                  | 82-83                                                                               |       |
| 1.8                 | 152                                 | 28.9                                    | 0                                     | 90                   | 140                      | 1080                 | 2000                 | 3600                     | 6.6       | VRD 2_                                                                              | P90                                                                                     | BN90LB4                                                                             | 82-83 |
|                     | 246                                 | 47                                      | 0                                     | 56                   | 120                      | 1080                 | 1900                 | 3000                     | 4.1       | VRD 2_                                                                              | P90                                                                                     | BN90LB4                                                                             | 82-83 |
|                     | 422                                 | 80                                      | 0                                     | 33                   | 79                       | 1080                 | 1700                 | 2750                     | 2.4       | VRD 2_                                                                              | P90                                                                                     | BN90LB4                                                                             | 82-83 |
| 2.2                 | 104                                 | 19.5                                    | 0                                     | 151                  | 300*                     | —                    | —                    | —                        | 6.4       | VRD 3_                                                                              | P112                                                                                    | BN112M6                                                                             | 82-83 |
|                     | 156                                 | 29.7                                    | 0                                     | 100                  | 243                      | —                    | —                    | —                        | 6.4       | VRD 3_                                                                              | P100                                                                                    | BN100LA4                                                                            | 82-83 |
|                     | 169                                 | 32                                      | 0                                     | 92                   | 209                      | —                    | —                    | —                        | 3.9       | VRD 3_                                                                              | P112                                                                                    | BN112M6                                                                             | 82-83 |
|                     | 254                                 | 48                                      | 0                                     | 62                   | 149                      | —                    | —                    | —                        | 3.9       | VRD 3_                                                                              | P100                                                                                    | BN100LA4                                                                            | 82-83 |
|                     | 281                                 | 53                                      | 0                                     | 56                   | 126                      | —                    | —                    | —                        | 2.4       | VRD 3_                                                                              | P112                                                                                    | BN112M6                                                                             | 82-83 |
|                     | 424                                 | 81                                      | 0                                     | 37                   | 90                       | —                    | —                    | —                        | 2.4       | VRD 3_                                                                              | P100                                                                                    | BN100LA4                                                                            | 82-83 |
| 3.0                 | 156                                 | 29.7                                    | 0                                     | 151                  | 280*                     | —                    | —                    | —                        | 6.4       | VRD 3_                                                                              | P1100                                                                                   | BN100LB4                                                                            | 82-83 |
|                     | 254                                 | 48                                      | 0                                     | 92                   | 209                      | —                    | —                    | —                        | 3.9       | VRD 3_                                                                              | P100                                                                                    | BN100LA4                                                                            | 82-83 |
|                     | 424                                 | 81                                      | 0                                     | 56                   | 126                      | —                    | —                    | —                        | 2.4       | VRD 3_                                                                              | P100                                                                                    | BN100LA4                                                                            | 82-83 |



## VRD\_

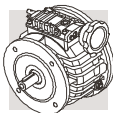
| <b>P<sub>1</sub> (kW)</b> | <b>n<sub>2</sub><br/>min<sup>-1</sup></b> | <b>n<sub>2</sub> lim<br/>min<sup>-1</sup></b> | <b>n<sub>2</sub>'<br/>min<sup>-1</sup></b> | <b>M<sub>2</sub><br/>Nm</b> | <b>M<sub>2</sub>max<br/>Nm</b> | <b>R<sub>n1</sub><br/>N</b> | <b>R<sub>n2</sub><br/>N</b> | <b>R<sub>n2</sub>max<br/>N</b> | <b>i</b> |  |  |  |       |
|---------------------------|-------------------------------------------|-----------------------------------------------|--------------------------------------------|-----------------------------|--------------------------------|-----------------------------|-----------------------------|--------------------------------|----------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|
| <b>4.0</b>                | 105                                       | 19.8                                          | 0                                          | 259                         | 504                            | —                           | —                           | —                              | 6.3      | VRD 10_                                                                             | P132                                                                                | BN132MA6                                                                            | 82-83 |
|                           | 156                                       | 29.7                                          | 0                                          | 201                         | 280*                           | —                           | —                           | —                              | 6.4      | VRD 5.5_                                                                            | P112                                                                                | BN132M4                                                                             | 82-83 |
|                           | 163                                       | 31                                            | 0                                          | 166                         | 326                            | —                           | —                           | —                              | 4.1      | VRD 10_                                                                             | P132                                                                                | BN132MA6                                                                            | 82-83 |
|                           | 254                                       | 48                                            | 0                                          | 123                         | 250*                           | —                           | —                           | —                              | 3.9      | VRD 5.5_                                                                            | P112                                                                                | BN132M4                                                                             | 82-83 |
|                           | 280                                       | 53                                            | 0                                          | 97                          | 190                            | —                           | —                           | —                              | 2.4      | VRD 10_                                                                             | P132                                                                                | BN132MA6                                                                            | 82-83 |
|                           | 349                                       | 66                                            | 0                                          | 80                          | 152                            | —                           | —                           | —                              | 1.9      | VRD 10_                                                                             | P132                                                                                | BN132MA6                                                                            | 82-83 |
|                           | 424                                       | 81                                            | 0                                          | 74                          | 161                            | —                           | —                           | —                              | 2.4      | VRD 5.5_                                                                            | P112                                                                                | BN132M4                                                                             | 82-83 |
| <b>5.5</b>                | 105                                       | 19.8                                          | 0                                          | 377                         | 680*                           | —                           | —                           | —                              | 6.3      | VRD 10_                                                                             | P132                                                                                | BN132MB6                                                                            | 82-83 |
|                           | 158                                       | 30                                            | 0                                          | 266                         | 516                            | —                           | —                           | —                              | 6.3      | VRD 10_                                                                             | P132                                                                                | BN132S4                                                                             | 82-83 |
|                           | 163                                       | 31                                            | 0                                          | 244                         | 439                            | —                           | —                           | —                              | 4.1      | VRD 10_                                                                             | P132                                                                                | BN132MB6                                                                            | 82-83 |
|                           | 246                                       | 47                                            | 0                                          | 166                         | 326                            | —                           | —                           | —                              | 4.1      | VRD 10_                                                                             | P132                                                                                | BN132S4                                                                             | 82-83 |
|                           | 280                                       | 53                                            | 0                                          | 142                         | 256                            | —                           | —                           | —                              | 2.4      | VRD 10_                                                                             | P132                                                                                | BN132MB6                                                                            | 82-83 |
|                           | 349                                       | 66                                            | 0                                          | 113                         | 205                            | —                           | —                           | —                              | 1.9      | VRD 10_                                                                             | P132                                                                                | BN132MB6                                                                            | 82-83 |
|                           | 422                                       | 80                                            | 0                                          | 97                          | 190                            | —                           | —                           | —                              | 2.4      | VRD 10_                                                                             | P132                                                                                | BN132S4                                                                             | 82-83 |
|                           | 526                                       | 100                                           | 0                                          | 80                          | 152                            | —                           | —                           | —                              | 1.9      | VRD 10_                                                                             | P132                                                                                | BN132S4                                                                             | 82-83 |
| <b>7.5</b>                | 158                                       | 30                                            | 0                                          | 348                         | 680*                           | —                           | —                           | —                              | 6.3      | VRD 10_                                                                             | P132                                                                                | BN132MA4                                                                            | 82-83 |
|                           | 246                                       | 47                                            | 0                                          | 224                         | 439                            | —                           | —                           | —                              | 4.1      | VRD 10_                                                                             | P132                                                                                | BN132MA4                                                                            | 82-83 |
|                           | 422                                       | 80                                            | 0                                          | 131                         | 256                            | —                           | —                           | —                              | 2.4      | VRD 10_                                                                             | P132                                                                                | BN132MA4                                                                            | 82-83 |
|                           | 526                                       | 100                                           | 0                                          | 105                         | 205                            | —                           | —                           | —                              | 1.9      | VRD 10_                                                                             | P132                                                                                | BN132MA4                                                                            | 82-83 |
| <b>9.2</b>                | 158                                       | 30                                            | 0                                          | 431                         | 680*                           | —                           | —                           | —                              | 6.3      | VRD 10_                                                                             | P132                                                                                | BN132MB4                                                                            | 82-83 |
|                           | 246                                       | 47                                            | 0                                          | 278                         | 540*                           | —                           | —                           | —                              | 4.1      | VRD 10_                                                                             | P132                                                                                | BN132MB4                                                                            | 82-83 |
|                           | 422                                       | 80                                            | 0                                          | 162                         | 317                            | —                           | —                           | —                              | 2.4      | VRD 10_                                                                             | P132                                                                                | BN132MB4                                                                            | 82-83 |
|                           | 526                                       | 100                                           | 0                                          | 130                         | 254                            | —                           | —                           | —                              | 1.9      | VRD 10_                                                                             | P132                                                                                | BN132MB4                                                                            | 82-83 |

\* Coppia massima ammissibile

\* Max. torque transmissible

\* Max. Drehmoment

\* Couple maxi transmissible



# V 0.25

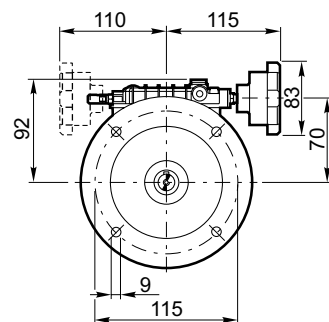
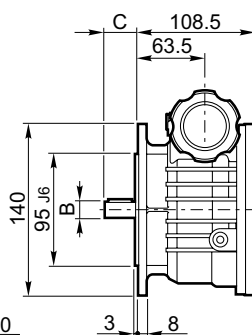
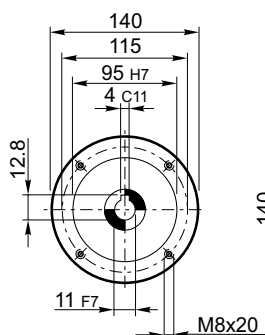
## 19.8 - Dimensioni

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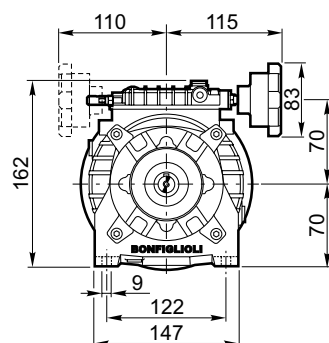
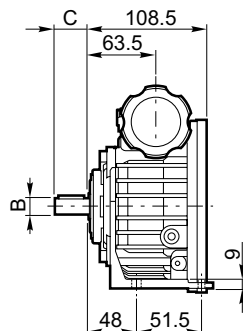
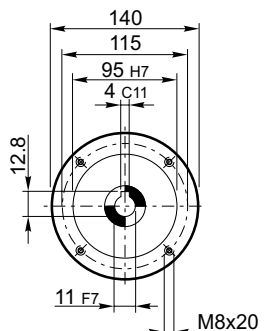
## 19.8 - Masse

## 19.8 - Dimensions

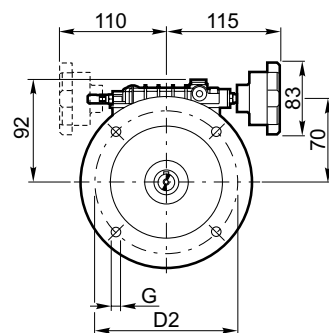
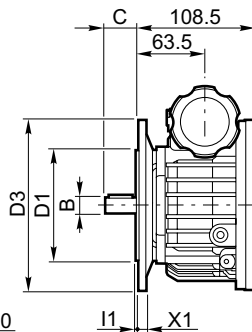
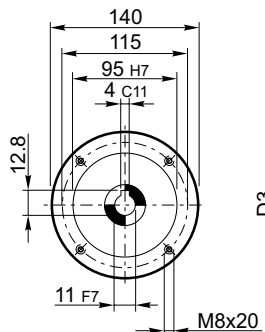
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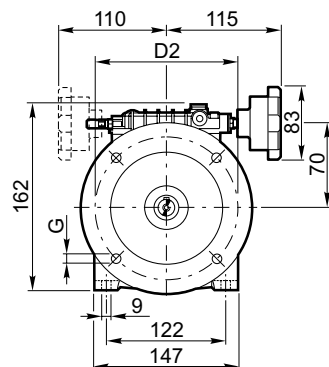
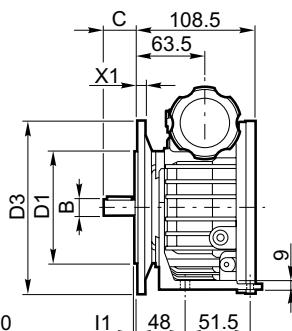
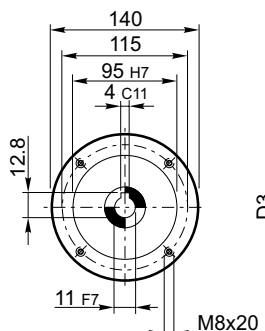
### V 0.25 UP\_P63



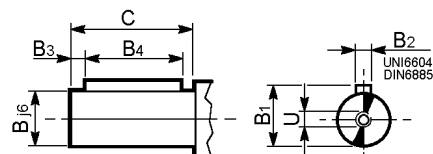
### V 0.25 UF\_P63



### V 0.25 UPF\_P63

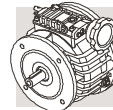


| F-UP-UF-UPF | B j6 | B1   | B2 | B3  | B4 | C  | U  |
|-------------|------|------|----|-----|----|----|----|
| V 0.25_D11  | 11   | 12.5 | 4  | 2.5 | 18 | 23 | M4 |
| V 0.25_D14  | 14   | 16   | 5  | 2.5 | 25 | 30 | M5 |



| UF-UPF       | D1 j6 | D2  | D3  | G | I1  | X1 |
|--------------|-------|-----|-----|---|-----|----|
| V 0.25 UF63_ | 95    | 115 | 140 | 9 | 3   | 8  |
| V 0.25 UF71_ | 110   | 130 | 160 | 9 | 3.5 | 8  |

|            | Kg  |     |     |     |
|------------|-----|-----|-----|-----|
|            | F   | UP  | UF  | UPF |
| V 0.25_P63 | 4.5 | 4.9 | 5.0 | 5.1 |

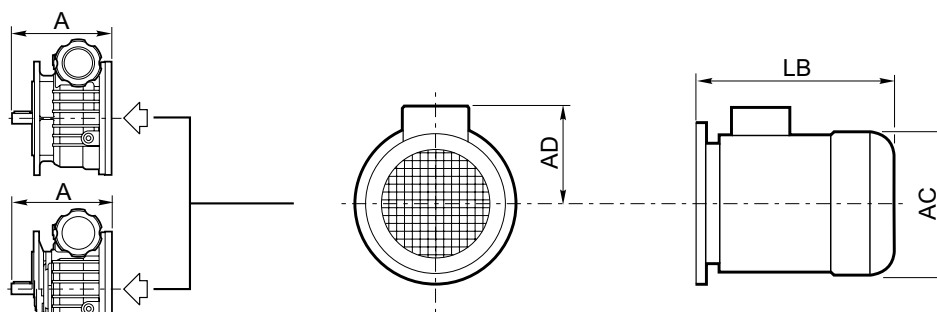


**V 0.25 F\_P63**

**V 0.25 UP\_P63**

**V 0.25 UF\_P63**

**V 0.25 UPF\_P63**



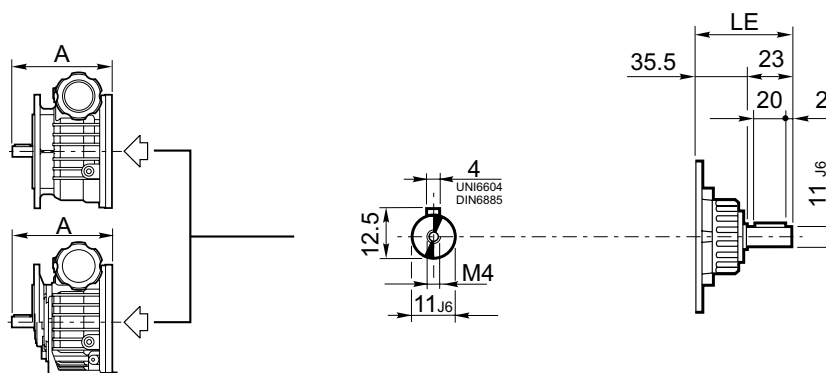
**BN**

**V 0.25 F\_**

**V 0.25 UP\_**

**V 0.25 UF\_**

**V 0.25 UPF\_**



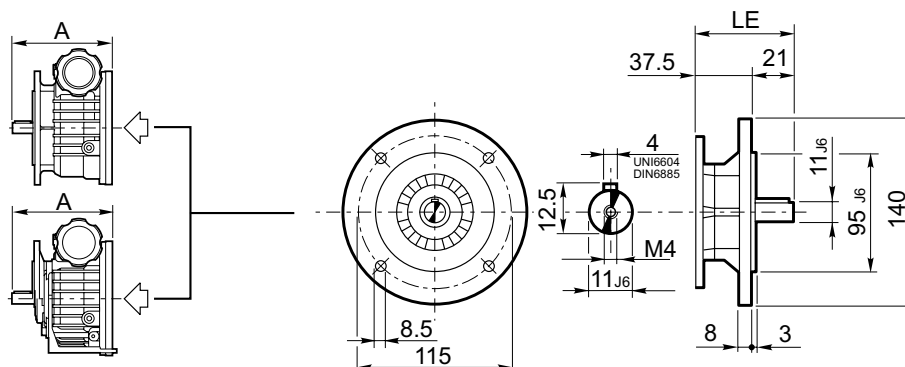
**HS**

**V 0.25 F\_**

**V 0.25 UP\_**

**V 0.25 UF\_**

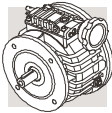
**V 0.25 UPF\_**



**HSF**

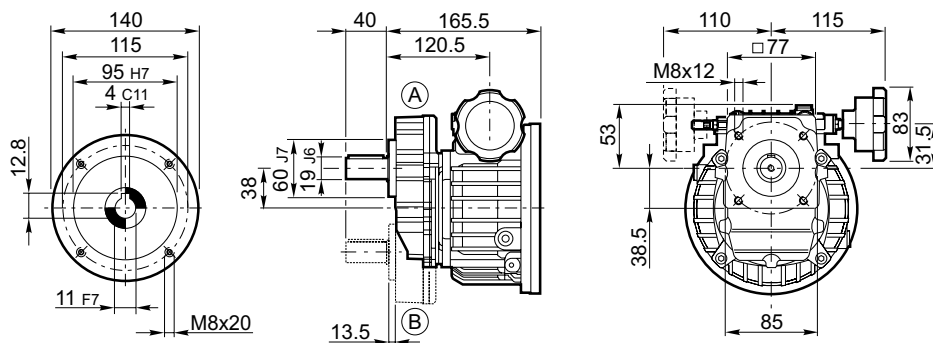
|            |        | AC  | AD  | LB  | A+LB  |       | Kg  |      |      |      |
|------------|--------|-----|-----|-----|-------|-------|-----|------|------|------|
|            |        |     |     |     | D11   | D14   | F   | UP   | UF   | UPF  |
| V 0.25_P63 | BN63_  | 121 | 95  | 184 | 315.5 | 322.5 | 8.4 | 8.8  | 8.9  | 9.0  |
|            | BN71_R | 138 | 108 | 219 | 350.5 | 357.5 | 9.9 | 10.3 | 10.4 | 10.5 |

|            | LE   | A+LE |     | LM | A+LM |     | Kg  |     |     |     |
|------------|------|------|-----|----|------|-----|-----|-----|-----|-----|
|            |      | D11  | D14 |    | D11  | D14 | F   | UP  | UF  | UPF |
| V 0.25_HS  | 58.5 | 190  | 197 | —  | —    | —   | 5.6 | 6.0 | 6.1 | 6.2 |
| V 0.25_HSF | 58.5 | 190  | 197 |    |      |     | 6.1 | 6.5 | 6.6 | 6.7 |

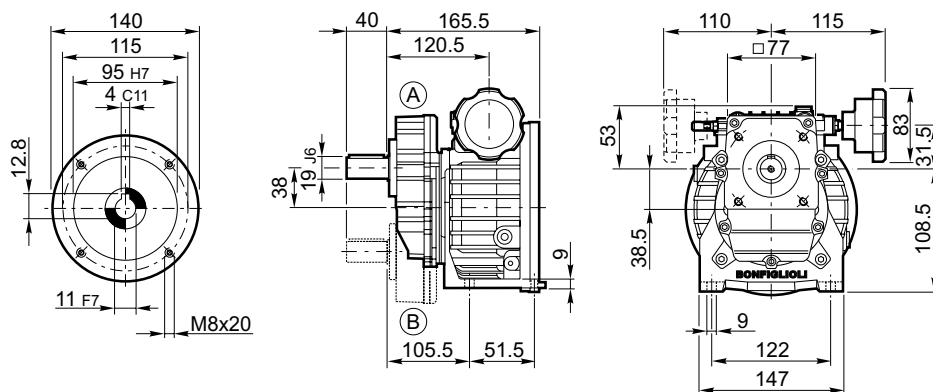


# VR 0.25

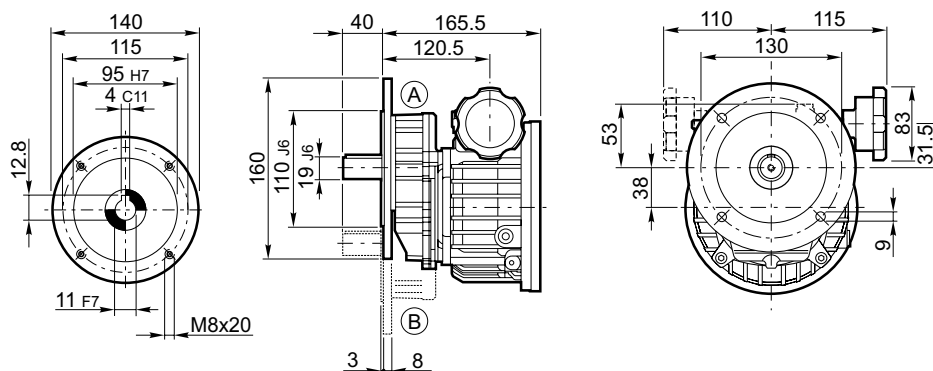
**VR 0.25 U\_P63**



**VR 0.25 P\_P63**

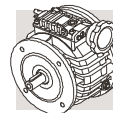


**VR 0.25 F\_P63**



| U-P-F   | B j6 | B1   | B2 | B3 | B4 | C  | U  |  |
|---------|------|------|----|----|----|----|----|--|
| VR 0.25 | 19   | 21.5 | 6  | 3  | 35 | 40 | M6 |  |

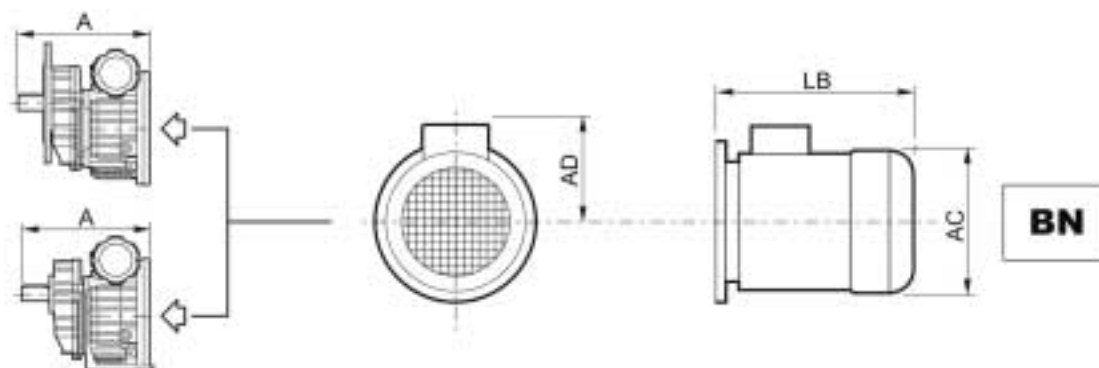
|             | Kg  |     |     |
|-------------|-----|-----|-----|
|             | F   | UP  | UPF |
| VR 0.25_P63 | 7.8 | 7.0 | 7.7 |



**VR 0.25 F\_P63**

**VR 0.25 U\_P63**

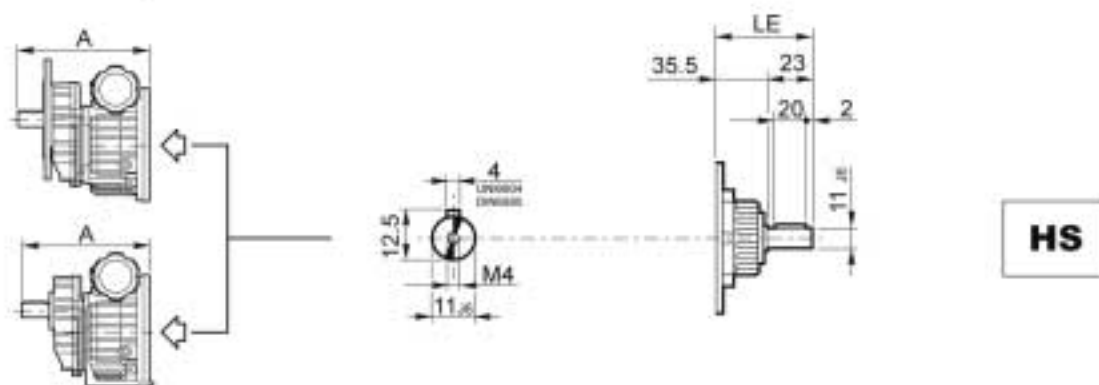
**VR 0.25 P\_P63**



**VR 0.25 F\_**

**VR 0.25 U\_**

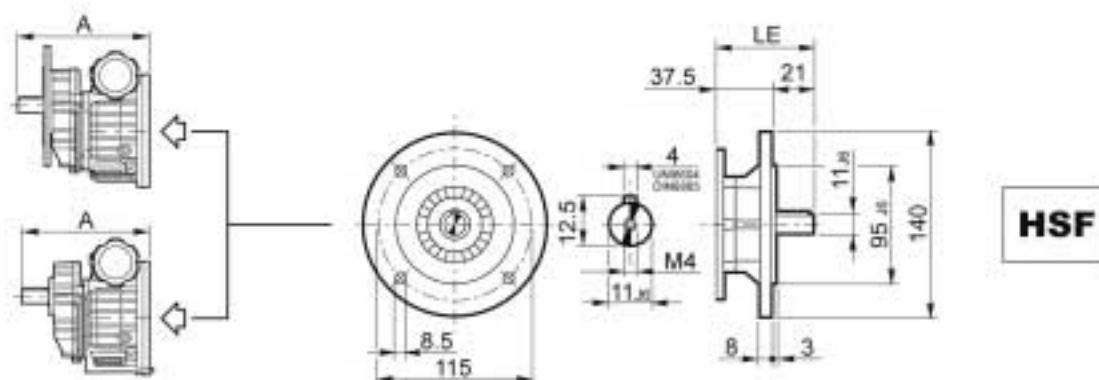
**VR 0.25 P\_**



**VR 0.25 F\_**

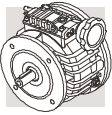
**VR 0.25 U\_**

**VR 0.25 P\_**



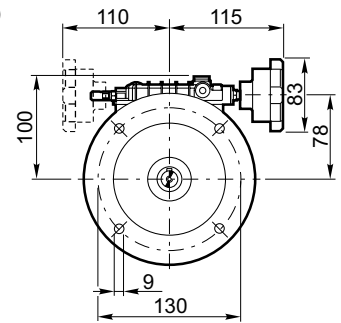
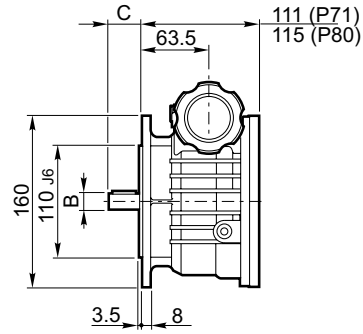
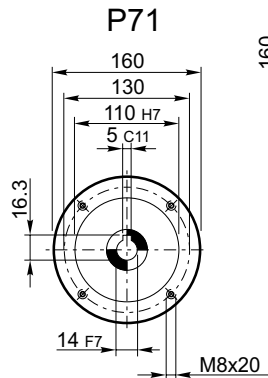
|             |        | AC  | AD  | LB  | A+LB  | Kg   |      |      |
|-------------|--------|-----|-----|-----|-------|------|------|------|
|             |        |     |     |     | D19   | F    | U    | P    |
| VR 0.25_P63 | BN63_  | 121 | 95  | 184 | 389.5 | 11.7 | 10.9 | 11.6 |
|             | BN71_R | 138 | 108 | 219 | 424.5 | 13.2 | 12.4 | 13.1 |

|             | LE   | A+LE | LM | A+LM | Kg  |     |     |
|-------------|------|------|----|------|-----|-----|-----|
|             |      | D19  |    | D19  | F   | U   | P   |
| VR 0.25_HS  | 58.5 | 264  | —  | —    | 8.9 | 8.1 | 8.8 |
| VR 0.25_HSF | 58.5 | 264  | —  | —    | 9.4 | 8.6 | 9.3 |

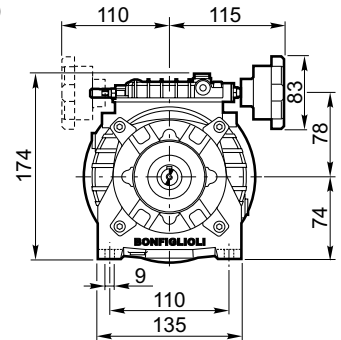
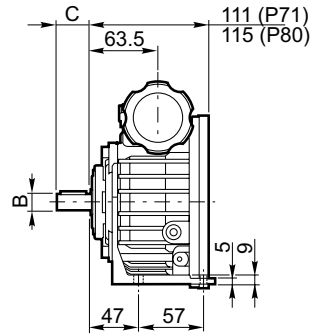


# V 0.5

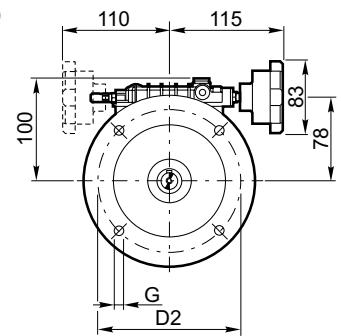
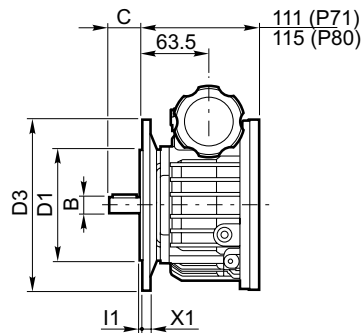
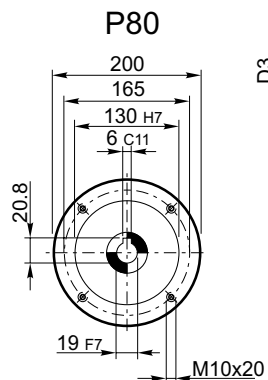
## V 0.5 F\_P71 V 0.5 F\_P80



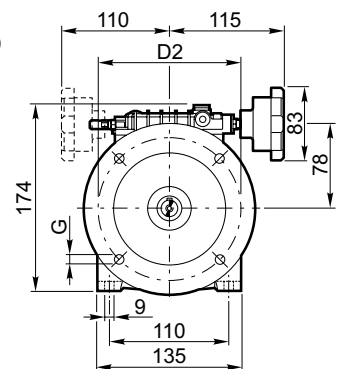
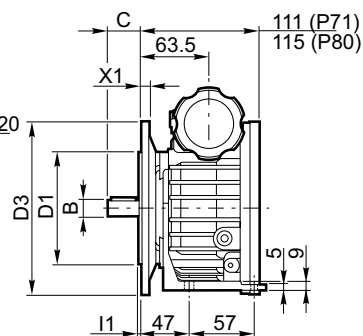
## V 0.5 UP\_P71



## V 0.5 UF\_P71 V 0.5 UF\_P80



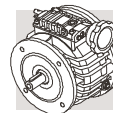
## V 0.5 UPF\_P71



| F-UP-UF-UPF | B j6 | B1   | B2 | B3  | B4 | C  | U  |  |
|-------------|------|------|----|-----|----|----|----|--|
| V 0.5_D14   | 14   | 16   | 5  | 2.5 | 25 | 30 | M5 |  |
| V 0.5_D19   | 19   | 21.5 | 6  | 5   | 30 | 40 | M6 |  |

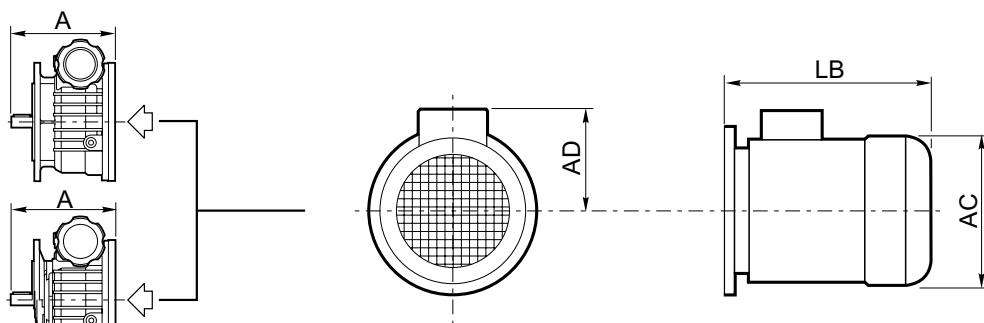
| UF-UPF      | D1j6 | D2  | D3  | G    | I1  | X1 |
|-------------|------|-----|-----|------|-----|----|
| V 0.5 UF71_ | 110  | 130 | 160 | 9    | 3.5 | 8  |
| V 0.5 UF80_ | 130  | 165 | 200 | 11.5 | 3.5 | 10 |

| V 0.5_P71 | Kg  |     |     |     |
|-----------|-----|-----|-----|-----|
|           | F   | UP  | UF  | UPF |
|           | 7.5 | 8.0 | 8.1 | 8.3 |



**V 0.5 F\_P71**  
**V 0.5 F\_P80**

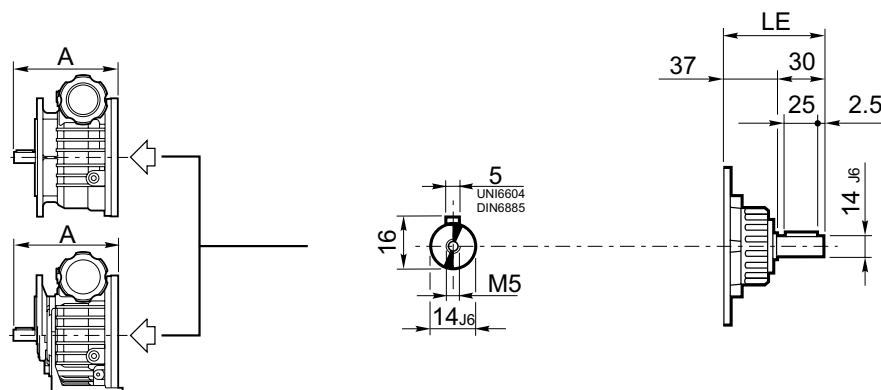
**V 0.5 UP\_P71**  
**V 0.5 UF\_P71**  
**V 0.5 UF\_P80**  
**V 0.5 UPF\_P71**



**BN**

**V 0.5 F\_**

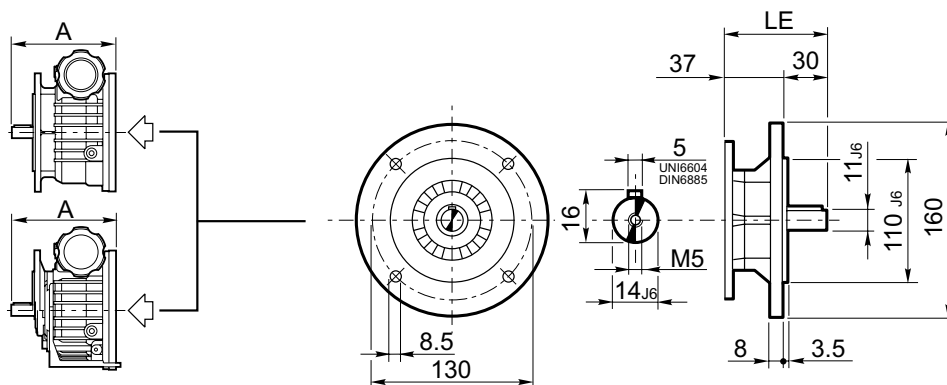
**V 0.5 UP\_**  
**V 0.5 UF\_**  
**V 0.5 UPF\_**



**HS**

**V 0.5 F\_**

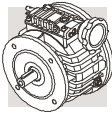
**V 0.5 UP\_**  
**V 0.5 UF\_**  
**V 0.5 UPF\_**



**HSF**

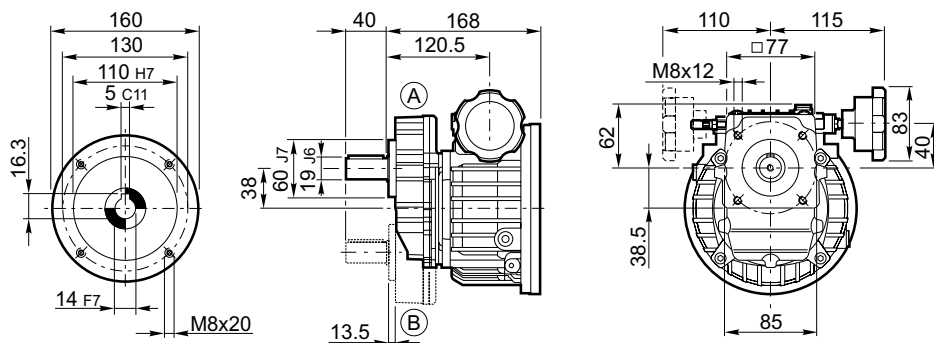
|           |       | AC  | AD  | LB  | A+LB |     | Kg   |      |      |      |
|-----------|-------|-----|-----|-----|------|-----|------|------|------|------|
|           |       |     |     |     | D14  | D19 | F    | UP   | UF   | UPF  |
| V 0.5_P71 | BN71_ | 138 | 108 | 219 | 360  | 370 | 13.4 | 13.9 | 14.0 | 14.2 |
| V 0.5_P80 | BN80_ | 156 | 119 | 234 | 379  | 389 | 17.4 | —    | 18.0 | —    |

|           | LE | A+LE |     | LM | A+LM |     | Kg   |      |      |      |
|-----------|----|------|-----|----|------|-----|------|------|------|------|
|           |    | D14  | D19 |    | D14  | D19 | F    | UP   | UF   | UPF  |
| V 0.5_HS  | 67 | 208  | 218 | —  | —    | —   | 9.1  | 9.6  | 9.7  | 9.9  |
| V 0.5_HSF | 67 | 208  | 218 | —  | —    | —   | 10.0 | 10.5 | 10.6 | 10.8 |

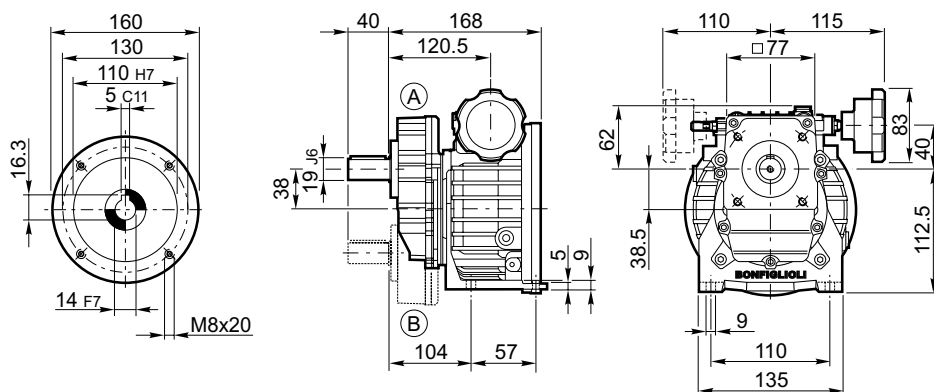


# VR 0.5

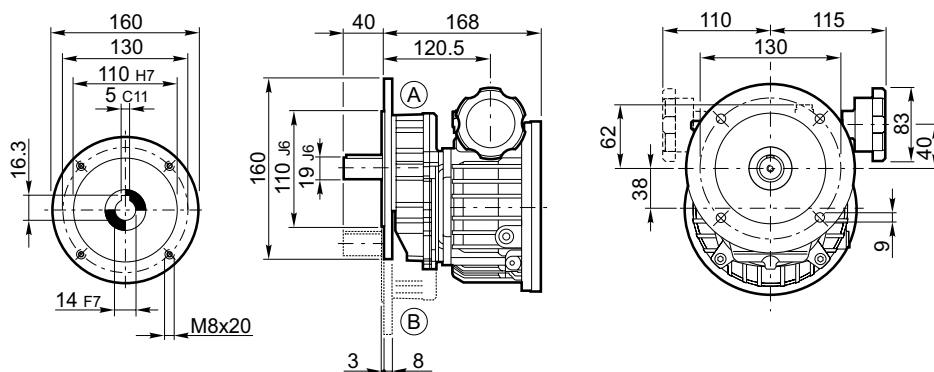
**VR 0.5 U\_P71**



**VR 0.5 P\_P71**

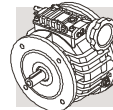


**VR 0.5 F\_P71**



| U-P-F  | B j6 | B1   | B2 | B3 | B4 | C  | U  |  |
|--------|------|------|----|----|----|----|----|--|
| VR 0.5 | 19   | 21.5 | 6  | 3  | 35 | 40 | M6 |  |

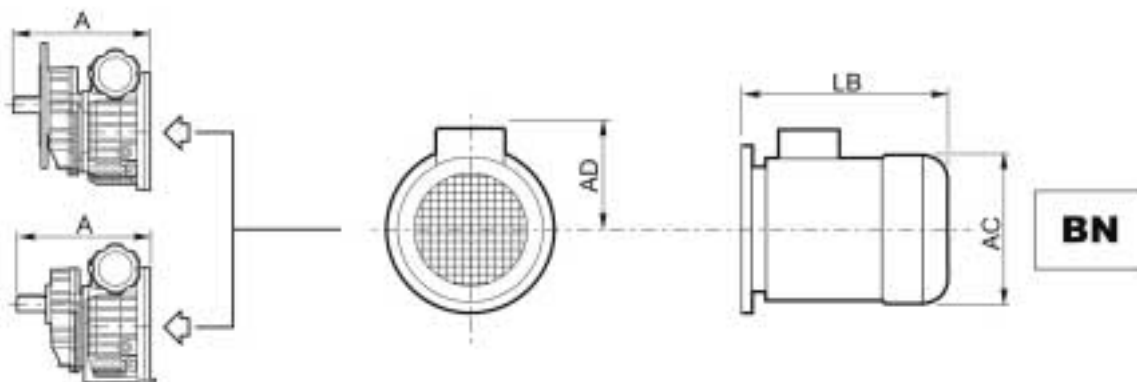
|            | Kg   |      |      |
|------------|------|------|------|
|            | F    | U    | P    |
| VR 0.5_P71 | 10.9 | 10.1 | 10.8 |



**VR 0.5 F\_P71**

**VR 0.5 U\_P71**

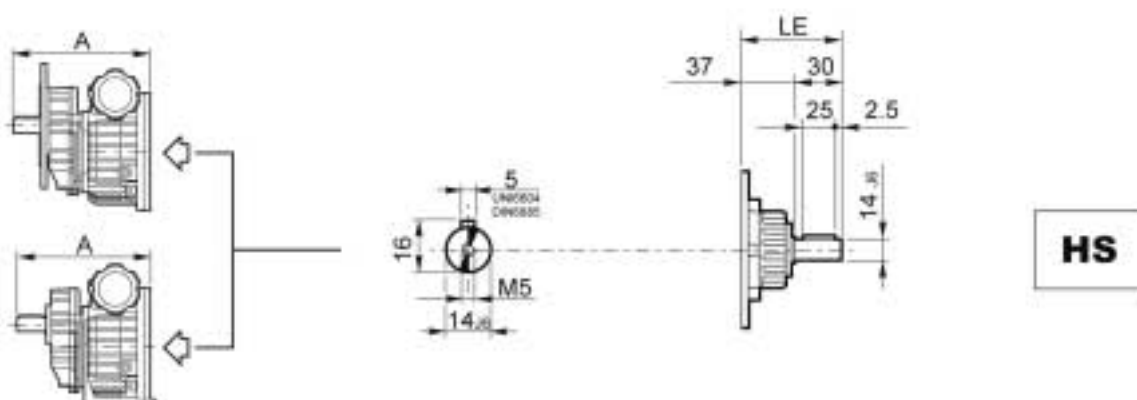
**VR 0.5 P\_P71**



**VR 0.5 F\_**

**VR 0.5 U\_**

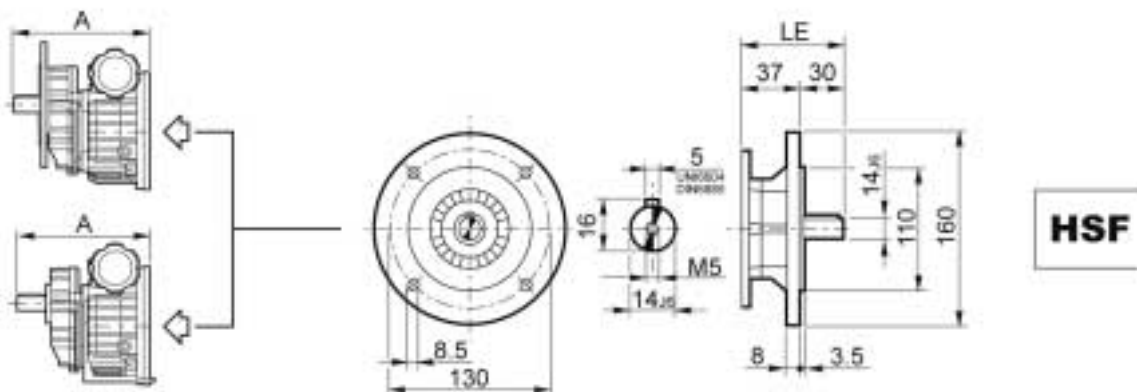
**VR 0.5 P\_**



**VR 0.5 F\_**

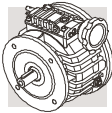
**VR 0.5 U\_**

**VR 0.5 P\_**



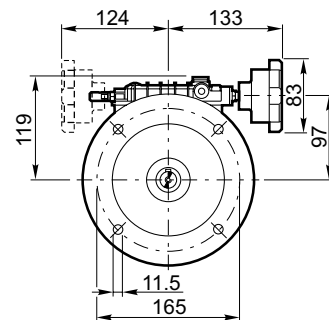
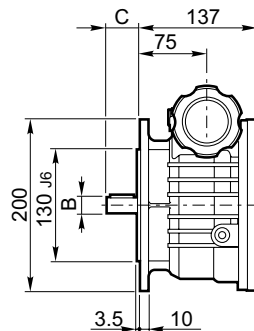
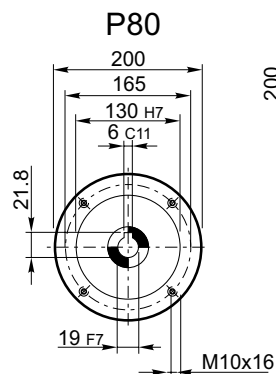
|            |       | AC  | AD  | LB  | A+LB |      |    |      |
|------------|-------|-----|-----|-----|------|------|----|------|
|            |       |     |     |     | D19  | F    | U  | P    |
| VR 0.5_P71 | BN71_ | 138 | 108 | 219 | 427  | 16.8 | 16 | 16.7 |

|            | LE | A+LE | LM | A+LM | Kg   |      |      |
|------------|----|------|----|------|------|------|------|
|            |    | D19  |    | D19  | F    | U    | P    |
| VR 0.5_HS  | 67 | 275  | —  | —    | 12.5 | 11.7 | 12.4 |
| VR 0.5_HSF | 67 | 275  |    |      | 13.4 | 12.6 | 13.3 |

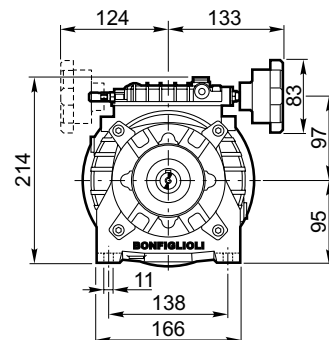
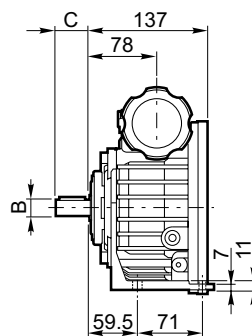


# V 1

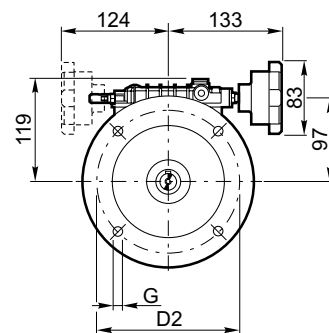
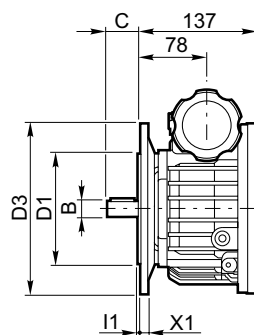
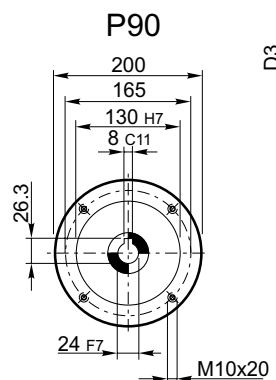
**V 1 F\_P80**  
**V 1 F\_P90**



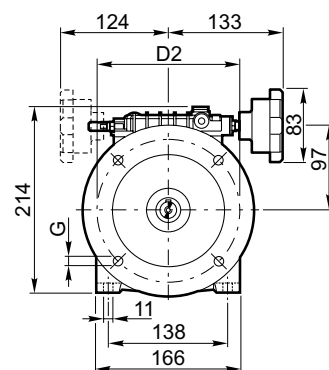
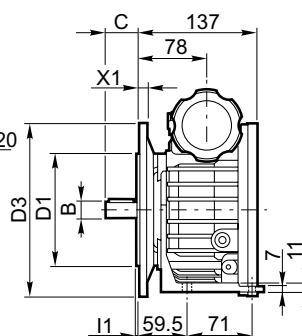
**V 1 UP\_P80**  
**V 1 UP\_P90**



**V 1 UF\_P80**  
**V 1 UF\_P90**



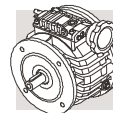
**V 1 UPF\_P80**  
**V 1 UPF\_P90**



| F-UP-UF-UPF | B j6 | B1   | B2 | B3 | B4 | C  | U  |  |
|-------------|------|------|----|----|----|----|----|--|
| V 1_D19     | 19   | 21.5 | 6  | 5  | 30 | 40 | M6 |  |
| V 1_D24     | 24   | 27   | 8  | 5  | 40 | 50 | M8 |  |

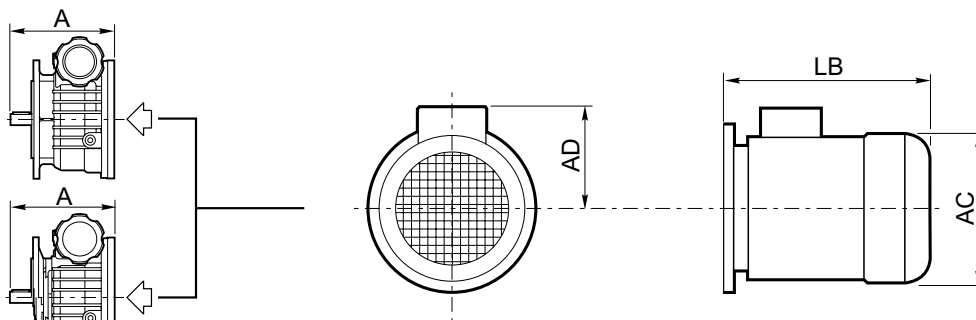
| UF-UPF    | D1 j6 | D2  | D3  | G    | I1  | X1 |
|-----------|-------|-----|-----|------|-----|----|
| V 1 UF80_ | 130   | 165 | 200 | 11.5 | 3.5 | 10 |
| V 1 UF90_ | 130   | 165 | 200 | 11.5 | 3.5 | 10 |

| V 1_P80 | Kg   |      |      |      |
|---------|------|------|------|------|
|         | F    | UP   | UF   | UPF  |
|         | 14.1 | 14.0 | 14.2 | 14.5 |



V 1 F\_P80  
V 1 F\_P90

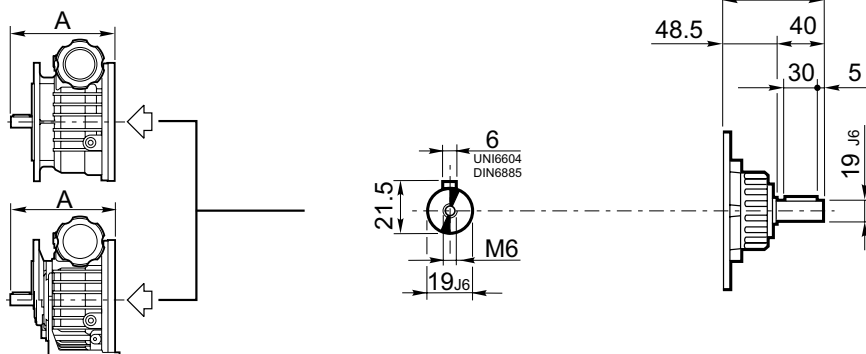
V 1 UP\_P80  
V 1 UF\_P80  
V 1 UF\_P90  
V 1 UPF\_P80



**BN**

V 1 F\_

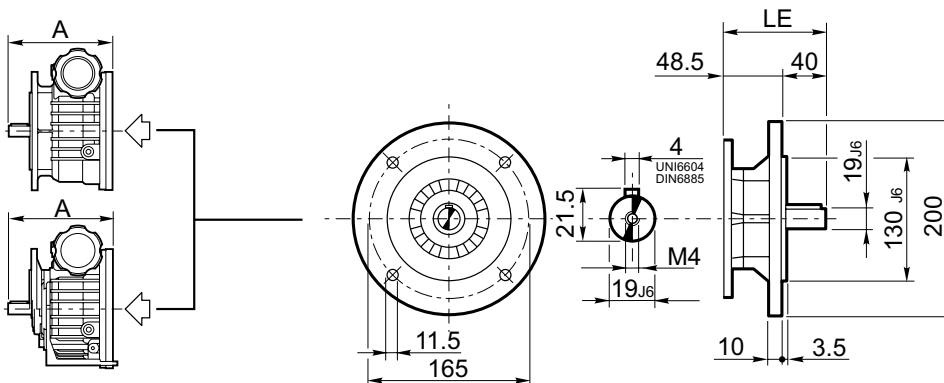
V 1 UP\_  
V 1 UF\_  
V 1 UPF\_



**HS**

V 1 F\_

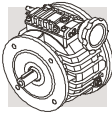
V 1 UP\_  
V 1 UF\_  
V 1 UFP\_



**HSF**

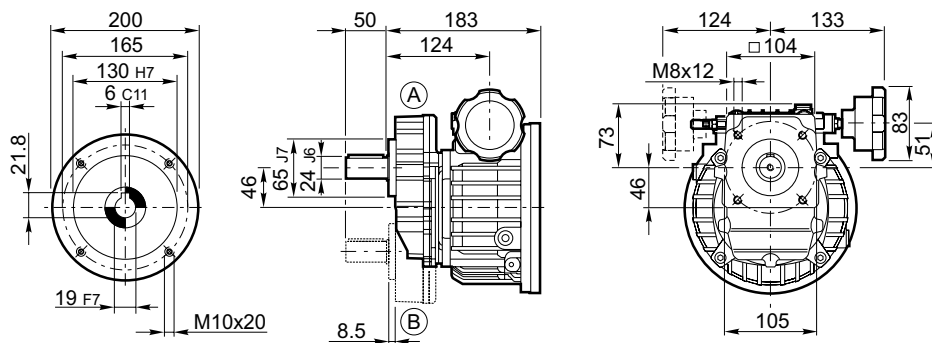
|         |        | AC  | AD  | LB  | A+LB |     | Kg |    |    |     |
|---------|--------|-----|-----|-----|------|-----|----|----|----|-----|
|         |        |     |     |     | D19  | D24 | F  | UP | UF | UPF |
| V 1_P80 | BN80_  | 156 | 119 | 234 | 411  | 421 | 24 | 24 | 24 | 24  |
| V 1_P90 | BN90S_ | 176 | 133 | 276 | 453  | 463 | 26 | 26 | 27 | 27  |
| V 1_P90 | BN90L_ | 176 | 133 | 276 | 453  | 463 | 26 | 28 | 27 | 27  |

|         | LE   | A+LE  |       | LM | A+LM |     | Kg   |      |      |      |
|---------|------|-------|-------|----|------|-----|------|------|------|------|
|         |      | D19   | D24   |    | D19  | D24 | F    | UP   | UF   | UPF  |
| V 1_HS  | 88.5 | 265.5 | 275.5 | —  | —    | —   | 16.9 | 16.8 | 17.0 | 17.3 |
| V 1_HSF | 88.5 | 265.5 | 275.5 |    |      |     | 18.6 | 18.5 | 18.7 | 19.0 |

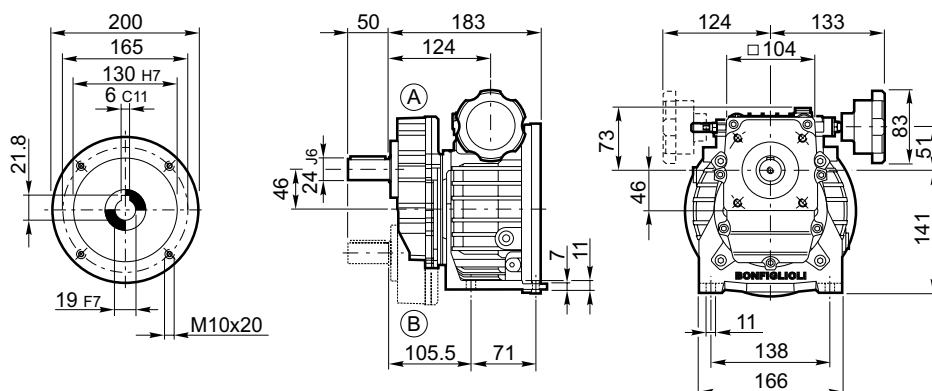


# VR 1

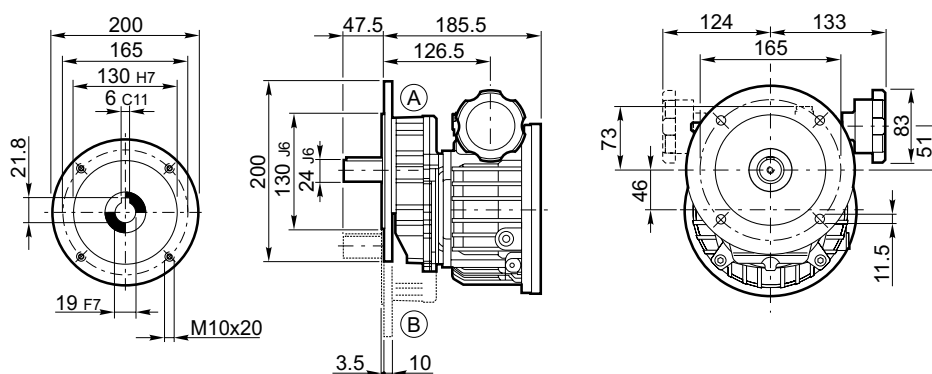
## VR 1 U\_P80



## VR 1 P\_P80

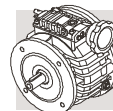


## VR 1 F\_P80



| U-P-F | B j6 | B1 | B2 | B3 | B4 | C                         | U  |  |
|-------|------|----|----|----|----|---------------------------|----|--|
| VR 1  | 24   | 27 | 8  | 3  | 45 | 50<br>(UP)<br>47.5<br>(F) | M8 |  |

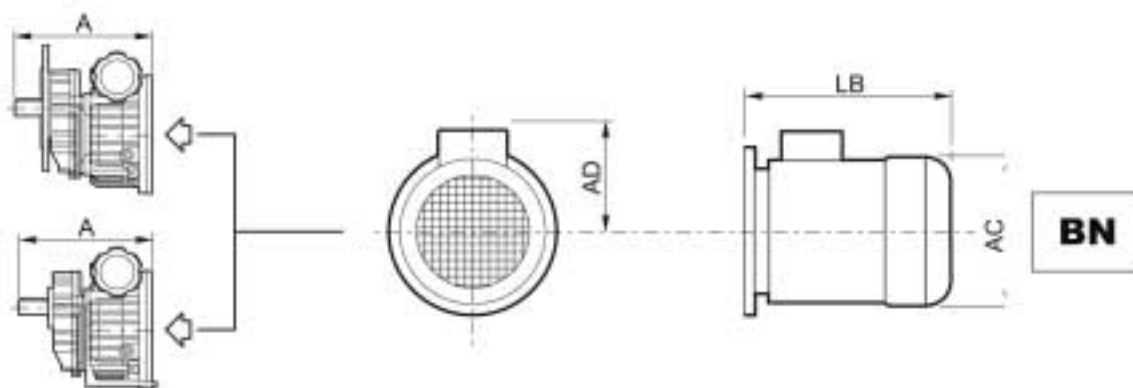
|          | Kg   |      |      |
|----------|------|------|------|
|          | F    | P    | P    |
| VR 1_P80 | 17.7 | 16.2 | 17.5 |



VR 1 F\_P80

VR 1 U\_P80

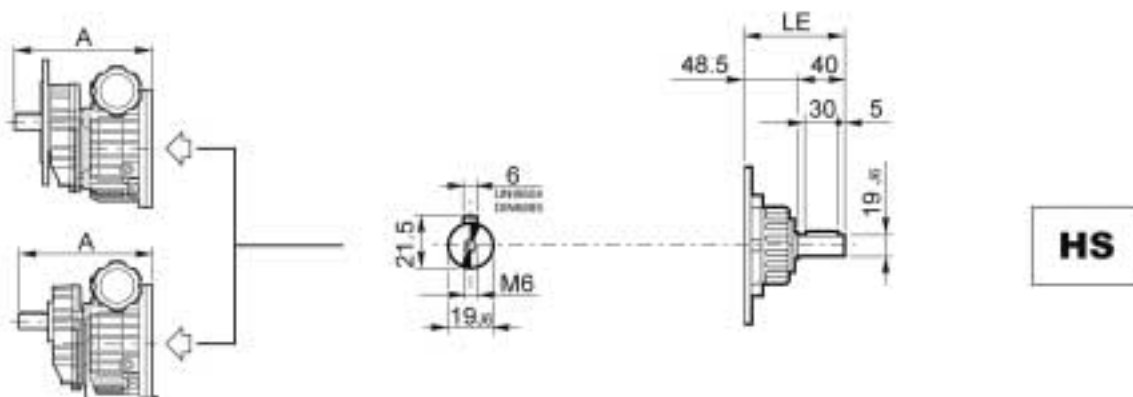
VR 1 P\_P80



VR 1 F\_

VR 1 UP\_

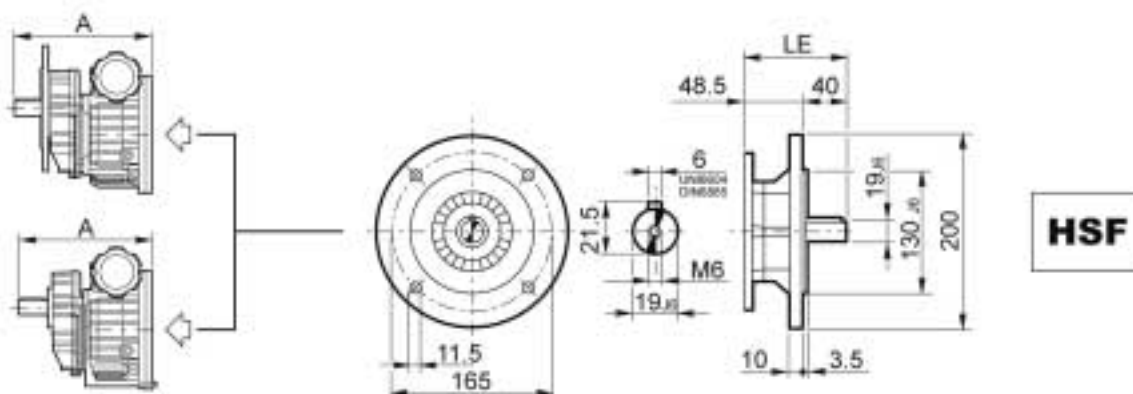
VR 1 P\_



VR 1 F\_

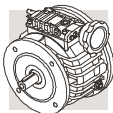
VR 1 U\_

VR 1 P\_



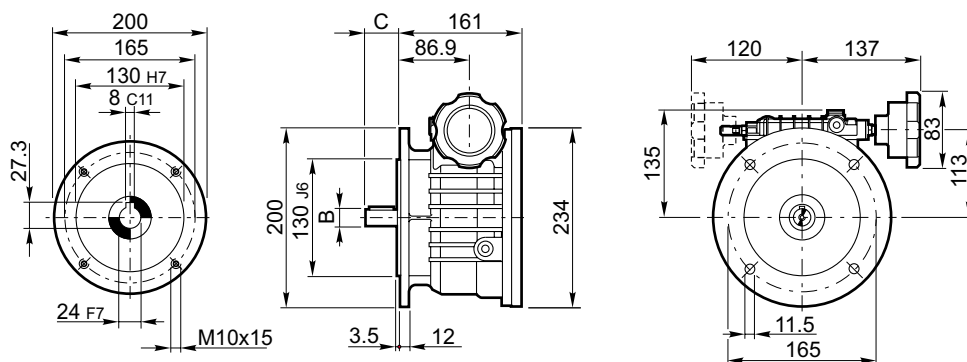
|          |       | AC  | AD  | LB  | A+LB | Kg |    |    |
|----------|-------|-----|-----|-----|------|----|----|----|
|          |       |     |     |     | D24  | F  | U  | P  |
| VR 1_P80 | BN80_ | 156 | 119 | 234 | 467  | 28 | 26 | 27 |

|          | LE   | A+LE  | LM | A+LM | Kg |      |    |
|----------|------|-------|----|------|----|------|----|
|          |      | D24   |    | D24  | F  | U    | P  |
| VR 1_HS  | 88.5 | 321.5 | —  | —    | 21 | 19.0 | 20 |
| VR 1_HSF | 88.5 | 321.5 |    |      | 22 | 21   | 22 |

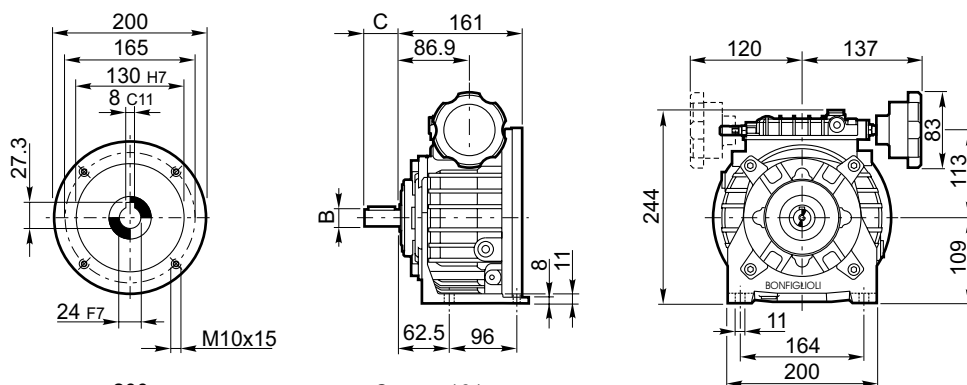


# V 2

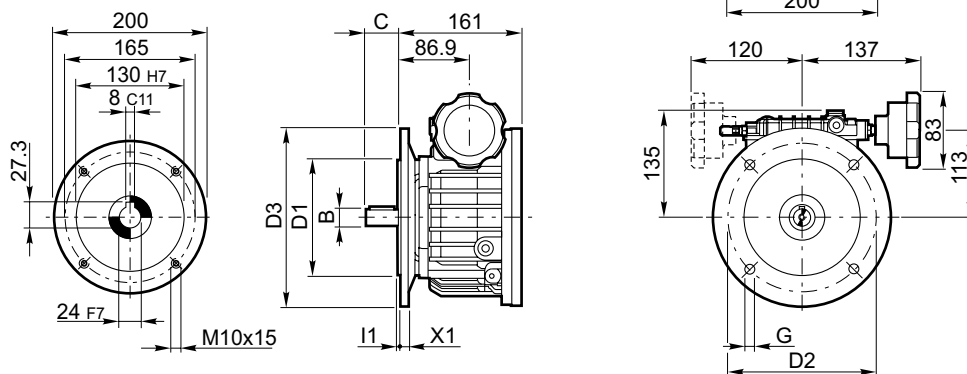
## V 2 F\_P90



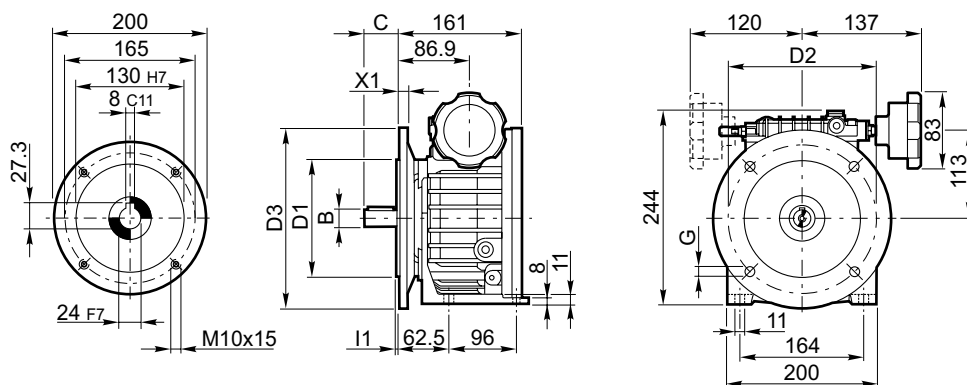
## V 2 UP\_P90



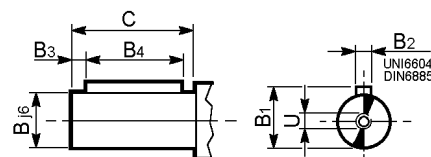
## V 2 UF\_P90



## V 2 UPF\_P90

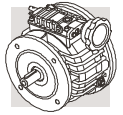


| F-UP-UF-UPF | B j6 | B1 | B2 | B3 | B4 | C  | U   |
|-------------|------|----|----|----|----|----|-----|
| V 2_D24     | 24   | 27 | 8  | 5  | 40 | 50 | M8  |
| V 2_D28     | 28   | 31 | 8  | 5  | 50 | 60 | M10 |



| UF-UPF     | D1 j6 | D2  | D3  | G    | I1  | X1 |
|------------|-------|-----|-----|------|-----|----|
| V 2 UF90_  | 130   | 165 | 200 | 11.5 | 3.5 | 12 |
| V 2 UF100_ | 180   | 215 | 250 | 14   | 4   | 14 |

| V 2_P90 | F    | U  | UF | UP |
|---------|------|----|----|----|
|         | 18.8 | 20 | 21 | 21 |

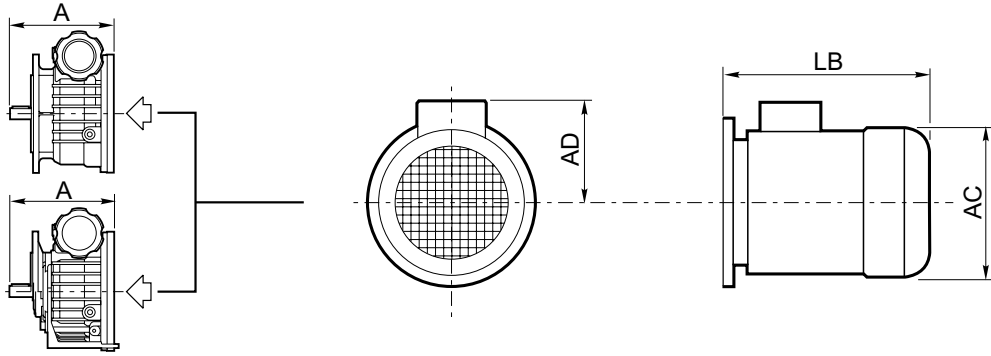


**V 2 F\_P90**

**V 2 UP\_P90**

**V 2 UF\_P90**

**V 2 UPF\_P90**



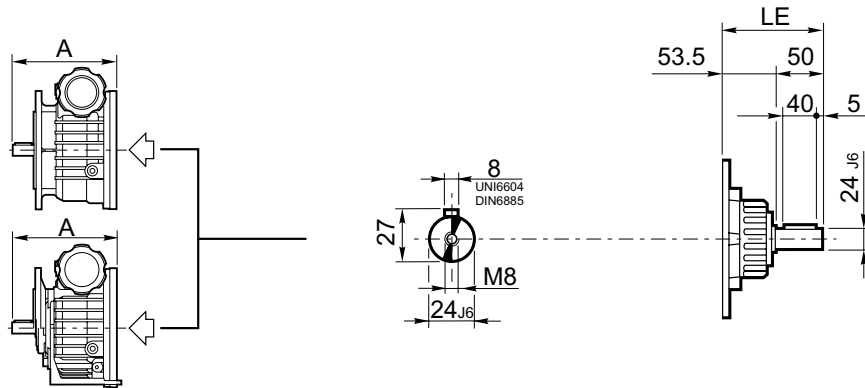
**BN**

**V 2 F\_**

**V 2UP\_**

**V 2 UF\_**

**V 2 UPF\_**



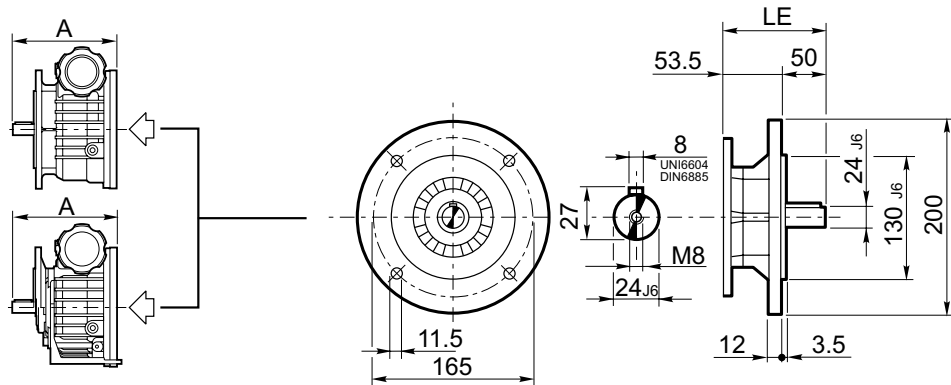
**HS**

**V 2 F\_**

**V 2 UP\_**

**V 2 UF\_**

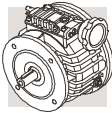
**V 2 UPF\_**



**HSF**

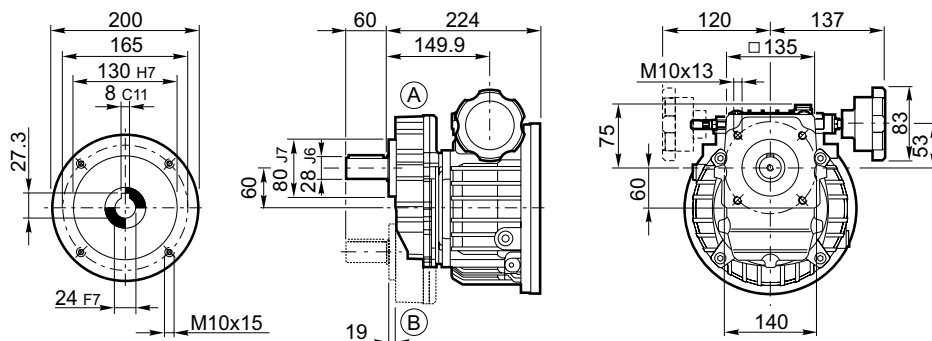
|         |         | AC  | AD  | LB  | A+LB |     | Kg |    |    |    |
|---------|---------|-----|-----|-----|------|-----|----|----|----|----|
|         |         |     |     |     | D24  | D28 | F  | U  | UF | UP |
| V 2_P90 | BN90S_  | 176 | 133 | 276 | 487  | 497 | 31 | 33 | 33 | 33 |
|         | BN90L_  | 176 | 133 | 276 | 487  | 497 | 33 | 35 | 35 | 35 |
|         | BN100_R | 195 | 142 | 307 | 518  | 528 | 41 | 43 | 43 | 43 |

|         | LE    | A+LE  |       | LM | A+LM |     | Kg |    |    |    |
|---------|-------|-------|-------|----|------|-----|----|----|----|----|
|         |       | D24   | D28   |    | D24  | D28 | F  | U  | UF | UP |
| V 2_HS  | 103.5 | 314.5 | 324.5 | —  | —    | —   | 23 | 24 | 25 | 25 |
| V 2_HSF | 103.5 | 314.5 | 324.5 |    |      |     | 25 | 26 | 26 | 27 |

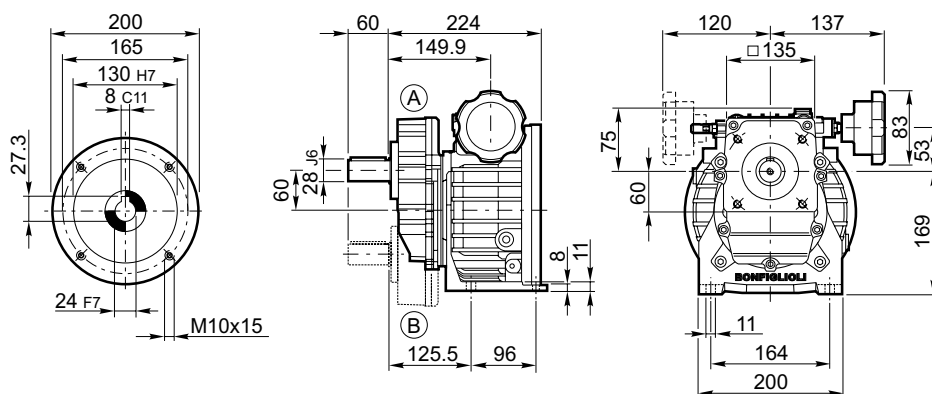


# VR 2

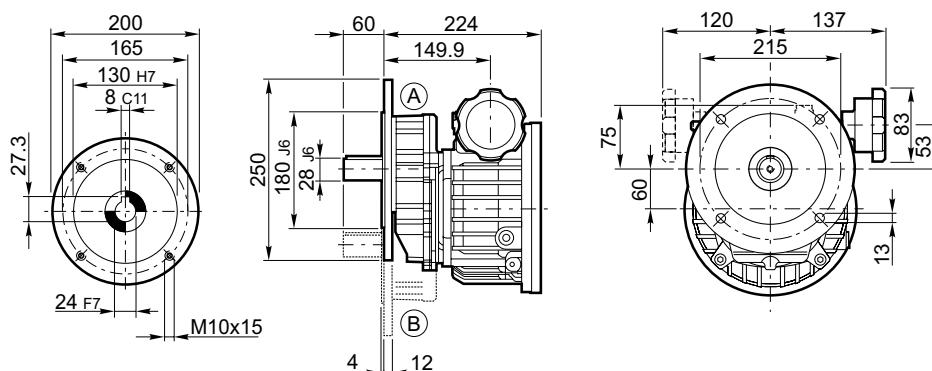
**VR 2 U\_P90**



**VR 2 P\_P90**

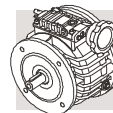


**VR 2 F\_P90**



| U-P-F | B j6 | B1 | B2 | B3 | B4 | C  | U   |  |
|-------|------|----|----|----|----|----|-----|--|
| VR 2  | 28   | 31 | 8  | 5  | 50 | 60 | M10 |  |

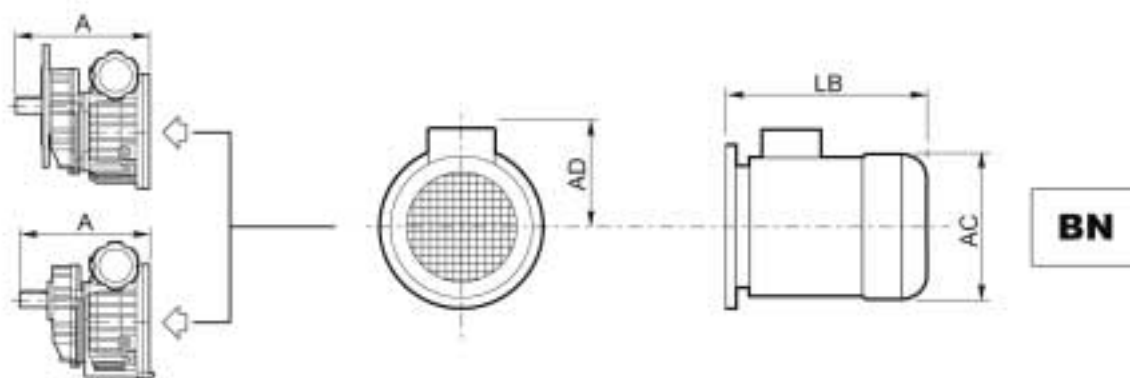
|          | Kg |    |    |
|----------|----|----|----|
|          | F  | U  | P  |
| VR 2_P90 | 27 | 25 | 27 |



VR 2 F\_P90

VR 2 U\_P90

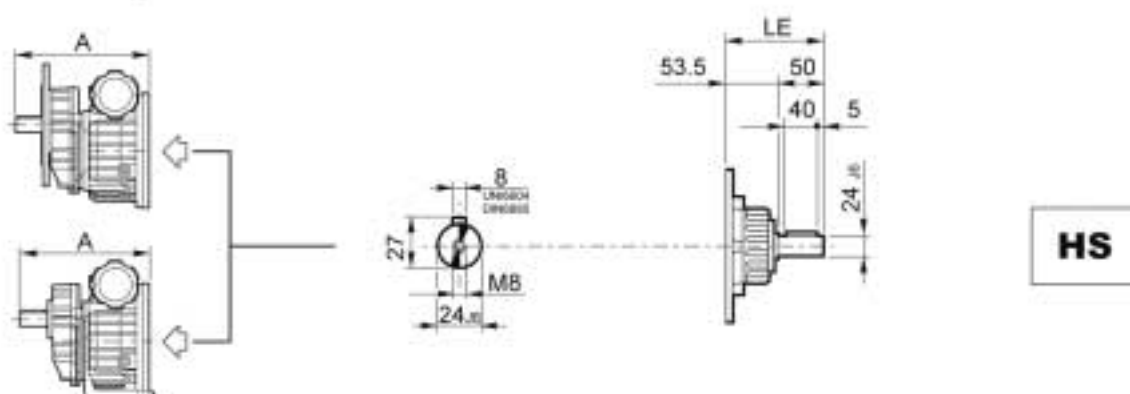
VR 2 P\_P90



VR 2 F\_

VR 2 U\_

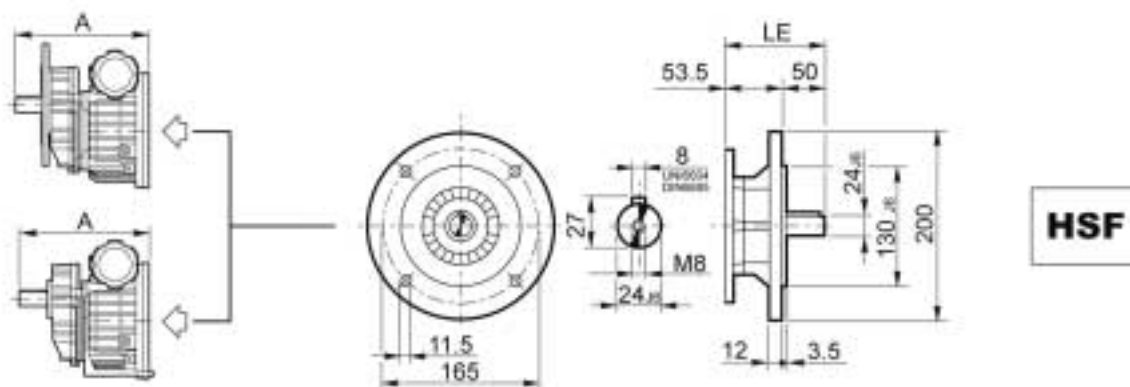
VR 2 P\_



VR 2 F\_

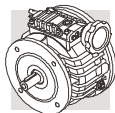
VR 2 U\_

VR 2 P\_



|          |         | AC  | AD  | LB  | A+LB | Kg |    |    |
|----------|---------|-----|-----|-----|------|----|----|----|
|          |         |     |     |     | D28  | F  | U  | P  |
| VR 2_P90 | BN90S_  | 176 | 133 | 276 | 560  | 39 | 37 | 40 |
|          | BN90L_  | 176 | 133 | 276 | 560  | 41 | 39 | 41 |
|          | BN100_R | 195 | 142 | 307 | 591  | 49 | 47 | 49 |

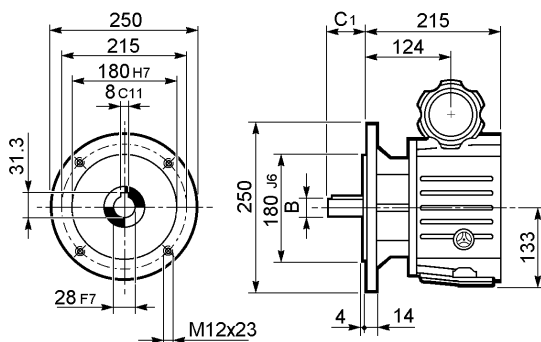
|          | LE    | A+LE  | LM | A+LM | Kg |    |    |
|----------|-------|-------|----|------|----|----|----|
|          |       | D28   |    | 28   | F  | U  | P  |
| VR 2_HS  | 103.5 | 387.5 | —  | —    | 31 | 29 | 31 |
| VR 2_HSF | 103.5 | 387.5 |    |      | 33 | 31 | 32 |



# V 3

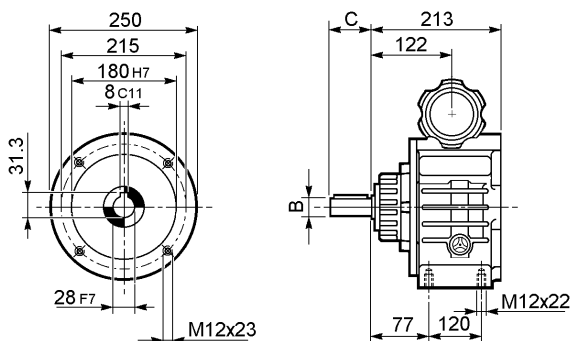
**V 3 F\_P100**

**V 3 F\_P112**



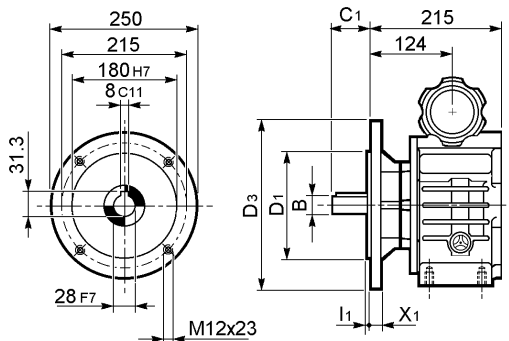
**V 3 U\_P100**

**V 3 U\_P112**



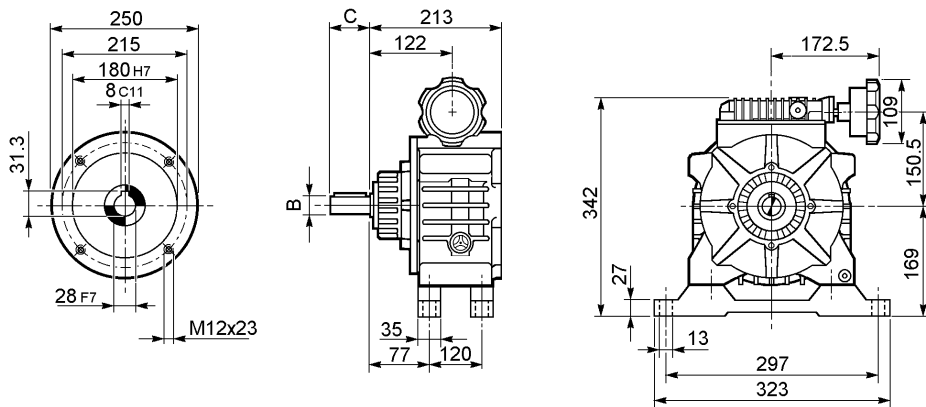
**V 3 UF\_P100**

**V 3 UF\_P112**



**V 3 UP\_P100**

**V 3 UP\_P112**



| F-U-UF-UP | B j6 | B1 | B2 | B3 | B4 | C  | C1 | U   |  |
|-----------|------|----|----|----|----|----|----|-----|--|
| V 3_D28   | 28   | 31 | 8  | 5  | 50 | 60 | 58 | M10 |  |
| V 3_D38 * | 38   | 41 | 10 | 5  | 70 | 80 | 78 | M12 |  |

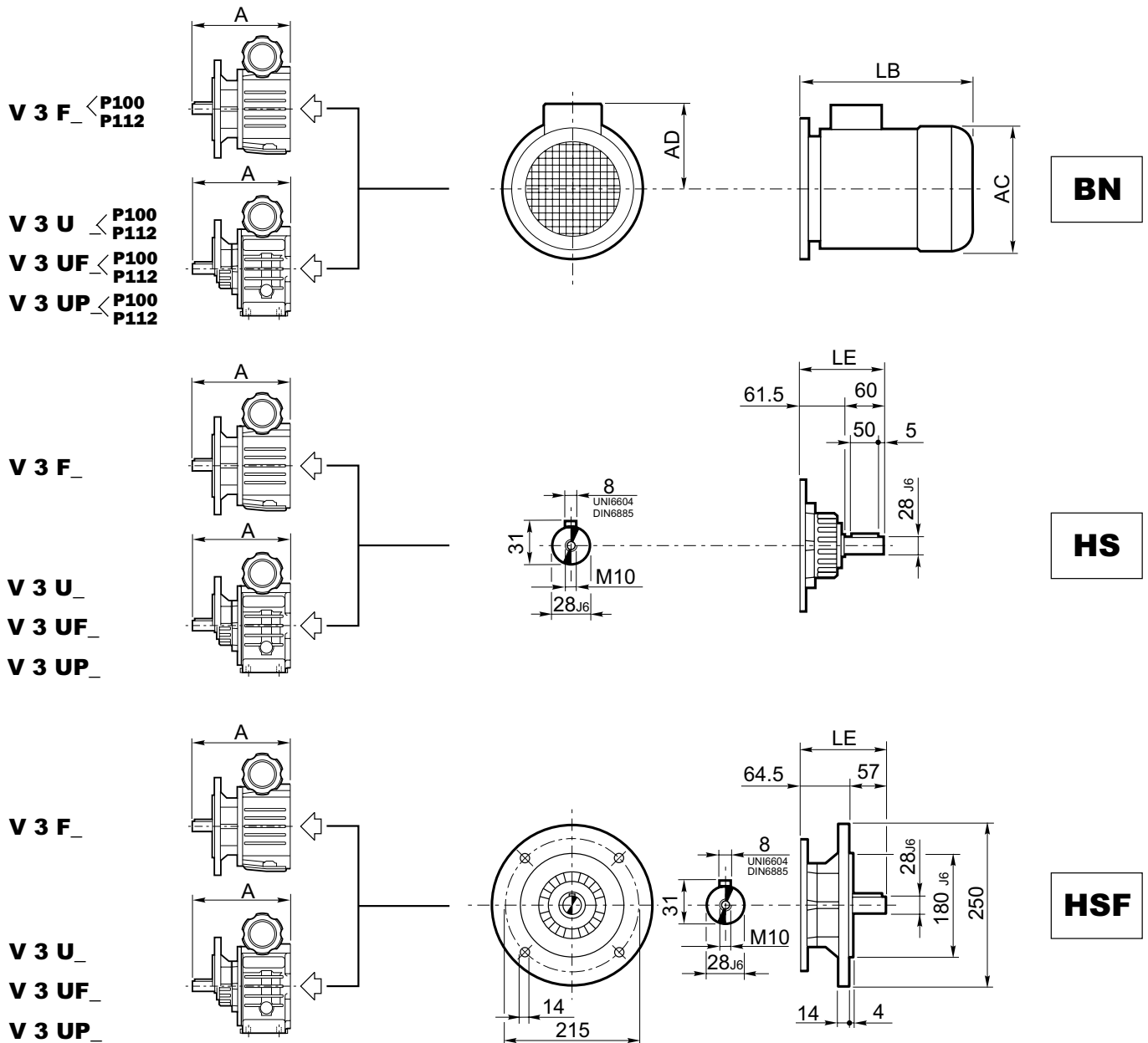
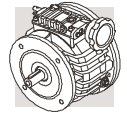
\* Non previsto nella esecuzione con differenziale; se richiesto, consultare il ns. Servizio tecnico commerciale.

\* Not available on versions featuring the differential unit. If required, please contact our Technical Service Dept.

\* Nicht in der Ausführung mit Differential vorgesehen. Wenn diese Einbaulage benötigt wird, informieren Sie sich bitte bei unserem technischen Kundendienst.

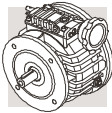
\* Non prévu sur la version avec différentiel; pour toute demande, consulter notre Service Après-Vente.

| UF         | D1 j6 | D2  | D3  | G  | I1 | X1 |  |  Kg |    |    |    |    |
|------------|-------|-----|-----|----|----|----|--|------------------------------------------------------------------------------------------|----|----|----|----|
| V 3 UF100_ | 180   | 215 | 250 | 14 | 4  | 14 |  | F                                                                                        | U  | UF | UP |    |
| V 3 UF132_ | 230   | 265 | 300 | 14 | 4  | 14 |  | V 3 P100                                                                                 | 39 | 41 | 45 | 46 |
|            |       |     |     |    |    |    |  | V 3 P112                                                                                 | 39 | 41 | 45 | 46 |



|          |        | AC  | AD  | LB  | A+LB |     | Kg |    |    |    |
|----------|--------|-----|-----|-----|------|-----|----|----|----|----|
|          |        |     |     |     | D28  | D38 | F  | U  | UF | UP |
| V 3_P100 | BN100_ | 195 | 135 | 306 | 579  | 599 | 61 | 63 | 67 | 68 |
| V 3_P112 | BN112_ | 219 | 150 | 325 | 598  | 618 | 67 | 69 | 73 | 74 |

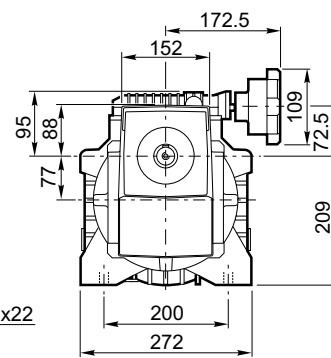
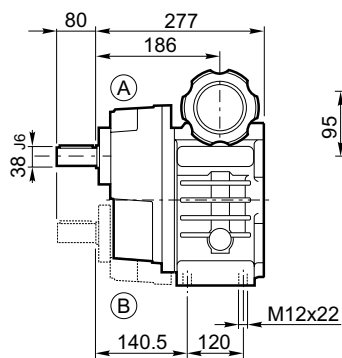
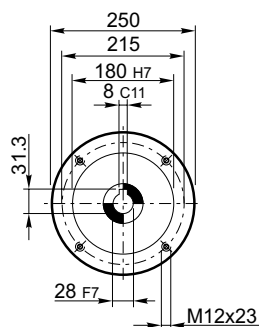
|         | LE    | A+LE  |       | LM | A+LM |     | Kg |    |    |    |
|---------|-------|-------|-------|----|------|-----|----|----|----|----|
|         |       | D28   | D38   |    | D28  | D38 | F  | U  | UF | UP |
| V 3_HS  | 121.5 | 394.5 | 414.5 | —  | —    | —   | 46 | 47 | 52 | 52 |
| V 3_HSF | 121.5 | 394.5 | 414.5 |    |      |     | 50 | 52 | 56 | 57 |



# VR 3

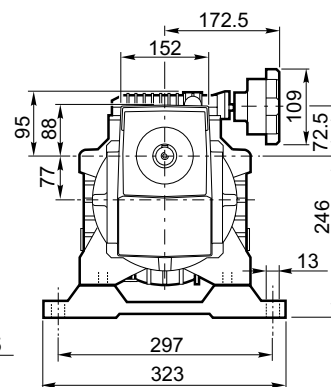
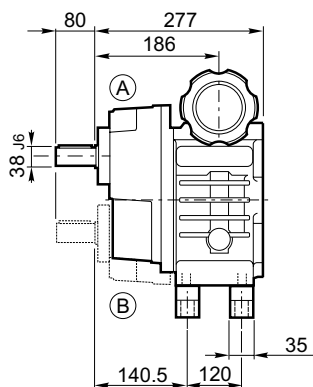
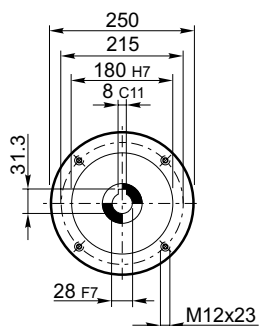
**VR 3 U\_P100**

**VR 3 U\_P112**



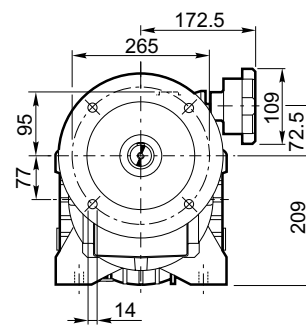
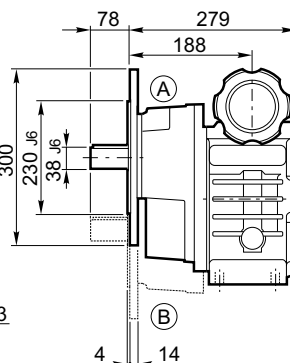
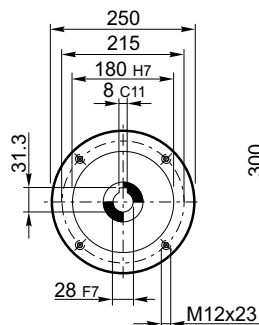
**VR 3 P\_P100**

**VR 3 P\_P112**



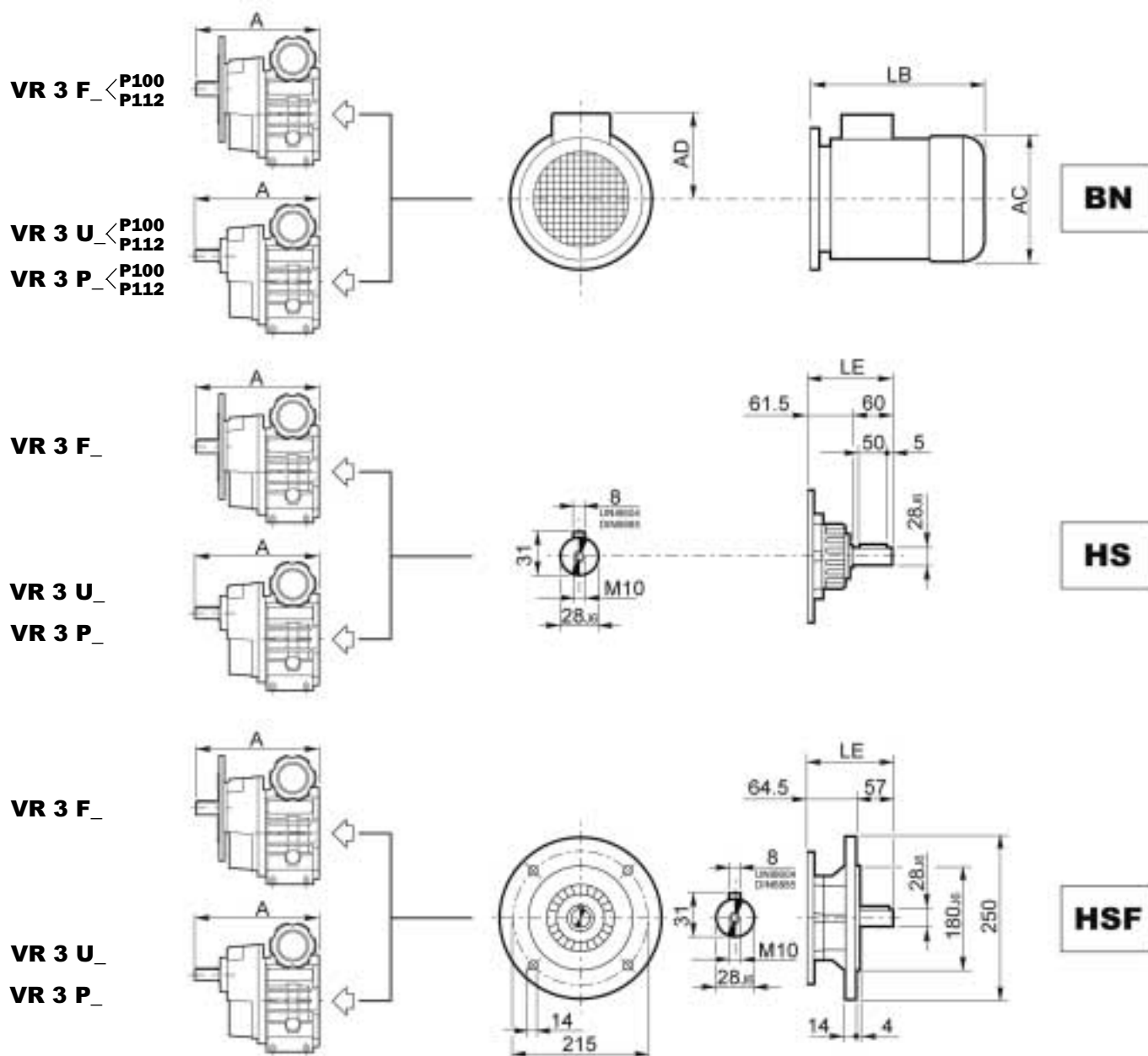
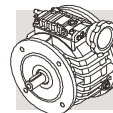
**VR 3 F\_P100**

**VR 3 F\_P112**



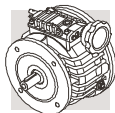
| U-P-F | B j6 | B1 | B2 | B3 | B4 | C                | U   |  |
|-------|------|----|----|----|----|------------------|-----|--|
| VR 3  | 38   | 41 | 10 | 5  | 70 | 80 (P)<br>78 (F) | M12 |  |

|           | Kg |    |    |
|-----------|----|----|----|
|           | U  | P  | F  |
| VR 3_P100 | 55 | 60 | 55 |
| VR 3_P112 |    |    |    |



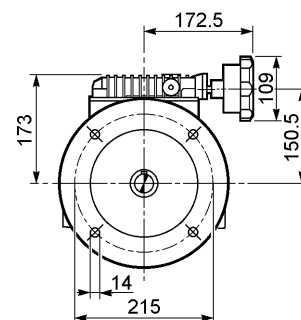
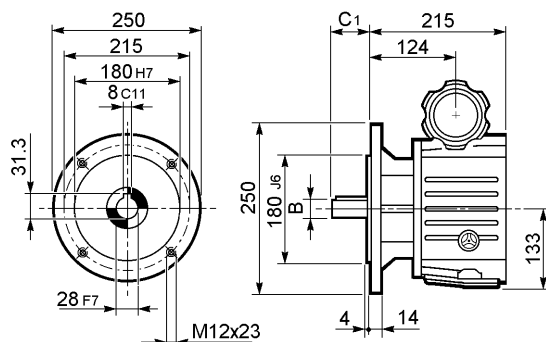
|           |        | AC  | AD  | LB  | A+LB |  |    |    |
|-----------|--------|-----|-----|-----|------|---------------------------------------------------------------------------------------|----|----|
|           |        |     |     |     | D28  | U                                                                                     | P  | F  |
| VR 3_P100 | BN100_ | 195 | 135 | 306 | 663  | 77                                                                                    | 82 | 77 |
| VR 3_P112 | BN112_ | 219 | 150 | 325 | 682  | 85                                                                                    | 90 | 85 |

|          | LE    | A+LE  | LM | A+LM |  |    |    |
|----------|-------|-------|----|------|---------------------------------------------------------------------------------------|----|----|
|          |       | D38   |    | D38  | U                                                                                     | P  | F  |
| VR 3_HS  | 121.5 | 478.5 | —  | —    | 62                                                                                    | 67 | 62 |
| VR 3_HSF | 121.5 | 478.5 |    |      | 66                                                                                    | 71 | 66 |

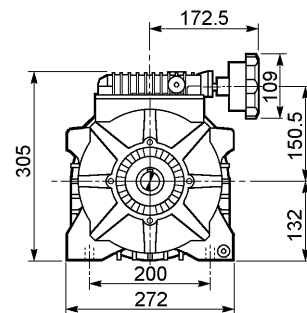
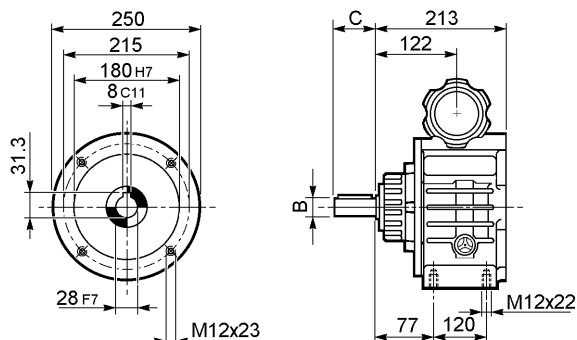


# V 5.5

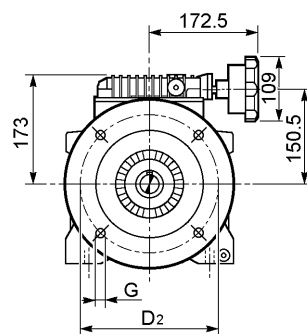
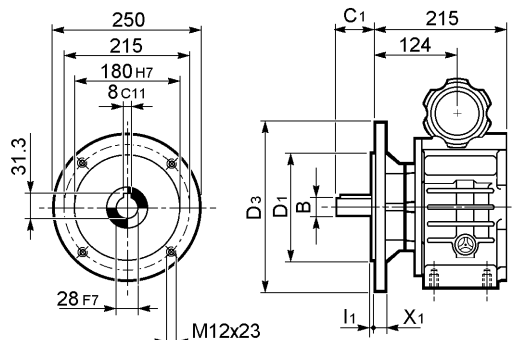
## V 5.5 F\_P112



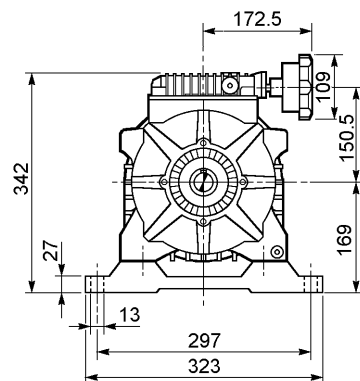
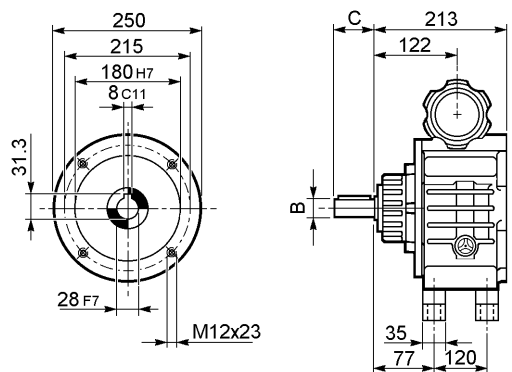
## V 5.5 U\_P112



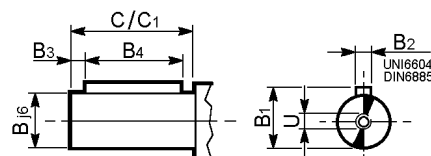
## V 5.5 UF\_P112



## V 5.5 UP\_P112



| F-U-UF-UP   | B j6 | B1 | B2 | B3 | B4 | C  | C1 | U   |
|-------------|------|----|----|----|----|----|----|-----|
| V 5.5_D28   | 28   | 31 | 8  | 5  | 50 | 60 | 58 | M10 |
| V 5.5_D38 * | 38   | 41 | 10 | 5  | 70 | 80 | 78 | M12 |



\* Non previsto nella esecuzione con differenziale; se richiesto, consultare il ns. Servizio tecnico commerciale.

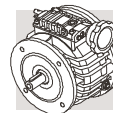
\* Not available on versions featuring the differential unit. If required, please contact our Technical Service Dept.

\* Nicht in der Ausführung mit Differential vorgesehen. Wenn diese Einbaulage benötigt wird, informieren Sie sich bitte bei unserem technischen Kundendienst.

\* Non prévu sur la version avec différentiel; pour toute demande, consulter notre Service Après-Vente.

| UF           | D1 j6 | D2  | D3  | G  | I1 | X1 |
|--------------|-------|-----|-----|----|----|----|
| V 5.5 UF112_ | 180   | 215 | 250 | 14 | 4  | 14 |
| V 5.5 UF132_ | 230   | 265 | 300 | 14 | 4  | 14 |

| V 5.5_P112 | F  | U  | UF | UP |
|------------|----|----|----|----|
|            | 40 | 41 | 46 | 46 |

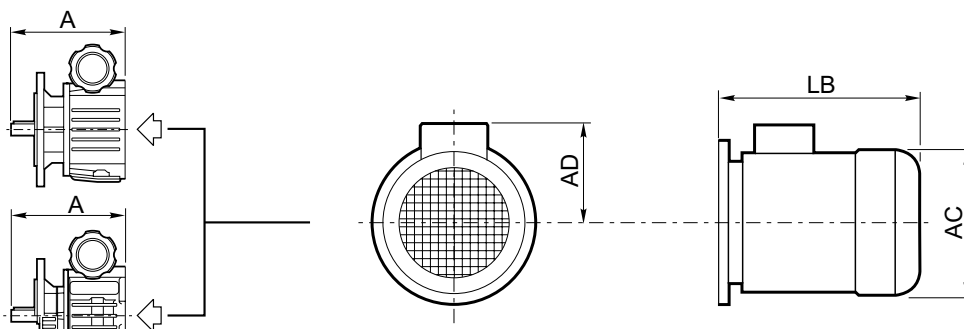


**V 5.5 F\_P112**

**V 5.5 U\_P112**

**V 5.5 UF\_P112**

**V 5.5 UP\_P112**



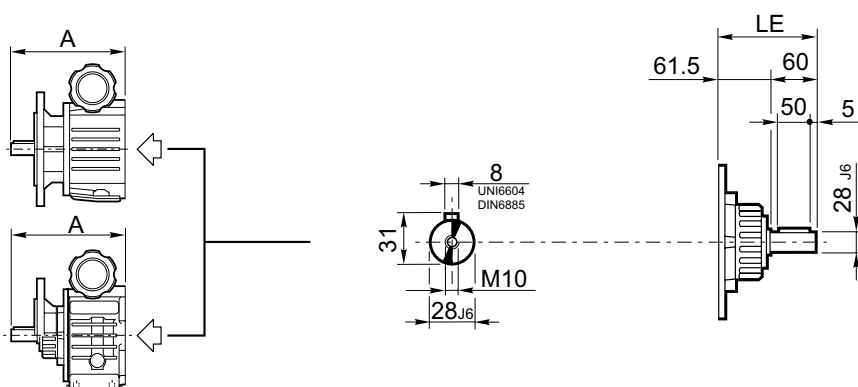
**BN**

**V 5.5 F\_**

**V 5.5 U\_**

**V 5.5 UF\_**

**V 5.5 UP\_**



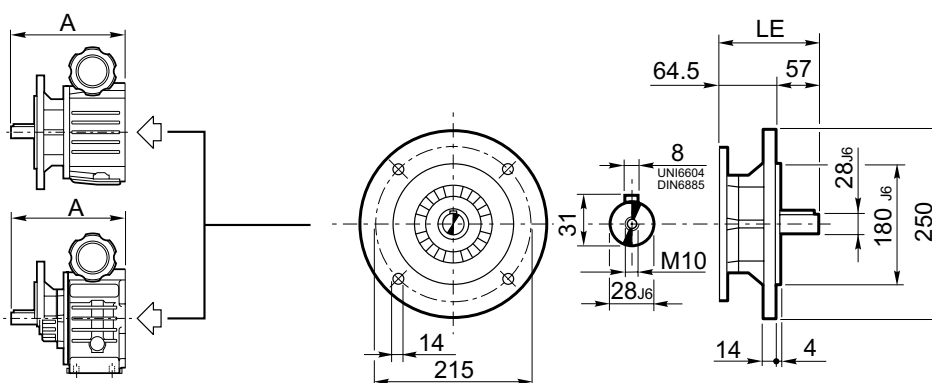
**HS**

**V 5.5 F\_**

**V 5.5 U\_**

**V 5.5 UF\_**

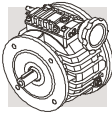
**V 5.5 UP\_**



**HSF**

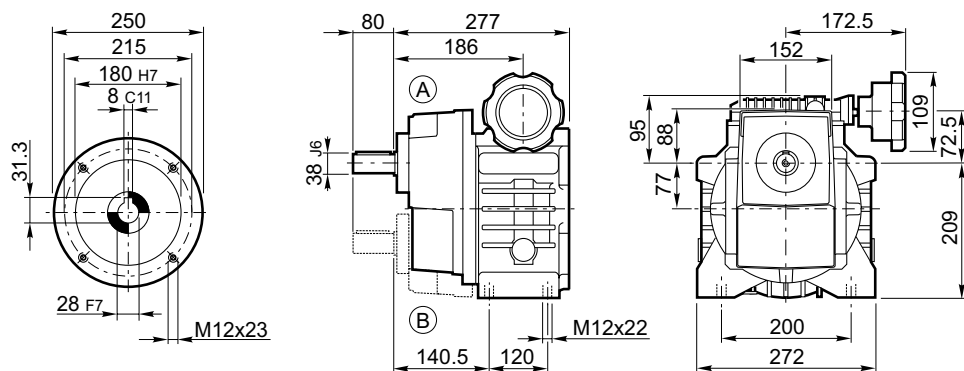
|            |        | AC  | AD  | LB  | A+LB |     | Kg |    |    |    |
|------------|--------|-----|-----|-----|------|-----|----|----|----|----|
|            |        |     |     |     | D28  | D38 | F  | U  | UF | UP |
| V 5.5_P112 | BN112_ | 219 | 150 | 325 | 598  | 618 | 70 | 71 | 76 | 76 |

|           | LE    | A+LE  |       | LM | A+LM |     | Kg |    |    |    |
|-----------|-------|-------|-------|----|------|-----|----|----|----|----|
|           |       | D28   | D38   |    | D28  | D38 | F  | U  | UF | UP |
| V 5.5_HS  | 121.5 | 394.5 | 414.5 | —  | —    | —   | 47 | 48 | 52 | 53 |
| V 5.5_HSF | 121.5 | 394.5 | 414.5 |    |      |     | 51 | 52 | 57 | 57 |

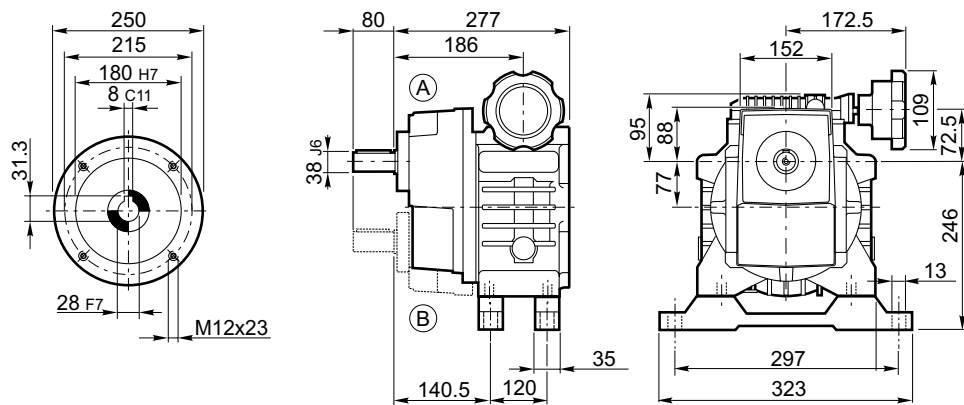


# VR 5.5

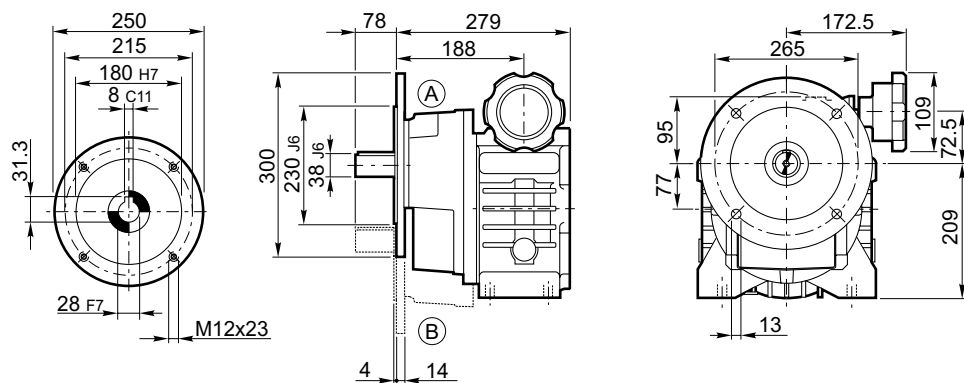
**VR 5.5 U\_P112**



**VR 5.5 P\_P112**

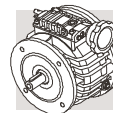


**VR 5.5 F\_P112**



| U-P-F  | B j6 | B1 | B2 | B3 | B4 | C                | U   |  |
|--------|------|----|----|----|----|------------------|-----|--|
| VR 5.5 | 38   | 41 | 10 | 5  | 70 | 80 (P)<br>78 (F) | M12 |  |

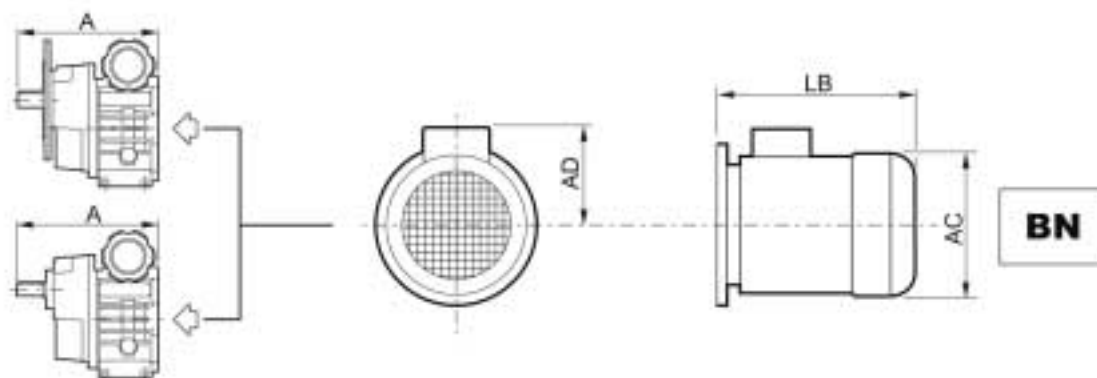
|             | Kg |    |    |
|-------------|----|----|----|
|             | U  | P  | F  |
| VR 5.5_P112 | 58 | 63 | 58 |



**VR 5.5 F\_P112**

**VR 5.5 U\_P112**

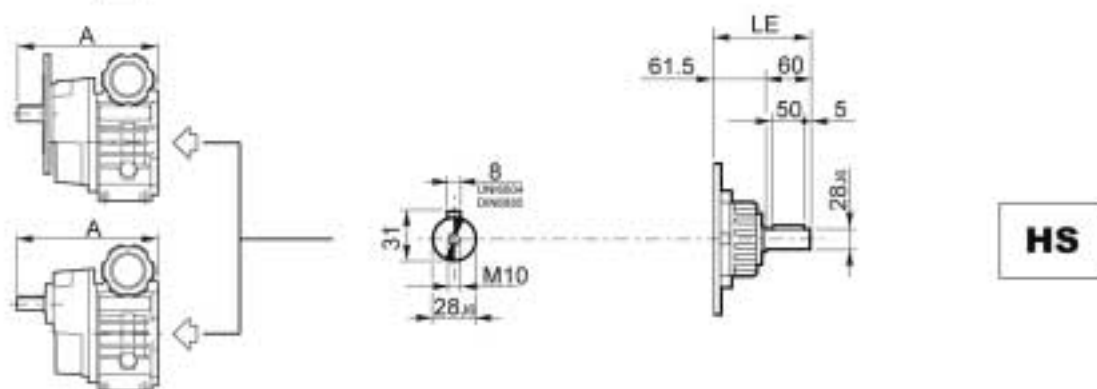
**VR 5.5 P\_P112**



**VR 5.5 F\_**

**VR 5.5 U\_**

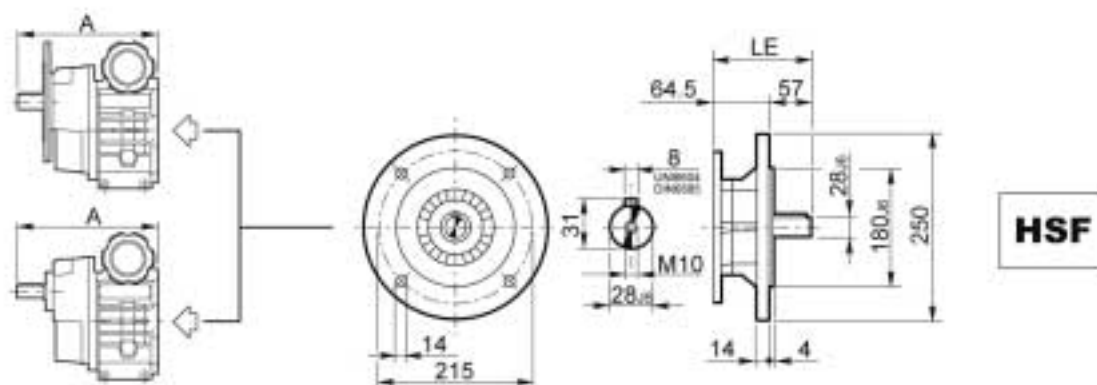
**VR 5.5 P\_**



**VR 5.5 F\_**

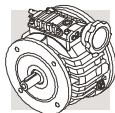
**VR 5.5 U\_**

**VR 5.5 P\_**



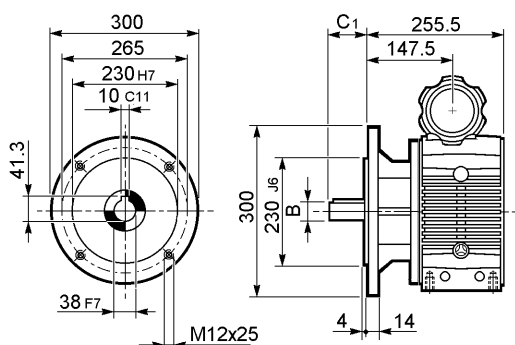
|             |        | AC  | AD  | LB  | A+LB | Kg |    |    |
|-------------|--------|-----|-----|-----|------|----|----|----|
|             |        |     |     |     | D28  | U  | P  | F  |
| VR 5.5_P112 | BN112_ | 219 | 150 | 325 | 682  | 88 | 93 | 88 |

|            | LE    | A+LE  | LM | A+LM | Kg |    |    |
|------------|-------|-------|----|------|----|----|----|
|            |       | D38   |    | D38  | U  | P  | F  |
| VR 5.5_HS  | 121.5 | 478.5 | —  | —    | 65 | 70 | 65 |
| VR 5.5_HSF | 121.5 | 478.5 |    |      | 69 | 74 | 69 |

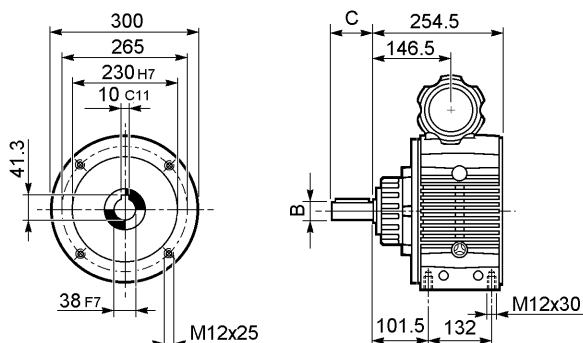


# V 10

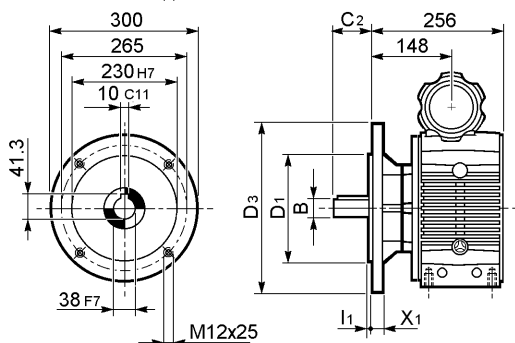
## V 10 F\_P132



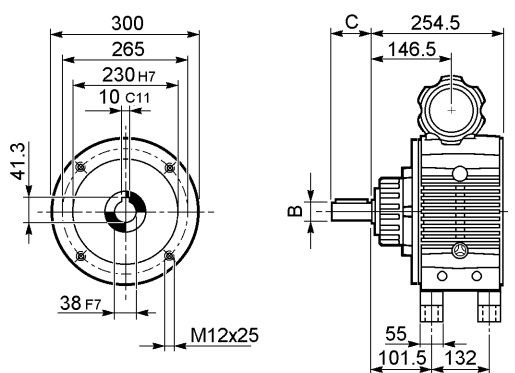
## V 10 U\_P132



## V 10 UF\_P132



## V 10 UP\_P132



| F-U-UF-UP  | B j6 | B1 | B2 | B3 | B4 | C   | C1  | C2    | U   |  |
|------------|------|----|----|----|----|-----|-----|-------|-----|--|
| V 10_D38   | 38   | 41 | 10 | 5  | 70 | 80  | 79  | 78.5  | M12 |  |
| V 10_D42 * | 42   | 45 | 12 | 10 | 90 | 110 | 109 | 108.5 | M16 |  |

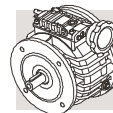
\* Non previsto nella esecuzione con differenziale; se richiesto, consultare il ns. Servizio tecnico commerciale.

\* Not available on versions featuring the differential unit. If required, please contact our Technical Service Dept.

\* Nicht in der Ausführung mit Differential vorgesehen. Wenn diese Einbaulage benötigt wird, informieren Sie sich bitte bei unserem technischen Kundendienst.

\* Non prévu sur la version avec différentiel; pour toute demande, consulter notre Service Après-Vente.

| UF          | D1 j6 | D2  | D3  | G  | I1 | X1 |           |  |    |    |    |
|-------------|-------|-----|-----|----|----|----|-----------|---------------------------------------------------------------------------------------|----|----|----|
| V 10 UF132_ | 230   | 265 | 300 | 14 | 4  | 16 |           | F                                                                                     | U  | UF | UP |
| V 10 UF160_ | 250   | 300 | 350 | 18 | 5  | 15 | V 10 P132 | 97                                                                                    | 88 | 97 | 96 |

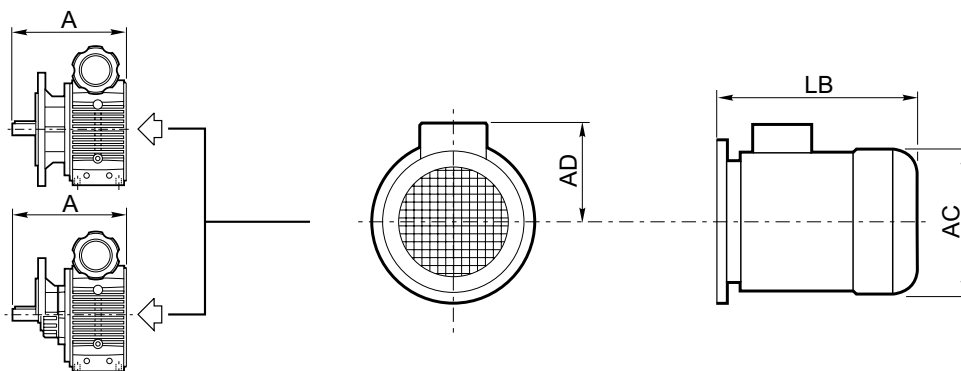


**V 10 F\_P132**

**V 10 U\_P132**

**V 10 UF\_P132**

**V 10 UP\_P132**



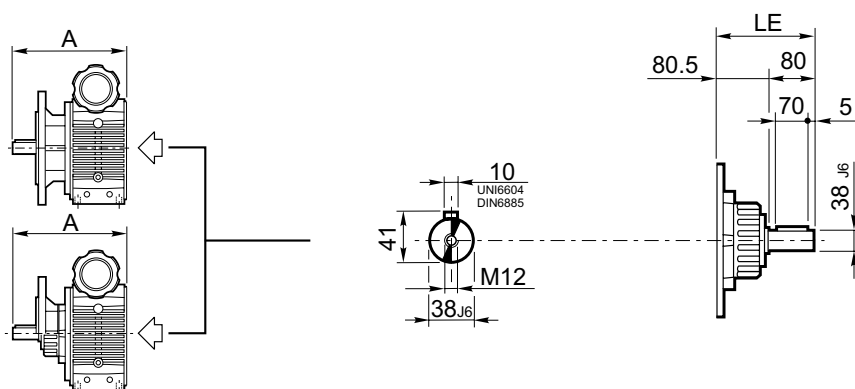
**BN**

**V 10 F\_**

**V 10 U\_**

**V 10 UF\_**

**V 10 UP\_**



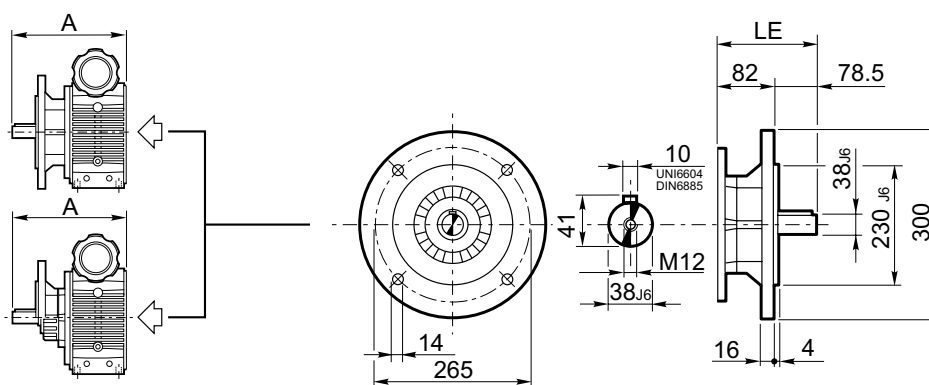
**HS**

**V 10 F\_**

**V 10 U\_**

**V 10 UF\_**

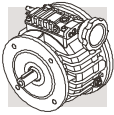
**V 10 UP\_**



**HSF**

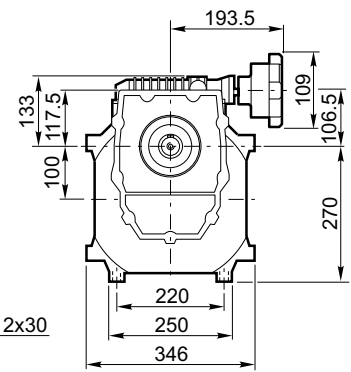
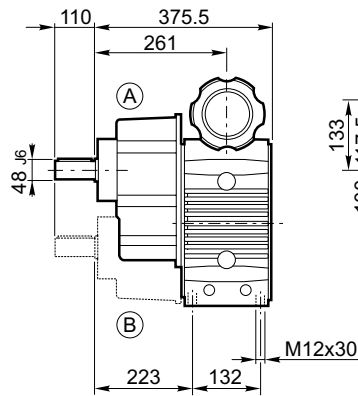
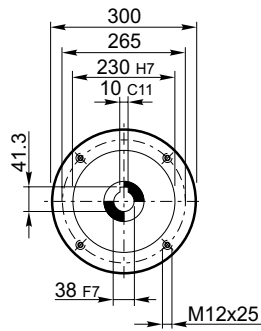
|           |         | AC  | AD  | LB  | A+LB  |       | Kg  |     |     |     |
|-----------|---------|-----|-----|-----|-------|-------|-----|-----|-----|-----|
|           |         |     |     |     | D38   | D42   | F   | U   | UF  | UP  |
| V 10_P132 | BN132S_ | 258 | 193 | 375 | 709.5 | 739.5 | 140 | 131 | 140 | 139 |
|           | BN132M_ | 258 | 193 | 413 | 747.5 | 777.5 | 155 | 146 | 155 | 154 |

|          | LE    | A+LE |     | LM | A+LM |     | Kg  |     |     |     |
|----------|-------|------|-----|----|------|-----|-----|-----|-----|-----|
|          |       | D38  | D42 |    | D38  | D42 | F   | U   | UF  | UP  |
| V 10_HS  | 160.5 | 495  | 525 | —  | —    | —   | 108 | 99  | 108 | 107 |
| V 10_HSF | 160.5 | 495  | 525 |    |      |     | 117 | 108 | 117 | 116 |

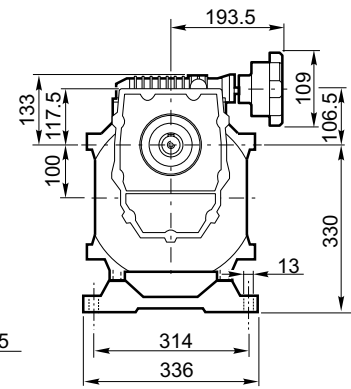
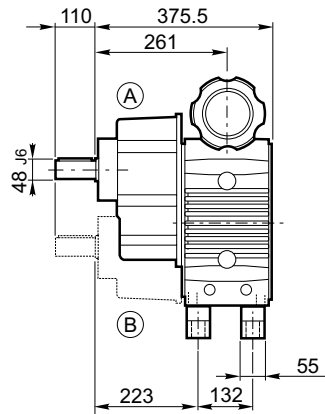
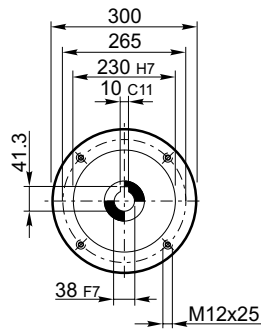


# VR 10

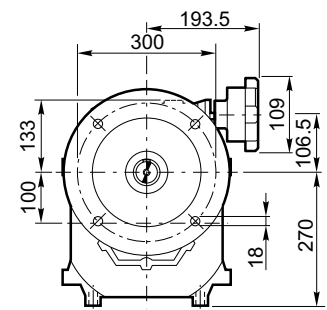
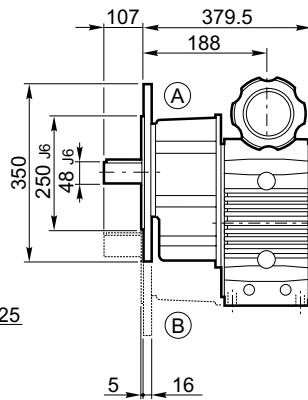
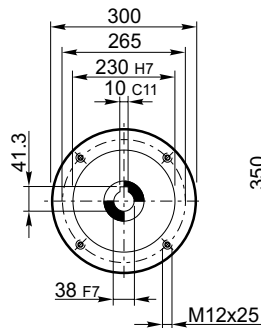
**VR 10 U\_P132**



**VR 10 P\_P132**

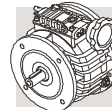


**VR 10 F\_P132**

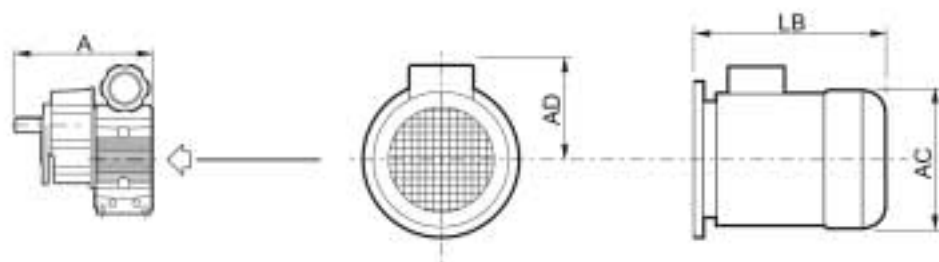


| U-P-F | B j6 | B1   | B2 | B3 | B4 | C                  | U   |  |
|-------|------|------|----|----|----|--------------------|-----|--|
| VR 10 | 48   | 52.5 | 14 | 10 | 90 | 110 (P)<br>107 (F) | M16 |  |

|            | Kg  |     |     |
|------------|-----|-----|-----|
|            | U   | P   | F   |
| VR 10_P132 | 117 | 125 | 117 |

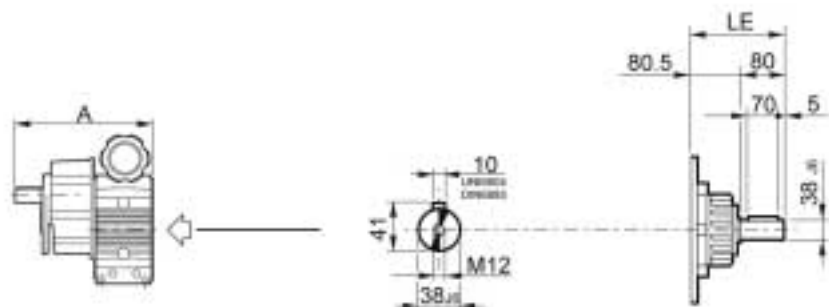


VR 10 U\_P132  
VR 10 P\_P132  
VR 10 F\_P132



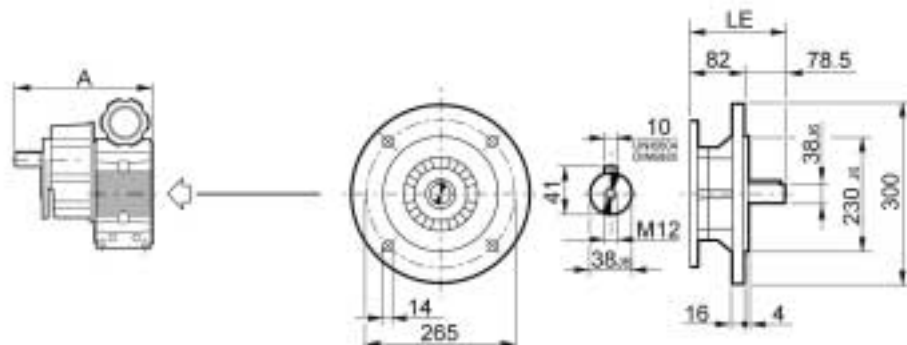
**BN**

VR 10 U\_  
VR 10 P\_  
VR 10 F\_



**HS**

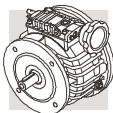
VR 10 U\_  
VR 10 P\_  
VR 10 F\_



**HSF**

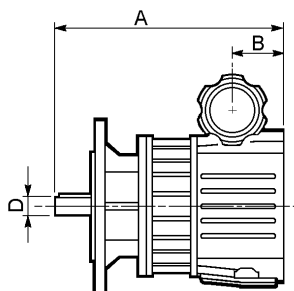
|            |         | AC  | AD  | LB  | A+LB | Kg  |     |     |
|------------|---------|-----|-----|-----|------|-----|-----|-----|
|            |         |     |     |     | D48  | U   | P   | F   |
| VR 10_P132 | BN132S_ | 258 | 193 | 375 | 861  | 160 | 168 | 160 |
|            | BN132M_ | 258 | 193 | 413 | 899  | 175 | 183 | 175 |

|           | LE    | A+LE  | LM | A+LM | Kg  |     |     |
|-----------|-------|-------|----|------|-----|-----|-----|
|           |       | D48   |    | D48  | U   | P   | F   |
| VR 10_HS  | 160.5 | 646.5 | —  | —    | 128 | 136 | 128 |
| VR 10_HSF | 160.5 | 646.5 |    |      | 137 | 145 | 137 |



## VD

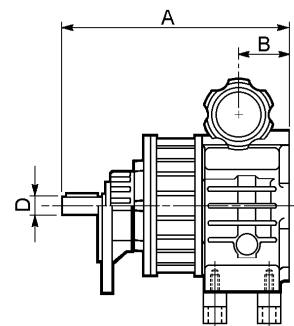
**VD\_F\_P (IEC)**



**VD\_U\_P (IEC)**

**VD\_UF\_P (IEC)**

**VD\_UP\_P (IEC)**



N.B. Le dimensioni mancanti sono riportate nelle pagine 52-83.

*Note: missing dimensions are indicated on pages 52-83.*

ACHTUNG: Die fehlenden Maße werden auf den Seiten 52-83 angegeben.

*N.B. : Les dimensions manquantes sont indiquées pages 52-83.*

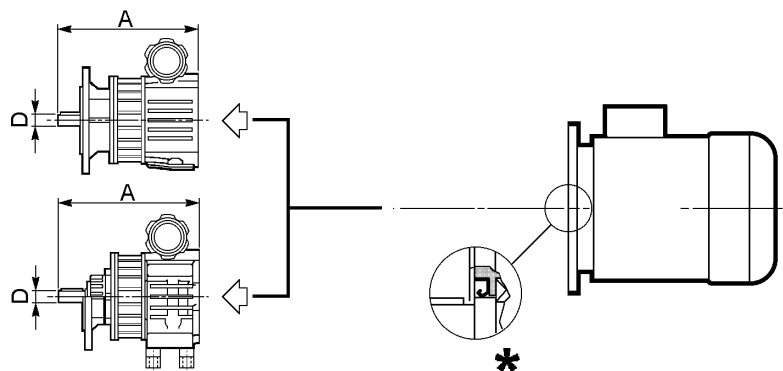
|                | D  | B    | F     |                                                                                     | UP    |                                                                                     | UF    |                                                                                       | UPF   |                                                                                       |
|----------------|----|------|-------|-------------------------------------------------------------------------------------|-------|-------------------------------------------------------------------------------------|-------|---------------------------------------------------------------------------------------|-------|---------------------------------------------------------------------------------------|
|                |    |      | A     |    | A     |    | A     |    | A     |    |
| VD 0.5 _P71    | 14 | 47.5 | —     | —                                                                                   | 210   | 10.5                                                                                | 210   | 10.6                                                                                  | 210   | 10.8                                                                                  |
|                | 19 |      | —     |                                                                                     | 220   |                                                                                     | 220   |                                                                                       | 220   |                                                                                       |
| VD 1 _P80      | 19 | 62   | —     | —                                                                                   | 257.5 | 18.6                                                                                | 257.5 | 18.8                                                                                  | 257.5 | 19.1                                                                                  |
|                | 24 |      | —     |                                                                                     | 267.5 |                                                                                     | 267.5 |                                                                                       | 267.5 |                                                                                       |
| VD 2 _P90      | 24 | 74.1 | —     | —                                                                                   | 300.5 | 26                                                                                  | 300.5 | 27                                                                                    | 300.5 | 30                                                                                    |
|                | 28 |      | —     |                                                                                     | 310.5 |                                                                                     | 310.5 |                                                                                       | 310.5 |                                                                                       |
|                | D  | B    | F     |                                                                                     | U     |                                                                                     | UF    |                                                                                       | UP    |                                                                                       |
|                |    |      | A     |  | A     |  | A     |  | A     |  |
| VD 3 _P100/112 | 28 | 91   | 373.4 | 55.                                                                                 | 373.4 | 57                                                                                  | 373.4 | 61                                                                                    | 373.4 | 62                                                                                    |
| VD 5.5 _P112   | 28 | 91   | 373.4 | 56                                                                                  | 373.4 | 58                                                                                  | 373.4 | 62                                                                                    | 373.4 | 63                                                                                    |
| VD 10 _P132    | 38 | 108  | 453.7 | 125                                                                                 | 453.7 | 116                                                                                 | 453.7 | 125                                                                                   | 453.7 | 124                                                                                   |

**VD\_F\_P(IEC)**

**VD\_U\_P(IEC)**

**VD\_UF\_P(IEC)**

**VD\_UP\_P(IEC)**



\* Nei variatori con differenziale, quando il motore elettrico è installato dall'utente, è necessario verificare che esso sia dotato di un anello di tenuta olio sull'albero montato secondo lo schema e che la flangia sia stagna.

La tenuta olio fra la flangia motore e la flangia variatore è assicurata da una guarnizione fornita di serie sul variatore stesso.

N.B. Le dimensioni e i pesi dei motori elettrici sono riportati nelle pagine 340-358.

\* *Ou fitting the electric motor onto variators featuring the differential unit make sure that the electric motor itself is oiltight and an oil seal is provided on drive end shaft.*

*Sealing between flange of motor and variator is ensured by a gasket provided with the variator unit.*

*N.B. Dims and weights of electric motors are shown at page 340-358.*

\* Wenn der Elektromotor vom Kunden angebaut wird, ist es bei den Verstellgetrieben mit Differential erforderlich, die Motorwelle mit einem öldichten Wellendichtring auszustatten.

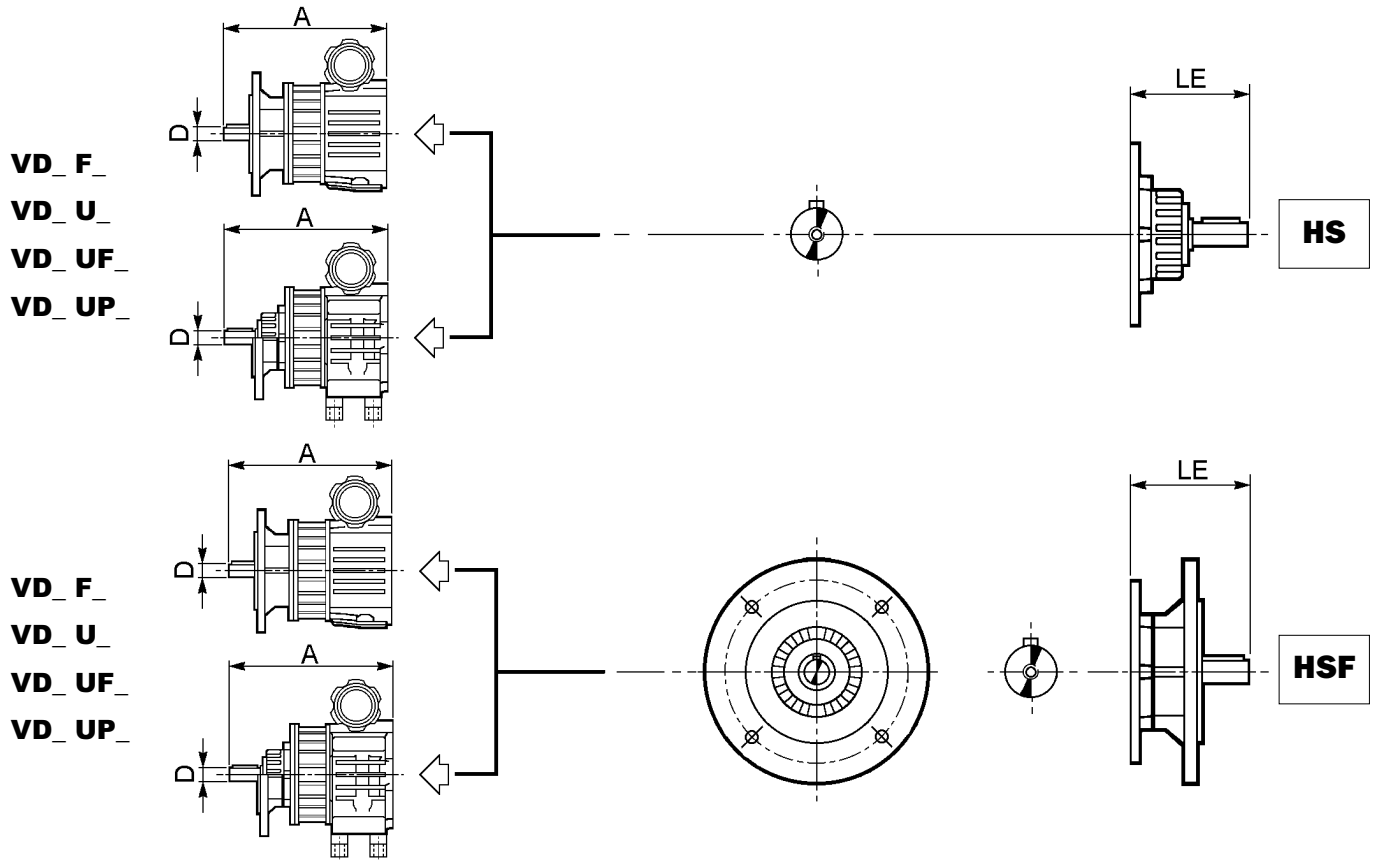
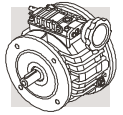
Die Abdichtung zwischen Motor- und Verstellgetriebeflansch wird durch eine Dichtung gewährleistet, die beim Verstellgetriebe serienmäßig mitgeliefert wird.

ACHTUNG: Die Maße und Gewichte der Elektromotoren werden auf den Seiten 340-358 aufgeführt.

\* *Sur les variateurs avec différentiel, lorsque le moteur électrique est installé par l'utilisateur, il est nécessaire de vérifier qu'il soit doté d'une bague d'étanchéité sur l'arbre monté selon le schéma.*

*L'étanchéité à l'huile entre la bride moteur et la bride variateur est assurée par un joint fourni de série et présent sur le variateur.*

*N.B. : Les dimensions et les poids des moteurs électriques sont indiqués pages 340-358.*



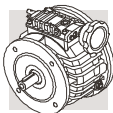
|         |        | D  | LE    | A+LE  | LM | A+LM |  Kg |             |             |             |  |
|---------|--------|----|-------|-------|----|------|------------------------------------------------------------------------------------------|-------------|-------------|-------------|--|
|         |        |    |       |       |    |      | F                                                                                        | UP          | UF          | UPF         |  |
| VD 0.5_ | HS/HSF | 14 | 67    | 277   | —  | —    | —                                                                                        | 12.1 / 13.0 | 12.2 / 13.1 | 12.4 / 13.3 |  |
|         |        | 19 |       | 287   |    |      |                                                                                          |             |             |             |  |
| VD 1_   |        | 19 | 88.5  | 346   | —  | —    | —                                                                                        | 21.4 / 23.1 | 21.6 / 23.3 | 21.9 / 23.6 |  |
|         |        | 24 |       | 356   |    |      |                                                                                          |             |             |             |  |
| VD 2_   |        | 24 | 103.5 | 404   | —  | —    | —                                                                                        | 30 / 32     | 31 / 33     | 31 / 33     |  |
|         |        | 28 |       | 414   |    |      |                                                                                          |             |             |             |  |
|         |        | D  | LE    | A+LE  | LM | A+LM |  Kg |             |             |             |  |
|         |        |    |       |       |    |      | F                                                                                        | U           | UF          | UP          |  |
| VD 3_   | HS/HSF | 28 | 121.5 | 494.9 | —  | —    | 62 / 66                                                                                  | 64 / 68     | 68 / 72     | 69 / 73     |  |
| VD 5.5_ |        | 28 | 121.5 | 494.9 | —  | —    | 63 / 67                                                                                  | 65 / 69     | 69 / 73     | 70 / 74     |  |
| VD 10_  |        | 38 | 160.5 | 614.2 | —  | —    | 135 / 145                                                                                | 126 / 136   | 138 / 145   | 135 / 144   |  |

N.B. Le dimensioni mancanti sono riportate nelle pagine 52-83.

Note: missing dims are indicated on pages 52-83.

ACHTUNG: Die fehlenden Maße werden auf den Seiten 52-83 angegeben.

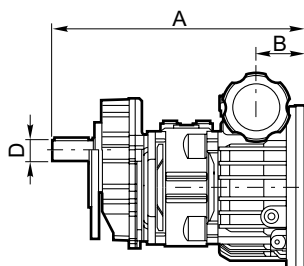
N.B. : Les dimensions manquantes sont indiquées pages 52-83.



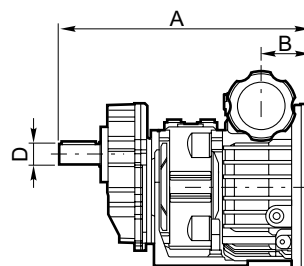
## VRD

**VRD\_F\_P (IEC)**

**VRD\_U\_P (IEC)**



**VRD\_P\_P (IEC)**



N.B. Le dimensioni mancanti sono riportate nelle pagine 52-83.

*Note: missing dimensions are indicated on pages 52-83.*

ACHTUNG: Die fehlenden Maße werden auf den Seiten 52-83 angegeben.

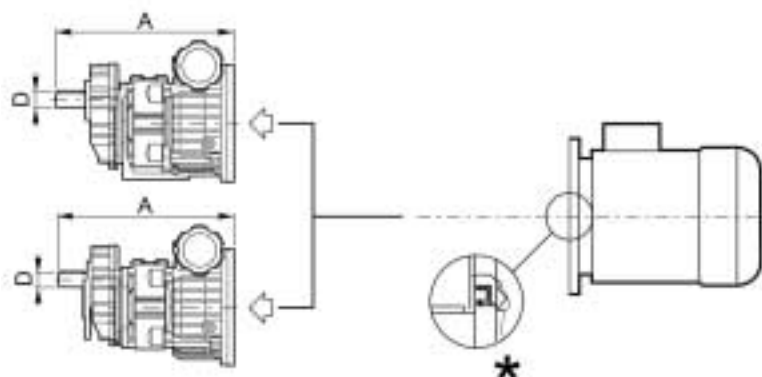
*N.B. : Les dimensions manquantes sont indiquées pages 52-83.*

|                       | D  | B    | F     |      | U     |      | P     |      |
|-----------------------|----|------|-------|------|-------|------|-------|------|
|                       |    |      | A     | Kg   | A     | Kg   | A     | Kg   |
| <b>VRD 0.5_P71</b>    | 19 | 47.5 | 277   | 13.4 | 277   | 12.6 | 277   | 13.3 |
| <b>VRD 1_P80</b>      | 24 | 62   | 313.5 | 22   | 313.5 | 21   | 313.5 | 22   |
| <b>VRD 2_P90</b>      | 28 | 74.1 | 373.5 | 33   | 373.5 | 31   | 373.5 | 33   |
| <b>VRD 3_P100/112</b> | 38 | 91   | 457.4 | 71   | 457.4 | 71   | 457.4 | —    |
| <b>VRD 5.5_P112</b>   | 38 | 91   | 457.4 | 74   | 457.4 | 74   | 457.4 | —    |
| <b>VRD 10_P132</b>    | 48 | 108  | 605.2 | 145  | 605.2 | 145  | 605.2 | —    |

**VRD\_P\_P (IEC)**

**VRD\_F\_P (IEC)**

**VRD\_U\_P (IEC)**



\* Nei variatori con differenziale, quando il motore elettrico è installato dall'utente, è necessario verificare che esso sia dotato di un anello di tenuta olio sull'albero montato secondo lo schema e che la flangia sia stagna.

La tenuta olio fra la flangia motore e la flangia variatore è assicurata da una guarnizione fornita di serie sul variatore stesso.

N.B. Le dimensioni e i pesi dei motori elettrici sono riportati nelle pag. 340-358.

*\* Ou fitting the electric motor onto variators featuring the differential unit make sure that the electric motor itself is oiltight and an oil seal is provided on drive end shaft.*

*Sealing between flange of motor and variator is ensured by a gasket provided with the variator unit.*

*N.B. Dimensions and weights of electric motors are listed at page 340-358.*

\* Wenn der Elektromotor vom Kunden angebaut wird, ist es bei den Verstellgetrieben mit Differential erforderlich, die Motorwelle mit einem öldichten Wellendichtring auszustatten.

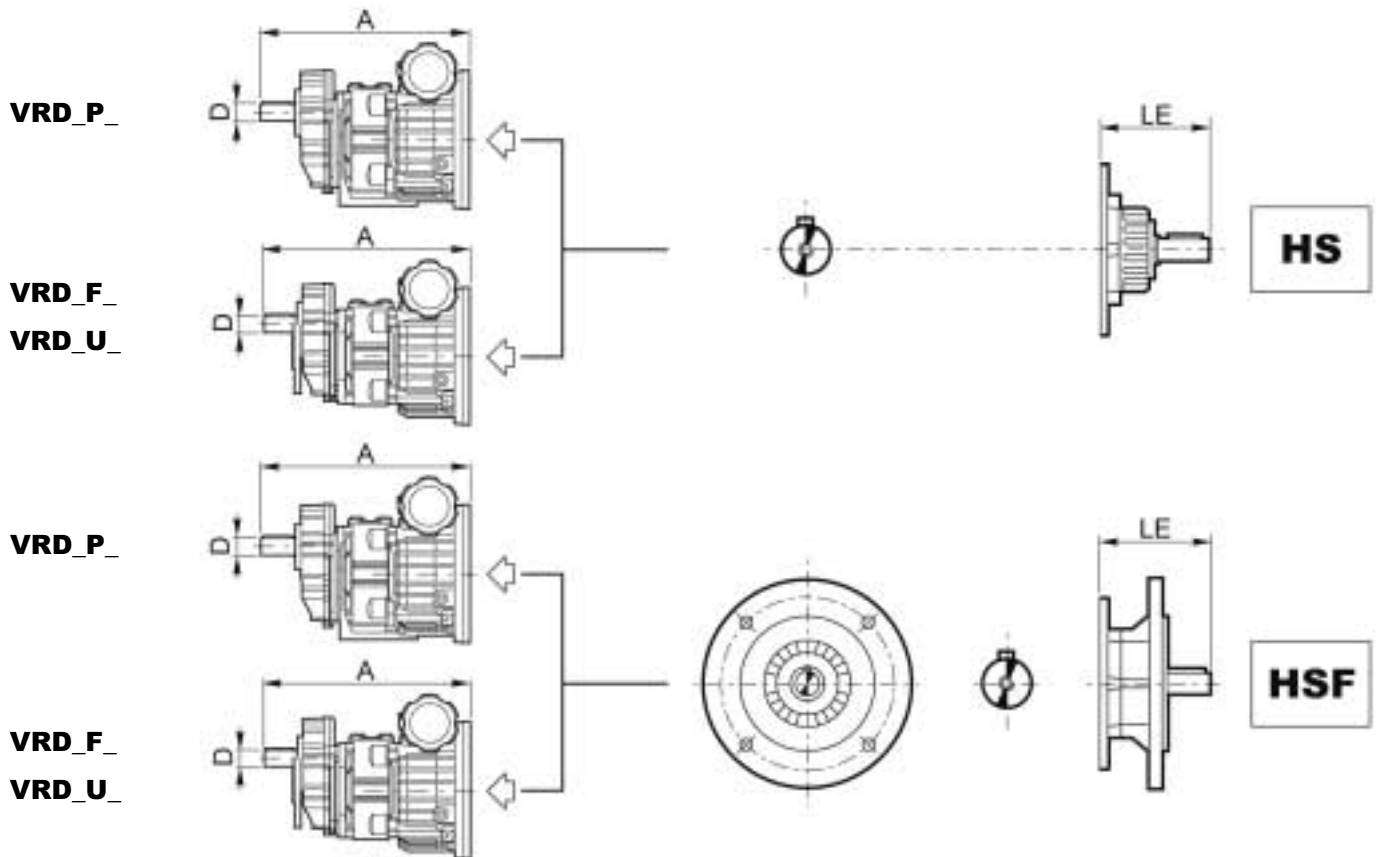
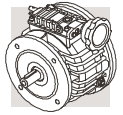
Die Abdichtung zwischen Motor- und Verstellgetriebeflansch wird durch eine Dichtung gewährleistet, die beim Verstellgetriebe serienmäßig mitgeliefert wird.

ACHTUNG: Die Maße und Gewichte der Elektromotoren werden auf den Seiten 340-358 aufgeführt.

*\* Sur les variateurs avec différentiel, lorsque le moteur électrique est installé par l'utilisateur, il est nécessaire de vérifier qu'il soit doté d'une bague d'étanchéité sur l'arbre monté selon le schéma.*

*L'étanchéité à l'huile entre la bride moteur et la bride variateur est assurée par un joint fourni de série et présent sur le variateur.*

*N.B. : Les dimensions et les poids des moteurs électriques sont indiqués pages 340-358.*



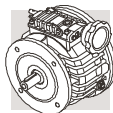
|          |        | D  | LE    | A+LE  | LM | A+LM | Kg        |           |           |
|----------|--------|----|-------|-------|----|------|-----------|-----------|-----------|
|          |        |    |       |       |    |      | F         | U         | P         |
| VRD 0.5_ | HS/HSF | 19 | 67    | 344   | —  | —    | 15.0/16.9 | 14.2/15.1 | 14.9/15.8 |
| VRD 1_   |        | 24 | 88.5  | 402   | —  | —    | 25/27     | 24/26     | 25/27     |
| VRD 2_   |        | 28 | 103.5 | 477   | —  | —    | 37/39     | 35/37     | 37/39     |
| VRD 3_   |        | 38 | 121.5 | 578.9 | —  | —    | 78/82     | —         | 78/82     |
| VRD 5.5_ |        | 38 | 121.5 | 578.9 | —  | —    | 81/85     | —         | 81/85     |
| VRD 10_  |        | 48 | 160.5 | 765.7 | —  | —    | 156/165   | —         | 156/165   |

N.B. Le dimensioni mancanti sono riportate nelle pagine 52-83.

*Note: missing dimensions are indicated on pages 52-83.*

ACHTUNG: Die fehlenden Maße werden auf den Seiten 52-83 angegeben.

*N.B. : Les dimensions manquantes sont indiquées pages 52-83.*



## 20.0 - VARIATORI V CON MOTORE A STANDARD NEMA

### Designazione

Vedi pag. 26.

### Tipi di comando

Ai variatori V tipo Nema possono essere applicati i seguenti comandi:

- Volantino di comando
- VG
- A - VA - VAG
- ECT (solo nella versione a 60Hz)

Ulteriori informazioni relative ai comandi indicati sono riportate a pag. 32.

### Opzioni

I variatori V tipo Nema dispongono delle stesse opzioni dei variatori standard:

- CU - FL
- PDN - PDP
- PV
- SO

Ulteriori informazioni relative alle opzioni sono riportate a pag. 30.

### Lubrificazione

Vedi pag. 38.

### Posizioni di montaggio

Vedi pag. 40.

### Accessori

I variatori V tipo Nema dispongono delle stesse opzioni dei variatori standard:

- CGY
- KIT CGY
- PIEDI
- INDGRAV
- FLANGE  
(flange disponibili solo con misure metriche)

Ulteriori informazioni relative agli accessori sono riportate a pag. 90.

## 20.0 - V VARIATORS WITH NEMA MOTORS

### Designation

See page 26.

### Speed control types

*Nema-specs V variators can be fitted with these controls:*

- Speed control knob
- VG
- A - VA - VAG
- ECT (for 60 Hz supply only)

*For more detailed information on speed controls, see page 32.*

### Options

*Available options for Nema-specs V variators are same as standard variators:*

- CU - FL
- PDN - PDP
- PV
- SO

*For more detailed information on options, see page 30.*

### Lubrication

See page 38.

### Mounting positions

See page 40.

### Accessories

*Available accessories for Nema-specs V variators are same as standard variators:*

- CGY
- KIT CGY
- FEET
- INDGRAV
- FLANGED OUTPUTS  
(available in metric sizes only)

*For more detailed information on accessories, see page 90.*

## 20.0 - VERSTELLGETRIEBE V GEMÄSS NEMA-NORMEN

### Bezeichnung

Siehe Seite 26.

### Verstelleinrichtungen

An den Verstellgetrieben V des Typs Nema können folgende Verstelleinrichtungen appliziert werden:

- Handstuellerrad
- VG
- A - VA - VAG
- ECT (nur in der 60 Hz-Version)

Weitere Informationen bezüglich der angegebenen Verstelleinrichtungen finden Sie auf Seite 32.

### Optionen

Die Verstellgetriebe V des Typs Nema können mit den gleichen Optionen, die auch für die Standard-Verstellgetriebe verfügbar sind, ausgestattet werden.

- CU - FL
- PDN - PDP
- PV
- SO

Weitere Informationen bezüglich der angegebenen Verstelleinrichtungen finden Sie auf Seite 30.

### Schmierung

Siehe Seite 38.

### Montagelagen

Siehe Seite 40.

### Zubehör

Die Verstellgetriebe V des Typs Nema können mit dem gleichen Zubehör, das auch für die Standard-Verstellgetriebe verfügbar ist, ausgestattet werden.

- CGY
- KIT CGY
- FÜSSE
- INDGRAV
- FLANSCHEN  
(Flanschen nur in metrischen Maßen verfügbar)

Weitere Informationen bezüglich der angegebenen Verstelleinrichtungen finden Sie auf Seite 90.

## 20.0 - VARIATEURS V AVEC MOTEURS A NORMES NEMA

### Désignation

Voir page 26.

### Types de commande

*Sur les variateurs V type NEMA on peut monter les commandes suivantes:*

- Volant de commande à main
- VG
- A - VA - VAG
- ECT (uniquement dans la version à 60 Hz)

*Des informations complémentaires à l'égard de ces commandes se trouvent à page 28.*

### Options

*Les variateurs V type Nema ont les mêmes options que les variateurs V standard:*

- CU - FL
- PDN - PDP
- PV
- SO

*Des informations complémentaires à l'égard des options se trouvent à page 30.*

### Lubrification

Voir page 38.

### Positions de montage

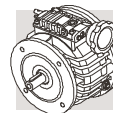
Voir page 40.

### Accessoires

*Les variateurs V type Nema ont les mêmes options que les variateurs standard.*

- CGY
- KIT CGY
- PATTES
- INDGRAV
- BRIDES  
(brides disponibles uniquement avec mesures métriques)

*Des informations complémentaires à l'égard des accessoires se trouvent à page 90.*



**20.1 - Tabelle dati tecnici**  
**V Nema**

**20.1 Rating chart**

**20.1 - Tabellen technische**  
**daten**

**20.1 - Tableaux caracteristi-**  
**ques techniques**

**V\_NEMA**

| <b>P<sub>1</sub> (kW/hp)</b> | <b>n<sub>2</sub></b><br>rpm | <b>n<sub>2</sub>'</b><br>rpm | <b>n<sub>1</sub></b><br>rpm | <b>M<sub>2</sub></b><br>in-lbs | <b>M<sub>2</sub>'</b><br>in-lbs | <b>Rn<sub>2</sub></b><br>Lbs | <b>Rn<sub>2</sub>'</b><br>Lbs |  | Flangia Nema<br>Nema flange |  |
|------------------------------|-----------------------------|------------------------------|-----------------------------|--------------------------------|---------------------------------|------------------------------|-------------------------------|-------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|
| <b>0.18/0.25</b>             | 1100                        | 230                          | 1700                        | 11.5                           | 35.4                            | 160                          | 260                           | <b>V 025_ N56</b>                                                                   | C                           | 86-89                                                                               |
| <b>0.25/0.33</b>             | 810                         | 153                          | 1100                        | 23                             | 71                              | 230                          | 400                           | <b>V 0.5_ N56</b>                                                                   | C                           | 86-89                                                                               |
|                              | 1100                        | 230                          | 1700                        | 14.2                           | 44                              | 160                          | 260                           | <b>V 0.25_ N56</b>                                                                  | C                           | 86-89                                                                               |
|                              | 2200                        | 460                          | 3400                        | 8.0                            | 23                              | 130                          | 215                           | <b>V 0.25_ N56</b>                                                                  | C                           | 86-89                                                                               |
| <b>0.37/0.5</b>              | 810                         | 153                          | 1100                        | 36                             | 71                              | 230                          | 400                           | <b>V 0.5_ N56</b>                                                                   | C                           | 86-89                                                                               |
|                              | 1210                        | 230                          | 1700                        | 22                             | 71                              | 200                          | 350                           | <b>V 0.5_ N56</b>                                                                   | C                           | 86-89                                                                               |
|                              | 2200                        | 460                          | 3400                        | 11.5                           | 35                              | 130                          | 215                           | <b>V 0.25_ N56</b>                                                                  | C                           | 86-89                                                                               |
| <b>0.55/0.75</b>             | 810                         | 153                          | 1100                        | 50                             | 142                             | 320                          | 500                           | <b>V 1_ N143T</b>                                                                   | C                           | 86-89                                                                               |
|                              | 1210                        | 230                          | 1700                        | 36                             | 106                             | 200                          | 340                           | <b>V 0.5_ N56</b>                                                                   | C                           | 86-89                                                                               |
|                              | 2420                        | 460                          | 3400                        | 17.7                           | 44                              | 160                          | 270                           | <b>V 0.5_ N56</b>                                                                   | C                           | 86-89                                                                               |
| <b>0.75/1.1</b>              | 810                         | 153                          | 1100                        | 68                             | 142                             | 320                          | 550                           | <b>V 1_ N143T</b>                                                                   | C                           | 86-89                                                                               |
|                              | 1210                        | 230                          | 1700                        | 45                             | 142                             | 280                          | 480                           | <b>V 1_ N56</b>                                                                     | C                           | 86-89                                                                               |
|                              | 2420                        | 460                          | 3400                        | 24                             | 71                              | 160                          | 270                           | <b>V 0.5_ N56</b>                                                                   | C                           | 86-89                                                                               |
| <b>1.1/1.5</b>               | 1210                        | 230                          | 1700                        | 68                             | 212                             | 280                          | 480                           | <b>V 1_ N143T</b>                                                                   | C                           | 86-89                                                                               |
|                              | 2420                        | 460                          | 3400                        | 35                             | 106                             | 220                          | 380                           | <b>V 1_ N143T</b>                                                                   | C                           | 86-89                                                                               |
| <b>1.5/2</b>                 | 1210                        | 230                          | 1700                        | 89                             | 283                             | 370                          | 635                           | <b>V 2_ N145T</b>                                                                   | C                           | 86-89                                                                               |
|                              | 2420                        | 460                          | 3400                        | 45                             | 142                             | 220                          | 380                           | <b>V 1_ N143T</b>                                                                   | C                           | 86-89                                                                               |
| <b>2.2/3</b>                 | 1210                        | 230                          | 1700                        | 135                            | 354                             | 580                          | 1000                          | <b>V 3_ N182T</b>                                                                   | C                           | 86-89                                                                               |
| <b>4.0/5.5</b>               | 1210                        | 230                          | 1700                        | 219                            | 637                             | 580                          | 1000                          | <b>V 5.5_ N184T</b>                                                                 | C                           | 86-89                                                                               |
| <b>5.5/7.5</b>               | 1210                        | 230                          | 1700                        | 327                            | 761                             | 720                          | 1260                          | <b>V 10_ N213T</b>                                                                  | C                           | 86-89                                                                               |
| <b>7.5/10</b>                | 1210                        | 230                          | 1700                        | 434                            | 1026                            | 720                          | 1260                          | <b>V 10_ N213T</b>                                                                  | C                           | 86-89                                                                               |

Fattore di conversione:  
1 in-lbs = 0.11301 Nm

Conversion factor :  
1 in-lbs = 0.11301 Nm

Umrechnungsfaktor:  
1 in-lbs = 0,11301 Nm

Facteur de conversion:  
1 in-lbs = 0,11301 Nm

NB. :  
I carichi in uscita Rn<sub>2</sub> indicati in tabella sono da considerare applicati sulla mezzzeria dell'albero. Per carichi la cui linea d'azione non coincide con la mezzzeria dell'albero in esame, effettuare le verifiche riportate a pag. 10.

NOTE:  
*Admissible overhung loads Rn<sub>2</sub> indicated in the table refer to mid-point of shaft. Where loads are applied at any other position of shaft, follow procedure detailed on page 10 to verify compatibility.*

HINWEIS:  
Die in der Tabelle angegebenen Kräfte am Abtrieb Rn<sub>2</sub> sind als auf die Wellenmitte applizierte Kräfte zu kalkulieren. Für Kräfte, deren Wirkungslinie nicht mit der Mitte der zur Frage stehenden Welle übereinstimmt, sind die auf Seite 10 angeführten Kontrollen vorzunehmen. Hinweis.

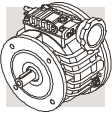
N.B.:  
*Il faut considérer les charges radiales en sortie Rn<sub>2</sub>, indiquées sur le tableau, comme appliquées au milieu de l'arbre. Pour les charges dont la ligne d'action ne coïncide pas avec le milieu de l'arbre concerné, effectuer les vérifications indiquées à page 10.*

**AVVERTENZA:** Si sconsiglia l'utilizzo del variatore con velocità in ingresso inferiori a 300 min<sup>-1</sup>.

**WARNING:** Use of the variator with an input speed lower than 300 min<sup>-1</sup> is NOT recommended.

**ACHTUNG:** Wenn die Eingangs-drehzahl des Antriebs unter 300 min<sup>-1</sup> liegt, wird von der Verwendung des Verstellgetriebes abgeraten.

**N.B. :** Il n'est pas conseillé d'utiliser le variateur avec une vitesse en entrée inférieure à 300 min<sup>-1</sup>.



**V\_N**

20.2 - Dimensioni V Nema

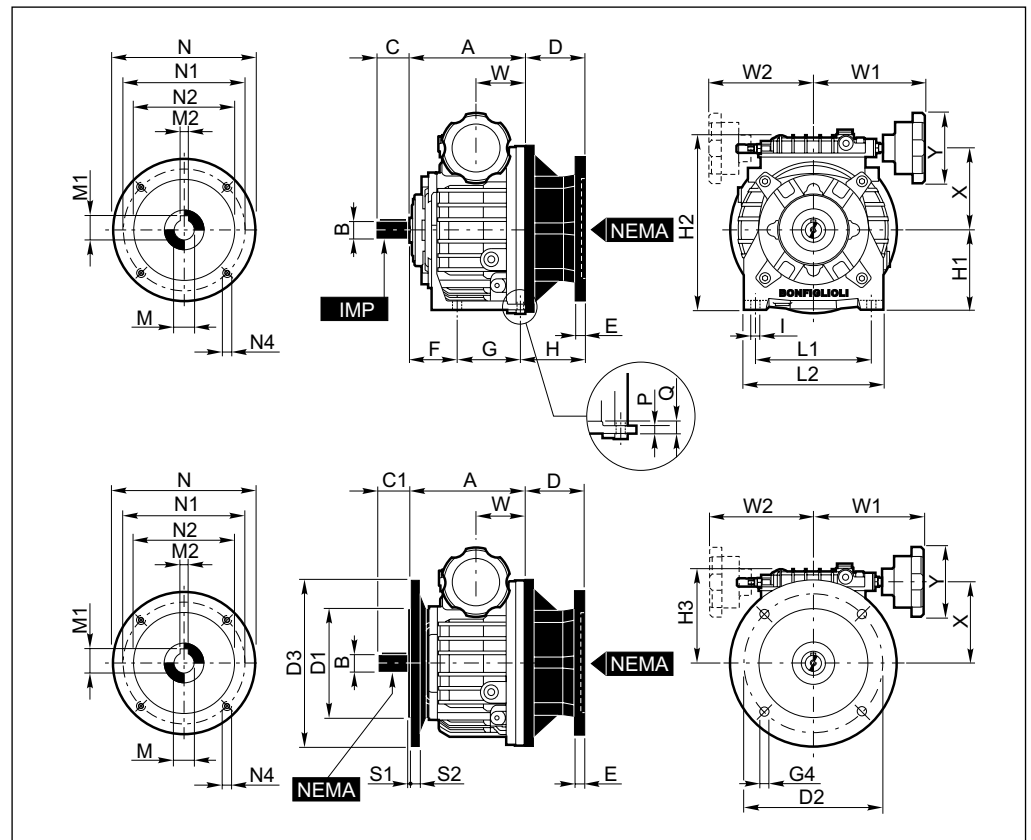
20.2 - Dimensions of  
Nema-specs V

20.2 - Maße - V Nema

20.2 - Dimensions V Nema

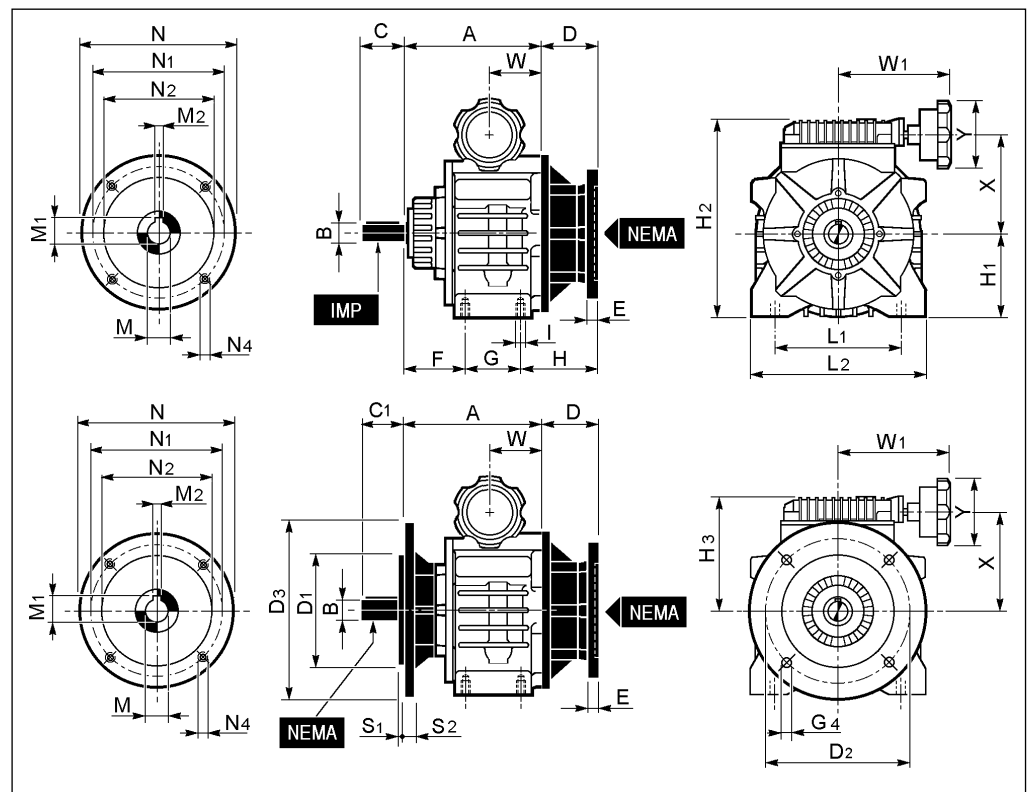
**V\_UP IMP\_N**  
(V 0.25 - V 2)

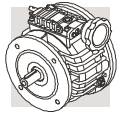
**V\_UF<sub>(Nema)</sub> IMP\_N**  
(V 0.25 - V 2)



**V\_U IMP\_N**  
(V 3 - V 10)

**V\_UF<sub>(Nema)</sub> IMP\_N**  
(V 3 - V 10)



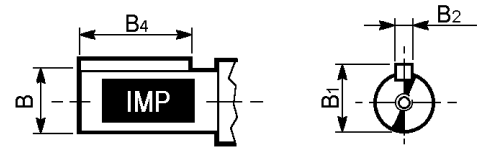


## V\_U IMP\_N - V\_UF(Nema) IMP\_N - V\_U\_N - V\_UF\_N

|             | N      | N1     | N2   | N4     | M      | M1     | M2     | E      |
|-------------|--------|--------|------|--------|--------|--------|--------|--------|
| V 0.25_N56  | 6.496" | 5.875" | 4.5" | 0.413" | 0.625" | 0.707" | 0.19"  | 0.472" |
| V 0.5_N56   | 6.496" | 5.875" | 4.5" | 0.413" | 0.625" | 0.707" | 0.19"  | 0.512" |
| V 1_N56     | 6.496" | 5.875" | 4.5" | 0.413" | 0.625" | 0.707" | 0.19"  | 0.472" |
| V 1_N143T   | 6.496" | 5.875" | 4.5" | 0.413" | 0.875" | 0.961" | 0.19"  | 0.512" |
| V 2_N145T   | 6.496" | 5.875" | 4.5" | 0.413" | 0.875" | 0.961" | 0.19"  | 0.512" |
| V 3_N182T   | 8.898" | 7.25"  | 8.5" | 0.531" | 1.125" | 1.276" | 0.252" | 0.630" |
| V 5.5_N184T | 8.898" | 7.25"  | 8.5" | 0.531" | 1.125" | 1.276" | 0.252" | 0.630" |
| V 10_N213T  | 8.898" | 7.25"  | 8.5" | 0.531" | 1.375" | 1.512" | 0.314" | 0.827" |

## V U IMP - UF(Nema)\_IMP

|        | B j6   | B1     | B2     | B4     |
|--------|--------|--------|--------|--------|
| V 0.25 | 0,625" | 0,689" | 0,187" | 1.378" |
| V 0.5  | 0,625" | 0,689" | 0,187" | 1.378" |
| V 1    | 0,625" | 0,689" | 0,187" | 1.378" |
| V 2    | 0,875" | 0,943" | 0,187" | 1.378" |
| V 3    | 1,125" | 1,220" | 0,25"  | 1.752" |
| V 5.5  | 1,125" | 1,220" | 0,25"  | 1.752" |
| V 10   | 1,375" | 1,449" | 0,312" | 2.382" |



## V\_U

|        | A      | C      | D      | F      | G      | H      | H1     | H2      | I      | L1     | L2      | P      | Q      | X      | Y      | W      | W1     | W2     |
|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|
| V 0.25 | 4,272" | 1,875" | 2,322" | 1,890" | 2,028" | 2,676" | 2,756" | 6,378"  | 0.354" | 4,803" | 5,787"  | —      | 0.354" | 2,756" | 3,268" | 1,772" | 4,528" | 4,331" |
| V 0.5  | 4,370" | 1,875" | 2,204" | 1,850" | 2,244" | 2,480" | 2,913" | 6,850"  | 0.354" | 4,331" | 5,315"  | 0.197" | 0.354" | 3,071" | 3,268" | 1,870" | 4,528" | 4,331" |
| V 1    | 5,394" | 1,875" | 2,244" | 2,146" | 2,795" | 2,697" | 3,740" | 8,425"  | 0.433" | 5,433" | 6,535"  | 0.276" | 0.433" | 3,819" | 3,268" | 2,441" | 5,236" | 4,882" |
| V 2    | 6,339" | 2,25"  | 2,268" | 2,461" | 3,780" | 2,366" | 4,291" | 9,606"  | 0.433" | 6,457" | 7,874"  | 0.315" | 0.433" | 4,449" | 3,268" | 2,917" | 5,394" | 4,724" |
| V 3    | 8,386" | 2,75"  | 3,090" | 3,031" | 4,725" | 3,720" | 5,197" | 12,008" | M12    | 7,874" | 10,709" | —      | —      | 5,925" | 4,291" | 3,582" | 6,791" | —      |
| V 5.5  | 8,386" | 2,75"  | 3,090" | 3,031" | 4,725" | 3,720" | 5,197" | 12,008" | M12    | 7,874" | 10,709" | —      | —      | 5,925" | 4,291" | 3,582" | 6,791" | —      |
| V 10   | 10,02" | 3,375" | 3,819" | 3,996" | 5,197" | 4,646" | 6,693" | 15,866" | M12    | 8,661" | 9,842"  | —      | —      | 8,13"  | 4,291" | 4,252" | 7,618" | —      |

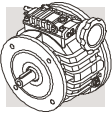
## V\_UF(Nema)

|               | A       | C1     | D      | D1   | D2     | D3     | G4*     | H3     | S1     | S2     | X      | Y      | W      | W1     | W2     |
|---------------|---------|--------|--------|------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| V 0.25 UF56C_ | 4,118"  | 2,029" | 2,322" | 4,5" | 5,875" | 6,496" | 3/8"-16 | 3,622" | 0,137" | 0,512" | 2,756" | 3,268" | 1,772" | 4,528" | 4,331" |
| V 0.5 UF56C_  | 4,177"  | 2,068" | 2,204" | 4,5" | 5,875" | 6,496" | 3/8"-16 | 3,937" | 0,137" | 0,512" | 3,071" | 3,268" | 1,870" | 4,528" | 4,331" |
| V 1 UF56C_    | 5,201"  | 2,068" | 2,244" | 4,5" | 5,875" | 6,496" | 3/8"-16 | 4,685" | 0,137" | 0,512" | 3,819" | 3,268" | 2,441" | 5,236" | 4,882" |
| V 2 UF145T_   | 6,458"  | 2,13"  | 2,268" | 4,5" | 5,875" | 6,496" | 3/8"-16 | 5,315" | 0,137" | 0,512" | 4,449" | 3,268" | 2,917" | 5,394" | 4,724" |
| V 3 UF182T_   | 8,496"  | 2,64"  | 3,090" | 8,5" | 7,25"  | 8,898" | 1/2"-13 | 6,811" | 0,255" | 0,531" | 5,925" | 4,291" | 3,582" | 6,791" | —      |
| V 5.5 UF184T_ | 8,496"  | 2,64"  | 3,090" | 8,5" | 7,25"  | 8,898" | 1/2"-13 | 6,811" | 0,255" | 0,531" | 5,925" | 4,291" | 3,582" | 6,791" | —      |
| V 10 UF213T_  | 10,012" | 3,383" | 3,819" | 8,5" | 7,25"  | 8,898" | 1/2"-13 | 9,179" | 0,255" | 0,787" | 8,13"  | 4,291" | 4,252" | 7,618" | —      |

\* Filettatura serie "UNC" / Thread "UNC" series / Serienmäßiges Gewinde "UNC" / Filetage série "UNC"

\* Filettatura metrica "ISO" / "ISO" Metric thread / Metrisches Gewinde "ISO" / Filetage métrique "ISO"

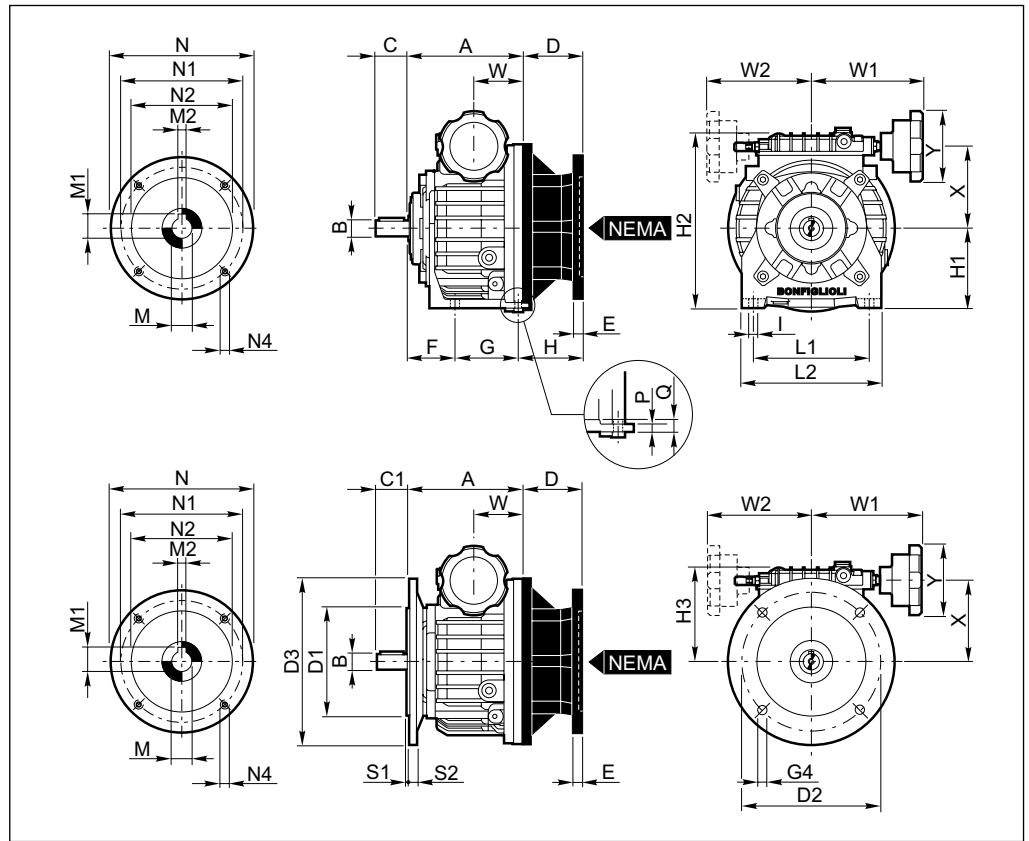
Fattore di conversione / Conversion factor / Umrechnungsfaktor / Facteur de conversion: 1" = 25.4 mm



**V\_N**

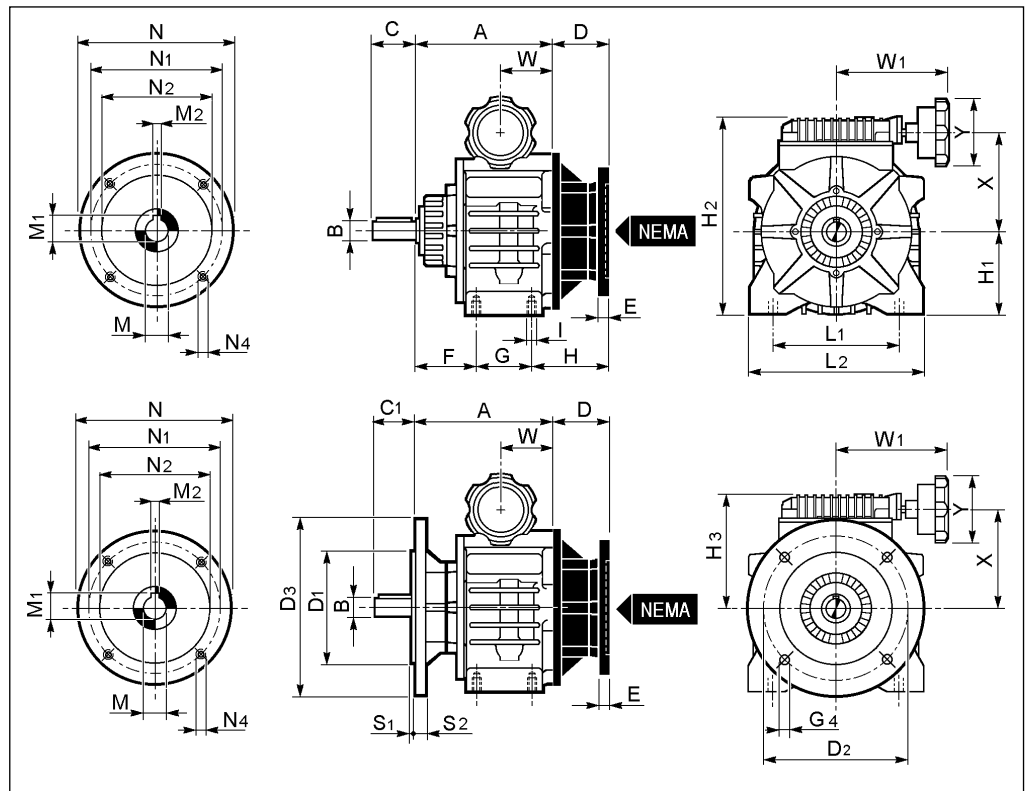
**V\_UP\_N**  
(V 0.25 - V 2)

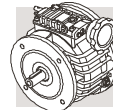
**V\_UF\_N**  
(V 0.25 - V 2)



**V\_U\_N**  
(V 3 - V10)

**V\_UF\_N**  
(V 3 - V10)





## V\_U IMP\_N - V\_UF(Nema) IMP\_N - V\_U\_N - V\_UF\_N

|             | N      | N1     | N2   | N4     | M      | M1     | M2     | E      |
|-------------|--------|--------|------|--------|--------|--------|--------|--------|
| V 0.25_N56  | 6.496" | 5.875" | 4.5" | 0.413" | 0.625" | 0.707" | 0.19"  | 0.472" |
| V 0.5_N56   | 6.496" | 5.875" | 4.5" | 0.413" | 0.625" | 0.707" | 0.19"  | 0.512" |
| V 1_N56     | 6.496" | 5.875" | 4.5" | 0.413" | 0.625" | 0.707" | 0.19"  | 0.472" |
| V 1_N143T   | 6.496" | 5.875" | 4.5" | 0.413" | 0.875" | 0.961" | 0.19"  | 0.512" |
| V 2_N145T   | 6.496" | 5.875" | 4.5" | 0.413" | 0.875" | 0.961" | 0.19"  | 0.512" |
| V 3_N182T   | 8.898" | 7.25"  | 8.5" | 0.531" | 1.125" | 1.276" | 0.252" | 0.630" |
| V 5.5_N184T | 8.898" | 7.25"  | 8.5" | 0.531" | 1.125" | 1.276" | 0.252" | 0.630" |
| V 10_N213T  | 8.898" | 7.25"  | 8.5" | 0.531" | 1.375" | 1.512" | 0.314" | 0.827" |

## V\_U - UF

|                 | B j6   | B1       | B2     | B3       | B4     | C       | C1          | U        |  |
|-----------------|--------|----------|--------|----------|--------|---------|-------------|----------|--|
| V 0.25_D11(D14) | 11(14) | 12.5(16) | 4(5)   | 2.5(2.5) | 18(25) | 23(30)  | —           | M4(M5)   |  |
| V 0.5_D14(D19)  | 14(19) | 16(21.5) | 5(6)   | 2.5(5)   | 25(30) | 30(40)  | —           | M5(M6)   |  |
| V 1_D19(D24)    | 19(24) | 21.5(27) | 6(8)   | 5(5)     | 30(40) | 40(50)  | —           | M6(M8)   |  |
| V 2_D24(D28)    | 24(28) | 27(31)   | 8(8)   | 5(5)     | 40(50) | 50(60)  | —           | M8(M10)  |  |
| V 3_D28(D38)    | 28(38) | 31(41)   | 8(10)  | 5(5)     | 50(70) | 60(80)  | 58(78)      | M10(M12) |  |
| V 5.5_D28(D38)  | 28(38) | 31(41)   | 8(10)  | 5(5)     | 50(70) | 60(80)  | 58(78)      | M10(M12) |  |
| V 10_D38(D42)   | 38(42) | 41(45)   | 10(12) | 5(10)    | 70(90) | 80(110) | 78.5(108.5) | M12(M16) |  |

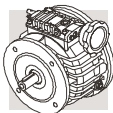
## V\_U

|        | A     | D    | F     | G    | H    | H1  | H2  | I      | L1  | L2  | P | Q  | X     | Y   | W    | W1    | W2  |
|--------|-------|------|-------|------|------|-----|-----|--------|-----|-----|---|----|-------|-----|------|-------|-----|
| V 0.25 | 108.5 | 60   | 48    | 51.5 | 68   | 70  | 162 | 9      | 122 | 147 | — | 9  | 70    | 83  | 45   | 115   | 110 |
| V 0.5  | 111   | 56   | 47    | 57   | 63   | 74  | 174 | 9      | 110 | 135 | 5 | 9  | 78    | 83  | 47.5 | 115   | 110 |
| V 1    | 137   | 57   | 54.5  | 71   | 68.5 | 95  | 214 | 11     | 138 | 166 | 7 | 11 | 97    | 83  | 62   | 133   | 124 |
| V 2    | 161   | 57.6 | 62.5  | 96   | 60.1 | 109 | 244 | 11     | 164 | 200 | 8 | 11 | 113   | 83  | 74.1 | 137   | 120 |
| V 3    | 213   | 78.5 | 77    | 120  | 94.5 | 132 | 305 | M12x22 | 200 | 272 | — | —  | 150.5 | 109 | 91   | 172.5 | —   |
| V 5.5  | 213   | 78.5 | 77    | 120  | 94.5 | 132 | 305 | M12x22 | 200 | 272 | — | —  | 150.5 | 109 | 91   | 172.5 | —   |
| V 10   | 254.5 | 97   | 101.5 | 132  | 118  | 170 | 403 | M12x30 | 220 | 250 | — | —  | 206.5 | 109 | 108  | 193.5 | —   |

## V\_UF

|              | A     | D1j6 | D    | D2  | D3  | G4   | H3  | S1  | S2 | X     | Y   | W    | W1    | W2  |
|--------------|-------|------|------|-----|-----|------|-----|-----|----|-------|-----|------|-------|-----|
| V 0.25 UF63_ | 108.5 | 95   | 60   | 115 | 140 | 9    | 92  | 3   | 8  | 70    | 83  | 45   | 115   | 110 |
| V 0.25 UF71_ | 108.5 | 110  | 60   | 130 | 160 | 9    | 92  | 3.5 | 8  | 70    | 83  | 45   | 115   | 110 |
| V 0.5 UF71_  | 111   | 110  | 56   | 130 | 160 | 9    | 100 | 3.5 | 8  | 78    | 83  | 47.5 | 115   | 110 |
| V 0.5 UF80_  | 111   | 130  | 56   | 165 | 200 | 11.5 | 100 | 3.5 | 10 | 78    | 83  | 47.5 | 115   | 110 |
| V 1 UF80_    | 137   | 130  | 57   | 165 | 200 | 11.5 | 119 | 3.5 | 10 | 97    | 83  | 62   | 133   | 124 |
| V 1 UF90_    | 137   | 130  | 57   | 165 | 200 | 11.5 | 119 | 3.5 | 10 | 97    | 83  | 62   | 133   | 124 |
| V 2 UF90_    | 161   | 130  | 57.6 | 165 | 200 | 11.5 | 135 | 3.5 | 12 | 113   | 83  | 74.1 | 137   | 120 |
| V 2 UF100_   | 161   | 180  | 57.6 | 215 | 250 | 14   | 135 | 4   | 14 | 113   | 83  | 74.1 | 137   | 120 |
| V 3 UF100_   | 215   | 180  | 78.5 | 215 | 250 | 14   | 173 | 4   | 14 | 150.5 | 109 | 91   | 172.5 | —   |
| V 3 UF132_   | 215   | 230  | 78.5 | 265 | 300 | 14   | 173 | 4   | 14 | 150.5 | 109 | 91   | 172.5 | —   |
| V 5.5 UF112  | 215   | 180  | 78.5 | 215 | 250 | 14   | 173 | 4   | 14 | 150.5 | 109 | 91   | 172.5 | —   |
| V 5.5 UF132_ | 215   | 230  | 78.5 | 265 | 300 | 14   | 173 | 4   | 14 | 150.5 | 109 | 91   | 172.5 | —   |
| V 10 UF132_  | 256   | 230  | 97   | 265 | 300 | 14   | 233 | 4   | 16 | 206.5 | 109 | 108  | 193.5 | —   |
| V 10 UF160_  | 256   | 250  | 97   | 300 | 350 | 18   | 233 | 5   | 15 | 206.5 | 109 | 108  | 193.5 | —   |

Fattore di conversione / Conversion factor / Umrechnungsfaktor / Facteur de conversion: 1 mm = 0.0394"



## 21.0 - ACCESSORI

### Indicatore di giri digitale CGY

È un indicatore programmabile (a microcontrollore) che rileva segnali provenienti da sonde amplificate NPN, PNP, NAMUR e se collegato al variatore configurato con opzione PDN o PNP (par. 19.4) consente la visualizzazione diretta del numero di giri in uscita al variatore o ne permette eventuali trasformazioni.

#### Caratteristiche tecniche:

- contenitore da pannello 96x48x100
- morsettiere estraibili
- dima di foratura 92.3X44.5 mm
- scatola in pvc nero DIN43700
- display a 6 cifre ad alta efficienza
- tastiera interna di programmazione
- menù di programmazione guidato
- scale e risoluzioni programmabili
- protezione dei programmi
- alimentazione (da specificare in fase di ordine): 110V-50/60 Hz 220V-50/60 Hz

#### Funzionamento:

Tramite un menù di programmazione guidato (tastiera di programmazione interna al pannello frontale) è possibile ottenere:

- visualizzazione diretta del numero di giri in uscita al variatore;
- visualizzazione della velocità in uscita ad un riduttore posto a valle del variatore
- visualizzazione di valori derivanti da conversioni in varie unità di misura (Kg/min, litri/min, metri/min)

#### Esempi di programmazione:

##### 1) Visualizzazione dei giri in uscita al variatore.

Numero fori della ruota fonica  $n_f=10$ .  
Impostare nel menù di programmazione i seguenti valori:  
 $n=10$ ,  $U=1$ ,  $S=1$ ,  $r=4$ ,  $d=1$ ,  $t=1$ ,  $F=0$ ,  $a=0$ ,  $u=0$ ,  $E=0$ .

##### 2) Visualizzazione dei giri in uscita a un riduttore accoppiato al variatore.

Numero fori della ruota fonica  $n_f=10$ .  
Rapporto di riduzione del riduttore  $i=36.82$ .  
Impostare nel menù di programmazione i seguenti valori:  
 $n=10 \times 36.82=368.2=368$  (introdurre solo numeri interi),  
 $U=1$ ,  $S=1$ ,  $r=4$ ,  $d=1$ ,  $t=1$ ,  $F=0$ ,  $a=0$ ,  $u=0$ ,  $E=0$ .

## 21.0 - ACCESSORIES

### Indicatore di giri digitale CGY

*It is a programmable indicator (on microprocessor) which detects signals from amplified probes NPN, PNP and NAMUR and, if connected to the variator preset for PDN or PNP option (par. 19.4), it allows the variator output rpm to be directly displayed or allows possible conversions.*

#### Technical features:

- panel container 96x48x100
- removable terminal boards
- template 92.3X44.5 mm
- black PVC box according to DIN43700
- hi-efficiency 6-digit display
- inner programming keypad
- guided programming menu
- programmable scales and resolutions
- program protections
- power supply (specify when placing the order): 110V-50/60 Hz 220V-50/60 Hz

#### Operation:

*The following can be displayed through a guided programming menu (front panel inner programming keypad):*

- direct display of the variator output rpm;
- display of output rpm of a gearbox downstream the variator
- display of values after conversion into different measurement units (Kg/min, liters/min. and meters/min).

#### Programming examples:

##### 1) Display of variator output rpm

*Number of holes in the phonic wheel  $n_f=10$ .  
Set the following values in the programming menu:  
 $n=10$ ,  $U=1$ ,  $S=1$ ,  $r=4$ ,  $d=1$ ,  $t=1$ ,  $F=0$ ,  $a=0$ ,  $u=0$ ,  $E=0$ .*

##### 2) Display of output rpm of a gearbox downstream the variator.

*Number of holes in the phonic wheel  $n_f=10$ .  
Gearbox reduction ratio  $i=36.82$ .  
Set the following values in the programming menu:  
 $n=10 \times 36.82=368.2=368$  (enter only integers),  
 $U=1$ ,  $S=1$ ,  $r=4$ ,  $d=1$ ,  $t=1$ ,  $F=0$ ,  $a=0$ ,  $u=0$ ,  $E=0$ .*

## 21.0 - ZUBEHÖR

### Digitale Drehzahlanzeige CGY

Hierbei handelt es sich um eine programmierbare Anzeigevorrichtung (mit Mikrosteuerbaustein), die die von den NPN- PNP- oder NAMUR-Sonden ausgehenden Signale erfaßt. Wenn sie an einem Verstellgetriebe, dessen Konfiguration die Option PDN oder PNP (Par. 19.4) aufweist, angeschlossen wird, ermöglicht sie die direkte Anzeige der Umdrehungszahl am Abtrieb des Verstellgetriebes und erlaubt eventuelle Umformungen.

#### Technische Eigenschaften:

- Behälter für Platte 96 x 48x100
- Ausziehbare Klemmenleisten
- Bohrungsschablone 92.3X44.5 mm
- Gehäuse aus schwarzem PVC DIN43700
- Hochleistungsfähiges sechsstelliges Display
- Interne Programmier Tastatur
- Geführtes Programmiermenü
- Programmierbare Skalen und Auflösungen
- Programmschutz
- Anschluß (muß im Auftrag spez. fiziert werden): 110V-50/60 Hz 220V-50/60 Hz

#### Betrieb:

Mittels eines geführten Programmiermenüs (die Programmier Tastatur befindet sich in der Fronttafel) sind die Angabe folgender Anzeigen möglich:

- Abtriebsdrehzahl des Verstellgetriebes;
- Geschwindigkeit am Abtrieb eines Getriebes, das dem Verstellgetriebe nachgeschaltet ist;
- Werte, die sich aus Umrechnungen in verschiedene Maßeinheiten (kg/Min, Liter/Min, Meter/Min) ergeben.

#### Programmierbeispiele:

##### 1) Anzeige der Drehzahl am Abtrieb des Verstellgetriebes.

Anzahl der Bohrungen des Impulsgebers  $n_f=10$ .  
Im Programmiermenü folgende Werte einstellen:  
 $n=10$ ,  $U=1$ ,  $S=1$ ,  $r=4$ ,  $d=1$ ,  $t=1$ ,  $F=0$ ,  $a=0$ ,  $u=0$ ,  $E=0$ .

##### 2) Anzeige der Drehzahl am Abtrieb eines dem Verstellgetriebe

nachgeschalteten Untersetzungsgetriebes.  
Anzahl der Bohrungen des Impulsgebers  $n_f=10$ .  
Untersetzung des nachfolgenden Getriebe  $i=36.82$ .  
Im Programmiermenü folgende Werte einstellen:  
 $n=10 \times 36.82=368.2=368$  (nur ganze Zahlen eingeben),  
 $U=1$ ,  $S=1$ ,  $r=4$ ,  $d=1$ ,  $t=1$ ,  $F=0$ ,  $a=0$ ,  $u=0$ ,  $E=0$ .

## 21.0 - ACCESSOIRES

### Indicateur de tours digital CGY

*Il s'agit d'un indicateur programmable (à microcontrôleur) qui détecte les signaux provenant de sondes amplifiées NPN, PNP, NAMUR et, lorsqu'il est relié au variateur configuré avec l'option PDN ou PNP (par.19.4), il permet l'affichage direct du nombre de tours en sortie du variateur ou en permet d'éventuelles transformations.*

#### Caractéristiques techniques :

- Boîtier de panneau 96x48x100
- Borniers amovibles
- Gabarit de perçage 92.3X44.5 mm
- Boîte en PVC noir DIN43700
- Afficheur à 6 chiffres à performance élevée
- Clavier de programmation interne
- Menu de programmation guidé
- Echelles et résolutions programmables
- Protection des programmes
- Alimentation (à spécifier au moment de la commande) : 110V-50/60 Hz 220V-50/60 Hz

#### Fonctionnement :

*A l'aide d'un menu de programmation guidé (clavier de programmation à l'intérieur du panneau frontal), il est possible d'obtenir :*

- l'affichage direct du nombre de tours en sortie du variateur;
- l'affichage de la vitesse en sortie d'un réducteur situé à aval du variateur;
- l'affichage des valeurs dérivant de conversions dans différentes unités de mesure (Kg/min, litres/min, mètre/min).

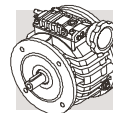
#### Exemples de programmation :

##### 1) Affichage des tours en sortie du variateur.

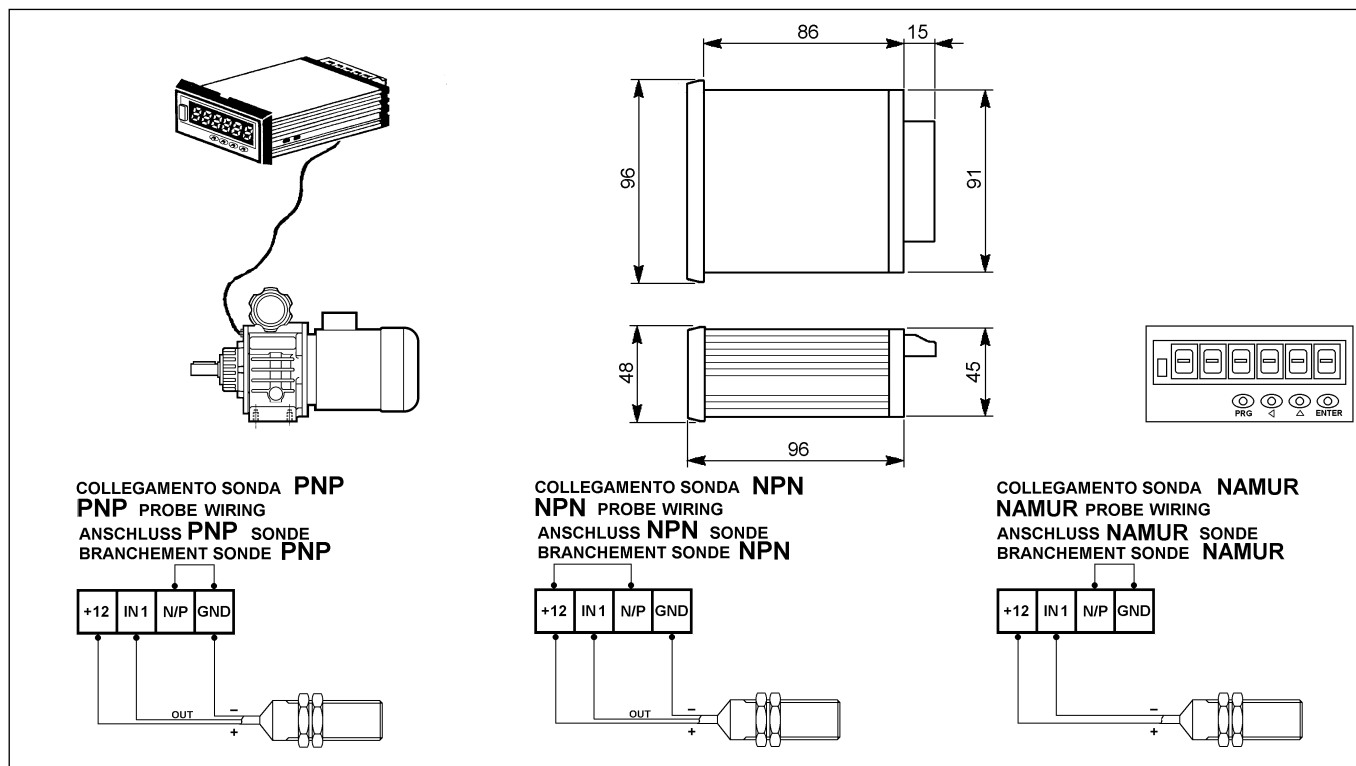
*Nombre d'encoches de la roue phonique  $n_f=10$ .  
Dans le menu de programmation, programmer les valeurs suivantes :  
 $n=10$ ,  $U=1$ ,  $S=1$ ,  $r=4$ ,  $d=1$ ,  $t=1$ ,  $F=0$ ,  $a=0$ ,  $u=0$ ,  $E=0$ .*

##### 2) Affichage des tours en sortie d'un réducteur en aval du variateur.

*Nombre d'encoches de la roue phonique  $n_f=10$ .  
Rapport de réduction du réducteur  $i=36.82$ .  
Dans le menu de programmation, programmer les valeurs suivantes :  
 $n=10 \times 36.82=368.2=368$  (introduire uniquement des nombres entiers),  
 $U=1$ ,  $S=1$ ,  $r=4$ ,  $d=1$ ,  $t=1$ ,  $F=0$ ,  $a=0$ ,  $u=0$ ,  $E=0$ .*



(C10)



#### Kit per rilevamento di giri KITCGY

È un kit di montaggio per il rilevamento di giri applicabile su alberi esterni al variatore o su catene cinematiche generiche.

Il kit è composto da:

- A - un indicatore di giri digitale CGY (per le caratteristiche ed il funzionamento dell'indicatore vedi pag. 90)
- B - una sonda rilevatrice a forcella tipo NAMUR con cavo di connessione,
- C - una ruota fonica a 30 impulsi/giro.

Nella tabella (C11) sono riportati un esempio di applicazione, le dimensioni della sonda e della ruota fonica e lo schema di collegamento.

#### KITCGY rpm detection kit

Speed detector kit. Can get the signal from a separate shaft or from a connected drive.

The kit consists of:

- A - a digital rpm indicator of the CGY type (refer to page 90 for technical features and operation of the indicator).
- B - a fork probe of the NAMUR type with its proper connecting cable
- C - a phonic wheel with 30 impulses/rotation.

The table (C11) shows an application example, probe and phonic wheel size and wiring diagram.

#### Anbausatz zur Drehzahlermittlung KITCGY

Hierbei handelt es sich um einen Anbausatz zur Drehzahlermittlung, der z.B. außen an der Welle des Verstellgetriebes oder der Maschine angebracht werden kann.

Der Anbausatz besteht aus:

- A - einer digitalen Drehzahlanzeige CGY (für Eigenschaften und Betrieb des Anzeigers siehe Seite 90),
- B - eine Gabelermittlungssonde vom Typ NAMUR mit Anschlußkabel,
- C - ein Impulsgeber mit 30 Impulsen/Drehung.

In der Tabelle (C11) sind ein Anwendungsbeispiel, die Abmessungen der Sonde und des Impulsgebers, sowie der Anschlußplan aufgeführt.

#### Kit pour détection de tours KITCGY

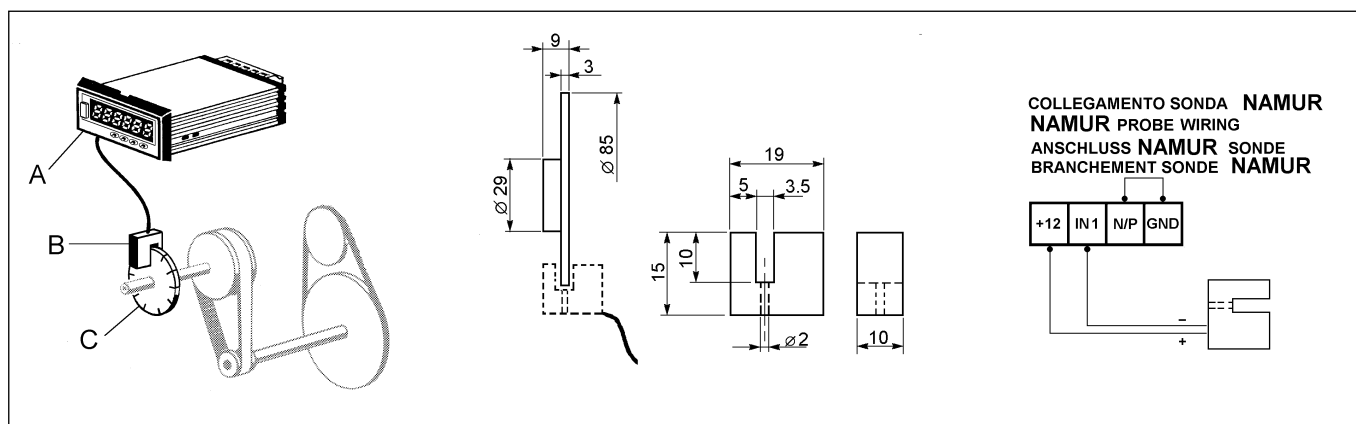
Il s'agit d'un kit de montage pour la détection de tours, applicable sur les arbres à l'extérieur du variateur ou sur des chaînes cinématiques en général.

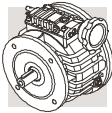
Le kit se compose des éléments suivants :

- A - un indicateur de tours digital CGY (en ce qui concerne les caractéristiques et le fonctionnement de l'indicateur, voir page 90).
- B - une sonde de détection à fourche type NAMUR avec câble de branchement.
- C - une roue phonique à 30 impulsions/tours.

Le tableau (C11) présente un exemple d'application, les dimensions de la sonde et de la roue phonique ainsi que le schéma de branchement.

(C11)





## Ingresso con albero veloce sporgente ENTHS

Questo accessorio, costituito da un albero supportato da cuscinetti in costruzione chiusa, è applicabile all'ingresso dei variatori V 0.25...V 10 in tutte le forme costruttive nella configurazione P... (IEC) e permette di disporre di un albero sporgente utilizzabile per l'azionamento del variatore.

### AVVERTENZA

Il kit **ENTHS** non è lubrificato autonomamente. Prima di assemblare il kit adattatore sulla flangia P(IEC) del variatore rimuovere l'anello di tenuta presente su quest'ultima, al fine di consentire la lubrificazione degli organi interni del kit.

## Input with ENTHS input solid shaft

*The add-on ENTHS kit consists of a solid shaft supported by bearings and a connecting flange. It interfaces the variator's motor adapter, in the P(IEC) style. The solid input shaft can then be used to drive the variator.*

### WARNING

*The kit **ENTHS** is not lubed independently. Prior to installing the adapter kit onto the P(IEC) input flange remove the oil seal that is present on the latter, so that inner parts of the adapter kit get lubricated.*

## Antrieb mit freier Eingangswelle ENTHS

Dieses Zubehörteil, das aus einer gelagerten Welle besteht, kann an den Antrieb der Verstellgetriebe V 0.25...V 10 in allen Bauformen in der Konfiguration P ... (IEC) angebracht werden. Dadurch erhält man eine freie Antriebswelle, die für die Installation von Anbauteilen an das Verstellgetriebe verwendet werden kann.

### ACHTUNG

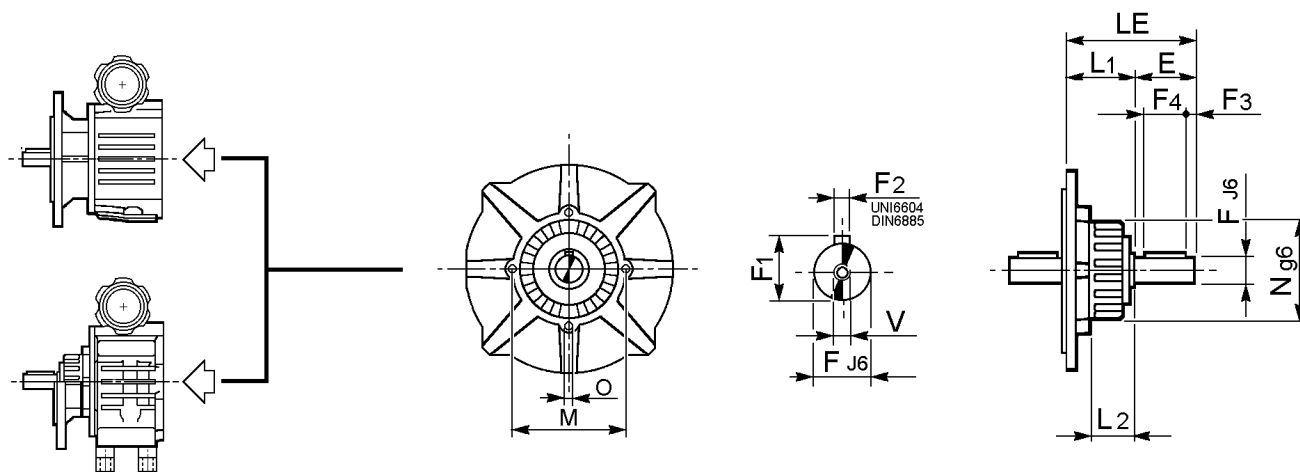
Das Kit **ENTHS** wird nicht unabhängig geschmiert. Vor der Montage des Adapterkits an den P(IEC)-Eingangsflansch den vorderen Dichtring entfernen, damit die innenliegenden Teile des Adapterkits geschmiert werden.

## Entrée avec arbre rapide sortant ENTHS

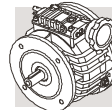
*Cet accessoire, constitué d'un arbre supporté par des roulements en construction fermée, est applicable à l'entrée des variateurs V 0.25...V 10, quelle que soit la forme de construction dans la configuration P.. (IEC), il permet de disposer d'un arbre sortant utilisable pour l'actionnement du variateur.*

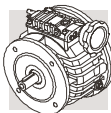
### ATTENTION

*Le **ENTHS** n'est pas lubrifié autonomement. Avant d'assembler l'kit adaptateur sur la bride P(IEC) du variateur, ôter la bague d'étanchéité présent sur cette dernière, au fin de permettre la lubrification des organes internes du kit.*



|                     | E  | F  | F1   | F2 | F3  | F4 | LE    | L1   | L2   | M   | N   | O   | V   |
|---------------------|----|----|------|----|-----|----|-------|------|------|-----|-----|-----|-----|
| <b>ENTHS V 0.25</b> | 23 | 11 | 12.5 | 4  | 2   | 20 | 58.5  | 35.5 | 26   | 68  | 55  | M6  | M4  |
| <b>ENTHS V 0.5</b>  | 30 | 14 | 16   | 5  | 2.5 | 25 | 67    | 37   | 20   | 85  | 65  | M6  | M5  |
| <b>ENTHS V 1</b>    | 40 | 19 | 21.5 | 6  | 5   | 30 | 88.5  | 48.5 | 25.5 | 95  | 80  | M8  | M6  |
| <b>ENTHS V 2</b>    | 50 | 24 | 27   | 8  | 5   | 40 | 103.5 | 53.5 | 32   | 118 | 100 | M8  | M8  |
| <b>ENTHS V 3</b>    | 60 | 28 | 31   | 8  | 5   | 50 | 121.5 | 61.5 | 37   | 150 | 110 | M10 | M10 |
| <b>ENTHS V 5.5</b>  | 60 | 28 | 31   | 8  | 5   | 50 | 121.5 | 61.5 | 37   | 150 | 110 | M10 | M10 |
| <b>ENTHS V 10</b>   | 80 | 38 | 41   | 10 | 5   | 70 | 160.5 | 80.5 | 64.5 | 200 | 135 | M12 | M12 |





## Ingresso con modulo predisposto NEMA ENTN\_

Questo accessorio è applicabile all'ingresso dei variatori V 0.25...V 10 in tutte le forme costruttive nella configurazione P...(IEC) e consente di disporre di una predisposizione Nema "C" Flange per il collegamento a motori elettrici rispondenti a tale normativa.

## Input with NEMA ENTN\_ adaptor

*The add-on ENTN\_ kit interfaces the variator's input flange, in the P(IEC) style, and allows a motor adapter to NEMA standard, to be used.*

## Anbausatz für NEMA-Motore Baueinheit ENTN\_

Dieses Zubehörteil kann an den Antrieb der Verstellgetriebe V 0.25...V 10 in allen Bauformen in der Konfiguration P ... (IEC) angebracht werden. Hierdurch erhält man eine Anbaumöglichkeit für die nach der NEMA "C" Richtlinie genormten Elektromotoren.

## Entrée avec module prédisposé NEMA ENTN\_

*Cet accessoire est applicable à l'entrée des variateurs V 0.25...V 10 quelle que soit la forme de construction dans la configuration P... (IEC), il permet de disposer d'une prédisposition Nema "C"-Brides pour l'accouplement aux moteurs électriques conformes à cette norme.*

### AVVERTENZA

Il kit **ENTN\_** non è lubrificato autonomamente. Prima di assemblare il kit adattatore sulla flangia P(IEC) del variatore rimuovere l'anello di tenuta presente su quest'ultima, al fine di consentire la lubrificazione degli organi interni del kit.

### WARNING

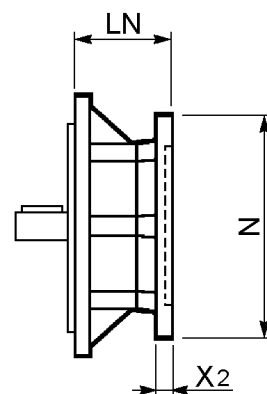
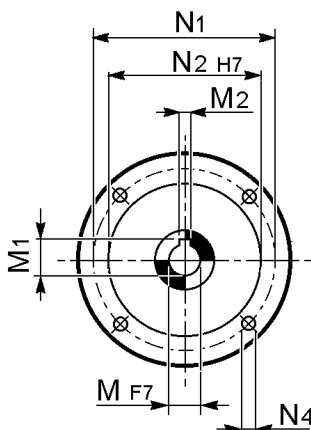
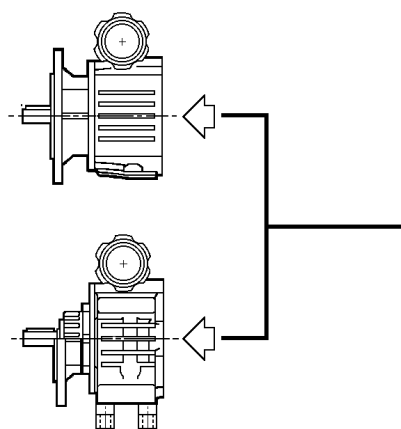
*The kit **ENTN\_** is not lubed independently. Prior to installing the adapter kit onto the P(IEC) input flange remove the oil seal that is present on the latter, so that inner parts of the adapter kit get lubricated.*

### ACHTUNG

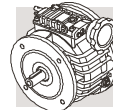
Das Kit **ENTN\_** wird nicht unabhängig geschmiert. Vor der Montage des Adapterkits an den P(IEC)-Eingangsflansch den vorderen Dichtring entfernen, damit die innenliegenden Teile des Adapterkits geschmiert werden.

### ATTENTION

*Le **ENTN\_** n'est pas lubrifié autonomement. Avant d'assembler l'kit adaptateur sur la bride P(IEC) du variateur, ôter la bague d'étanchéité présent sur cette dernière, au fin de permettre la lubrification des organes internes du kit.*



|                       | LN   | N   | N1      | N2    | N4   | M      | M1     | M2    | X2 |
|-----------------------|------|-----|---------|-------|------|--------|--------|-------|----|
| <b>ENTN56 V 0.25</b>  | 59   | 165 | 149.225 | 114.3 | 10.5 | 15.875 | 17.958 | 4.826 | 12 |
| <b>ENTN56 V 0.5</b>   | 56   | 165 | 149.225 | 114.3 | 10.5 | 15.875 | 17.958 | 4.826 | 13 |
| <b>ENTN56 V 1</b>     | 57   | 165 | 149.225 | 114.3 | 10.5 | 15.875 | 17.958 | 4.826 | 12 |
| <b>ENTN143T V 1</b>   | 57.6 | 165 | 149.225 | 114.3 | 10.5 | 22.225 | 24.409 | 4.826 | 13 |
| <b>ENTN145T V 2</b>   | 57.6 | 165 | 149.225 | 114.3 | 10.5 | 22.225 | 24.409 | 4.826 | 13 |
| <b>ENTN182T V 3</b>   | 78.5 | 226 | 184.15  | 215.9 | 13.5 | 28.575 | 32.4   | 6.4   | 16 |
| <b>ENTN184T V 5.5</b> | 78.5 | 226 | 184.15  | 215.9 | 13.5 | 28.575 | 32.4   | 6.4   | 16 |
| <b>ENTN213T V 10</b>  | 97   | 226 | 184.15  | 215.9 | 13.5 | 34.925 | 38.4   | 7.976 | 21 |

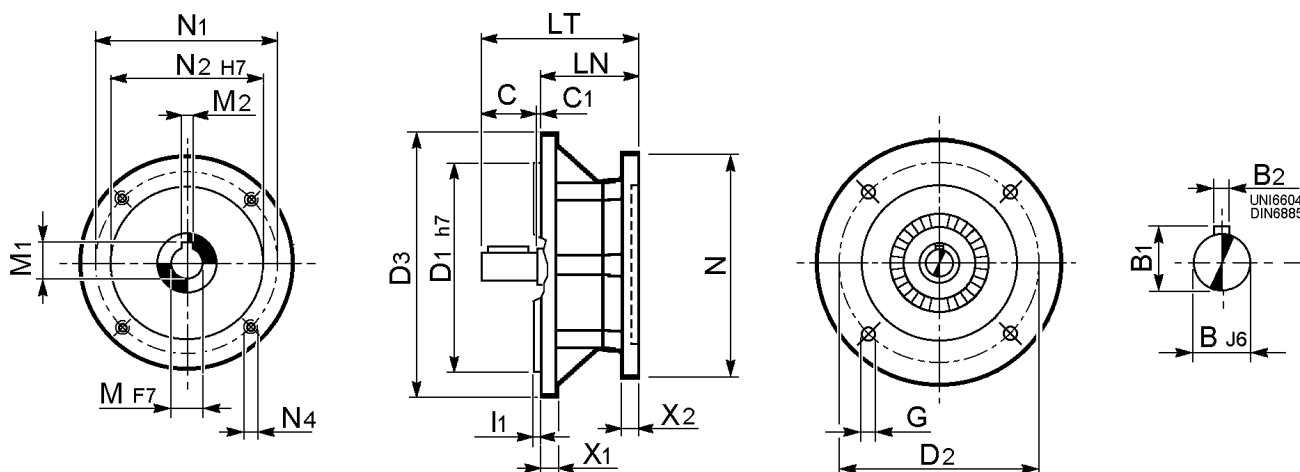


Questo accessorio è ulteriormente disponibile in esecuzione con cuscinetti autolubrificati per l'installazione in applicazioni generiche dove vi sia l'esigenza di trasformare una predisposizione IEC in una predisposizione NEMA "C" Flange.

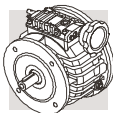
*This accessory is also available with self-lubricating bearings for standard applications in which a IEC adaptor must be converted into a NEMA "C" Flange adaptor.*

Dieses Zubehör steht darüber hinaus auch in einer Ausführung mit geschlossenen Lagern zur Verfügung, falls man einen IEC-Anbausatz in einen NEMA "C"-Anbausatz umwandeln möchte.

*Cet accessoire est aussi disponible avec roulements autolubrifiants pour l'installation sur des applications nécessitant la transformation d'une prédisposition IEC en une prédisposition NEMA "C"-Brides.*



|                      | IEC | B  | B1   | B2 | C  | C1  | D1  | D2  | D3  | G   | I1  | LN   | LT    | N   | N1      | N2    | N4   | M      | M1     | M2    | X1  | X2 |
|----------------------|-----|----|------|----|----|-----|-----|-----|-----|-----|-----|------|-------|-----|---------|-------|------|--------|--------|-------|-----|----|
| <b>ENTN56 P63</b>    | 63  | 11 | 12.5 | 4  | 23 | —   | 95  | 115 | 140 | 8.5 | 3   | 58.5 | 81.5  | 165 | 149.225 | 114.3 | 10.5 | 15.875 | 17.958 | 4.826 | 7.5 | 12 |
| <b>ENTN56 P71</b>    | 71  | 14 | 16   | 5  | 30 | 3   | 110 | 130 | 160 | 9   | 3.5 | 55.5 | 88.5  | 165 | 149.225 | 114.3 | 10.5 | 15.875 | 17.958 | 4.826 | 7   | 13 |
| <b>ENTN56 P80</b>    | 80  | 19 | 21.5 | 6  | 40 | 3   | 130 | 165 | 200 | 11  | 3.5 | 56.5 | 99.5  | 165 | 149.225 | 114.3 | 10.5 | 15.875 | 17.958 | 4.826 | 7   | 12 |
| <b>ENTN143T P80</b>  | 80  | 19 | 21.5 | 6  | 40 | 2.5 | 130 | 165 | 200 | 11  | 3.5 | 57.1 | 99.6  | 165 | 149.225 | 114.3 | 10.5 | 22.225 | 24.409 | 4.826 | 7   | 13 |
| <b>ENTN145T P90</b>  | 90  | 24 | 27   | 8  | 50 | 2.5 | 130 | 165 | 200 | 11  | 3.5 | 57.1 | 109.6 | 165 | 149.225 | 114.3 | 10.5 | 22.225 | 24.409 | 4.826 | 7   | 13 |
| <b>ENTN182T P100</b> | 100 | 28 | 31   | 8  | 60 | 2.5 | 180 | 215 | 250 | 14  | 4   | 78   | 140.5 | 226 | 184.15  | 215.9 | 13.5 | 28.575 | 32.4   | 6.4   | 7   | 16 |
| <b>ENTN184T P112</b> | 112 | 28 | 31   | 8  | 60 | 2.5 | 180 | 215 | 250 | 14  | 4   | 78   | 140.5 | 226 | 184.15  | 215.9 | 13.5 | 28.575 | 32.4   | 6.4   | 7   | 16 |
| <b>ENTN213T P132</b> | 132 | 38 | 41   | 10 | 80 | -1  | 230 | 265 | 300 | 13  | 4   | 96.5 | 175.5 | 226 | 184.15  | 215.9 | 13.5 | 34.925 | 38.4   | 7.976 | 14  | 21 |

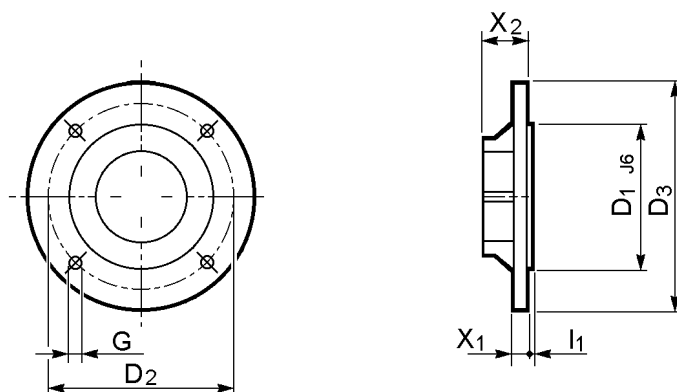


# Flange di fissaggio

# Mounting flange kit

# Abtriebsflansch-Kit

# Kit bride de fixation

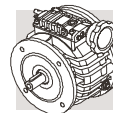


|           |           |                  | D1  | D2  | D3  | G    | I1  | X1 | X2   |
|-----------|-----------|------------------|-----|-----|-----|------|-----|----|------|
| V 0.25_UP | —         | FLANGIA F63      | 95  | 115 | 140 | 8.5  | 3   | 8  | 13,5 |
|           |           | FLANGIA F71      | 110 | 130 | 160 | 8.5  | 3.5 | 8  | 13,5 |
| V 0.5_UP  | VD 0.5_UP | FLANGIA F71      | 110 | 130 | 160 | 8.5  | 3.5 | 8  | 13,5 |
|           |           | FLANGIA F80/90   | 130 | 165 | 200 | 11.5 | 3.5 | 10 | 13,5 |
| V 1_UP    | VD 1_UP   | FLANGIA F80/90   | 130 | 165 | 200 | 11.5 | 3.5 | 10 | 16   |
| V 2_UP    | VD 2_UP   | FLANGIA F80/90   | 130 | 165 | 200 | 11.5 | 3.5 | 12 | 20,5 |
|           |           | FLANGIA F100/112 | 180 | 215 | 250 | 14   | 4   | 14 | 20,5 |

|         |          |                  | D1  | D2  | D3  | G  | I1 | X1 | X2 |
|---------|----------|------------------|-----|-----|-----|----|----|----|----|
| V 3_U   | VD 3_U   | FLANGIA F100/112 | 180 | 215 | 250 | 14 | 4  | 14 | 40 |
|         |          | FLANGIA F132     | 230 | 265 | 300 | 14 | 4  | 14 | 40 |
| V 5.5_U | VD 5.5_U | FLANGIA F100/112 | 180 | 215 | 250 | 14 | 4  | 14 | 40 |
|         |          | FLANGIA F132     | 230 | 265 | 300 | 14 | 4  | 14 | 40 |
| V 10_U  | VD 10_U  | FLANGIA F132     | 230 | 265 | 300 | 14 | 4  | 16 | 66 |
|         |          | FLANGIA F160/180 | 250 | 300 | 350 | 18 | 5  | 15 | 66 |

|            |            |                  | D1  | D2  | D3  | G    | I1  | X1 | X2 |
|------------|------------|------------------|-----|-----|-----|------|-----|----|----|
| VR 0.25 U_ | —          | FLANGIA F71      | 110 | 130 | 160 | 9    | 3   | 8  | 16 |
| VR 0.5 U_  | VDR 0.5 U_ | FLANGIA F71      | 110 | 130 | 160 | 9    | 3   | 8  | 16 |
| VR 1 U_    | VDR 1 U_   | FLANGIA F80/90   | 130 | 165 | 200 | 11.5 | 3.5 | 10 | 12 |
| VR 2 U_    | VDR 2 U_   | FLANGIA F100/112 | 180 | 215 | 250 | 13   | 4   | 12 | 20 |

|           |            |                  | D1  | D2  | D3  | G  | I1 | X1 | X2 |
|-----------|------------|------------------|-----|-----|-----|----|----|----|----|
| VR 3 U_   | VDR 3 U_   | FLANGIA F132     | 230 | 265 | 300 | 14 | 4  | 16 | 14 |
| VR 5.5 U_ | VDR 5.5 U_ | FLANGIA F132     | 230 | 265 | 300 | 14 | 4  | 16 | 14 |
| VR 10 U_  | VDR 10 U_  | FLANGIA F160/180 | 250 | 300 | 350 | 18 | 5  | 15 | 16 |



## Piedi di fissaggio

Questo accessorio è costituito da due basi applicabili ai variatori V 0.25...V 10 nella forma costruttiva U e permette di disporre di fori di ancoraggio passanti e collocati all'esterno dell'ingombro del variatore stesso.

## Fastening feet

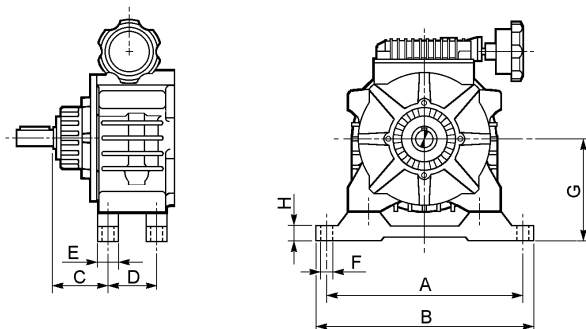
*The add-on foot kit bolts underneath V variators, in the U version, and carries through holes for the connection of the variator to the base plate.*

## Fußplatte

Dieses Zubehörteil besteht aus zwei Platten, die an den Verstellgetrieben V 0.25...V 10 in der Bauform U angebracht werden können. Es ermöglicht die Montage des Getriebes durch Bohrungen, die seitlich vom Gehäuse des Getriebes liegen.

## Pieds de fixation

*Cet accessoire est constitué de deux bases applicables aux variateurs V 0.25...V 10 dans la forme de construction U et permet de disposer d'orifice de fixation passants et situés à l'extérieur de l'encombrement du variateur.*



|                     | A   | B   | C     | D    | E  | F  | G   | H  |
|---------------------|-----|-----|-------|------|----|----|-----|----|
| <b>PIEDI V 0.25</b> | 164 | 183 | 48    | 51.5 | 20 | 9  | 83  | 10 |
| <b>PIEDI V 0.5</b>  | 172 | 191 | 47.5  | 57   | 20 | 9  | 89  | 9  |
| <b>PIEDI V 1</b>    | 220 | 242 | 59.5  | 71   | 26 | 11 | 115 | 12 |
| <b>PIEDI V 2</b>    | 245 | 267 | 62.5  | 96   | 30 | 11 | 140 | 23 |
| <b>PIEDI V 3</b>    | 297 | 323 | 76.5  | 120  | 35 | 13 | 169 | 27 |
| <b>PIEDI V 5.5</b>  | 297 | 323 | 76.5  | 120  | 35 | 13 | 169 | 27 |
| <b>PIEDI V 10</b>   | 314 | 336 | 101.5 | 160  | 55 | 13 | 210 | 28 |

## Indicatore gravitazionale INDGRAV

È un indicatore di posizione a reazione gravitazionale applicabile sul volantino di comando dei variatori e indica, su una doppia scala graduata, i giri e frazioni di giro compiuti dal volantino stesso durante il movimento di rotazione e deve operare con l'asse orizzontale o avente piccoli angoli di inclinazione (Max. 15°).

## INDGRAV gravitational indicator

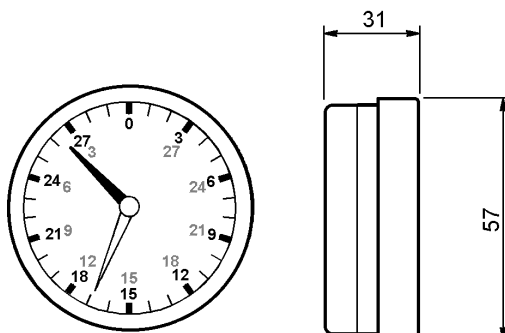
*The device is a gravitational turns indicator which can be fitted onto the variator control handwheel for indicating rpms and turn fractions on a double graduated scale during the rotation. This indicator works only with horizontal axis or small angles of inclination (Max. 15°).*

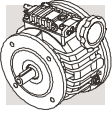
## Lageanzeige INDGRAV

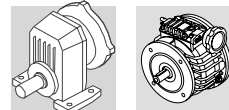
Hierbei handelt es sich um eine nach dem Schwerkraftgesetz arbeitende Lageanzeige, die auf dem Handrad der Verstellgetriebe angebracht werden kann. Sie ibt auf einer doppelten Grad - skala die vom Handrad ausgeführten Umdrehungen an. Die Achse der Anzeige muß möglichst waagrecht sein, da die Anzeige sonst nicht einwandfrei arbeiten kann (Max. 15°).

## Indicateur gravitationnel INDGRAV

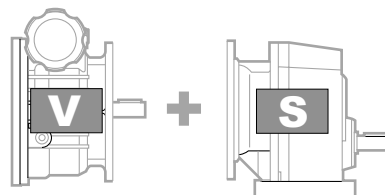
*Il s'agit d'un indicateur de position à réaction gravitationnelle applicable sur le volant de commande des variateurs, il indique, sur une double échelle graduée, les tours et fractions de tours accomplis par le volant durant le mouvement de rotation, il doit opérer avec l'axe horizontal ou ayant de faibles angles d'inclinaison (Max. 15°).*

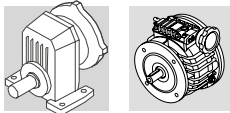






**22.0 - MOTOVARIARIDUTTORI**  
***MOTORIZED GEARED VARIATOR***  
***VERSTELLGETRIEBEMOTOREN***  
***MOTOVARIAREDUCTEURS***





## 22.1 - Designazione riduttore

## 22.1 - Gearbox designation

## 22.1 - Getriebe- bezeichnung

## 22.1 - Désignation réducteur

**S 10 1 P 1.4 V05 B3 .....**

OPZIONI / OPTIONS  
OPTIONEN / OPTIONS

POS. DI MONTAGGIO / MOUNTING POSITIONS  
EINBAULAGEN / POS. DE MONTAGE

**B3** (Standard), **B5** (Standard), **B51**, **B52**, **B53**, **B6**, **B7**, **B8**, **V1**, **V3**, **V5**, **V6**

DESIGNAZIONE INGRESSO / INPUT DESIGNATION  
BEZEICHNUNG DER ANTRIEBSSEITE / DESIGNATION ENTREE

**V** + grandezza variatore = Predisposto per variatore compatto

**V** + *variator size* = suitable to match compact variator

**V** + Verstellgetriebegröße = für kompaktes Verstellgetriebe geeignet

**V** + *grandeur variateur* = prédisposé pour variateur compact

| V025   | V05   | V1  | V2  | V3  | V55   | V10  |
|--------|-------|-----|-----|-----|-------|------|
| V 0.25 | V 0.5 | V 1 | V 2 | V 3 | V 5.5 | V 10 |

**P** + grandezza motore = Predisposto per variatore flangiato

**P** + *motor size* = suitable to match a flanged variator

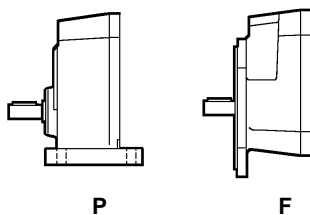
**P** + Motorgröße = für geflanshtes Verstellgetriebe geeignet

**P** + *taille moteur* = prédisposé pour variateur avec bride

| P63    | P71   | P80          | P90        | P100 | P112  | P132 |
|--------|-------|--------------|------------|------|-------|------|
| V 0.25 | V 0.5 | V 0.5<br>V 1 | V 1<br>V 2 | V 3  | V 5.5 | V 10 |

RAPPORTO DI RIDUZIONE / GEAR RATIO  
ÜBERSETZUNG / RAPPORT DE REDUCTION

FORMA COSTRUTTIVA / VERSION / BAUFORM / FORME DE CONSTRUCTION



N° STADI DI RIDUZIONE / REDUCTIONS  
ANZAHL DER GETRIEBESTUFEN / Nbre ETAGES DE REDUCTION

**1**

GRANDEZZA RIDUTTORE / GEARBOX SIZE  
GETRIEBEBAUGRÖSSE / TAILLE REDUCTEUR

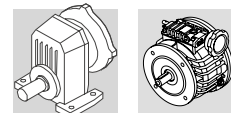
**10, 20, 30, 40, 50**

TIPO RIDUTTORE: **S** = monostadio

GETRIEBETYP: **S** = Stirnradgetriebemotore-Einstufig

GEARBOX TYPE: **S** = single stage

TYP DU REDUCTEUR: **S** = à un étage de réduction



## 22.2 - Designazione variatore

## 22.2 - Designation of variator

## 22.2 - Bezeichnung für Drehzahlwandler

## 22.2 - Désignation variateur

**V** ☐ **0.5** **C** ☐ ☐ **P71** **B3** **1** **PDN** **SCT** ....

OPZIONI / OPTIONS  
OPTIONEN / OPTIONS

TIPO DI COMANDO / REMOTE CONTROL TYPE  
VERSTELLEINRICHTUNG / TYPE DE COMMANDE  
**A, VG, VA, VAG, SCT (3Ø), TC (1Ø)**

SONDA RILEVATRICE / SPEED SENSOR  
MEßSONDE / SONDE DE DETECTION  
**PDN, PDNA, PDP**

POSIZIONE DISPOSITIVO DI COMANDO / SPEED KNOB POSITION  
EINBAULAGE DER VERSTELLEINRICHTUNG / POSITION COMMANDE  
**1 (default), 2 (V 3...V 10)**

POSIZIONE DI MONTAGGIO / MOUNTING POSITION  
MOTOR BAUFORM / FORME DE CONSTRUCTION DU MOTEUR  
**B3 (default), B6, B7, B8, V5, V51, V52, V53, V6, V61, V62, V63**

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CONFIGURAZIONE INGRESSO / INPUT CONFIGURATION  
BEZEICHNUNG DER ANTRIEBSSEITE / DESIGNATION ENTREE

- P (IEC)** - predisposizione IEC / Provided with IEC motor adaptor  
vorbereitet für den Anbau eines IEC-Motors / prédisposé IEC
- HS** - albero cilindrico / solid input shaft / freier Antriebswelle / arbre rapide sortant
- HSF** - albero cilindrico e flangia riportata / solid input shaft and bolt-on flange  
freier Antriebswelle und Flansch / arbre rapide sortant et adjonction de bride
- N (NEMA)** - predisposizione motore NEMA / provided with Nema motor adaptor  
vorbereitet für den Anschluß eines NEMA-Motors / prédisposé moteur NEMA
- G (IEC)** - flangia IEC maggiorata / provided with IEC extended adaptor  
mit zusätzlicher Baueinheit für IEC-Motore / avec module supplémentaire prédisposé IEC

DIAMETRO ALBERO LENTO / OUTPUT SHAFT BORE  
ABTRIEBSWELLE DURCHMESSER / DIAMETRE ARBRE LENT

**D +** diametro in mm / diameter in mm  
Durchmesser in mm / diamètre en mm **(11,14,...)**

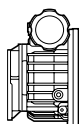
|            |            |            |            |            |            |            |
|------------|------------|------------|------------|------------|------------|------------|
| <b>D11</b> | <b>D14</b> | <b>D19</b> | <b>D24</b> | <b>D28</b> | <b>D28</b> | <b>D38</b> |
| (V 0.25)   | (V 0.5)    | (V 1)      | (V 2)      | (V 3)      | (V 5.5)    | (V 10)     |

**IMP** albero in pollici / inch series shaft / Nema-Welle / arbre NEMA

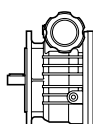
TIPO DI FISSAGGIO (per gruppi tipo U) / OUTPUT CONFIGURATION (only for U version)  
MONTAGEMÖGLICHKEIT (ausschließlich für die Bauform U) / TIPE DE FIXATION (pour forme de construction U)

- F (IEC)** - flangia IEC riportata / bolt-on IEC flange / Flansch IEC / adjonction de bride IEC
- F (NEMA)** - flangia NEMA / NEMA flange mounted / NEMA Flansch / bride Nema

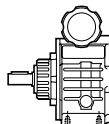
FORMA COSTRUTTIVA / VERSION / BAUFORM / VERSION



**C**



**F**



**U**

GRANDEZZA VARIATORE / VARIATOR SIZE / BAUGRÖSSE / TAILLE VARIATEUR  
**0.25, 0.5, 1, 2, 3, 5.5, 10**

DIFFERENZIALE / DIFFERENTIAL / DIFFERENTIAL / DIFFERENTIEL  
**D**

VARIATORE / VARIATOR TYPE / VERSTELLGETRIEBETYP / TYPE VARIATEUR  
**V**

## 22.3 - Designazione motore

## 22.3 - Motor designation

## 22.3 - Motor bezeichnung

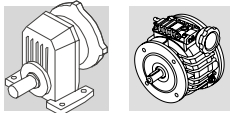
## 22.3 - Désignation moteur

27

27

27

27



## 22.4 - Opzioni riduttori

### SO

I riduttori S10, S20, S30, S40, solitamente forniti con lubrificante da BONFIGLIOLI RIDUTTORI, sono forniti privi di lubrificante.

### LO

Il riduttore S50 solitamente sprovvisto di lubrificante, è richiesto con olio sintetico del tipo correntemente utilizzato da BONFIGLIOLI RIDUTTORI e riempito in accordo alla posizione di montaggio richiesta.

### VV

Anello di tenuta in Viton sull'albero veloce.

### PV

Tutti gli anelli di tenuta in Viton.

## 22.4 - Gearbox options

### SO

Gearboxes S10, S20, S30, S40, supplied without oil.

### LO

Gearbox S50, usually supplied without oil, to be supplied with synthetic oil currently used by BONFIGLIOLI RIDUTTORI and filled according to requested mounting position.

### VV

Viton oil seal on input shaft.

### PV

All oil seals in Viton.

## 22.4 - Getriebe Optionen

### SO

Bei Lieferung ohne Schmierstoff (nur bei S10, S20, S30 und S40).

### LO

Für Getriebe S50, die gewöhnlich ohne Schmiermittel geliefert werden, in Übereinstimmung mit der Einbaulage gefüllt mit dem normalerweise von BONFIGLIOLI RIDUTTORI verwendeten synthetischen Schmierstoff.

### VV

Wellendichtringe aus Viton auf der eintreibenden Welle.

### PV

Alle Wellendichtringe aus Viton.

## 22.4 - Options réducteurs

### SO

Les réducteurs S10, S20, S30, S40, habituellement fournis avec lubrifiant par la société BONFIGLIOLI RIDUTTORI, sont demandés sans lubrifiant.

### LO

Le réducteurs S50, habituellement dépourvus de lubrifiants, sont demandés avec huile synthétique du type couramment utilisé par BONFIGLIOLI RIDUTTORI et remplis conformément à la position de montage demandée.

### VV

Bague d'étanchéité en Viton sur l'arbre rapide.

### PV

Toutes les bagues d'étanchéité en Viton.

## 22.5 - Opzioni variatori

### CU

Cassa universale con piano di appoggio spianato e relativi fori di fissaggio (pag. 30).

### FL

Cassa universale con fianchi laterali spianati e relativi fori di fissaggio (pag. 30).

### PDN

Predisposizione al rilevamento di giri digitale incorporato all'interno del variatore con sonda rilevatrice di tipo NPN.

### PDP

Predisposizione al rilevamento di giri digitale incorporato all'interno del variatore con sonda rilevatrice di tipo PNP.

La tabella (D01) riporta le possibilità di applicazione e le dimensioni delle sonde NPN e PNP utilizzate.

(D01)

| Riduttore<br>Gearbox<br>Getriebe<br>Réducteur | Sonda<br>Plug thread<br>Sonde<br>Sonde<br>(NPN/PNP) | Variatore<br>Variator<br>Verstellgetriebe<br>Variateur | Forme costruttive / Versions<br>Bauformen / Formes de construction |      |     |    |
|-----------------------------------------------|-----------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------|------|-----|----|
|                                               |                                                     |                                                        | V                                                                  |      | V_D |    |
|                                               |                                                     |                                                        | C                                                                  | F-UF | UF  | UF |
| <b>S 101</b>                                  | M8x1                                                | V 0.25                                                 | #                                                                  |      |     |    |
|                                               | M8x1                                                | V 0.5                                                  | #                                                                  |      |     |    |
| <b>S 201</b>                                  | M8x1                                                | V 0.25                                                 | #                                                                  |      |     |    |
|                                               | M8x1                                                | V 0.5                                                  | #                                                                  |      |     |    |
|                                               | M10x1                                               | V 1                                                    | #                                                                  |      |     |    |
| <b>S 301</b>                                  | M8x1                                                | V 0.25                                                 | #                                                                  |      |     |    |
|                                               | M8x1                                                | V 0.5                                                  | #                                                                  |      |     |    |
|                                               |                                                     | V 1                                                    | #                                                                  |      |     |    |
|                                               | M10x1                                               | V 2                                                    | #                                                                  |      |     |    |

Applicazioni disponibili

# Applicazione disponibile per le posizioni di montaggio B3, a richiesta (come esecuzione speciale) per le altre posizioni di montaggio.

### PV

Anelli di tenuta in Viton.

### SO

I variatori V 0.25...V 10 solitamente forniti con lubrificante da Bonfiglioli Riduttori sono forniti privi di lubrificante. Questa opzione non è prevista per i variatori con differenziale VD 0.5...VD 10 con ingresso P.. in quanto normalmente forniti privi di lubrificante.

## 22.5 - Variator options

### CU

Universal casing featuring machined supporting surface with drilled and tapped holes (page 30).

### FL

Universal casing featuring machined sides with drilled and tapped holes (page 30).

### PDN

Configured for digital speed detection by NPN sensor incorporated into variator.

### PDP

Configured for digital speed detection by PNP sensor incorporated into variator.

Chart (D01) shows applicability of the NPN and PNP speed sensors, with relevant threading.

## 22.5 - Optionen – Verstellgetriebemotor

### CU

Universalgewölbe mit plangeschliffener Auflagefläche und entsprechenden Befestigungsbohrungen (Seite 30).

### FL

Universalgewölbe mit plangeschliffenen Seitenflanken und entsprechenden Befestigungsbohrungen (Seite 30).

### PDN

Vorbereitet für im Verstellgetriebe eingebaute digitale Vorrichtung für die Drehzahlerhebung über eine NPN-Sonde.

### PDP

Vorbereitet für im Verstellgetriebe eingebaute digitale Vorrichtung für die Drehzahlerhebung über eine PNP-Sonde.

In der Tabelle (D01) werden die möglichen Applikationsmöglichkeiten der verwendeten NPN- und PNP-Sonden aufgeführt.

## 22.5 - Options variateurs

### CU

Caisse universelle avec plan d'appui aplati et orifices de fixation correspondants (page 30).

### FL

Caisse universelle avec flancs latéraux aplatis et orifices de fixation correspondants (page 30).

### PDN

Prédisposition pour le dispositif de mesure du nombre de tours digital incorporé à l'intérieur du variateur avec sonde de détection de type NPN.

### PDP

Prédisposition pour le dispositif de mesure du nombre de tours digital incorporé à l'intérieur du variateur avec sonde de détection de type PNP.

Le tableau (D01) indique les différentes possibilités d'application ainsi que les dimensions des sondes NPN et PNP utilisées.

| Riduttore<br>Gearbox<br>Getriebe<br>Réducteur | Sonda<br>Plug thread<br>Sonde<br>Sonde<br>(NPN/PNP) | Variatore<br>Variator<br>Verstellgetriebe<br>Variateur | Forme costruttive / Versions<br>Bauformen / Formes de construction |      |     |    |
|-----------------------------------------------|-----------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------|------|-----|----|
|                                               |                                                     |                                                        | V                                                                  |      | V_D |    |
|                                               |                                                     |                                                        | C                                                                  | F-UF | UF  | UF |
| <b>S 401</b>                                  | M8x1                                                | V 0.5                                                  | #                                                                  |      |     |    |
|                                               |                                                     | V 1                                                    | #                                                                  |      |     |    |
|                                               | M10x1                                               | V 2                                                    | #                                                                  |      |     |    |
|                                               | M12x1                                               | V 3/5.5                                                | —                                                                  |      |     |    |
| <b>S 501</b>                                  | M10x1                                               | V 1                                                    | #                                                                  |      |     |    |
|                                               |                                                     | V 2                                                    | #                                                                  |      |     |    |
|                                               |                                                     | V 3/5.5                                                |                                                                    |      |     |    |
|                                               | M12x1                                               | V 10                                                   | —                                                                  |      |     |    |

Zur Verfügung stehende  
Anwendungen

# Anwendung auch für die Montagepositionen B3 erhältlich; auf Anfrage (als Sonderausführung) auch für die anderen Montagepositionen.

### PV

Dichtringe in Viton.

### SO

IDie üblicherweise von der Bonfiglioli Riduttori mit Schmiermittel gelieferten Verstellgetriebe V 0.25...VBG 10 werden bei dieser Ausführungsart ohne Schmiermittel geliefert. Diese Option ist bei den Verstellgetrieben mit Antrieb P.. VD 0.5...VD 10 mit Differential nicht gegeben, da diese normalerweise ohne Schmiermittel geliefert werden.

Applications disponibles

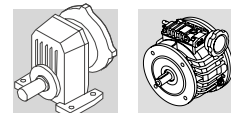
# Application disponible pour les positions de montage B3, sur demande (exécution spéciale) pour les autres positions de montage.

### PV

Bagues d'étanchéité en Viton

### SO

Les variateurs V 0.25...V 10 généralement fournis avec du lubrifiant par Bonfiglioli Riduttori sont fournis sans lubrifiant. Cette option n'est pas prévue pour les variateurs avec différentiel VD 0.5...VD 10 avec entrée P.. dans la mesure où il sont normalement fournis sans lubrifiant.



## 22.6 - Lubrificazione

### Lubrificazione riduttori serie S

I riduttori dal tipo S101 al tipo S401 compreso, sono forniti con lubrificazione permanente ad olio sintetico e non necessitano di alcuna manutenzione.

Il tipo S501 è predisposto per la lubrificazione ad olio e pertanto dotato dei tappi di carico, livello e scarico olio (tabella D03); sarà cura dell'utente immettere il lubrificante avvalendosi della quantità (litri) indicate in tabella (D02).

Evidenziamo però che tali quantità sono indicative, pertanto l'esatto livello dovrà essere valutato osservandolo dall'apposita spia (con il riduttore già installato nella corretta posizione di montaggio).

## 22.6 - Lubrication

### Lubrication of S gearboxes

*Gearboxes S 101 through S 401 are life lubricated with synthetic oil and do not require any periodical oil changes.*

*The remaining unit S501 is designed for oil lubrication and therefore carries filling, level and drain plugs (table D03).*

*Users must fill the units with oil, consulting table (D02), with the correct quantity (litres).*

*However, it must be underlined that these quantities are only indicative and users should check the correct level through the sight glass (when the gearbox is installed in its actual mounting position).*

## 22.6 - Schmierung

### Schmierung der Getriebe der Serie S

Die Getriebe von Typ S101 bis Typ S401 werden mit Dauerschmierung mit Syntheseöl geliefert und sind wartungsfrei.

Die anderen sind für die Ölschmierung vorgerüstet und verfügen daher über einen Einfüllverschluß, Ölstands- und Ölablaßschrauben (Tabelle D03). Das Öl muß vom Kunden in der in Tabelle (D02) angegebenen Menge (Liter) eingefüllt werden. Wir weisen jedoch darauf hin, daß es sich bei diesen Angaben nur um Richtwerte handelt und daher der tatsächlich Ölbedarf durch das Schauglas geprüft werden muß (das Getriebe muß sich hierzu schon in seiner endgültigen Einbaulage befinden).

## 22.6 - Lubrification

### Lubrification réducteurs Série S

*Les réducteurs du type S101 au type S401 compris sont fournis avec lubrification permanente à l'huile synthétique et n'ont besoin d'aucun entretien.*

*Le type S501 sont prédisposé pour la lubrification à l'huile et par conséquent dotée de bouchons de remplissage, niveau et vidange d'huile (tableau D03); l'utilisateur devra introduire le lubrifiant en se conformant aux quantités (litres) indiqués sur le tableau (D02).*

*Ces quantités sont toutefois indicatives et le niveau exact devra être contrôlé par le voyant spécial (avec le réducteur déjà installé dans la position correcte de montage).*

Quantità di lubrificante [ l ]

Oil quantity [ l ]

Schmiermittelmenge [ l ]

Quantité de lubrifiant [ l ]

(D02)

|             | Posizioni di montaggio / Mounting positions / Einbaulagen / Positions de montage |      |      |      |      |      |      |      |      |      |      |      |
|-------------|----------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
|             | P                                                                                |      |      |      |      |      | F    |      |      |      |      |      |
|             | B3                                                                               | B6   | B7   | B8   | V5   | V6   | B5   | B51  | B52  | B53  | V1   | V3   |
| <b>S101</b> | 0.32                                                                             | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 |
| <b>S201</b> | 0.45                                                                             | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 |
| <b>S301</b> | 0.72                                                                             | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.63 | 0.63 |
| <b>S401</b> | 1.6                                                                              | 1.6  | 1.6  | 1.6  | 1.6  | 1.6  | 1.6  | 1.6  | 1.6  | 1.6  | 1.4  | 1.4  |
| <b>S501</b> | 1.7                                                                              | 2.2  | 2.2  | 3.0  | 3.0  | 2.0  | 1.7  | 1.7  | 1.7  | 1.7  | 3.1  | 2.0  |

Lubrificazione permanente

Life lubricated

Dauerschmierung

Lubrification permanente

**Dimensioni e collocazione dei tappi di carico, scarico e livello olio.**

**Positions of oil filling, level and drain plugs.**

**Anordnung des Einfüll-, Ölstands- und Ölablaßschrauben.**

**Position des bouchons de remplissage, niveau et vidange d'huile.**

(D03)

| Posizioni di montaggio / Mounting positions / Einbaulagen / Positions de montage |            |            |            |            |            |            |            |            |            |            |            |            |
|----------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
|                                                                                  | P          |            |            |            |            |            | F          |            |            |            |            |            |
|                                                                                  | B3         | B6         | B7         | B8         | V5         | V6         | B5         | B51        | B52        | B53        | V1         | V3         |
| <b>S101</b>                                                                      | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") |
| <b>S201</b>                                                                      | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") |
| <b>S301</b>                                                                      | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") |
| <b>S401</b>                                                                      | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") | 3 T (1/4") |
| <b>S501</b>                                                                      | 1 C (3/8") | 2 S (3/8") | 2 C (3/8") | 1 S (3/8") | 1 C (3/8") | 1 S (3/8") | 1 C (3/8") | 2 S (3/8") | 1 C (3/8") | 2 S (3/8") | 1 C (3/8") | 1 S (3/8") |
|                                                                                  | 3 S (3/8") | 3 L (3/8") | 3 L (3/8") | 5 L (3/8") | 4 L (3/8") | 4 L (3/8") | 3 S (3/8") | 3 L (3/8") | 5 L (3/8") | 3 L (3/8") | 4 L (3/8") | 4 L (3/8") |
|                                                                                  | 2 L (3/8") | 4 C (3/8") | 4 S (3/8") | 3 C (3/8") | 5 S (3/8") | 5 C (3/8") | 2 L (3/8") | 4 C (3/8") | 3 S (3/8") | 4 C (3/8") | 5 S (3/8") | 5 C (3/8") |

Legenda:

**C** Tappo di carico/sfiato  
**L** Tappo di livello  
**S** Tappo di scarico  
**T** Tappo chiuso

Key:

**C** Filling/breather plug  
**L** Level plug  
**S** Drain plug  
**T** Closed plug

Zeichenerklärung:

**L** Einfüll- und Ablassschrauber  
**C** Ölstandsschraube  
**S** Ölablaßschraube  
**T** geschlossene Schraube

Légende:

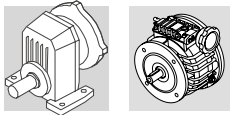
**C** Bouchon de remplissage/évent  
**L** Bouchon de niveau  
**S** Bouchon de vidange  
**T** Bouchon fermé

• Numero di riferimento delle posizioni dei tappi di carico, scarico e livello olio.

• Reference number for positions of oil filling, level and drain plugs.

• Bezugsnummer der Positionen des Einfüll Ölstands- und Ölablaßschrauben.

• Numéro de référence des positions des bouchons de remplissage, vidange et niveau.



## 22.7 - Lubrificazione variatori

### V, VD

La lubrificazione dei variatori V e VD avviene per sbattimento dell'olio. Prima della messa in funzione dei variatori accertarsi della presenza di olio al loro interno assicurandosi che esso compaia nella spia di livello. I variatori/motovariatori, se non diversamente specificato in fase di ordine, vengono forniti con il quantitativo di olio per la specifica posizione di montaggio come indicato nelle tabelle (D04) e (D05).

**Si consiglia di specificare sempre in fase di ordine la posizione di montaggio desiderata.**

### VD

Tutti i variatori con differenziale VD completi di motore vengono forniti con carico di olio. Tutti i variatori con differenziale VD in configurazione P... (IEC), vengono forniti privi di olio. In questo caso l'utente dovrà provvedere al riempimento immettendo le quantità di olio indicate nelle tabelle (D04-D05) e dovrà utilizzare motori elettrici con l'anello di tenuta lato albero e la flangia di accoppiamento al variatore a tenuta di olio.

**Benchè i variatori siano abbinabili a qualsiasi motore normalizzato IEC, BONFIGLIOLI raccomanda che siano utilizzati solo motori originali, provvisti di anelli di tenuta per l'olio.**

I variatori V 0.25 e V 0.5 vengono forniti completi di olio lubrificante "long life" sintetico **Shell Donax TX**. Eventuali sostituzioni o rabbocchi dovranno essere effettuati utilizzando lo stesso tipo di prodotto.

## 22.7 - Lubrication of variators

### V and VD

*Variators V and VD are splash-lubricated. Before putting the variator into operation make sure the oil is up to the sight glass level. Unless otherwise specified in the order, the variators are factory filled with an oil quantity suitable for the B3 mounting position.*

**To avoid further manipulation it is strongly recommended that the actual mounting position is specified in the ordering code.**

### VD

*Motorized VD variators featuring the differential unit are factory filled with oil unlike VD variators with the IEC motor adapter (P...) which are supplied unlubricated and must be filled with oil prior to be put into operation. Proper oil quantity is shown in table (D04-D05) and relates to actual mounting position.*

**Although speed variators can match any IEC motors, BONFIGLIOLI recommends the use of genuine motors only, complete with shaft oil seals.**

*Variator units V 0.25 and V 0.5 are factory filled with "long life" synthetic oil **Shell Donax TX**. Use same oil when topping up or refilling.*

## 22.7 - Schmierung der Verstellgetriebe

### V, VD

Die Schmierung der Verstellgetriebe V und VD erfolgt durch Tauchschrnerung im Ölbad. Vor der Inbetriebnahme der Verstellgetriebe muß geprüft werden, ob sie bis zur Ölstandskontrolle mit Öl gefüllt sind. Falls im Auftrag nicht anderweitig angegeben, werden die Verstellgetriebe mit der für die Einbaulage B3 vorgeschriebenen Ölmenge geliefert.

**Es wird in jedem Fall geraten, bei der Bestellung immer die gewünschte Einbaulage anzugeben.**

### VD

Alle Verstellgetriebe mit Differential VD und Motor, sind bei Lieferung mit Öl gefüllt. Alle Verstellgetriebe mit Differential V-D für den Anbau eines IEC-Motors werden ohne Öl geliefert. Wenn der Kunde die Getrieb selbst mit Öl füllt, müssen die in Tabelle (D04-D05) angegebenen Ölmengen verwendet werden. Die zu verwendenden Motoren müssen einen Dichtring auf der Seite der Welle haben und der Flansch zur Kopplung an das Verstellgetriebe muß öldicht sein.

**Es wird empfohlen, die Verstellgetriebe mit Differential mit öldichten BONFIGLIOLI RIDUTTORI Motoren zu kaufen.**

Die Verstellgetriebe V 0.25 und V 0.5 werden mit Schmieröl **Shell Donax TX** geliefert. Eventuelle Ölwechsel oder Nachfüllungen müssen unter Anwendung des gleichen Produkttyps erfolgen.

## 22.7 - Lubrification variateurs

### V, VD

*La lubrification des variateurs V et VD s'effectue par barbotage de l'huile. Avant la mise en service des variateurs/motovariateurs, vérifier la présence d'huile à l'intérieur en contrôlant que celle-ci apparaisse dans le témoin de niveau. Les variateurs/motovariateurs, sauf spécification contraire au moment de la commande, sont fournis avec une quantité d'huile relative à la position de montage B3.*

**Dans tous les cas, il est conseillé de toujours spécifier la position de montage désirée au moment de la commande.**

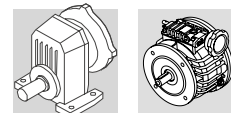
### VD

*Tous les variateurs avec différentiel VD avec moteur sont fournis avec le plein d'huile. Tous les variateurs avec différentiel VD en configuration P... (IEC) sont fournis sans huile. Dans ce cas, l'utilisateur doit effectuer le remplissage en versant la quantité d'huile indiquée dans le tableau (D04-D05) et doit utiliser des moteurs électriques avec bague d'étanchéité côté arbre et bride d'accouplement au variateur étanche à l'huile.*

**Dans tous les cas, il est conseillé d'acquérir des variateurs avec différentiel avec moteurs avec étanchéité à l'huile BONFIGLIOLI RIDUTTORI.**

*Les variateurs V 0.25 et V 0.5 sont fournis avec de l'huile lubrifiante "long life" **Shell Donax TX**. Utiliser le même type d'huile pour les éventuels vidanges ou remplissages.*

| Shell Donax TX (Caratteristiche indicative / Indicative features / Anhaltswerte / Caractéristiques indicatives)                 |          |                    |       |
|---------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|-------|
| Massa volumica / Density / Volumenmasse / Masse volumique                                                                       | ISO 3675 | kg/dm <sup>3</sup> | 0.852 |
| Viscosità cinematica a 40°C / Kinematic viscosity at 40°C / Kinematische Viskosität bei 40°C / Viscosité cinématique à 40°C     | ISO 3104 | cSt                | 34    |
| Viscosità cinematica a 100°C / Kinematic viscosity at 100°C / Kinematische Viskosität bei 100°C / Viscosité cinématique à 100°C | ISO 3104 | cSt                | 7.4   |
| Indice di viscosità / Viscosity index / Viskositätsindex / Indice de viscosité                                                  | ISO 2909 | -                  | 196   |
| Punto di infiammabilità / Flash point / Entflammungspunkt / Point d'inflammabilité                                              | ISO 2592 | °C                 | 198   |
| Punto di scorrimento / Pour point / Stockpunkt / Point de glissement                                                            | ISO 3016 | °C                 | -48   |



I variatori V 1...V 10 vengono forniti completi di olio lubrificante minerale **Shell Donax TA**. Eventuali sostituzioni o rabbocchi potranno essere effettuati utilizzando lubrificanti compatibili.

*Variator units V 1 through V 10 are factory filled with mineral oil **Shell Donax TA**. Use same type of oil when topping up or refilling.*

Die Verstellgetriebe V 1...V 10 werden mit dem Schmieröl **Shell Donax TA** geliefert. Ein eventueller Wechsel oder ein etwaiges Auffüllen sollte unter Verwendung der Schmiermittel erfolgen.

*Les variateurs V 1...V 10 sont fournis avec de l'huile lubrifiante **Shell Donax TA**. Utiliser le même type d'huiles pour les éventuels vidanges ou remplissages.*

| <b>Shell Donax TA</b> (Caratteristiche indicative / Indicative features / Anhaltswerte / Caractéristiques indicatives)                         |          |                    |       |
|------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|-------|
| Massa volumica / <i>Density</i> / Volumenmasse / <i>Masse volumique</i>                                                                        | ISO 3675 | kg/dm <sup>3</sup> | 0.873 |
| Viscosità cinematica a 40°C / <i>Kinematic viscosity at 40°C</i> / Kinematische Viskosität bei 40°C<br><i>Viscosité cinématique à 40°C</i>     | ISO 3104 | cSt                | 37.3  |
| Viscosità cinematica a 100°C / <i>Kinematic viscosity at 100°C</i> / Kinematische Viskosität bei 100°C<br><i>Viscosité cinématique à 100°C</i> | ISO 3104 | cSt                | 7.0   |
| Indice di viscosità / <i>Viscosity index</i> / Viskositätsindex / <i>Indice de viscosité</i>                                                   | ISO 2909 | -                  | 151   |
| Punto di infiammabilità / <i>Flash point</i> / Entflammungspunkt / <i>Point d'inflammabilité</i>                                               | ISO 2592 | °C                 | 196   |
| Punto di scorrimento / <i>Pour point</i> / Stockpunkt / <i>Point de glissement</i>                                                             | ISO 3016 | °C                 | -42   |

Riduzione **R** lubrificata "a vita" con grasso **Shell TVX Compound B**.

Tutti i variatori sono forniti con carica di lubrificante, ad eccezione dei tipi **VD\_P(IEC)**.

Il tappo di sfiato, fornito a corredo, va posizionato come indicato nelle tabelle (D04 - D05).

*Helical reduction **R** is grease lubed "for life" with **Shell TVX Compound B**.*

*All speed variators are factory filled with lubricant, with the only exception of units type **VD\_P(IEC)**.*

*The breather plug, supplied along with every unit, shall be located as per the schemes (D04) and (D05).*

Die Vorstufe **R** ist mit Fett Typ **Shell TVX Compound B** gefüllt.

Alle Verstellgetriebe sind ab Werk mit Öl gefüllt, außer dem Typ **VD\_P(IEC)**.

Der Entlüftungsstopfen, der jedem Getriebe beiliegt, muss entsprechend der obige Skizze montiert werden.

*Réduction **R** avec lubrification permanente au moyen de graisse **Shell TVX Compound B**.*

*Tous les variateurs sont fournis avec le lubrifiant, à l'exception des modèles **VD\_P (IEC)**.*

*Le bouchon d'évent, fourni avec chaque variateur, doit être positionné comme indiqué dans les schémas (D04 - D05).*



Non mescolare oli di natura diversa.



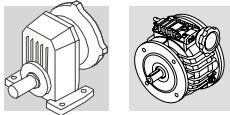
Do not mix synthetic oil with mineral oil.



Auf keinen Fall darf synthetisches Öl mit mineralischem gemischt werden !



Ne pas mélanger huiles de nature différente.



Posizioni di montaggio

Mounting positions

Einbaulagen

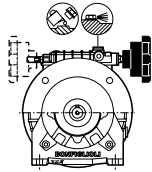
Positions de montage

(D04)

## V 0.25 - V 0.5

## V 1 - V 2

B3

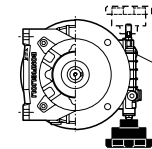


|                      |      |
|----------------------|------|
| V 0.25 F             | 0.14 |
| V 0.5 F              | 0.18 |
| V 0.25 U / VR 0.25 _ | 0.12 |
| V 0.5 U _ / VR 0.5 _ | 0.15 |
| VD 0.5 U _ / VRD 0.5 | 0.30 |

Oil Donax TX (for life)



B6

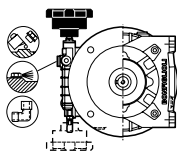


|                      |      |
|----------------------|------|
| V 0.25 F             | 0.14 |
| V 0.5 F              | 0.18 |
| V 0.25 U / VR 0.25 _ | 0.12 |
| V 0.5 U _ / VR 0.5 _ | 0.15 |
| VD 0.5 U _ / VRD 0.5 | 0.30 |

Oil Donax TX (for life)



B7

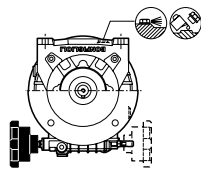


|                      |      |
|----------------------|------|
| V 0.25 F             | 0.14 |
| V 0.5 F              | 0.18 |
| V 0.25 U / VR 0.25 _ | 0.12 |
| V 0.5 U _ / VR 0.5 _ | 0.15 |
| VD 0.5 U _ / VRD 0.5 | 0.30 |

Oil Donax TX (for life)



B8

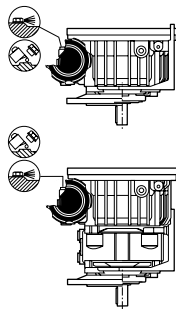


|                      |      |
|----------------------|------|
| V 0.25 F             | 0.14 |
| V 0.5 F              | 0.18 |
| V 0.25 U / VR 0.25 _ | 0.12 |
| V 0.5 U _ / VR 0.5 _ | 0.15 |
| VD 0.5 U _ / VRD 0.5 | 0.30 |

Oil Donax TX (for life)



V5



|                      |      |
|----------------------|------|
| V 0.25 F             | 0.28 |
| V 0.5 F              | 0.30 |
| V 0.25 U / VR 0.25 _ | 0.22 |
| V 0.5 U _ / VR 0.5 _ | 0.27 |

Oil Donax TX (for life)

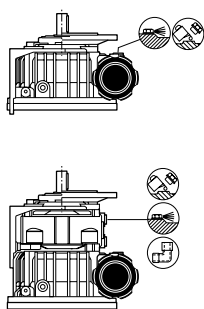


|                      |      |
|----------------------|------|
| VD 0.5 U _ / VRD 0.5 | 0.70 |
|----------------------|------|

Oil Donax TX (for life)



V6



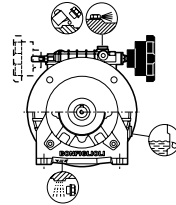
|                      |      |
|----------------------|------|
| V 0.25 F             | 0.14 |
| V 0.5 F              | 0.18 |
| V 0.25 U / VR 0.25 _ | 0.12 |
| V 0.5 U _ / VR 0.5 _ | 0.15 |

Oil Donax TX (for life)



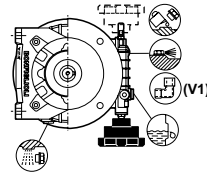
|                      |      |
|----------------------|------|
| VD 0.5 U _ / VRD 0.5 | 0.40 |
|----------------------|------|

Oil Donax TX (for life)



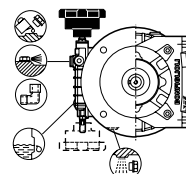
|                  |      |
|------------------|------|
| V 1 F            | 0.30 |
| V 2 F            | 0.40 |
| V 1 U _ / VR 1 _ | 0.25 |
| V 2 U _ / VR 2 _ | 0.32 |
| VD 1 U _ / VRD 1 | 0.35 |
| VD 2 U _ / VRD 2 | 0.46 |

Oil Donax TA (2000-3000 hrs.)



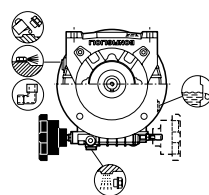
|                  |      |
|------------------|------|
| V 1 F            | 0.30 |
| V 2 F            | 0.40 |
| V 1 U _ / VR 1 _ | 0.25 |
| V 2 U _ / VR 2 _ | 0.32 |
| VD 1 U _ / VRD 1 | 0.35 |
| VD 2 U _ / VRD 2 | 0.46 |

Oil Donax TA (2000-3000 hrs.)



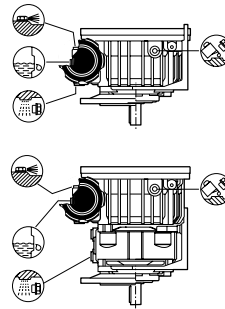
|                  |      |
|------------------|------|
| V 1 F            | 0.30 |
| V 2 F            | 0.40 |
| V 1 U _ / VR 1 _ | 0.25 |
| V 2 U _ / VR 2 _ | 0.32 |
| VD 1 U _ / VRD 1 | 0.35 |
| VD 2 U _ / VRD 2 | 0.46 |

Oil Donax TA (2000-3000 hrs.)



|                  |      |
|------------------|------|
| V 1 F            | 0.30 |
| V 2 F            | 0.40 |
| V 1 U _ / VR 1 _ | 0.25 |
| V 2 U _ / VR 2 _ | 0.32 |
| VD 1 U _ / VRD 1 | 0.35 |
| VD 2 U _ / VRD 2 | 0.46 |

Oil Donax TA (2000-3000 hrs.)



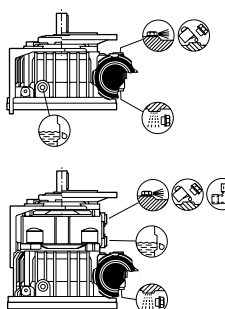
|                  |      |
|------------------|------|
| V 1 F            | 0.58 |
| V 2 F            | 0.78 |
| V 1 U _ / VR 1 _ | 0.40 |
| V 2 U _ / VR 2 _ | 0.54 |

Oil Donax TA (2000-3000 hrs.)



|                  |      |
|------------------|------|
| VD 1 U _ / VRD 1 | 1.00 |
| VD 2 U _ / VRD 2 | 1.5  |

Oil Donax TA (for life)



|                  |      |
|------------------|------|
| V 1 F            | 0.30 |
| V 2 F            | 0.40 |
| V 1 U _ / VR 1 _ | 0.25 |
| V 2 U _ / VR 2 _ | 0.32 |

Oil Donax TA (2000-3000 hrs.)



|                  |      |
|------------------|------|
| VD 1 U _ / VRD 1 | 0.50 |
| VD 2 U _ / VRD 2 | 0.70 |

Oil Donax TA (for life)



Tappo di sfiato  
Breather plug  
Entlüftungsstopfen  
Bouchon d'évent



Tappo di carico  
Filler plug  
Einfüllstopfen  
Bouchon de remplissage



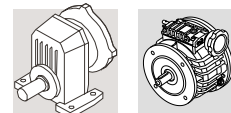
Tappo di scarico  
Drain plug  
Ablassstopfen  
Bouchon de vidange



Tappo di livello  
Level plug  
Ölstandsstopfen  
Bouchon de niveau



Raccordo orientabile  
90° elbow  
90° Winkel  
Raccord coudé



Posizioni di montaggio

Mounting positions

Einbaulagen

Positions de montage

(D05)

## V 3 - V 5.5

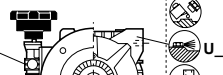
B3

|  |
|--|
|  |
|--|

B6

|                                                                                   |                  |      |                                                                                   |
|-----------------------------------------------------------------------------------|------------------|------|-----------------------------------------------------------------------------------|
|  | V 3 F - V 5.5 F_ | 0.90 |  |
|                                                                                   | V 3 U / VR 3     | 1.0  |                                                                                   |
|                                                                                   | V 5.5 U / VR 5.5 | 1.0  |                                                                                   |
|                                                                                   | VD 3 F           | 1.3  |                                                                                   |
|                                                                                   | VD 5.5 F         | 1.3  |                                                                                   |
| Oil Donax TA (2000-3000 hrs.)                                                     |                  |      |                                                                                   |

B7

|                                                                                   |                  |      |                                                                                   |
|-----------------------------------------------------------------------------------|------------------|------|-----------------------------------------------------------------------------------|
|  | V 3 F - V 5.5 F_ | 0.90 |  |
|                                                                                   | V 3 U / VR 3     | 1.0  |                                                                                   |
|                                                                                   | V 5.5 U / VR 5.5 | 1.0  |                                                                                   |
|                                                                                   | VD 3 F           | 1.3  |                                                                                   |
|                                                                                   | VD 5.5 F         | 1.3  |                                                                                   |
| VD 3 U / VRD 3 U                                                                  | 1.6              |      |                                                                                   |
| VD 5.5 U / VRD 5.5 U_                                                             |                  |      |                                                                                   |
| Oil Donax TA (2000-3000 hrs.)                                                     |                  |      |                                                                                   |

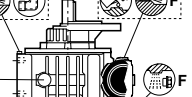
B8

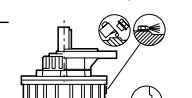
|                                                                                               |                  |     |                                                                                            |
|-----------------------------------------------------------------------------------------------|------------------|-----|--------------------------------------------------------------------------------------------|
| <br>F<br>U | V 3 F - V 5.5 F_ | 1.0 | <br>[U] |
|                                                                                               | V 3 U / VR 3     | 1.3 |                                                                                            |
|                                                                                               | V 5.5 U / VR 5.5 | 1.3 |                                                                                            |
|                                                                                               | VD 3 F           | 1.6 |                                                                                            |
|                                                                                               | VD 5.5 F         | 1.6 |                                                                                            |
| VD 3 U / VRD 3 U                                                                              |                  | 1.9 |                                                                                            |
| VD 5.5 U / VRD 5.5 U                                                                          |                  | 1.9 |                                                                                            |
| Oil Donax TA (2000-3000 hrs.)                                                                 |                  |     |                                                                                            |

V5

|                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                       |                                                                                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V6

|                                                                                     |                  |     |                                                                                                                                                                            |
|-------------------------------------------------------------------------------------|------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | V 3 F - V 5.5 F_ | 1.0 | <br> |
|                                                                                     | V 3 U / VR 3     | 1.3 |                                                                                                                                                                            |
|                                                                                     | V 5.5 U / VR 5.5 | 1.3 |                                                                                                                                                                            |
| Oil Donax TA (2000-3000 hrs.)                                                       |                  |     |                                                                                                                                                                            |

|                                                                                     |                  |     |                                                                                                                                                                            |
|-------------------------------------------------------------------------------------|------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | VD 3 F           | 2.8 | <br> |
|                                                                                     | VD 5.5 F         |     |                                                                                                                                                                            |
|                                                                                     | VD 3 U / VRD 3 U | 3.0 |                                                                                                                                                                            |
| VD 5.5 U / VRD 5.5 U_                                                               |                  |     |                                                                                                                                                                            |
| Oil Donax TA (2000-3000 hrs.)                                                       |                  |     |                                                                                                                                                                            |

## V 10

|                      |     |  |
|----------------------|-----|--|
| V 10 F               | 1.8 |  |
| V 10 U_ / VR 10      | 1.8 |  |
| VD 10 F              | 2.0 |  |
| VD 10 U_ / VRD 10 U_ | 2.0 |  |

Oil Donax TA (2000-3000 hrs.)

|                      |     |  |
|----------------------|-----|--|
| V 10 F               | 1.8 |  |
| V 10 U_ / VR 10      | 1.8 |  |
| VD 10 F              | 2.0 |  |
| VD 10 U_ / VRD 10 U_ | 2.0 |  |

Oil Donax TA (2000-3000 hrs.)

|                      |     |  |
|----------------------|-----|--|
| V 10 F               | 1.8 |  |
| V 10 U_ / VR 10      | 1.8 |  |
| VD 10 F              | 2.0 |  |
| VD 10 U_ / VRD 10 U_ | 2.0 |  |

Oil Donax TA (2000-3000 hrs.)

|                      |     |  |
|----------------------|-----|--|
| V 10 F               | 2.1 |  |
| V 10 U_ / VR 10      | 2.1 |  |
| VD 10 F              | 2.1 |  |
| VD 10 U_ / VRD 10 U_ | 2.1 |  |

Oil Donax TA (2000-3000 hrs.)

|                 |     |  |
|-----------------|-----|--|
| V 10 F          | 3.2 |  |
| V 10 U_ / VR 10 | 3.2 |  |

Oil Donax TA (2000-3000 hrs.)

|                   |     |  |
|-------------------|-----|--|
| VD 10 F           | 8.5 |  |
| VD 10 U_ / VRD 10 | 8.5 |  |

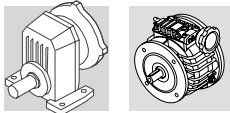
Oil Donax TA (2000-3000 hrs.)

|                 |     |  |
|-----------------|-----|--|
| V 10 F          | 2.8 |  |
| V 10 U_ / VR 10 | 2.8 |  |

Oil Donax TA (2000-3000 hrs.)

|                   |     |  |
|-------------------|-----|--|
| VD 10 F           | 7.0 |  |
| VD 10 U_ / VRD 10 | 7.0 |  |

Oil Donax TA (2000-3000 hrs.)



## 22.8 - Posizioni di montaggio e orientamento morsettiera

Le tabelle (D07-D08-D09) evidenziano le posizioni che può assumere il variatore rispetto alla posizione di montaggio del riduttore.

In fase di ordine è necessario specificare oltre alla posizione di montaggio del riduttore anche la posizione del variatore e l'orientamento della morsettiera (W,N,E,S) scegliendo fra le alternative illustrate nelle tabelle.

La tabella (D06) facilita l'interpretazione delle varie posizioni di montaggio riportate.

## 22.8 - Mounting position and terminal box angular position

Tables (D07-D08-D09) show the mounting positions of the variator based on reducer mounting position.

Reducer mounting position and variator arrangement must be specified on order, as well as terminal box arrangement (W, N, E, S). Choose from the options shown in the tables.

Table (D06) provides examples of the various mounting positions for clarity.

## 22.8 - Einbaulagen und lage des klemmenkastens

Die Tabellen (D07-D08-D09) stellen die Positionen dar, die das Verstellgetriebe den Einbaulagen des Getriebes gegenüber einnehmen kann.

In der Auftragsphase muß daher über die Montageposition des Getriebes hinaus, auch die Lage des Verstellgetriebes und die Ausrichtung der Klemmenleiste (W, N, E, S) angegeben werden, die unter den in der Tabelle angegebenen Möglichkeiten ausgewählt werden können.

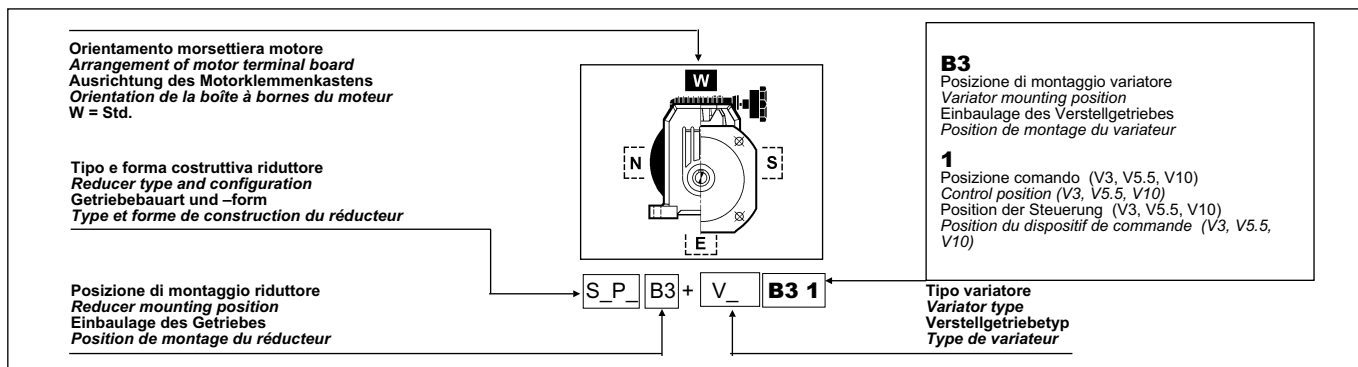
Die Tabelle (D06) erleichtert die Auslegung der verschiedenen, dargestellten Einbaulagen.

## 22.8 - Positions de montage et orientation boîte a borne

Les tableaux (D07-D08-D09) indiquent les positions possibles du variateur par rapport à la position de montage du réducteur. Au moment de la commande, il est nécessaire de préciser la position de montage du réducteur ainsi que la position du variateur (W,N,E,S), en choisissant parmi les alternatives indiquées dans les tableaux.

Le tableau (D06) facilite l'interprétation des différentes positions de montage indiquées.

(D06)



Relativamente ai riduttori tipo S501 è opportuno precisare che dalle posizioni standard B3 e B5 è possibile ottenere le altre (B6, B7, B8, V5 e V1) disponendo i tappi come indicato nella tabella (D03).

Fanno eccezione a questa regola le posizioni V3 e V6 (solo per i tipi S501) le quali dovranno obbligatoriamente essere richieste nella corretta configurazione alla BONFIGLIOLI RIDUTTORI in quanto è indispensabile schermare alcune parti interne.

Note that gearboxes S501 and feature two standard configurations intended for mounting positions B3 and B5, and all other positions (B6, B7, B8, V5 and V1) are obtained by repositioning the plugs as shown in table (D03)

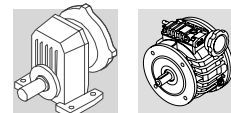
Positions V3 and V6 (for size S501) are an exception to this rule. These must be ordered to BONFIGLIOLI RIDUTTORI in their actual configuration as some internal parts require specific lubrication arrangements.

Was die Getriebe des Typs S501 anbelangt, ist zu berücksichtigen, daß es über die Standardanordnungen B3 und B5, gemäß Tabelle (D03) durch ein entsprechendes Ausrichten der Verschlüsse möglich ist, andere Lagen (B6, B7, B8, V5 und V1) zu erhalten.

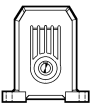
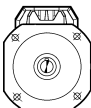
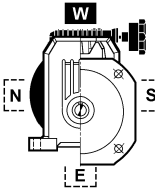
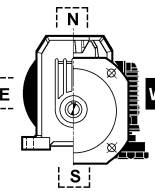
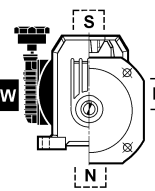
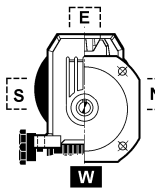
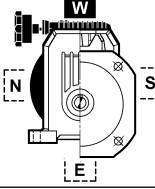
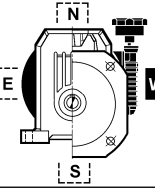
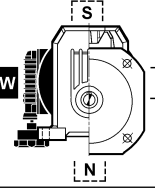
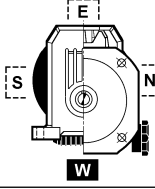
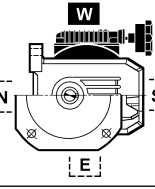
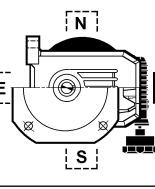
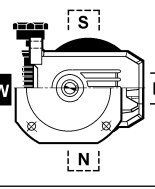
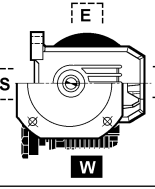
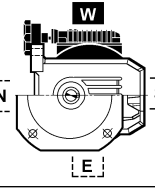
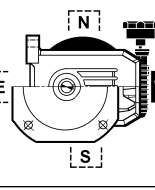
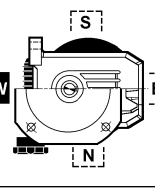
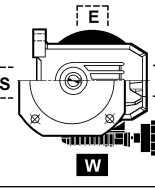
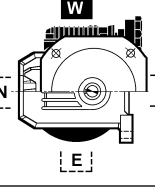
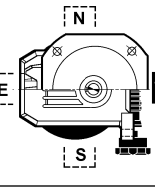
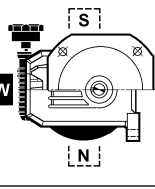
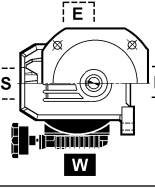
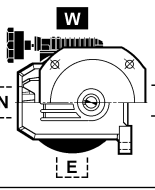
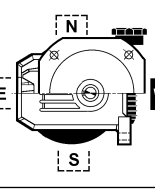
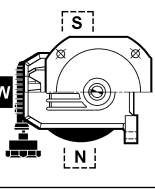
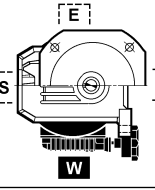
Von dieser Regel ausgenommen sind die Anordnungen V3 und V6 (für die Typen S501), die obligatorisch mit der gewünschten Konfiguration bei BONFIGLIOLI RIDUTTORI bestellt werden müssen, da einige innere Bauteile zusätzlich abgeschirmt werden müssen.

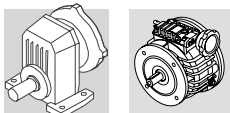
En ce qui concerne les réducteurs type S501, il convient de préciser qu'à partir des positions standards B3 et B5, il est possible d'obtenir d'autres positions (B6, B7, B8, V5 et V1) en disposant les bouchons comme indiqué dans le tableau (D03).

Les positions V3 et V6 (pour les type S501) ne suivent pas cette règle. Elles devront obligatoirement être demandées dans la configuration correcte à BONFIGLIOLI RIDUTTORI étant donné qu'il est indispensable de protéger certaines parties intérieures.

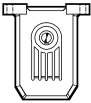
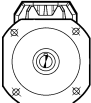
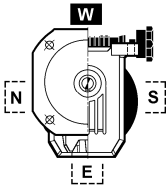
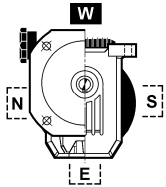
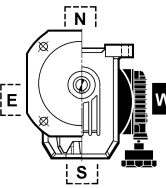
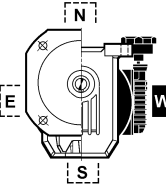
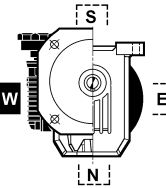
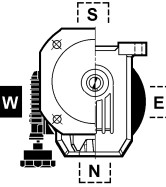
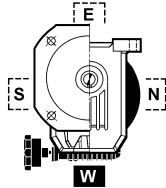
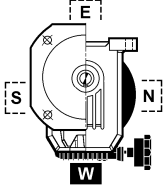
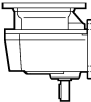
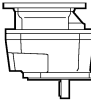
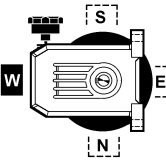
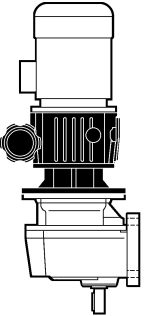
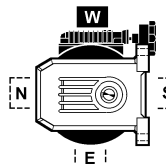
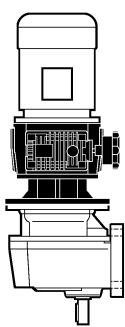
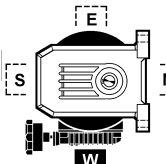
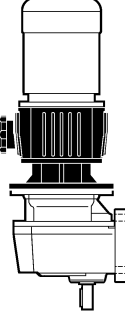
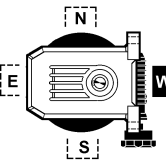
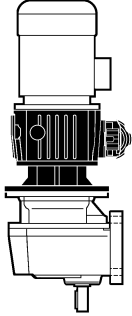
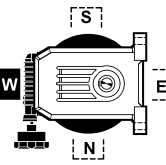
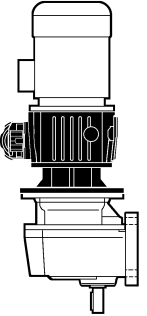
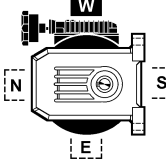
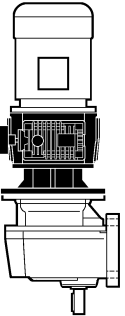
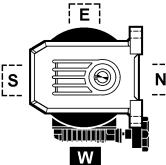
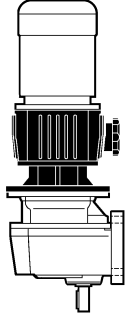
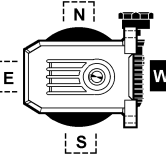
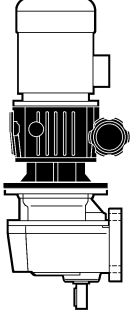


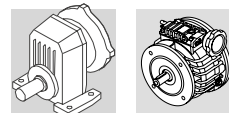
(D07)

|                                                                                                  |                                                                                                   |                                                                                                                             |                                                                                                                             |                                                                                                                               |                                                                                                                               |
|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>B3</b><br>   | <b>B5</b><br>    | <br>$S\_P\ B3$<br>$S\_F\ B5 + V\_B3\ 1$    | <br>$S\_P\ B3$<br>$S\_F\ B5 + V\_B6\ 1$    | <br>$S\_P\ B3$<br>$S\_F\ B5 + V\_B7\ 1$    | <br>$S\_P\ B3$<br>$S\_F\ B5 + V\_B8\ 1$    |
|                                                                                                  |                                                                                                   | <br>$S\_P\ B3$<br>$S\_F\ B5 + V\_B3\ 2$    | <br>$S\_P\ B3$<br>$S\_F\ B5 + V\_B6\ 2$    | <br>$S\_P\ B3$<br>$S\_F\ B5 + V\_B7\ 2$    | <br>$S\_P\ B3$<br>$S\_F\ B5 + V\_B8\ 2$    |
| <b>B6</b><br>  | <b>B51</b><br>  | <br>$S\_P\ B6$<br>$S\_F\ B51 + V\_B3\ 1$  | <br>$S\_P\ B6$<br>$S\_F\ B51 + V\_B6\ 1$  | <br>$S\_P\ B6$<br>$S\_F\ B51 + V\_B7\ 1$  | <br>$S\_P\ B6$<br>$S\_F\ B51 + V\_B8\ 1$  |
|                                                                                                  |                                                                                                   | <br>$S\_P\ B6$<br>$S\_F\ B51 + V\_B3\ 2$ | <br>$S\_P\ B6$<br>$S\_F\ B51 + V\_B6\ 2$ | <br>$S\_P\ B6$<br>$S\_F\ B51 + V\_B7\ 2$ | <br>$S\_P\ B6$<br>$S\_F\ B51 + V\_B8\ 2$ |
| <b>B7</b><br> | <b>B53</b><br> | <br>$S\_P\ B7$<br>$S\_F\ B53 + V\_B3\ 1$ | <br>$S\_P\ B7$<br>$S\_F\ B53 + V\_B6\ 1$ | <br>$S\_P\ B7$<br>$S\_F\ B53 + V\_B7\ 1$ | <br>$S\_P\ B7$<br>$S\_F\ B53 + V\_B8\ 1$ |
|                                                                                                  |                                                                                                   | <br>$S\_P\ B7$<br>$S\_F\ B53 + V\_B3\ 2$ | <br>$S\_P\ B7$<br>$S\_F\ B53 + V\_B6\ 2$ | <br>$S\_P\ B7$<br>$S\_F\ B53 + V\_B7\ 2$ | <br>$S\_P\ B7$<br>$S\_F\ B53 + V\_B8\ 2$ |



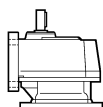
(D08)

|                                                                                                                                                               |                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div> <p><b>B8</b></p> </div>  | <div> <p><b>B52</b></p> </div>  |  <div> <p>S_P B8<br/>S_F B52 + V_ <b>B3 1</b></p> </div>  <div> <p>S_P B8<br/>S_F B52 + V_ <b>B3 2</b></p> </div> |  <div> <p>S_P B8<br/>S_F B52 + V_ <b>B6 1</b></p> </div>  <div> <p>S_P B8<br/>S_F B52 + V_ <b>B6 2</b></p> </div> |  <div> <p>S_P B8<br/>S_F B52 + V_ <b>B7 1</b></p> </div>  <div> <p>S_P B8<br/>S_F B52 + V_ <b>B7 2</b></p> </div> |  <div> <p>S_P B8<br/>S_F B52 + V_ <b>B8 1</b></p> </div>  <div> <p>S_P B8<br/>S_F B52 + V_ <b>B8 2</b></p> </div> |
| <div> <p><b>V5</b></p> </div>  | <div> <p><b>V1</b></p> </div>   |   <div> <p>S_P V5<br/>S_F V1 + V_ <b>V5 1</b></p> </div>                                                                                                    |   <div> <p>S_P V5<br/>S_F V1 + V_ <b>V51 1</b></p> </div>                                                                                                   |   <div> <p>S_P V5<br/>S_F V1 + V_ <b>V53 1</b></p> </div>                                                                                                    |   <div> <p>S_P V5<br/>S_F V1 + V_ <b>V52 1</b></p> </div>                                                                                                     |
|                                                                                                                                                               |                                                                                                                                                                |   <div> <p>S_P V5<br/>S_F V1 + V_ <b>V5 2</b></p> </div>                                                                                                  |   <div> <p>S_P V5<br/>S_F V1 + V_ <b>V51 2</b></p> </div>                                                                                                 |   <div> <p>S_P V5<br/>S_F V1 + V_ <b>V53 2</b></p> </div>                                                                                                  |   <div> <p>S_P V5<br/>S_F V1 + V_ <b>V52 2</b></p> </div>                                                                                                   |

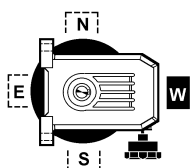
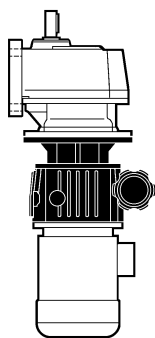
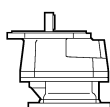


(D09)

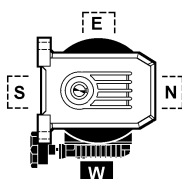
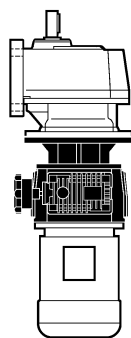
**V6**



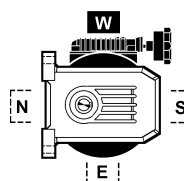
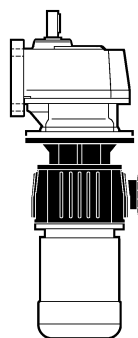
**V3**



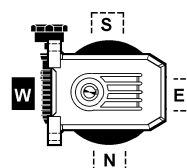
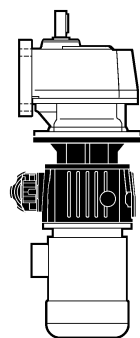
S\_P V6  
S\_F V3 + V\_ **V6 1**



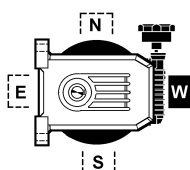
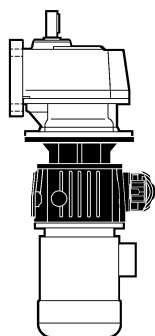
S\_P V6  
S\_F V3 + V\_ **V611**



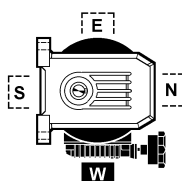
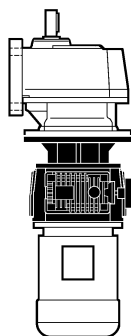
S\_P V6  
S\_F V3 + V\_ **V631**



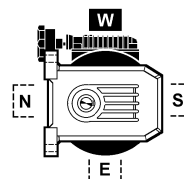
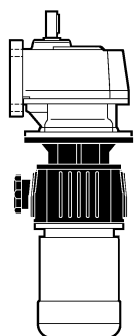
S\_P V6  
S\_F B5 + V\_ **V621**



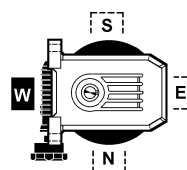
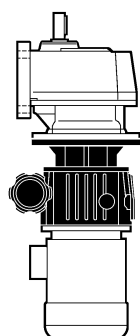
S\_P V6  
S\_F V3 + V\_ **V6 2**



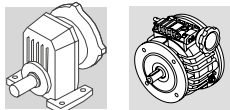
S\_P V6  
S\_F V3 + V\_ **V612**



S\_P V6  
S\_F V3 + V\_ **V632**



S\_P V6  
S\_F V3 + V\_ **V622**



## 22.9 - Tabelle dati tecnici

## 22.9 - Selection charts

## 22.9 - Auswahltabellen

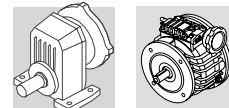
## 22.9 - Tableaux données techniques

### 0.12 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | $M_2$<br>Nm | $M_2'$<br>Nm | S   | S'  | i    | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|-------------|--------------|-----|-----|------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 59                         | 12.1                        | 14.1        | 37           | 2.5 | 1.1 | 10.3 | 2400                 | S301_10.3                                                                         | —<br>P63                                                                          | —<br>V 0.25 F                                                                       | P63                                                                                 | BN63B6                                                                                  | 128-129                                                                             |
| 68                         | 14.0                        | 12.2        | 32           | 2.9 | 1.3 | 8.9  | 2400                 | S301_8.9                                                                          | —<br>P63                                                                          | —<br>V 0.25 F                                                                       | P63                                                                                 | BN63B6                                                                                  | 128-129                                                                             |
| 71                         | 14.7                        | 11.7        | 31           | 1.7 | 0.8 | 8.5  | 1500                 | S201_8.5                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 126-127                                                                             |
| 84                         | 17.4                        | 9.9         | 26           | 3.0 | 1.4 | 7.2  | 1500                 | S201_7.2                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 126-127                                                                             |
| 88                         | 18.1                        | 9.5         | 25           | 1.8 | 0.8 | 6.9  | 1110                 | S101_6.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 124-125                                                                             |
| 99                         | 20.5                        | 8.4         | 22           | 2.0 | 0.9 | 6.1  | 1080                 | S101_6.1                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 124-125                                                                             |
| 104                        | 21.6                        | 8.0         | 21           | 3.8 | 1.8 | 5.8  | 1500                 | S201_5.8                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 126-127                                                                             |
| 126                        | 26.0                        | 6.6         | 17.4         | 4.6 | 2.1 | 4.8  | 1500                 | S201_4.8                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 126-127                                                                             |
| 129                        | 26.6                        | 6.4         | 17.0         | 2.2 | 1.0 | 4.7  | 1000                 | S101_4.7                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 124-125                                                                             |
| 159                        | 33                          | 5.2         | 13.8         | 2.7 | 1.2 | 3.8  | 940                  | S101_3.8                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 124-125                                                                             |
| 189                        | 39                          | 4.4         | 11.6         | 3.2 | 1.5 | 3.2  | 890                  | S101_3.2                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 124-125                                                                             |
| 242                        | 50                          | 3.4         | 9.1          | 3.5 | 1.5 | 2.5  | 830                  | S101_2.5                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 124-125                                                                             |
| 318                        | 66                          | 2.6         | 6.9          | 4.6 | 2.0 | 1.9  | 760                  | S101_1.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 124-125                                                                             |
| 431                        | 89                          | 1.9         | 5.1          | 6.2 | 2.8 | 1.4  | 690                  | S101_1.4                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 124-125                                                                             |

### 0.18 kW

|     |      |      |      |     |     |      |      |           |             |                      |     |         |         |
|-----|------|------|------|-----|-----|------|------|-----------|-------------|----------------------|-----|---------|---------|
| 59  | 12.1 | 20   | 40   | 1.7 | 1.0 | 10.3 | 2400 | S301_10.3 | —<br>P63    | —<br>V 0.25 F        | P63 | BN71A6R | 128-129 |
| 68  | 14.0 | 17.4 | 35   | 2.0 | 1.2 | 8.9  | 2400 | S301_8.9  | —<br>P63    | —<br>V 0.25 F        | P63 | BN71A6R | 128-129 |
| 84  | 17.4 | 14.1 | 28   | 2.1 | 1.3 | 7.2  | 1500 | S201_7.2  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN71A6R | 126-127 |
| 88  | 18.1 | 13.5 | 27   | 1.3 | 0.8 | 6.9  | 1060 | S101_6.9  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN71A6R | 124-125 |
| 88  | 18.4 | 15.1 | 40   | 2.3 | 1.0 | 10.3 | 2400 | S301_10.3 | —<br>P63    | —<br>V 0.25 F        | P63 | BN63B4  | 128-129 |
| 99  | 20.5 | 12.0 | 24   | 1.4 | 0.9 | 6.1  | 1030 | S101_6.1  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN71A6R | 124-125 |
| 102 | 21.3 | 13.1 | 35   | 2.7 | 1.2 | 8.9  | 2400 | S301_8.9  | —<br>P63    | —<br>V 0.25 F        | P63 | BN63B4  | 128-129 |
| 126 | 26.4 | 10.6 | 28   | 2.8 | 1.3 | 7.2  | 1500 | S201_7.2  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63B4  | 126-127 |
| 129 | 26.6 | 9.2  | 18   | 1.5 | 0.9 | 4.7  | 960  | S101_4.7  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN71A6R | 124-125 |
| 132 | 27.5 | 10.0 | 27   | 1.7 | 0.8 | 6.9  | 940  | S101_6.9  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63B4  | 104-105 |
| 149 | 31   | 9.0  | 24   | 1.9 | 0.9 | 6.1  | 920  | S101_6.1  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63B4  | 124-125 |
| 157 | 33   | 8.5  | 23   | 3.5 | 1.6 | 5.8  | 1500 | S201_5.8  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63B4  | 126-127 |
| 190 | 40   | 7.1  | 18.8 | 4.3 | 2.0 | 4.8  | 1500 | S201_4.8  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63B4  | 126-127 |
| 194 | 40   | 6.9  | 18.4 | 2.0 | 0.9 | 4.7  | 850  | S101_4.7  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63B4  | 124-125 |

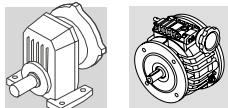


## 0.18 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | $M_2$<br>Nm | $M_2'$<br>Nm | S   | S'  | i   | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|-------------|--------------|-----|-----|-----|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 233                        | 49                          | 5.7         | 15.3         | 5.2 | 2.4 | 3.9 | 1480                 | S201_3.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                                  | 126-127                                                                             |
| 239                        | 50                          | 5.6         | 14.9         | 2.5 | 1.1 | 3.8 | 810                  | S101_3.8                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                                  | 124-125                                                                             |
| 242                        | 50                          | 4.9         | 9.8          | 2.4 | 1.4 | 2.5 | 810                  | S101_2.5                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                                 | 124-125                                                                             |
| 284                        | 59                          | 4.7         | 12.5         | 3.0 | 1.4 | 3.2 | 770                  | S101_3.2                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                                  | 124-125                                                                             |
| 318                        | 66                          | 3.7         | 7.4          | 3.2 | 1.9 | 1.9 | 740                  | S101_1.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                                 | 124-125                                                                             |
| 364                        | 76                          | 3.7         | 9.8          | 3.3 | 1.4 | 2.5 | 710                  | S101_2.5                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                                  | 124-125                                                                             |
| 431                        | 89                          | 2.7         | 5.5          | 4.4 | 2.6 | 1.4 | 680                  | S101_1.4                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                                 | 124-125                                                                             |
| 479                        | 100                         | 2.8         | 7.4          | 4.3 | 1.9 | 1.9 | 650                  | S101_1.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                                  | 124-125                                                                             |
| 650                        | 136                         | 2.1         | 5.5          | 5.8 | 2.6 | 1.4 | 600                  | S101_1.4                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                                  | 124-125                                                                             |

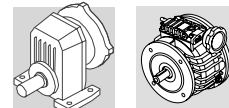
## 0.25 kW

|     |      |      |    |     |     |      |      |           |             |                      |     |        |         |
|-----|------|------|----|-----|-----|------|------|-----------|-------------|----------------------|-----|--------|---------|
| 62  | 11.7 | 31   | 84 | 1.8 | 0.8 | 10.7 | 3800 | S401_10.7 | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71B6 | 130-131 |
| 77  | 14.5 | 25   | 67 | 2.8 | 1.3 | 8.6  | 3800 | S401_8.6  | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71B6 | 130-131 |
| 88  | 18.4 | 18   | 40 | 1.9 | 1.0 | 10.3 | 2400 | S301_10.3 | —<br>P63    | —<br>V 0.25 F        | P63 | BN63C4 | 128-129 |
| 92  | 17.4 | 21   | 56 | 1.4 | 0.7 | 7.2  | 1500 | S201_7.2  | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71B6 | 126-127 |
| 93  | 17.6 | 21   | 56 | 2.8 | 1.1 | 7.1  | 2400 | S301_7.1  | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71B6 | 128-129 |
| 93  | 17.8 | 21   | 52 | 2.8 | 1.3 | 10.7 | 3800 | S401_10.7 | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 130-131 |
| 102 | 21.3 | 15.7 | 35 | 2.2 | 1.2 | 8.9  | 2400 | S301_8.9  | —<br>P63    | —<br>V 0.25 F        | P63 | BN63C4 | 128-129 |
| 112 | 21.3 | 17.4 | 44 | 2.0 | 1.0 | 8.9  | 2400 | S301_8.9  | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 128-129 |
| 114 | 21.6 | 17.1 | 45 | 1.8 | 0.8 | 5.8  | 1500 | S201_5.8  | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71B6 | 126-127 |
| 116 | 22.1 | 16.9 | 42 | 4.2 | 2.0 | 8.6  | 3800 | S401_8.6  | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 130-131 |
| 126 | 26.4 | 12.7 | 28 | 2.4 | 1.3 | 7.2  | 1500 | S201_7.2  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63C4 | 126-127 |
| 132 | 27.5 | 12.2 | 27 | 1.4 | 0.8 | 6.9  | 920  | S101_6.9  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63C4 | 124-125 |
| 139 | 26.4 | 14.1 | 35 | 2.1 | 1.0 | 7.2  | 1500 | S201_7.2  | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 126-127 |
| 141 | 26.8 | 13.9 | 35 | 4.2 | 1.8 | 7.1  | 2290 | S301_7.1  | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 128-129 |
| 147 | 31   | 12.2 | 32 | 1.1 | 0.8 | 12.4 | 1500 | S201_12.4 | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63B2 | 126-127 |
| 149 | 31   | 10.8 | 24 | 1.6 | 0.9 | 6.1  | 900  | S101_6.1  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63C4 | 124-125 |
| 157 | 33   | 10.2 | 23 | 2.9 | 1.6 | 5.8  | 1500 | S201_5.8  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63C4 | 126-127 |
| 169 | 35   | 10.8 | 28 | 1.2 | 0.9 | 10.8 | 1500 | S201_10.8 | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63B2 | 126-127 |
| 170 | 32   | 11.5 | 31 | 2.6 | 1.2 | 3.9  | 1500 | S201_3.9  | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71B6 | 126-127 |
| 172 | 33   | 11.4 | 28 | 2.6 | 1.3 | 5.8  | 1500 | S201_5.8  | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 126-127 |



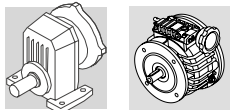
## 0.25 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | $M_2$<br>Nm | $M_2'$<br>Nm | S   | S'  | i   | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|-------------|--------------|-----|-----|-----|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 172                        | 33                          | 11.4        | 28           | 5.1 | 2.5 | 5.8 | 2160                 | S301_5.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                                  | 128-129                                                                             |
| 190                        | 40                          | 8.5         | 19           | 3.5 | 2.0 | 4.8 | 1500                 | S201_4.8                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                                  | 126-127                                                                             |
| 194                        | 40                          | 8.3         | 18           | 1.7 | 0.9 | 4.7 | 840                  | S101_4.7                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                                  | 124-125                                                                             |
| 204                        | 43                          | 8.7         | 23           | 0.9 | 0.6 | 8.9 | 810                  | S101_8.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                                  | 124-125                                                                             |
| 208                        | 40                          | 9.4         | 24           | 3.2 | 1.6 | 4.8 | 1500                 | S201_4.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                                  | 126-127                                                                             |
| 214                        | 45                          | 8.3         | 22           | 1.6 | 1.1 | 8.5 | 1500                 | S201_8.5                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                                  | 126-127                                                                             |
| 233                        | 49                          | 6.9         | 15.3         | 4.4 | 2.4 | 3.9 | 1470                 | S201_3.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                                  | 126-127                                                                             |
| 239                        | 50                          | 6.7         | 14.9         | 2.1 | 1.1 | 3.8 | 790                  | S101_3.8                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                                  | 124-125                                                                             |
| 256                        | 49                          | 7.6         | 19.1         | 3.9 | 1.9 | 3.9 | 1410                 | S201_3.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                                  | 126-127                                                                             |
| 264                        | 55                          | 6.8         | 17.6         | 1.8 | 1.2 | 6.9 | 760                  | S101_6.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                                  | 124-125                                                                             |
| 276                        | 52                          | 7.1         | 18.8         | 4.3 | 2.0 | 2.4 | 1380                 | S201_2.4                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B6                                                                                  | 126-127                                                                             |
| 284                        | 59                          | 5.6         | 12.5         | 2.5 | 1.4 | 3.2 | 750                  | S101_3.2                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                                  | 124-125                                                                             |
| 298                        | 62                          | 6.0         | 15.5         | 2.0 | 1.4 | 6.1 | 740                  | S101_6.1                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                                  | 124-125                                                                             |
| 323                        | 61                          | 6.1         | 15.2         | 4.9 | 2.4 | 3.1 | 1320                 | S201_3.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                                  | 126-127                                                                             |
| 349                        | 66                          | 5.6         | 14.9         | 3.6 | 1.6 | 1.9 | 1280                 | S201_1.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B6                                                                                  | 126-127                                                                             |
| 364                        | 76                          | 4.4         | 9.8          | 2.7 | 1.4 | 2.5 | 700                  | S101_2.5                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                                  | 124-125                                                                             |
| 387                        | 81                          | 4.6         | 12.0         | 2.2 | 1.4 | 4.7 | 690                  | S101_4.7                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                                  | 124-125                                                                             |
| 400                        | 76                          | 4.9         | 12.3         | 2.4 | 1.1 | 2.5 | 670                  | S101_2.5                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                                  | 124-125                                                                             |
| 417                        | 79                          | 4.7         | 11.8         | 6.4 | 3.1 | 2.4 | 1220                 | S201_2.4                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                                  | 126-127                                                                             |
| 474                        | 89                          | 4.1         | 11.0         | 2.9 | 1.3 | 1.4 | 640                  | S101_1.4                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B6                                                                                  | 124-125                                                                             |
| 479                        | 100                         | 3.7         | 9.7          | 2.7 | 1.8 | 3.8 | 650                  | S101_3.8                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                                  | 124-125                                                                             |
| 479                        | 100                         | 3.4         | 7.4          | 3.6 | 1.9 | 1.9 | 650                  | S101_1.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                                  | 124-125                                                                             |
| 526                        | 100                         | 3.7         | 9.3          | 5.4 | 2.6 | 1.9 | 1130                 | S201_1.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                                  | 126-127                                                                             |
| 569                        | 119                         | 3.1         | 8.2          | 3.2 | 2.1 | 3.2 | 620                  | S101_3.2                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                                  | 124-125                                                                             |
| 650                        | 136                         | 2.5         | 5.5          | 4.9 | 2.6 | 1.4 | 590                  | S101_1.4                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                                  | 124-125                                                                             |
| 714                        | 136                         | 2.7         | 6.9          | 4.4 | 2.0 | 1.4 | 600                  | S101_1.4                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                                  | 124-125                                                                             |
| 728                        | 152                         | 2.5         | 6.4          | 3.3 | 2.2 | 2.5 | 570                  | S101_2.5                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                                  | 124-125                                                                             |
| 958                        | 200                         | 1.9         | 4.8          | 4.3 | 2.9 | 1.9 | 520                  | S101_1.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                                  | 124-125                                                                             |
| 1300                       | 271                         | 1.4         | 3.8          | 5.8 | 3.9 | 1.4 | 480                  | S101_1.4                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                                  | 124-125                                                                             |



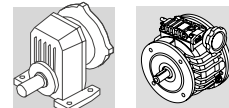
## 0.37 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2</sub> '<br>Nm | S   | S'  | i    | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|----------------------|------------------------|-----|-----|------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 62                         | 11.7                        | 42                   | 84                     | 1.4 | 0.8 | 10.7 | 3800                 | S401_10.7                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C6                                                                                  | 130-131                                                                             |
| 77                         | 14.5                        | 34                   | 67                     | 2.1 | 1.3 | 8.6  | 3800                 | S401_8.6                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C6                                                                                  | 130-131                                                                             |
| 92                         | 17.4                        | 28                   | 56                     | 1.1 | 0.7 | 7.2  | 1500                 | S201_7.2                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C6                                                                                  | 126-127                                                                             |
| 93                         | 17.6                        | 28                   | 56                     | 2.1 | 1.1 | 7.1  | 2400                 | S301_7.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C6                                                                                  | 128-129                                                                             |
| 93                         | 17.8                        | 31                   | 84                     | 1.8 | 0.8 | 10.7 | 3800                 | S401_10.7                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                                  | 130-131                                                                             |
| 114                        | 21.6                        | 23                   | 45                     | 1.3 | 0.8 | 5.8  | 1500                 | S201_5.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C6                                                                                  | 126-127                                                                             |
| 114                        | 21.6                        | 23                   | 45                     | 2.6 | 1.5 | 5.8  | 2390                 | S301_5.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C6                                                                                  | 128-129                                                                             |
| 116                        | 22.1                        | 25                   | 67                     | 2.8 | 1.3 | 8.6  | 3800                 | S401_8.6                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                                  | 130-131                                                                             |
| 139                        | 26.4                        | 21                   | 56                     | 1.4 | 0.7 | 7.2  | 1500                 | S201_7.2                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                                  | 126-127                                                                             |
| 139                        | 26.4                        | 21                   | 56                     | 4.3 | 1.6 | 7.2  | 3770                 | S401_7.2                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                                  | 130-131                                                                             |
| 141                        | 26.8                        | 21                   | 56                     | 2.8 | 1.1 | 7.1  | 2230                 | S301_7.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                                  | 128-129                                                                             |
| 164                        | 31                          | 17.9                 | 48                     | 5.9 | 2.3 | 6.1  | 3600                 | S401_6.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                                  | 130-131                                                                             |
| 172                        | 33                          | 17.1                 | 45                     | 1.8 | 0.8 | 5.8  | 1500                 | S201_5.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                                  | 126-127                                                                             |
| 172                        | 33                          | 17.1                 | 45                     | 3.4 | 1.5 | 5.8  | 2110                 | S301_5.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                                  | 128-129                                                                             |
| 177                        | 37                          | 15.1                 | 40                     | 1.6 | 1.0 | 10.3 | 2110                 | S301_10.3                                                                         | —<br>P63                                                                          | —<br>V 0.25 F                                                                       | P63                                                                                 | BN63C2                                                                                  | 128-129                                                                             |
| 204                        | 39                          | 14.4                 | 38                     | 4.0 | 1.8 | 4.9  | 2010                 | S301_4.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                                  | 128-129                                                                             |
| 208                        | 40                          | 14.1                 | 38                     | 2.1 | 1.0 | 4.8  | 1450                 | S201_4.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                                  | 126-127                                                                             |
| 253                        | 53                          | 10.6                 | 28                     | 2.0 | 1.3 | 7.2  | 1390                 | S201_7.2                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                                  | 126-127                                                                             |
| 256                        | 49                          | 11.5                 | 31                     | 2.6 | 1.2 | 3.9  | 1370                 | S201_3.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                                  | 126-127                                                                             |
| 264                        | 55                          | 10.1                 | 27                     | 1.2 | 0.8 | 6.9  | 720                  | S101_6.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                                  | 124-125                                                                             |
| 298                        | 62                          | 9.0                  | 24                     | 1.3 | 0.9 | 6.1  | 710                  | S101_6.1                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                                  | 124-125                                                                             |
| 323                        | 61                          | 9.1                  | 24                     | 3.3 | 1.5 | 3.1  | 1280                 | S201_3.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                                  | 126-127                                                                             |
| 387                        | 81                          | 6.9                  | 18.4                   | 1.4 | 0.9 | 4.7  | 660                  | S101_4.7                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                                  | 124-125                                                                             |
| 417                        | 79                          | 7.1                  | 18.8                   | 4.3 | 2.0 | 2.4  | 1200                 | S201_2.4                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                                  | 126-127                                                                             |
| 467                        | 97                          | 5.7                  | 15.3                   | 3.7 | 2.4 | 3.9  | 1160                 | S201_3.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                                  | 126-127                                                                             |
| 479                        | 100                         | 5.6                  | 14.9                   | 1.8 | 1.1 | 3.8  | 630                  | S101_3.8                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                                  | 124-125                                                                             |
| 526                        | 100                         | 5.6                  | 14.9                   | 3.6 | 1.6 | 1.9  | 1110                 | S201_1.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                                  | 126-127                                                                             |
| 569                        | 119                         | 4.7                  | 12.5                   | 2.1 | 1.4 | 3.2  | 600                  | S101_3.2                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                                  | 124-125                                                                             |
| 714                        | 136                         | 4.1                  | 11.0                   | 2.9 | 1.3 | 1.4  | 550                  | S101_1.4                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                                  | 124-125                                                                             |
| 728                        | 152                         | 3.7                  | 9.8                    | 2.2 | 1.4 | 2.5  | 560                  | S101_2.5                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                                  | 124-125                                                                             |
| 958                        | 200                         | 2.8                  | 7.4                    | 2.9 | 1.9 | 1.9  | 510                  | S101_1.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                                  | 124-125                                                                             |
| 1300                       | 271                         | 2.1                  | 5.5                    | 3.9 | 2.6 | 1.4  | 470                  | S101_1.4                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                                  | 124-125                                                                             |



## 0.55 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i    | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 75                         | 14.2                        | 52                   | 138                   | 2.4 | 0.9 | 8.8  | 6260                 | S501_8.8                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B6                                                                                  | 132-133                                                                             |
| 77                         | 14.5                        | 51                   | 67                    | 1.4 | 1.3 | 8.6  | 3800                 | S401_8.6                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B6                                                                                  | 130-131                                                                             |
| 77                         | 14.5                        | 51                   | 135                   | 1.4 | 0.6 | 8.6  | 3800                 | S401_8.6                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B6                                                                                  | 130-131                                                                             |
| 92                         | 17.4                        | 42                   | 56                    | 2.1 | 1.6 | 7.2  | 3800                 | S401_7.2                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B6                                                                                  | 130-131                                                                             |
| 92                         | 17.4                        | 42                   | 113                   | 2.1 | 0.8 | 7.2  | 3800                 | S401_7.2                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B6                                                                                  | 130-131                                                                             |
| 93                         | 17.6                        | 42                   | 56                    | 1.4 | 1.1 | 7.1  | 2400                 | S301_7.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B6                                                                                  | 128-129                                                                             |
| 93                         | 17.6                        | 42                   | 111                   | 1.4 | 0.6 | 7.1  | 2400                 | S301_7.1                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B6                                                                                  | 128-129                                                                             |
| 109                        | 20.5                        | 36                   | 48                    | 2.9 | 2.3 | 6.1  | 3800                 | S401_6.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B6                                                                                  | 130-131                                                                             |
| 109                        | 20.5                        | 36                   | 96                    | 2.9 | 1.2 | 6.1  | 3800                 | S401_6.1                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B6                                                                                  | 130-131                                                                             |
| 114                        | 21.6                        | 34                   | 45                    | 1.7 | 1.5 | 5.8  | 2300                 | S301_5.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B6                                                                                  | 128-129                                                                             |
| 114                        | 21.6                        | 34                   | 91                    | 1.7 | 0.8 | 5.8  | 2300                 | S301_5.8                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B6                                                                                  | 128-129                                                                             |
| 116                        | 22.1                        | 38                   | 67                    | 1.8 | 1.3 | 8.6  | 3800                 | S401_8.6                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 130-131                                                                             |
| 116                        | 22.1                        | 38                   | 101                   | 1.8 | 0.8 | 8.6  | 3800                 | S401_8.6                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                                  | 130-131                                                                             |
| 135                        | 25.5                        | 29                   | 38                    | 2.0 | 1.8 | 4.9  | 2200                 | S301_4.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B6                                                                                  | 128-129                                                                             |
| 135                        | 25.5                        | 29                   | 77                    | 2.0 | 0.9 | 4.9  | 2200                 | S301_4.9                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B6                                                                                  | 128-129                                                                             |
| 139                        | 26.4                        | 32                   | 56                    | 2.8 | 1.6 | 7.2  | 3720                 | S401_7.2                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 130-131                                                                             |
| 139                        | 26.4                        | 32                   | 85                    | 2.8 | 1.1 | 7.2  | 3720                 | S401_7.2                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                                  | 130-131                                                                             |
| 141                        | 26.8                        | 31                   | 56                    | 1.9 | 1.1 | 7.1  | 2400                 | S301_7.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 128-129                                                                             |
| 164                        | 31                          | 27                   | 48                    | 3.9 | 2.3 | 6.1  | 3530                 | S401_6.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 130-131                                                                             |
| 164                        | 31                          | 27                   | 72                    | 3.9 | 1.5 | 6.1  | 3530                 | S401_6.1                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                                  | 130-131                                                                             |
| 172                        | 33                          | 26                   | 45                    | 2.3 | 1.5 | 5.8  | 2040                 | S301_5.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 128-129                                                                             |
| 172                        | 33                          | 26                   | 68                    | 2.3 | 1.0 | 5.8  | 2040                 | S301_5.8                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                                  | 128-129                                                                             |
| 187                        | 36                          | 21                   | 52                    | 1.9 | 1.3 | 10.7 | 3410                 | S401_10.7                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 130-131                                                                             |
| 194                        | 37                          | 20                   | 50                    | 1.2 | 0.8 | 10.3 | 2000                 | S301_10.3                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 128-129                                                                             |
| 204                        | 39                          | 22                   | 38                    | 2.7 | 1.8 | 4.9  | 1950                 | S301_4.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 128-129                                                                             |
| 204                        | 39                          | 22                   | 58                    | 2.7 | 1.2 | 4.9  | 1950                 | S301_4.9                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                                  | 128-129                                                                             |
| 225                        | 43                          | 17.4                 | 44                    | 1.4 | 1.0 | 8.9  | 1910                 | S301_8.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 128-129                                                                             |
| 256                        | 49                          | 17.2                 | 46                    | 3.4 | 1.5 | 3.9  | 1830                 | S301_3.9                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                                  | 128-129                                                                             |
| 278                        | 53                          | 14.1                 | 35                    | 1.5 | 1.0 | 7.2  | 1310                 | S201_7.2                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 126-127                                                                             |
| 282                        | 54                          | 13.9                 | 35                    | 2.9 | 1.8 | 7.1  | 1790                 | S301_7.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 128-129                                                                             |
| 323                        | 61                          | 13.7                 | 36                    | 4.2 | 1.9 | 3.1  | 1170                 | S301_3.1                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                                  | 128-129                                                                             |
| 345                        | 66                          | 11.4                 | 28                    | 1.8 | 1.3 | 5.8  | 1240                 | S201_5.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 126-127                                                                             |
| 417                        | 79                          | 10.6                 | 19                    | 2.8 | 2.0 | 2.4  | 1160                 | S201_2.4                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 126-127                                                                             |
| 417                        | 79                          | 10.6                 | 28                    | 5.5 | 2.5 | 2.4  | 1580                 | S301_2.4                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                                  | 128-129                                                                             |
| 474                        | 89                          | 8.2                  | 11.0                  | 1.5 | 1.3 | 1.4  | 570                  | S101_1.4                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B6                                                                                  | 124-125                                                                             |
| 474                        | 89                          | 8.2                  | 22                    | 4.3 | 1.9 | 1.4  | 1520                 | S301_1.4                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B6                                                                                  | 128-129                                                                             |
| 513                        | 97                          | 7.6                  | 19.1                  | 2.7 | 1.9 | 3.9  | 1110                 | S201_3.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 126-127                                                                             |
| 526                        | 100                         | 8.4                  | 14.9                  | 1.4 | 0.9 | 1.9  | 550                  | S101_1.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 124-125                                                                             |

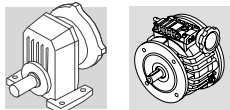


## 0.55 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i   | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|-----|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 556                        | 106                         | 7.9                  | 21                    | 4.4 | 2.0 | 1.8 | 1450                 | S301_1.8                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                                  | 128-129                                                                             |
| 625                        | 119                         | 6.3                  | 15.7                  | 1.6 | 1.1 | 3.2 | 550                  | S101_3.2                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 124-125                                                                             |
| 645                        | 123                         | 6.1                  | 15.2                  | 3.5 | 2.4 | 3.1 | 1030                 | S201_3.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 126-127                                                                             |
| 714                        | 136                         | 6.2                  | 11.0                  | 1.9 | 1.3 | 1.4 | 520                  | S101_1.4                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 124-125                                                                             |
| 714                        | 136                         | 6.2                  | 16.5                  | 3.2 | 1.5 | 1.4 | 980                  | S201_1.4                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80A4                                                                                  | 126-127                                                                             |
| 714                        | 136                         | 6.2                  | 16.5                  | 5.7 | 2.6 | 1.4 | 1340                 | S301_1.4                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                                  | 128-129                                                                             |
| 800                        | 152                         | 4.9                  | 12.3                  | 1.6 | 1.1 | 2.5 | 520                  | S101_2.5                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 124-125                                                                             |
| 833                        | 158                         | 4.7                  | 11.8                  | 4.5 | 3.1 | 2.4 | 960                  | S201_2.4                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 126-127                                                                             |
| 1053                       | 200                         | 3.7                  | 9.3                   | 2.1 | 1.5 | 1.9 | 480                  | S101_1.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 124-125                                                                             |
| 1053                       | 200                         | 3.7                  | 9.3                   | 3.5 | 2.6 | 1.9 | 890                  | S201_1.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 126-127                                                                             |
| 1429                       | 271                         | 2.7                  | 6.9                   | 2.9 | 2.0 | 1.4 | 440                  | S101_1.4                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 124-125                                                                             |

## 0.75 kW

|     |      |    |     |     |     |      |      |           |            |                    |     |        |         |
|-----|------|----|-----|-----|-----|------|------|-----------|------------|--------------------|-----|--------|---------|
| 63  | 11.9 | 82 | 165 | 1.4 | 0.7 | 10.5 | 6520 | S501_10.5 | —<br>P80   | —<br>V 1 F         | P80 | BN80C6 | 132-133 |
| 75  | 14.2 | 69 | 138 | 1.8 | 0.9 | 8.8  | 6190 | S501_8.8  | —<br>P80   | —<br>V 1 F         | P80 | BN80C6 | 132-133 |
| 92  | 17.4 | 56 | 113 | 1.6 | 0.8 | 7.2  | 3800 | S401_7.2  | V1<br>P80  | V 1 C<br>V 1 F     | P80 | BN80C6 | 130-131 |
| 93  | 17.6 | 56 | 111 | 1.0 | 0.6 | 7.1  | 2310 | S301_7.1  | V1<br>P80  | V 1 C<br>V 1 F     | P80 | BN80C6 | 128-129 |
| 95  | 18.1 | 62 | 165 | 1.9 | 0.7 | 10.5 | 5730 | S501_10.5 | —<br>P80   | —<br>V 1 F         | P80 | BN80B4 | 132-133 |
| 109 | 20.5 | 48 | 96  | 2.2 | 1.2 | 6.1  | 3800 | S401_6.1  | V1<br>P80  | V 1 C<br>V 1 F     | P80 | BN80C6 | 130-131 |
| 114 | 21.6 | 45 | 91  | 1.3 | 0.8 | 5.8  | 2210 | S301_5.8  | V1<br>P80  | V 1 C<br>V 1 F     | P80 | BN80C6 | 128-129 |
| 135 | 25.5 | 38 | 77  | 1.5 | 0.9 | 4.9  | 2130 | S301_4.9  | V1<br>P80  | V 1 C<br>V 1 F     | P80 | BN80C6 | 128-129 |
| 139 | 26.4 | 42 | 113 | 2.1 | 0.8 | 7.2  | 3660 | S401_7.2  | V1<br>P80  | V 1 C<br>V 1 F     | P80 | BN80B4 | 130-131 |
| 141 | 26.8 | 42 | 111 | 1.4 | 0.6 | 7.1  | 2070 | S301_7.1  | V1<br>P80  | V 1 C<br>V 1 F     | P80 | BN80B4 | 128-129 |
| 164 | 31   | 36 | 96  | 2.9 | 1.2 | 6.1  | 3480 | S401_6.1  | V1<br>P80  | V 1 C<br>V 1 F     | P80 | BN80B4 | 130-131 |
| 170 | 32   | 31 | 61  | 1.9 | 1.1 | 3.9  | 2010 | S301_3.9  | V1<br>P80  | V 1 C<br>V 1 F     | P80 | BN80C6 | 128-129 |
| 172 | 33   | 34 | 91  | 1.7 | 0.8 | 5.8  | 1980 | S301_5.8  | V1<br>P80  | V 1 C<br>V 1 F     | P80 | BN80B4 | 128-129 |
| 187 | 36   | 31 | 84  | 1.3 | 0.8 | 10.7 | 3350 | S401_10.7 | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71C2 | 130-131 |
| 204 | 39   | 29 | 77  | 2.0 | 0.9 | 4.9  | 1890 | S301_4.9  | V1<br>P80  | V 1 C<br>V 1 F     | P80 | BN80B4 | 128-129 |
| 208 | 40   | 28 | 38  | 1.1 | 1.0 | 4.8  | 1310 | S201_4.8  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P80 | BN80B4 | 126-127 |
| 208 | 40   | 28 | 75  | 3.7 | 1.7 | 4.8  | 3250 | S401_4.8  | V1<br>P80  | V 1 C<br>V 1 F     | P80 | BN80B4 | 130-131 |
| 214 | 40   | 24 | 49  | 2.4 | 1.4 | 3.1  | 1880 | S301_3.1  | V1<br>P80  | V 1 C<br>V 1 F     | P80 | BN80C6 | 128-129 |
| 256 | 49   | 23 | 31  | 1.3 | 1.2 | 3.9  | 1250 | S201_3.9  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P80 | BN80B4 | 126-127 |
| 256 | 49   | 23 | 61  | 2.5 | 1.1 | 3.9  | 1780 | S301_3.9  | V1<br>P80  | V 1 C<br>V 1 F     | P80 | BN80B4 | 128-129 |

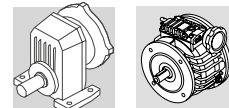


## 0.75 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | $M_2$<br>Nm | $M_2'$<br>Nm | S   | S'  | i   | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|-------------|--------------|-----|-----|-----|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 263                        | 50                          | 22          | 60           | 4.7 | 2.1 | 3.8 | 3020                 | S401_3.8                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                                  | 130-131                                                                             |
| 278                        | 53                          | 21          | 56           | 3.0 | 1.6 | 7.2 | 2970                 | S401_7.2                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                                  | 130-131                                                                             |
| 282                        | 54                          | 21          | 56           | 1.9 | 1.1 | 7.1 | 1740                 | S301_7.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                                  | 128-129                                                                             |
| 323                        | 61                          | 18.2        | 24           | 1.6 | 1.5 | 3.1 | 1180                 | S201_3.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B4                                                                                  | 126-127                                                                             |
| 323                        | 61                          | 18.2        | 49           | 3.2 | 1.4 | 3.1 | 1660                 | S301_3.1                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                                  | 128-129                                                                             |
| 345                        | 66                          | 17.1        | 45           | 1.2 | 0.8 | 5.8 | 1180                 | S201_5.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                                  | 126-127                                                                             |
| 368                        | 69                          | 14.1        | 28           | 2.5 | 1.5 | 1.8 | 1620                 | S301_1.8                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C6                                                                                  | 128-129                                                                             |
| 417                        | 79                          | 14.1        | 38           | 1.5 | 1.0 | 4.8 | 1120                 | S201_4.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                                  | 126-127                                                                             |
| 417                        | 79                          | 14.1        | 18.8         | 2.1 | 2.0 | 2.4 | 1120                 | S201_2.4                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B4                                                                                  | 126-127                                                                             |
| 417                        | 79                          | 14.1        | 38           | 4.1 | 1.9 | 2.4 | 1550                 | S301_2.4                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                                  | 128-129                                                                             |
| 474                        | 89                          | 11.0        | 22           | 3.2 | 1.9 | 1.4 | 1500                 | S301_1.4                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C6                                                                                  | 128-129                                                                             |
| 513                        | 97                          | 11.5        | 31           | 1.8 | 1.2 | 3.9 | 1060                 | S201_3.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                                  | 126-127                                                                             |
| 513                        | 97                          | 11.5        | 31           | 3.5 | 2.3 | 3.9 | 1470                 | S301_3.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                                  | 128-129                                                                             |
| 526                        | 100                         | 11.2        | 14.9         | 1.8 | 1.6 | 1.9 | 1050                 | S201_1.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B4                                                                                  | 126-127                                                                             |
| 556                        | 106                         | 10.6        | 28           | 3.3 | 1.5 | 1.8 | 1430                 | S301_1.8                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                                  | 128-129                                                                             |
| 645                        | 123                         | 9.1         | 24           | 2.3 | 1.5 | 3.1 | 1000                 | S201_3.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                                  | 126-127                                                                             |
| 714                        | 136                         | 8.2         | 11.0         | 2.4 | 2.2 | 1.4 | 960                  | S201_1.4                                                                          | V05<br>—                                                                          | V 0.5 C<br>—                                                                        | P80                                                                                 | BN80B4                                                                                  | 126-127                                                                             |
| 714                        | 136                         | 8.2         | 22           | 4.3 | 1.9 | 1.4 | 1320                 | S301_1.4                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                                  | 128-129                                                                             |
| 833                        | 158                         | 7.1         | 18.8         | 3.0 | 2.0 | 2.4 | 930                  | S201_2.4                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                                  | 126-127                                                                             |
| 1053                       | 200                         | 5.6         | 14.9         | 2.3 | 1.6 | 1.9 | 870                  | S201_1.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                                  | 126-127                                                                             |
| 1429                       | 271                         | 4.1         | 11.0         | 1.9 | 1.3 | 1.4 | 420                  | S101_1.4                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                                  | 124-125                                                                             |

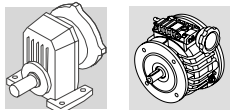
## 1.1 kW

|     |      |     |     |     |     |      |      |           |           |                |     |        |         |
|-----|------|-----|-----|-----|-----|------|------|-----------|-----------|----------------|-----|--------|---------|
| 57  | 11.9 | 123 | 165 | 0.9 | 0.7 | 10.5 | 6330 | S501_10.5 | —<br>P80  | —<br>V 1 F     | P90 | BN90L6 | 132-133 |
| 68  | 14.2 | 103 | 138 | 1.2 | 0.9 | 8.8  | 6030 | S501_8.8  | —<br>P80  | —<br>V 1 F     | P90 | BN90L6 | 132-133 |
| 81  | 16.9 | 87  | 116 | 1.6 | 1.2 | 7.4  | 5740 | S501_7.4  | —<br>P80  | —<br>V 1 F     | P90 | BN90L6 | 132-133 |
| 90  | 16.9 | 87  | 232 | 1.6 | 0.6 | 7.4  | 5740 | S501_7.4  | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90L6 | 132-133 |
| 102 | 21.6 | 78  | 138 | 1.6 | 0.9 | 8.8  | 5320 | S501_8.8  | —<br>P80  | —<br>V 1 F     | P90 | BN90S4 | 132-133 |
| 109 | 20.5 | 72  | 191 | 1.5 | 0.6 | 6.1  | 3800 | S401_6.1  | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90L6 | 130-131 |
| 109 | 20.5 | 72  | 191 | 2.1 | 0.8 | 6.1  | 5420 | S501_6.1  | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90L6 | 132-133 |
| 135 | 25.7 | 65  | 174 | 2.1 | 0.8 | 7.4  | 5050 | S501_7.4  | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90S4 | 132-133 |
| 138 | 26.0 | 56  | 151 | 1.9 | 0.8 | 4.8  | 2590 | S401_4.8  | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90L6 | 130-131 |



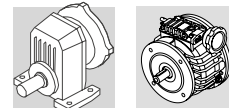
# 1.1 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | $M_2$<br>Nm | $M_2'$<br>Nm | S   | S'  | i    | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|-------------|--------------|-----|-----|------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 164                        | 31                          | 54          | 143          | 2.0 | 0.8 | 6.1  | 3380                 | S401_6.1                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                                  | 130-131                                                                             |
| 164                        | 31                          | 54          | 143          | 2.8 | 1.0 | 6.1  | 4760                 | S501_6.1                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                                  | 132-133                                                                             |
| 184                        | 39                          | 44          | 77           | 1.3 | 0.9 | 4.9  | 1780                 | S301_4.9                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P90                                                                                 | BN90S4                                                                                  | 128-129                                                                             |
| 190                        | 36                          | 46          | 123          | 1.8 | 0.9 | 10.5 | 4560                 | S501_10.5                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B2                                                                                  | 132-133                                                                             |
| 208                        | 40                          | 42          | 113          | 2.5 | 1.1 | 4.8  | 3170                 | S401_4.8                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                                  | 130-131                                                                             |
| 208                        | 40                          | 42          | 113          | 4.1 | 1.6 | 4.8  | 4420                 | S501_4.8                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                                  | 132-133                                                                             |
| 227                        | 43                          | 39          | 103          | 2.2 | 1.2 | 8.8  | 4320                 | S501_8.8                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B2                                                                                  | 132-133                                                                             |
| 233                        | 44                          | 38          | 101          | 1.3 | 0.8 | 8.6  | 3080                 | S401_8.6                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                                  | 130-131                                                                             |
| 263                        | 50                          | 34          | 89           | 3.1 | 1.4 | 3.8  | 2960                 | S401_3.8                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                                  | 130-131                                                                             |
| 263                        | 50                          | 34          | 89           | 5.2 | 2.2 | 3.8  | 4140                 | S501_3.8                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                                  | 132-133                                                                             |
| 282                        | 54                          | 31          | 83           | 1.3 | 0.7 | 7.1  | 1660                 | S301_7.1                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                                  | 128-129                                                                             |
| 323                        | 61                          | 27          | 73           | 3.8 | 1.7 | 3.1  | 2770                 | S401_3.1                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                                  | 130-131                                                                             |
| 328                        | 62                          | 27          | 72           | 2.6 | 1.5 | 6.1  | 2770                 | S401_6.1                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                                  | 130-131                                                                             |
| 345                        | 66                          | 26          | 68           | 1.6 | 1.0 | 5.8  | 1580                 | S301_5.8                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                                  | 128-129                                                                             |
| 349                        | 66                          | 22          | 60           | 3.1 | 1.4 | 1.9  | 2700                 | S401_1.9                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90L6                                                                                  | 130-131                                                                             |
| 408                        | 78                          | 22          | 58           | 1.9 | 1.2 | 4.9  | 1510                 | S301_4.9                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                                  | 128-129                                                                             |
| 474                        | 89                          | 16.5        | 44           | 2.1 | 1.0 | 1.4  | 1450                 | S301_1.4                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90L6                                                                                  | 128-129                                                                             |
| 474                        | 89                          | 16.5        | 44           | 4.3 | 1.9 | 1.4  | 2440                 | S401_1.4                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90L6                                                                                  | 130-131                                                                             |
| 513                        | 97                          | 17.2        | 46           | 2.3 | 1.5 | 3.9  | 1420                 | S301_3.9                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                                  | 128-129                                                                             |
| 526                        | 100                         | 16.8        | 45           | 4.2 | 1.9 | 1.9  | 2370                 | S401_1.9                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                                  | 130-131                                                                             |
| 645                        | 123                         | 13.7        | 36           | 1.5 | 1.0 | 3.1  | 950                  | S201_3.1                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B2                                                                                  | 126-127                                                                             |
| 645                        | 123                         | 13.7        | 24           | 1.5 | 1.5 | 3.1  | 950                  | S201_3.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B2                                                                                  | 126-127                                                                             |
| 645                        | 123                         | 13.7        | 36           | 2.9 | 1.9 | 3.1  | 1320                 | S301_3.1                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                                  | 128-129                                                                             |
| 714                        | 136                         | 12.3        | 33           | 5.7 | 2.6 | 1.4  | 2160                 | S401_1.4                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                                  | 130-131                                                                             |
| 833                        | 158                         | 10.6        | 28           | 2.0 | 1.3 | 2.4  | 890                  | S201_2.4                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B2                                                                                  | 126-127                                                                             |
| 833                        | 158                         | 10.6        | 28           | 3.8 | 2.5 | 2.4  | 1240                 | S301_2.4                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                                  | 128-129                                                                             |
| 1053                       | 200                         | 8.4         | 22           | 1.6 | 1.1 | 1.9  | 840                  | S201_1.9                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B2                                                                                  | 126-127                                                                             |
| 1111                       | 211                         | 7.9         | 21           | 3.0 | 2.0 | 1.8  | 1140                 | S301_1.8                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                                  | 128-129                                                                             |
| 1429                       | 271                         | 6.2         | 16.5         | 2.1 | 1.5 | 1.4  | 770                  | S201_1.4                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B2                                                                                  | 126-127                                                                             |
| 1429                       | 271                         | 6.2         | 16.5         | 3.9 | 2.6 | 1.4  | 1050                 | S301_1.4                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                                  | 128-129                                                                             |



# 1.5 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2</sub> '<br>Nm | S   | S'  | i   | R <sub>N2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|----------------------|------------------------|-----|-----|-----|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 90                         | 16.9                        | 116                  | 254                    | 1.2 | 0.6 | 7.4 | 5610                 | S501_7.4                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                               | 132-133                                                                             |
| 109                        | 20.5                        | 96                   | 209                    | 1.1 | 0.5 | 6.1 | 3630                 | S401_6.1                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                               | 130-131                                                                             |
| 109                        | 20.5                        | 96                   | 209                    | 1.6 | 0.7 | 6.1 | 5310                 | S501_6.1                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                               | 132-133                                                                             |
| 138                        | 26.0                        | 75                   | 165                    | 1.4 | 0.8 | 4.8 | 3480                 | S401_4.8                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                               | 130-131                                                                             |
| 138                        | 26.0                        | 75                   | 165                    | 2.3 | 1.1 | 4.8 | 4940                 | S501_4.8                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                               | 132-133                                                                             |
| 164                        | 31                          | 72                   | 191                    | 1.5 | 0.6 | 6.1 | 3280                 | S401_6.1                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 130-131                                                                             |
| 164                        | 31                          | 72                   | 191                    | 2.1 | 0.8 | 6.1 | 4680                 | S501_6.1                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 132-133                                                                             |
| 174                        | 33                          | 60                   | 130                    | 1.8 | 1.0 | 3.8 | 3270                 | S401_3.8                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                               | 130-131                                                                             |
| 208                        | 40                          | 56                   | 151                    | 1.9 | 0.8 | 4.8 | 3090                 | S401_4.8                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 130-131                                                                             |
| 208                        | 40                          | 56                   | 151                    | 3.1 | 1.2 | 4.8 | 4350                 | S501_4.8                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 132-133                                                                             |
| 227                        | 43                          | 52                   | 138                    | 1.6 | 0.9 | 8.8 | 4260                 | S501_8.8                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80C2                                                                                  | 132-133                                                                             |
| 231                        | 49                          | 46                   | 61                     | 1.3 | 1.1 | 3.9 | 1590                 | S301_3.9                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 128-129                                                                             |
| 237                        | 50                          | 45                   | 60                     | 2.3 | 2.1 | 3.8 | 2890                 | S401_3.8                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 130-131                                                                             |
| 263                        | 50                          | 45                   | 119                    | 2.3 | 1.0 | 3.8 | 2890                 | S401_3.8                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 130-131                                                                             |
| 263                        | 50                          | 45                   | 119                    | 3.9 | 1.7 | 3.8 | 4090                 | S501_3.8                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 132-133                                                                             |
| 276                        | 52                          | 38                   | 82                     | 2.8 | 1.5 | 2.4 | 2870                 | S401_2.4                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                               | 130-131                                                                             |
| 282                        | 54                          | 42                   | 56                     | 1.0 | 1.1 | 7.1 | 1580                 | S301_7.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80C2                                                                                  | 128-129                                                                             |
| 323                        | 61                          | 36                   | 97                     | 2.9 | 1.3 | 3.1 | 2710                 | S401_3.1                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 130-131                                                                             |
| 345                        | 66                          | 34                   | 45                     | 1.2 | 1.5 | 5.8 | 1510                 | S301_5.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80C2                                                                                  | 128-129                                                                             |
| 349                        | 66                          | 30                   | 65                     | 2.3 | 1.3 | 1.9 | 2660                 | S401_1.9                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                               | 130-131                                                                             |
| 408                        | 78                          | 29                   | 77                     | 1.4 | 0.9 | 4.9 | 1450                 | S301_4.9                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2                                                                                  | 128-129                                                                             |
| 408                        | 78                          | 29                   | 38                     | 1.4 | 1.8 | 4.9 | 1450                 | S301_4.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80C2                                                                                  | 128-129                                                                             |
| 417                        | 79                          | 28                   | 75                     | 3.7 | 1.7 | 2.4 | 2530                 | S401_2.4                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 130-131                                                                             |
| 474                        | 89                          | 22                   | 48                     | 1.6 | 0.9 | 1.4 | 1390                 | S301_1.4                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN100LA6R                                                                               | 128-129                                                                             |
| 474                        | 89                          | 22                   | 48                     | 3.2 | 1.8 | 1.4 | 2430                 | S401_1.4                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                               | 130-131                                                                             |
| 513                        | 97                          | 23                   | 61                     | 1.7 | 1.1 | 3.9 | 1380                 | S301_3.9                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2                                                                                  | 128-129                                                                             |
| 526                        | 100                         | 22                   | 60                     | 3.1 | 1.4 | 1.9 | 2340                 | S401_1.9                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 130-131                                                                             |
| 645                        | 123                         | 18.2                 | 49                     | 2.2 | 1.4 | 3.1 | 1290                 | S301_3.1                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2                                                                                  | 128-129                                                                             |
| 714                        | 136                         | 16.5                 | 44                     | 2.1 | 1.0 | 1.4 | 1240                 | S301_1.4                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                                 | 128-129                                                                             |
| 714                        | 136                         | 16.5                 | 44                     | 4.3 | 1.9 | 1.4 | 2130                 | S401_1.4                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 130-131                                                                             |
| 833                        | 158                         | 14.1                 | 38                     | 2.8 | 1.9 | 2.4 | 1210                 | S301_2.4                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2                                                                                  | 128-129                                                                             |



## 1.5 kW

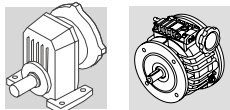
| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | $M_2$<br>Nm | $M_2'$<br>Nm | S   | S'  | i   | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|-------------|--------------|-----|-----|-----|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1111                       | 211                         | 10.6        | 28           | 2.3 | 1.5 | 1.8 | 1110                 | S301_1.8                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2                                                                                  | 128-129                                                                             |
| 1429                       | 271                         | 8.2         | 22           | 2.9 | 1.9 | 1.4 | 1030                 | S301_1.4                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2                                                                                  | 128-129                                                                             |
| 1429                       | 271                         | 8.2         | 22           | 1.6 | 1.1 | 1.4 | 740                  | S201_1.4                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80C2                                                                                  | 126-127                                                                             |

## 1.85 kW

|     |      |      |     |     |     |     |      |          |           |                |     |         |         |
|-----|------|------|-----|-----|-----|-----|------|----------|-----------|----------------|-----|---------|---------|
| 135 | 25.7 | 102  | 254 | 1.4 | 0.6 | 7.4 | 4890 | S501_7.4 | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 132-133 |
| 164 | 31   | 84   | 209 | 1.3 | 0.5 | 6.1 | 3220 | S401_6.1 | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 130-131 |
| 164 | 31   | 84   | 209 | 1.8 | 0.7 | 6.1 | 4630 | S501_6.1 | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 132-133 |
| 208 | 40   | 66   | 165 | 1.6 | 0.8 | 4.8 | 3030 | S401_4.8 | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 130-131 |
| 208 | 40   | 66   | 165 | 2.7 | 1.1 | 4.8 | 4310 | S501_4.8 | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 132-133 |
| 263 | 50   | 52   | 130 | 2.0 | 1.0 | 3.8 | 2850 | S401_3.8 | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 130-131 |
| 263 | 50   | 52   | 130 | 3.4 | 1.5 | 3.8 | 4050 | S501_3.8 | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 132-133 |
| 323 | 61   | 43   | 106 | 2.5 | 1.2 | 3.1 | 2680 | S401_3.1 | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 130-131 |
| 333 | 63   | 41   | 103 | 3.9 | 1.9 | 3.0 | 3780 | S501_3   | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 132-133 |
| 417 | 79   | 33   | 82  | 3.2 | 1.5 | 2.4 | 2500 | S401_2.4 | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 130-131 |
| 526 | 100  | 26   | 65  | 2.7 | 1.3 | 1.9 | 2320 | S401_1.9 | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 130-131 |
| 714 | 136  | 19.2 | 48  | 1.8 | 0.9 | 1.4 | 1220 | S301_1.4 | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 128-129 |
| 714 | 136  | 19.2 | 48  | 3.6 | 1.8 | 1.4 | 2110 | S401_1.4 | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 130-131 |

## 2.2 kW

|     |      |     |     |     |     |     |      |          |            |                |      |          |         |
|-----|------|-----|-----|-----|-----|-----|------|----------|------------|----------------|------|----------|---------|
| 109 | 20.5 | 143 | 335 | 1.0 | 0.4 | 6.1 | 5090 | S501_6.1 | V3<br>P100 | V 3 C<br>V 3 F | P112 | BN112M6  | 132-133 |
| 135 | 25.7 | 116 | 290 | 1.2 | 0.5 | 7.4 | 4820 | S501_7.4 | V3<br>P100 | V 3 C<br>V 3 F | P100 | BN100LA4 | 132-133 |
| 164 | 31   | 96  | 239 | 1.6 | 0.6 | 6.1 | 4570 | S501_6.1 | V3<br>P100 | V 3 C<br>V 3 F | P100 | BN100LA4 | 132-133 |
| 174 | 33   | 89  | 209 | 2.0 | 1.0 | 3.8 | 4500 | S501_3.8 | V3<br>P100 | V 3 C<br>V 3 F | P112 | BN112M6  | 132-133 |
| 208 | 40   | 75  | 188 | 1.4 | 0.7 | 4.8 | 2975 | S401_4.8 | —<br>P100  | —<br>V 3 F     | P100 | BN100LA4 | 130-131 |
| 208 | 40   | 75  | 188 | 2.3 | 1.0 | 4.8 | 4270 | S501_4.8 | V3<br>P100 | V 3 C<br>V 3 F | P100 | BN100LA4 | 132-133 |
| 221 | 42   | 71  | 165 | 2.3 | 1.2 | 3.0 | 4220 | S501_3   | V3<br>P100 | V 3 C<br>V 3 F | P112 | BN112M6  | 132-133 |
| 263 | 50   | 60  | 149 | 2.9 | 1.3 | 3.8 | 4010 | S501_3.8 | V3<br>P100 | V 3 C<br>V 3 F | P100 | BN100LA4 | 132-133 |
| 323 | 61   | 49  | 122 | 2.2 | 1.0 | 3.1 | 2640 | S401_3.1 | —<br>P100  | —<br>V 3 F     | P100 | BN100LA4 | 130-131 |
| 333 | 63   | 47  | 118 | 3.4 | 1.7 | 3.0 | 3750 | S501_3   | V3<br>P100 | V 3 C<br>V 3 F | P100 | BN100LA4 | 132-133 |



## 2.2 kW

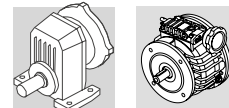
| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | $M_2$<br>Nm | $M_2'$<br>Nm | S   | S'  | i   | R <sub>N2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|-------------|--------------|-----|-----|-----|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 368                        | 69                          | 42          | 99           | 3.0 | 1.6 | 1.8 | 3600                 | S501_1.8                                                                          | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P112                                                                                | BN112M6                                                                                 | 132-133                                                                             |
| 417                        | 79                          | 38          | 94           | 4.0 | 1.9 | 2.4 | 3490                 | S501_2.4                                                                          | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 132-133                                                                             |
| 474                        | 89                          | 33          | 77           | 3.8 | 2.0 | 1.4 | 3360                 | S501_1.4                                                                          | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P112                                                                                | BN112M6                                                                                 | 132-133                                                                             |
| 526                        | 100                         | 30          | 74           | 2.3 | 1.1 | 1.9 | 2290                 | S401_1.9                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 130-131                                                                             |
| 556                        | 106                         | 28          | 71           | 4.4 | 2.2 | 1.8 | 3190                 | S501_1.8                                                                          | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 132-133                                                                             |
| 714                        | 136                         | 22          | 55           | 1.6 | 0.8 | 1.4 | 1190                 | S301_1.4                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 128-129                                                                             |
| 714                        | 136                         | 22          | 55           | 3.2 | 1.5 | 1.4 | 2090                 | S401_1.4                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 130-131                                                                             |
| 714                        | 136                         | 22          | 55           | 5.7 | 2.8 | 1.4 | 2970                 | S501_1.4                                                                          | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 132-133                                                                             |

## 3 kW

|     |     |     |     |     |     |     |      |          |            |                |      |          |         |
|-----|-----|-----|-----|-----|-----|-----|------|----------|------------|----------------|------|----------|---------|
| 164 | 31  | 143 | 335 | 1.0 | 0.4 | 6.1 | 4360 | S501_6.1 | V3<br>P100 | V 3 C<br>V 3 F | P100 | BN100LB4 | 132-133 |
| 208 | 40  | 113 | 263 | 1.6 | 0.7 | 4.8 | 4090 | S501_4.8 | V3<br>P100 | V 3 C<br>V 3 F | P100 | BN100LB4 | 132-133 |
| 263 | 50  | 89  | 209 | 2.0 | 1.0 | 3.8 | 3870 | S501_3.8 | V3<br>P100 | V 3 C<br>V 3 F | P100 | BN100LB4 | 132-133 |
| 323 | 61  | 73  | 170 | 1.4 | 0.7 | 3.1 | 2500 | S401_3.1 | —<br>P100  | —<br>V 3 F     | P100 | BN100LB4 | 130-131 |
| 333 | 63  | 71  | 165 | 2.3 | 1.2 | 3.0 | 3640 | S501_3   | V3<br>P100 | V 3 C<br>V 3 F | P100 | BN100LB4 | 132-133 |
| 417 | 79  | 56  | 132 | 2.7 | 1.4 | 2.4 | 3400 | S501_2.4 | V3<br>P100 | V 3 C<br>V 3 F | P100 | BN100LB4 | 132-133 |
| 526 | 100 | 45  | 104 | 1.6 | 0.8 | 1.9 | 2200 | S401_1.9 | —<br>P100  | —<br>V 3 F     | P100 | BN100LB4 | 130-131 |
| 556 | 106 | 42  | 99  | 3.0 | 1.6 | 1.8 | 3110 | S501_1.8 | V3<br>P100 | V 3 C<br>V 3 F | P100 | BN100LB4 | 132-133 |
| 714 | 136 | 33  | 77  | 2.1 | 1.1 | 1.4 | 2100 | S401_1.4 | —<br>P100  | —<br>V 3 F     | P100 | BN100LB4 | 130-131 |
| 714 | 136 | 33  | 77  | 3.8 | 2.0 | 1.4 | 2900 | S501_1.4 | V3<br>P100 | V 3 C<br>V 3 F | P100 | BN100LB4 | 132-133 |

## 4 kW

|     |    |     |     |     |     |     |      |          |             |                    |      |          |         |
|-----|----|-----|-----|-----|-----|-----|------|----------|-------------|--------------------|------|----------|---------|
| 164 | 31 | 191 | 430 | 0.8 | 0.3 | 6.1 | 4160 | S501_6.1 | V55<br>P112 | V 5.5 C<br>V 5.5 F | P112 | BN112M4  | 132-133 |
| 208 | 40 | 151 | 339 | 1.2 | 0.5 | 4.8 | 3910 | S501_4.8 | V55<br>P112 | V 5.5 C<br>V 5.5 F | P112 | BN112M4  | 132-133 |
| 263 | 50 | 119 | 268 | 1.5 | 0.7 | 3.8 | 3720 | S501_3.8 | V55<br>P112 | V 5.5 C<br>V 5.5 F | P112 | BN112M4  | 132-133 |
| 276 | 52 | 148 | 273 | 1.0 | 0.7 | 2.4 | 3710 | S501_2.4 | —<br>P132   | —<br>V 10 F        | P132 | BN132MA6 | 132-133 |
| 333 | 63 | 94  | 212 | 1.7 | 0.9 | 3.0 | 3520 | S501_3   | V55<br>P112 | V 5.5 C<br>V 5.5 F | P112 | BN112M4  | 132-133 |
| 368 | 69 | 111 | 205 | 1.1 | 0.8 | 1.8 | 3430 | S501_1.8 | —<br>P132   | —<br>V 10 F        | P132 | BN132MA6 | 132-133 |
| 417 | 79 | 75  | 169 | 2.0 | 1.1 | 2.4 | 3300 | S501_2.4 | V55<br>P112 | V 5.5 C<br>V 5.5 F | P112 | BN112M4  | 132-133 |
| 474 | 89 | 86  | 159 | 1.4 | 1.0 | 1.4 | 3210 | S501_1.4 | —<br>P132   | —<br>V 10 F        | P132 | BN132MA6 | 132-133 |



## 4 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | $M_2$<br>Nm | $M_2'$<br>Nm | S   | S'  | i   | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|-------------|--------------|-----|-----|-----|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 556                        | 106                         | 56          | 127          | 2.2 | 1.2 | 1.8 | 3040                 | S501_1.8                                                                          | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 132-133                                                                             |
| 714                        | 136                         | 44          | 99           | 1.6 | 0.9 | 1.4 | 1950                 | S401_1.4                                                                          | —<br>P112                                                                         | —<br>V 5.5 F                                                                        | P112                                                                                | BN112M4                                                                                 | 130-131                                                                             |
| 714                        | 136                         | 44          | 99           | 2.8 | 1.6 | 1.4 | 2840                 | S501_1.4                                                                          | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 132-133                                                                             |

## 5.5 kW

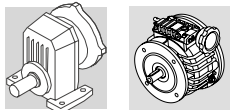
|     |     |     |     |     |     |     |      |          |           |             |      |          |         |
|-----|-----|-----|-----|-----|-----|-----|------|----------|-----------|-------------|------|----------|---------|
| 263 | 50  | 160 | 320 | 1.1 | 0.6 | 3.8 | 3520 | S501_3.8 | —<br>P132 | —<br>V 10 F | P132 | BN132S4  | 132-133 |
| 333 | 63  | 126 | 253 | 1.3 | 0.8 | 3.0 | 3360 | S501_3   | —<br>P132 | —<br>V 10 F | P132 | BN132S4  | 132-133 |
| 417 | 79  | 101 | 202 | 1.5 | 0.9 | 2.4 | 3170 | S501_2.4 | —<br>P132 | —<br>V 10 F | P132 | BN132S4  | 132-133 |
| 474 | 89  | 86  | 159 | 1.4 | 1.0 | 1.4 | 3060 | S501_1.4 | —<br>P132 | —<br>V 10 F | P132 | BN132MB6 | 132-133 |
| 556 | 106 | 76  | 152 | 1.6 | 1.0 | 1.8 | 2940 | S501_1.8 | —<br>P132 | —<br>V 10 F | P132 | BN132S4  | 132-133 |
| 714 | 136 | 59  | 118 | 1.2 | 0.7 | 1.4 | 1850 | S401_1.4 | —<br>P132 | —<br>V 10 F | P132 | BN132S4  | 130-131 |
| 714 | 136 | 59  | 118 | 2.1 | 1.3 | 1.4 | 2760 | S501_1.4 | —<br>P132 | —<br>V 10 F | P132 | BN132S4  | 132-133 |

## 7.5 kW

|     |     |     |     |     |     |     |      |          |           |             |      |          |         |
|-----|-----|-----|-----|-----|-----|-----|------|----------|-----------|-------------|------|----------|---------|
| 417 | 79  | 136 | 273 | 1.1 | 0.7 | 2.4 | 2990 | S501_2.4 | —<br>P132 | —<br>V 10 F | P132 | BN132MA4 | 132-133 |
| 556 | 106 | 102 | 205 | 1.2 | 0.8 | 1.8 | 2800 | S501_1.8 | —<br>P132 | —<br>V 10 F | P132 | BN132MA4 | 132-133 |
| 714 | 136 | 80  | 159 | 1.6 | 1.0 | 1.4 | 2640 | S501_1.4 | —<br>P132 | —<br>V 10 F | P132 | BN132MA4 | 132-133 |

## 9.2 kW

|     |     |     |     |     |     |     |      |          |           |             |      |          |         |
|-----|-----|-----|-----|-----|-----|-----|------|----------|-----------|-------------|------|----------|---------|
| 556 | 106 | 127 | 254 | 1.0 | 0.6 | 1.8 | 2660 | S501_1.8 | —<br>P132 | —<br>V 10 F | P132 | BN132MB4 | 132-133 |
| 714 | 136 | 99  | 198 | 1.3 | 0.8 | 1.4 | 2530 | S501_1.4 | —<br>P132 | —<br>V 10 F | P132 | BN132MB4 | 132-133 |



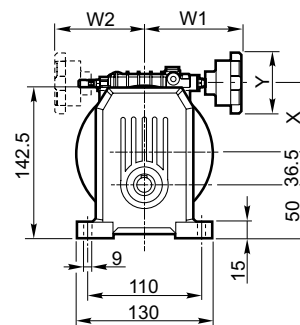
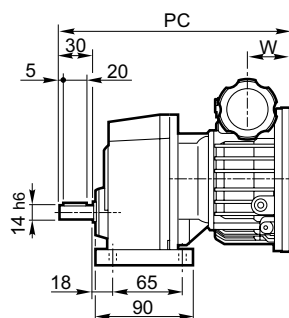
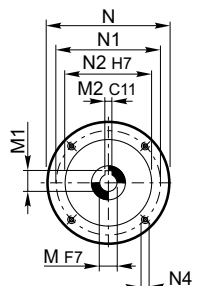
# S 10

## 22.10 - Dimensioni serie S + V

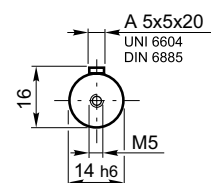
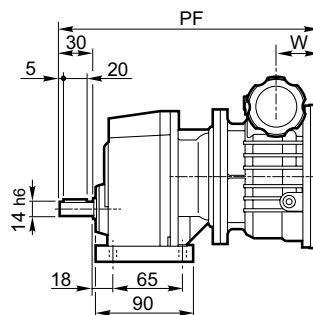
## 22.10 - Dimensions series S + V

## 22.10 - Abmessungen - serie S + V

## 22.10 - Dimensions series S + V



## S 101 P + V\_P (IEC)



|        |        | IEC | V_C - V_F |     |     |        |    |        |    |      |     |     |    |    | S 101P + V_C |                                                                                       | S 101P + V_F |                                                                                       |
|--------|--------|-----|-----------|-----|-----|--------|----|--------|----|------|-----|-----|----|----|--------------|---------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|
|        |        |     | N         | N1  | N2  | N4     | M  | M1     | M2 | W    | W1  | W2  | X  | Y  | PC           |  | PF           |  |
| S 101P | V 0.25 | P63 | 140       | 115 | 95  | M8x20  | 11 | 12.8   | 4  | 45   | 115 | 110 | 70 | 83 | 216          | 7.1                                                                                   | 298          | 9.5                                                                                   |
|        | V 0.5  | P71 | 160       | 130 | 110 | M8x20  | 14 | 16.3   | 5  | 47.5 | 115 | 110 | 78 | 83 | 218          | 10.2                                                                                  | 300          | 12.6                                                                                  |
|        | V 0.5  | P80 | 200       | 165 | 130 | M10x20 | 19 | 20.8** | 6  | 51.5 | 115 | 110 | 78 | 83 | 222          | 10.2                                                                                  | 304          | 12.6                                                                                  |

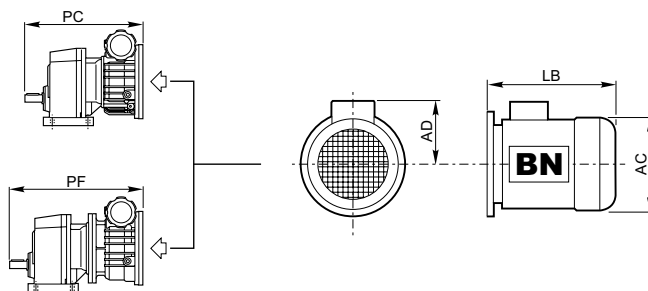
\*\* Utilizzare linguetta ribassata 6x5x30 "A"

\*\* Use lowered key 6x5x30 "A"

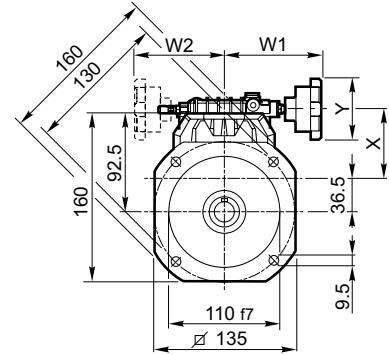
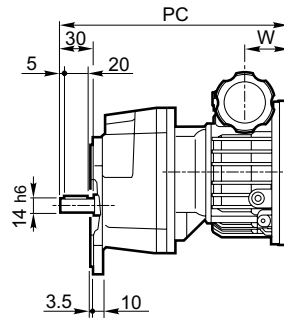
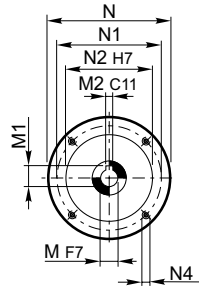
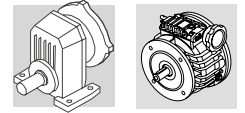
\*\* Den abgeflachten Federkeil 6x5x30 "A" verwenden

\*\* Utiliser une languette rabaisée taille 6x5x30 "A"

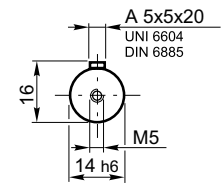
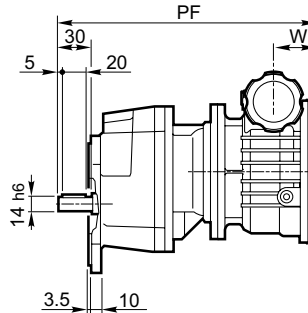
## S 101 P + V\_P + BN



|        | IEC    | BN  |     |     | S 101P + V_C |      | S 101P + V_F |      |
|--------|--------|-----|-----|-----|--------------|------|--------------|------|
|        |        | AC  | AD  | LB  | PC+LB        |      | PF+LB        |      |
| S 101P | V 0.25 | 63  | 121 | 95  | 184          | 11.0 | 481.5        | 13.4 |
|        | V 0.25 | 71R | 138 | 108 | 219          | 12.5 | 516.5        | 14.9 |
|        | V 0.5  | 71  | 138 | 108 | 219          | 16.1 | 519          | 18.5 |
|        | V 0.5  | 80  | 156 | 119 | 234          | 20.1 | 538          | 22.5 |



## S 101 F\_ + V\_P (IEC)



|        |        | IEC | V_C - V_F |     |     |        |    |        |    |      |     |     |    |    | S 101F + V_C |                                                                                       | S 101F + V_F |                                                                                       |
|--------|--------|-----|-----------|-----|-----|--------|----|--------|----|------|-----|-----|----|----|--------------|---------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|
|        |        |     | N         | N1  | N2  | N4     | M  | M1     | M2 | W    | W1  | W2  | X  | Y  | PC           |  | PF           |  |
| S 101F | V 0.25 | P63 | 140       | 115 | 95  | M8x20  | 11 | 12.8   | 4  | 45   | 115 | 110 | 70 | 83 | 216          | 7.2                                                                                   | 298          | 9.6                                                                                   |
|        | V 0.5  | P71 | 160       | 130 | 110 | M8x20  | 14 | 16.3   | 5  | 47.5 | 115 | 110 | 78 | 83 | 218          | 10.3                                                                                  | 300          | 12.7                                                                                  |
|        | V 0.5  | P80 | 200       | 165 | 130 | M10x20 | 19 | 20.8** | 6  | 51.5 | 115 | 110 | 78 | 83 | 222          | 10.3                                                                                  | 304          | 12.7                                                                                  |

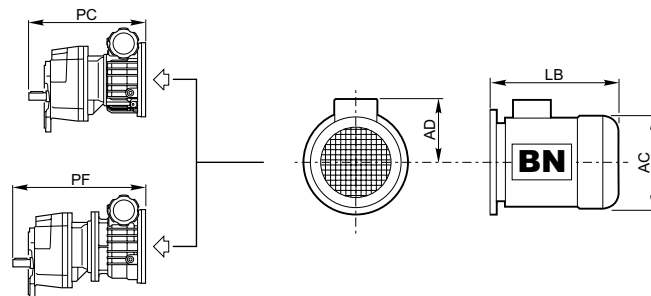
\*\* Utilizzare linguetta ribassata 6x5x30 "A"

\*\* Use lowered key 6x5x30 "A"

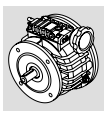
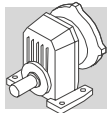
\*\* Den abgeflachten Federkeil 6x5x30 "A" verwenden

\*\* Utiliser une languette rabaisée taille 6x5x30 "A"

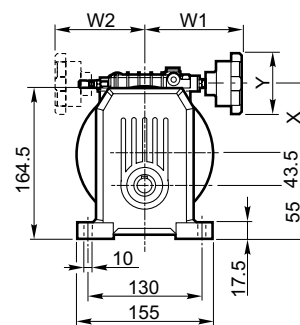
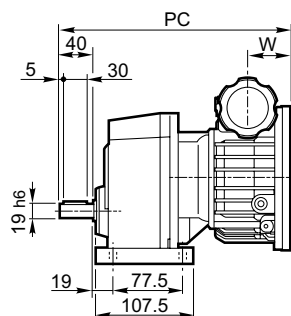
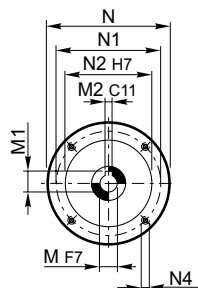
## S 101 F + V\_P + BN



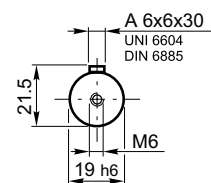
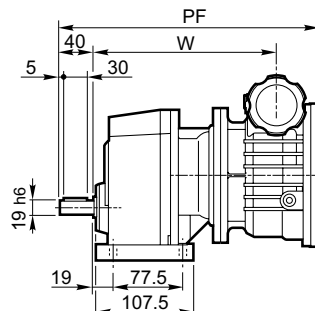
|        |        | IEC | BN  |     |     | S 101F + V_C |      | S 101F + V_F |      |
|--------|--------|-----|-----|-----|-----|--------------|------|--------------|------|
|        |        |     | AC  | AD  | LB  | PC+LB        | Kg   | PF+LB        | Kg   |
| S 101F | V 0.25 | 63  | 121 | 95  | 184 | 400          | 11.1 | 482          | 13.5 |
|        | V 0.25 | 71R | 138 | 108 | 219 | 435          | 12.6 | 517          | 15.0 |
|        | V 0.5  | 71  | 138 | 108 | 219 | 437          | 16.2 | 519          | 18.6 |
|        | V 0.5  | 80  | 156 | 119 | 234 | 456          | 20.2 | 538          | 22.6 |



# S 20



## S 201 P\_ + V\_P (IEC)



|        |        | IEC | V_C - V_F |     |     |        |    |        |    |      |     |     |    |    | S 201P+<br>V_C |                                                                                     | S 201P+<br>V_F |                                                                                       |      |
|--------|--------|-----|-----------|-----|-----|--------|----|--------|----|------|-----|-----|----|----|----------------|-------------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------------|------|
|        |        |     | N         | N1  | N2  | N4     | M  | M1     | M2 | W    | W1  | W2  | X  | Y  | PC             |  | PF             |  |      |
| S 201P | V 0.25 | P63 | 140       | 115 | 95  | M8x20  | 11 | 12.8   | 4  | 45   | 115 | 110 | 70 | 83 | 241            |  | 8.3            | 316                                                                                   | 10.5 |
|        | V 0.5  | P71 | 160       | 130 | 110 | M8x20  | 14 | 16.3   | 5  | 47.5 | 115 | 110 | 78 | 83 | 244            | 10.9                                                                                | 318            | 13.7                                                                                  |      |
|        | V 0.5  | P80 | 200       | 165 | 130 | M10x20 | 19 | 20.8** | 6  | 51.5 | 115 | 110 | 78 | 83 | 248            | 10.9                                                                                | 322            | 13.7                                                                                  |      |
|        | V 1    | P80 | 200       | 165 | 130 | M10x20 | 19 | 21.8   | 6  | 59   | 133 | 124 | 97 | 83 | —              | —                                                                                   | 364            | 21.1                                                                                  |      |
|        | V 1    | P90 | 200       | 165 | 130 | M10x20 | 24 | 26.3*  | 8  | 59   | 133 | 124 | 97 | 83 | —              | —                                                                                   | 364            | 21.1                                                                                  |      |

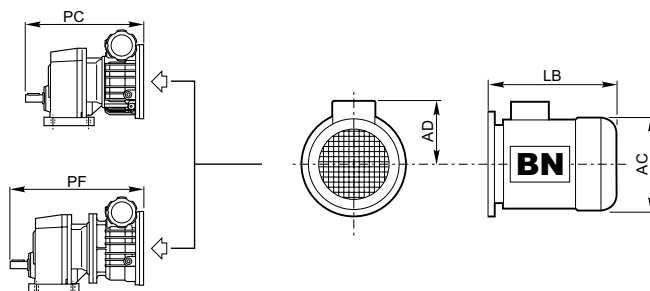
\* Utilizzare linguetta ribassata 8x6x35 "A"  
 \*\* Utilizzare linguetta ribassata 6x5x30 "A"

\* Use lowered key 8x6x35 "A"  
 \*\* Use lowered key 6x5x30 "A"

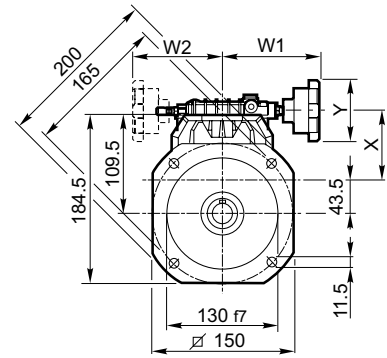
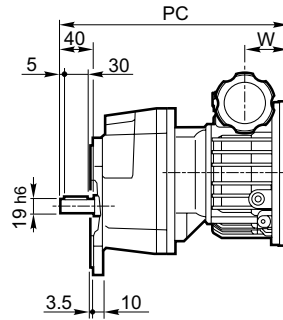
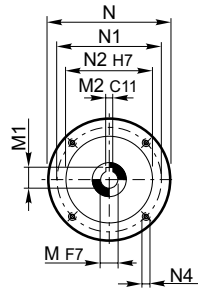
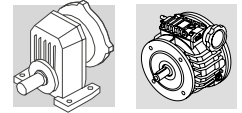
\* Den abgeflachten Federkeil 8x6x35 "A" verwenden  
 \*\* Den abgeflachten Federkeil 6x5x30 "A" verwenden

\* Utiliser une languette rabaissée taille 8x6x35 "A"  
 \*\* Utiliser une languette rabaissée taille 6x5x30 "A"

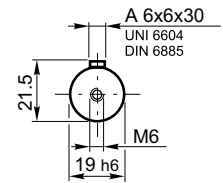
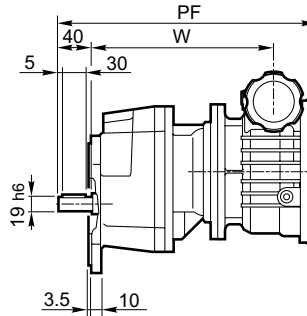
## S 201 P + V\_P + BN



|        |        | IEC | BN  |     |     | S 201P + V_C |                                                                                     | S 201P + V_F |                                                                                     |
|--------|--------|-----|-----|-----|-----|--------------|-------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|
|        |        |     | AC  | AD  | LB  | PC+LB        |  | PF+LB        |  |
| S 201P | V 0.25 | 63  | 121 | 95  | 184 | 425          | 12.2                                                                                | 500          | 14.4                                                                                |
|        | V 0.25 | 71R | 138 | 108 | 219 | 460          | 13.7                                                                                | 535          | 15.9                                                                                |
|        | V 0.5  | 71  | 138 | 108 | 219 | 463          | 16.8                                                                                | 537          | 19.6                                                                                |
|        | V 0.5  | 80  | 156 | 119 | 234 | 482          | 20.8                                                                                | 556          | 23.6                                                                                |
|        | V 1    | 80  | 156 | 119 | 234 | —            | —                                                                                   | 598          | 31                                                                                  |
|        | V 1    | 90S | 176 | 133 | 276 | —            | —                                                                                   | 640          | 33.4                                                                                |
|        | V 1    | 90L | 176 | 133 | 276 | —            | —                                                                                   | 640          | 35.4                                                                                |



## S 201 F\_ + V\_P (IEC)



|        |        | IEC | V_C - V_F |     |     |        |    |        |    |      |     |     |    |    | S 201F+<br>V_C |                                                                                       | S 201F +<br>V_F |                                                                                       |
|--------|--------|-----|-----------|-----|-----|--------|----|--------|----|------|-----|-----|----|----|----------------|---------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------|
|        |        |     | N         | N1  | N2  | N4     | M  | M1     | M2 | W    | W1  | W2  | X  | Y  | PC             |  | PF              |  |
| S 201F | V 0.25 | P63 | 140       | 115 | 95  | M8X20  | 11 | 12.8   | 4  | 45   | 115 | 110 | 70 | 83 | 241            | 8.5                                                                                   | 316             | 10.7                                                                                  |
|        | V 0.5  | P71 | 160       | 130 | 110 | M8X20  | 14 | 16.3   | 5  | 47.5 | 115 | 110 | 78 | 83 | 244            | 11                                                                                    | 318             | 13.8                                                                                  |
|        | V 0.5  | P80 | 200       | 165 | 130 | M10X20 | 19 | 20.8** | 6  | 51.5 | 115 | 110 | 78 | 83 | 248            | 11                                                                                    | 322             | 13.8                                                                                  |
|        | V 1    | P80 | 200       | 165 | 130 | M10X20 | 19 | 21.8   | 6  | 59   | 133 | 124 | 97 | 83 | —              | —                                                                                     | 364             | 21.3                                                                                  |
|        | V 1    | P90 | 200       | 165 | 130 | M10X20 | 24 | 26.3*  | 8  | 59   | 133 | 124 | 97 | 83 | —              | —                                                                                     | 364             | 21.3                                                                                  |

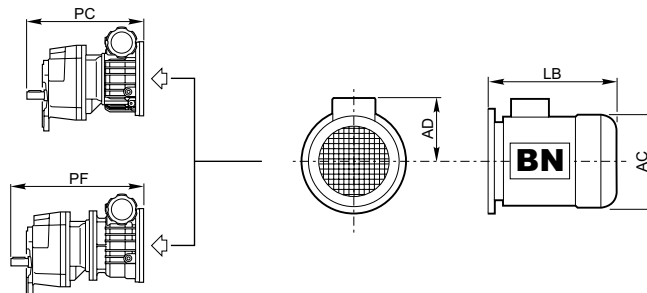
\* Utilizzare linguetta ribassata 8x6x35 "A"  
 \*\* Utilizzare linguetta ribassata 6x5x30 "A"

\* Use lowered key 8x6x35 "A"  
 \*\* Use lowered key 6x5x30 "A"

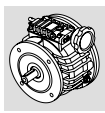
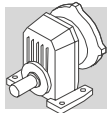
\* Den abgeflachten Federkeil 8x6x35 "A" verwenden  
 \*\* Den abgeflachten Federkeil 6x5x30 "A" verwenden

\* Utiliser une languette rabaissée taille 8x6x35 "A"  
 \*\* Utiliser une languette rabaissée taille 6x5x30 "A"

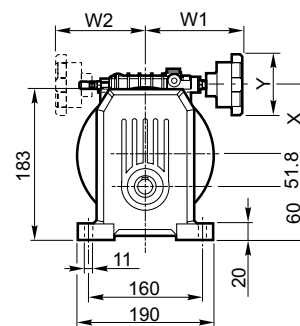
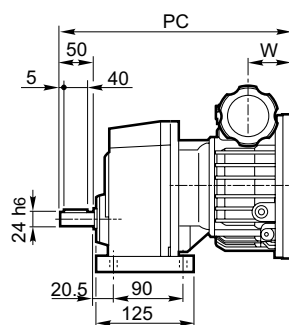
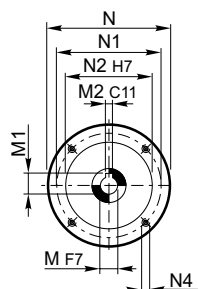
## S 201 F + V\_P + BN



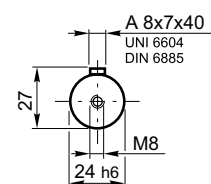
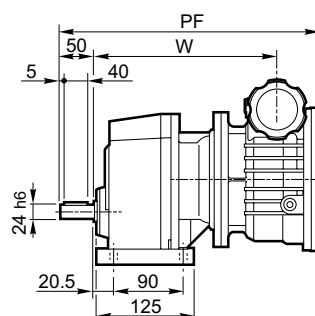
|        |        | IEC | BN  |     |     | S 201F + V_C |                                                                                       | S 201F + V_F |                                                                                       |
|--------|--------|-----|-----|-----|-----|--------------|---------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|
|        |        |     | AC  | AD  | LB  | PC+LB        |  | PF+LB        |  |
| S 201F | V 0.25 | 63  | 121 | 95  | 425 | 425          | 12.4                                                                                  | 500          | 14.6                                                                                  |
|        | V 0.25 | 71R | 138 | 108 | 460 | 460          | 13.9                                                                                  | 535          | 16.1                                                                                  |
|        | V 0.5  | 71  | 138 | 108 | 463 | 463          | 16.9                                                                                  | 537          | 19.7                                                                                  |
|        | V 0.5  | 80  | 156 | 119 | 482 | 482          | 20.9                                                                                  | 556          | 23.7                                                                                  |
|        | V 1    | 80  | 156 | 119 | —   | —            | —                                                                                     | 598          | 31                                                                                    |
|        | V 1    | 90S | 176 | 133 | —   | —            | —                                                                                     | 640          | 34                                                                                    |
|        | V 1    | 90L | 176 | 133 | —   | —            | —                                                                                     | 640          | 36                                                                                    |



# S 30



## S 301 P + V\_P (IEC)



|        |        | IEC  | V_C - V_F |     |     |        |    |        |    |      |     |     |     |    | S 301P+<br>V_C |                                                                                       | S 301P+<br>V_F |                                                                                       |
|--------|--------|------|-----------|-----|-----|--------|----|--------|----|------|-----|-----|-----|----|----------------|---------------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------------|
|        |        |      | N         | N1  | N2  | N4     | M  | M1     | M2 | W    | W1  | W2  | X   | Y  | PC             |  | PF             |  |
| S 301P | V 0.25 | P 63 | 140       | 115 | 95  | M8X20  | 11 | 12.8   | 4  | 45   | 115 | 110 | 70  | 83 | —              | —                                                                                     | 341            | 12.4                                                                                  |
|        | V 0.5  | P 71 | 160       | 130 | 110 | M8X20  | 14 | 16.3   | 5  | 47.5 | 115 | 110 | 78  | 83 | 269            | 13.1                                                                                  | 343            | 15.6                                                                                  |
|        | V 0.5  | P 80 | 200       | 165 | 130 | M10X20 | 19 | 20.8** | 6  | 51.5 | 115 | 110 | 78  | 83 | 273            | 13.1                                                                                  | 347            | 15.6                                                                                  |
|        | V 1    | P 80 | 200       | 165 | 130 | M10X20 | 19 | 21.8   | 6  | 59   | 133 | 124 | 97  | 83 | 305            | 19.1                                                                                  | 389            | 23.1                                                                                  |
|        | V 1    | P 90 | 200       | 165 | 130 | M10X20 | 24 | 26.3*  | 8  | 59   | 133 | 124 | 97  | 83 | 305            | 19.1                                                                                  | 389            | 23.1                                                                                  |
|        | V 2    | P 90 | 200       | 165 | 130 | M10X15 | 24 | 27.3   | 8  | 74.1 | 137 | 120 | 113 | 83 | —              | —                                                                                     | 413            | 27.8                                                                                  |

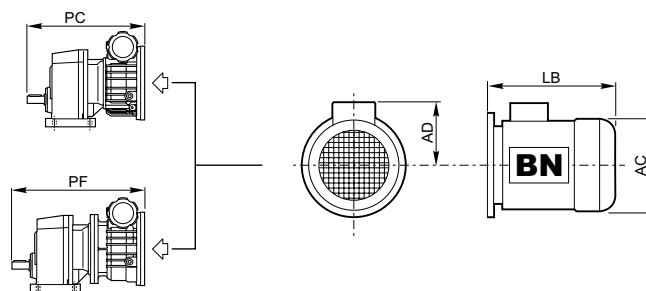
\* Utilizzare linguetta ribassata 8x6x35 "A"  
\*\* Utilizzare linguetta ribassata 6x5x30 "A"

\* Use lowered key 8x6x35 "A"  
\*\* Use lowered key 6x5x30 "A"

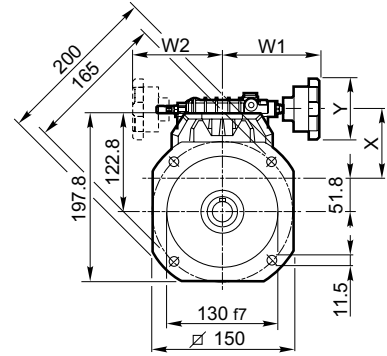
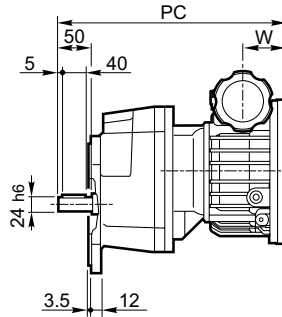
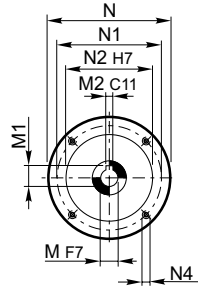
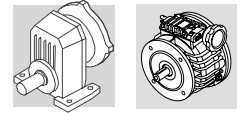
\* Den abgeflachten Federkeil 8x6x35 "A" verwenden  
\*\* Den abgeflachten Federkeil 6x5x30 "A" verwenden

\* Utiliser une languette rabaissée taille 8x6x35 "A"  
\*\* Utiliser une languette rabaissée taille 6x5x30 "A"

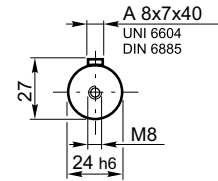
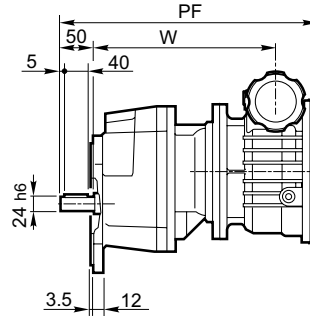
## S 301 P + V\_P + BN



|        |        | IEC  | BN  |     |     | S 301P + V_C |                                                                                       | S 301P + V_F |                                                                                       |
|--------|--------|------|-----|-----|-----|--------------|---------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|
|        |        |      | AC  | AD  | LB  | PC+LB        |  | PF+LB        |  |
| S 301P | V 0.25 | 63   | 121 | 95  | 184 | —            | —                                                                                     | 525          | 16.3                                                                                  |
|        | V 0.25 | 71R  | 138 | 108 | 219 | —            | —                                                                                     | 560          | 17.8                                                                                  |
|        | V 0.5  | 71   | 138 | 108 | 219 | 488          | 19.0                                                                                  | 562          | 21.5                                                                                  |
|        | V 0.5  | 80   | 156 | 119 | 234 | 507          | 23.0                                                                                  | 581          | 25.5                                                                                  |
|        | V 1    | 80   | 156 | 119 | 234 | 539          | 29.0                                                                                  | 623          | 33                                                                                    |
|        | V 1    | 90S  | 176 | 133 | 276 | 581          | 31                                                                                    | 665          | 35                                                                                    |
|        | V 1    | 90L  | 176 | 133 | 276 | 581          | 33                                                                                    | 665          | 37                                                                                    |
|        | V 2    | 90S  | 176 | 133 | 276 | —            | —                                                                                     | 689          | 40                                                                                    |
|        | V 2    | 90L  | 176 | 133 | 276 | —            | —                                                                                     | 689          | 42                                                                                    |
|        | V 2    | 100R | 195 | 142 | 307 | —            | —                                                                                     | 720          | 50                                                                                    |



## S 301 F + V\_P (IEC)



|        |        | IEC | V_C - V_F |     |     |        |    |        |    |      |     |     |     |    | S 301F+ V_C |      | S 301F+ V_F |      |
|--------|--------|-----|-----------|-----|-----|--------|----|--------|----|------|-----|-----|-----|----|-------------|------|-------------|------|
|        |        |     | N         | N1  | N2  | N4     | M  | M1     | M2 | W    | W1  | W2  | X   | Y  | PC          |      | PF          |      |
| S 301F | V 0.25 | P63 | 140       | 115 | 95  | M8X20  | 11 | 12.8   | 4  | 45   | 115 | 110 | 70  | 83 | —           | —    | 341         | 12.7 |
|        | V 0.5  | P71 | 160       | 130 | 110 | M8X20  | 14 | 16.3   | 5  | 47.5 | 115 | 110 | 78  | 83 | 269         | 13.4 | 343         | 15.9 |
|        | V 0.5  | P80 | 200       | 165 | 130 | M10X20 | 19 | 20.8** | 6  | 51.5 | 115 | 110 | 78  | 83 | 273         | 13.4 | 347         | 15.9 |
|        | V 1    | P80 | 200       | 165 | 130 | M10X20 | 19 | 21.8   | 6  | 59   | 133 | 124 | 97  | 83 | 305         | 19.4 | 389         | 23.4 |
|        | V 1    | P90 | 200       | 165 | 130 | M10X20 | 24 | 26.3*  | 8  | 59   | 133 | 124 | 97  | 83 | 305         | 19.4 | 389         | 23.4 |
|        | V 2    | P90 | 200       | 165 | 130 | M10X15 | 24 | 27.3   | 8  | 74.1 | 137 | 120 | 113 | 83 | —           | —    | 413         | 28.1 |

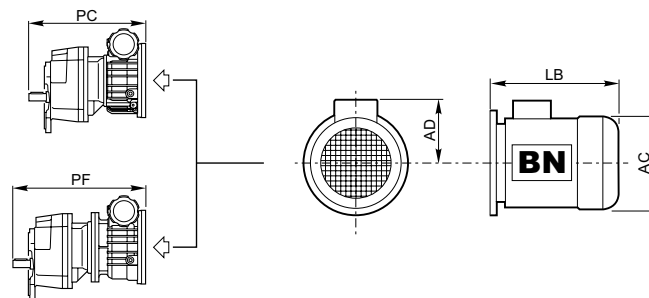
\* Utilizzare linguetta ribassata 8x6x35 "A"  
 \*\* Utilizzare linguetta ribassata 6x5x30 "A"

\* Use lowered key 8x6x35 "A"  
 \*\* Use lowered key 6x5x30 "A"

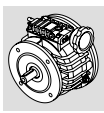
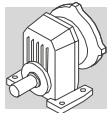
\* Den abgeflachten Federkeil 8x6x35 "A" verwenden  
 \*\* Den abgeflachten Federkeil 6x5x30 "A" verwenden

\* Utiliser une languette rabaissée taille 8x6x35 "A"  
 \*\* Utiliser une languette rabaissée taille 6x5x30 "A"

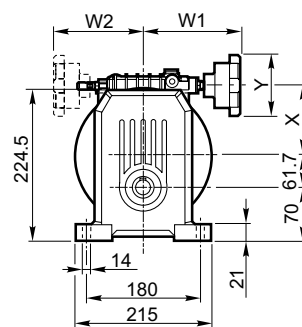
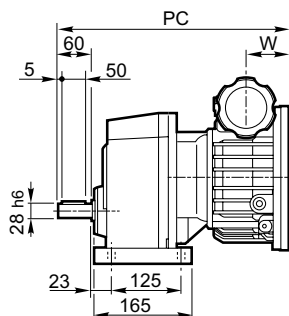
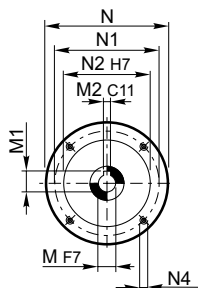
## S 301 F + V\_P + BN



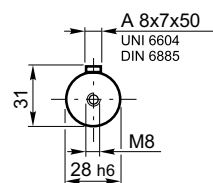
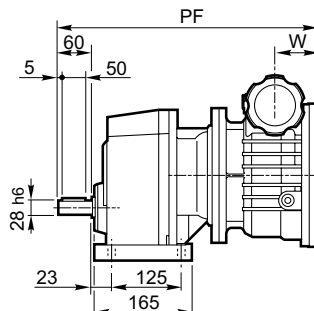
|        |        | IEC  | BN  |     |     | S 301F+ V_C |      | S 301F+ V_F |      |
|--------|--------|------|-----|-----|-----|-------------|------|-------------|------|
|        |        |      | AC  | AD  | LB  | PC+LB       |      | PF+LB       |      |
| S 301F | V 0.25 | 63   | 121 | 95  | 184 | —           | —    | 525         | 16.6 |
|        | V 0.25 | 71R  | 138 | 108 | 219 | —           | —    | 560         | 18.1 |
|        | V 0.5  | 71   | 138 | 108 | 219 | 488         | 19.3 | 562         | 21.8 |
|        | V 0.5  | 80   | 156 | 119 | 234 | 507         | 23.3 | 581         | 25.8 |
|        | V 1    | 80   | 156 | 119 | 234 | 539         | 29.3 | 523         | 33   |
|        | V 1    | 90S  | 176 | 133 | 276 | 581         | 32   | 665         | 36   |
|        | V 1    | 90L  | 176 | 133 | 276 | 581         | 34   | 665         | 38   |
|        | V 2    | 90S  | 176 | 133 | 276 | —           | —    | 689         | 40   |
|        | V 2    | 90L  | 176 | 133 | 276 | —           | —    | 689         | 42   |
|        | V 2    | 100R | 195 | 142 | 307 | —           | —    | 720         | 50   |



## S 40



### S 401 P + V\_P (IEC)



|        |       | IEC  | V_C - V_F |     |     |        |    |        |    |      |       |     |       |     | S 401P+<br>V_C |      | S 401P+<br>V_F |    |
|--------|-------|------|-----------|-----|-----|--------|----|--------|----|------|-------|-----|-------|-----|----------------|------|----------------|----|
|        |       |      | N         | N1  | N2  | N4     | M  | M1     | M2 | W    | W1    | W2  | X     | Y   | PC             |      | PF             |    |
| S 401P | V 0.5 | P71  | 160       | 130 | 110 | M8X20  | 14 | 16.3   | 5  | 47.5 | 115   | 110 | 78    | 83  | 318            | 25.6 | 385            | 30 |
|        | V 0.5 | P80  | 200       | 165 | 130 | M10X20 | 19 | 20.8** | 6  | 51.5 | 115   | 110 | 78    | 83  | 322            | 25.6 | 389            | 30 |
|        | V 1   | P80  | 200       | 165 | 130 | M10X20 | 19 | 21.8   | 6  | 59   | 133   | 124 | 97    | 83  | 347            | 32   | 431            | 38 |
|        | V 1   | P90  | 200       | 165 | 130 | M10X20 | 24 | 26.3*  | 8  | 59   | 133   | 124 | 97    | 83  | 347            | 32   | 431            | 38 |
|        | V 2   | P90  | 200       | 165 | 130 | M10X15 | 24 | 27.3   | 8  | 74.1 | 137   | 120 | 113   | 83  | 370            | 37   | 455            | 43 |
|        | V 3   | P100 | 250       | 215 | 180 | M12    | 28 | 31.3   | 8  | 91   | 172.5 | —   | 150.5 | 109 | —              | —    | 519            | 67 |
|        | V 5.5 | P112 | 250       | 215 | 180 | M12    | 28 | 31.3   | 8  | 108  | 172.5 | —   | 150.5 | 109 | —              | —    | 519            | 67 |

\* Utilizzare linguetta ribassata 8x6x35 "A"

\*\* Utilizzare linguetta ribassata 6x5x30 "A"

\* Use lowered key 8x6x35 "A"

\*\* Use lowered key 6x5x30 "A"

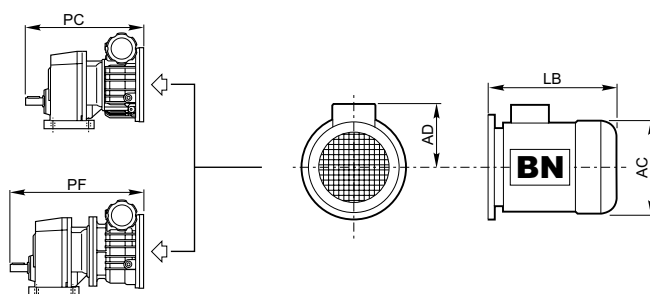
\* Den abgeflachten Federkeil 8x6x35 "A" verwenden

\*\* Den abgeflachten Federkeil 6x5x30 "A" verwenden

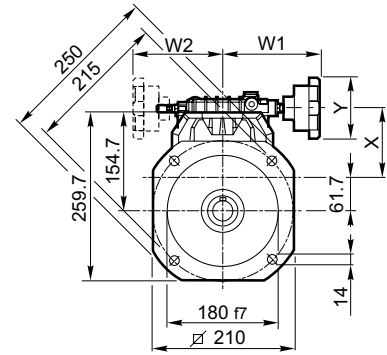
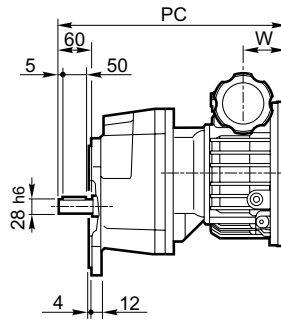
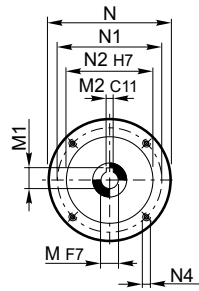
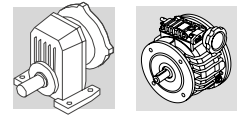
\* Utiliser une languette rabaissée taille 8x6x35 "A"

\*\* Utiliser une languette rabaissée taille 6x5x30 "A"

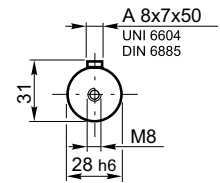
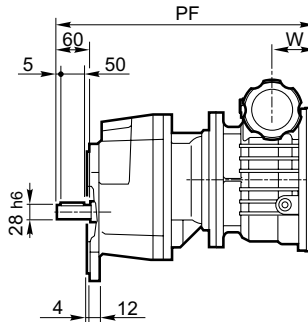
### S 401 P + V\_P + BN



|        |       | IEC  | BN  |     |     | S 401P + V_C |    | S 401P + V_F |    |
|--------|-------|------|-----|-----|-----|--------------|----|--------------|----|
|        |       |      | AC  | AD  | LB  | PC+LB        |    | PF+LB        |    |
| S 401P | V 0.5 | 71   | 138 | 108 | 219 | 537          | 32 | 604          | 36 |
|        | V 0.5 | 80   | 156 | 119 | 234 | 556          | 36 | 623          | 40 |
|        | V 1   | 80   | 156 | 119 | 234 | 581          | 42 | 665          | 48 |
|        | V 1   | 90S  | 176 | 133 | 276 | 623          | 44 | 707          | 51 |
|        | V 1   | 90L  | 176 | 133 | 276 | 623          | 46 | 707          | 53 |
|        | V 2   | 90S  | 176 | 133 | 276 | 646          | 49 | 731          | 55 |
|        | V 2   | 90L  | 176 | 133 | 276 | 646          | 51 | 731          | 57 |
|        | V 2   | 100R | 195 | 142 | 307 | 677          | 59 | 762          | 65 |
|        | V 3   | 100  | 195 | 135 | 306 | —            | —  | 825          | 89 |
|        | V 3   | 112  | 219 | 150 | 325 | —            | —  | 844          | 97 |
|        | V 5.5 | 112  | 219 | 150 | 325 | —            | —  | 844          | 97 |



## S 401 F + V\_P (IEC)



|        |       | IEC  | V_C - V_F |     |     |        |    |        |    |      |       |     |       |     | S 401F+ V_C |                                                                                       | S 401F+ V_F |                                                                                       |
|--------|-------|------|-----------|-----|-----|--------|----|--------|----|------|-------|-----|-------|-----|-------------|---------------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------------|
|        |       |      | N         | N1  | N2  | N4     | M  | M1     | M2 | W    | W1    | W2  | X     | Y   | PC          |  | PF          |  |
| S 401F | V 0.5 | P71  | 160       | 130 | 110 | M8X20  | 14 | 16.3   | 5  | 47.5 | 115   | 110 | 78    | 83  | 318         | 27.4                                                                                  | 385         | 32                                                                                    |
|        | V 0.5 | P80  | 200       | 165 | 130 | M10X20 | 19 | 20.8** | 6  | 51.5 | 115   | 110 | 78    | 83  | 322         | 27.4                                                                                  | 389         | 32                                                                                    |
|        | V 1   | P80  | 200       | 165 | 130 | M10X20 | 19 | 21.8   | 6  | 59   | 133   | 124 | 97    | 83  | 347         | 34                                                                                    | 431         | 40                                                                                    |
|        | V 1   | P90  | 200       | 165 | 130 | M10X20 | 24 | 26.3*  | 8  | 59   | 133   | 124 | 97    | 83  | 347         | 34                                                                                    | 431         | 40                                                                                    |
|        | V 2   | P90  | 200       | 165 | 130 | M10X15 | 24 | 27.3   | 8  | 74.1 | 137   | 120 | 113   | 83  | 370         | 38                                                                                    | 455         | 45                                                                                    |
|        | V 3   | P100 | 250       | 215 | 180 | M12    | 28 | 31.3   | 8  | —    | 172.5 | —   | 150.5 | 109 | —           | —                                                                                     | 519         | 69                                                                                    |
|        | V 5.5 | P112 | 250       | 215 | 180 | M12    | 28 | 31.3   | 8  | —    | 172   | —   | 150.5 | 109 | —           | —                                                                                     | 519         | 69                                                                                    |

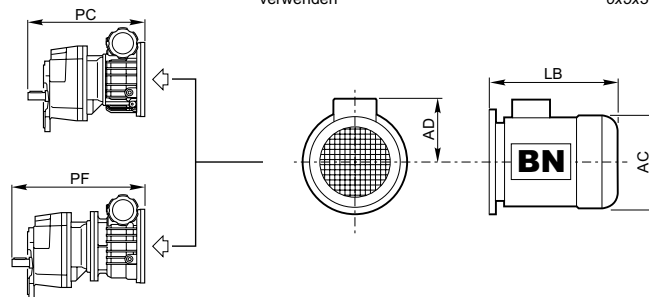
\* Utilizzare linguetta ribassata 8x6x35 "A"  
 \*\* Utilizzare linguetta ribassata 6x5x30 "A"

\* Use lowered key 8x6x35 "A"  
 \*\* Use lowered key 6x5x30 "A"

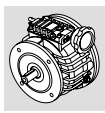
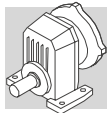
\* Den abgeflachten Federkeil 8x6x35 "A" verwenden  
 \*\* Den abgeflachten Federkeil 6x5x30 "A" verwenden

\* Utiliser une languette rabaisée taille 8x6x35 "A"  
 \*\* Utiliser une languette rabaisée taille 6x5x30 "A"

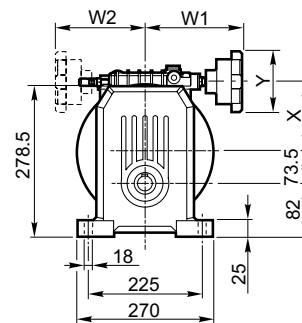
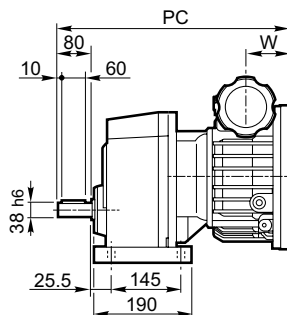
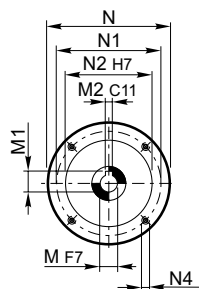
## S 401 F + V\_P + BN



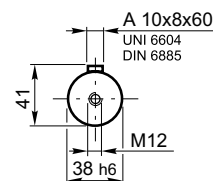
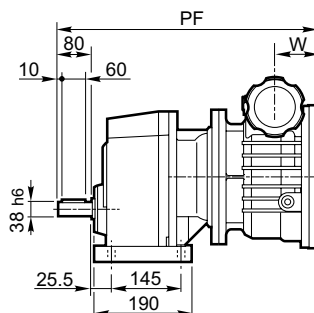
|        |       | IEC  | BN  |     |     | S 401F + V_C |                                                                                       | S 401F + V_F |                                                                                       |
|--------|-------|------|-----|-----|-----|--------------|---------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|
|        |       |      | AC  | AD  | LB  | PC+LB        |  | PF+LB        |  |
| S 401F | V 0.5 | 71   | 138 | 108 | 219 | 537          | 33                                                                                    | 604          | 38                                                                                    |
|        | V 0.5 | 80   | 156 | 119 | 234 | 556          | 37                                                                                    | 623          | 42                                                                                    |
|        | V 1   | 80   | 156 | 119 | 234 | 581          | 44                                                                                    | 665          | 50                                                                                    |
|        | V 1   | 90S  | 176 | 133 | 276 | 623          | 46                                                                                    | 707          | 52                                                                                    |
|        | V 1   | 90L  | 176 | 133 | 276 | 623          | 48                                                                                    | 707          | 54                                                                                    |
|        | V 2   | 90S  | 176 | 133 | 276 | 646          | 51                                                                                    | 731          | 57                                                                                    |
|        | V 2   | 90L  | 176 | 133 | 276 | 646          | 53                                                                                    | 731          | 59                                                                                    |
|        | V 2   | 100R | 195 | 142 | 307 | 677          | 61                                                                                    | 762          | 67                                                                                    |
|        | V 3   | 100  | 195 | 135 | 306 | —            | —                                                                                     | 825          | 91                                                                                    |
|        | V 3   | 112  | 219 | 150 | 325 | —            | —                                                                                     | 844          | 99                                                                                    |
|        | V 5.5 | 112  | 219 | 150 | 325 | —            | —                                                                                     | 844          | 99                                                                                    |



## S 50



### S 501 P + V\_P (IEC)



|        |       | IEC  | V_C - V_F |     |     |        |    |       |    |      |       |     |       |     | S 501P+<br>V_C |                                                                                     | S 501P+<br>V_F |                                                                                       |
|--------|-------|------|-----------|-----|-----|--------|----|-------|----|------|-------|-----|-------|-----|----------------|-------------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------------|
|        |       |      | N         | N1  | N2  | N4     | M  | M1    | M2 | W    | W1    | W2  | X     | Y   | PC             |  | PF             |  |
| S 501P | V 1   | P80  | 200       | 165 | 130 | M10X20 | 19 | 21.8  | 6  | 59   | 133   | 124 | 97    | 83  | —              |  | 451            | 49                                                                                    |
|        | V 1   | P90  | 200       | 165 | 130 | M10X20 | 24 | 26.3* | 8  | 59   | 133   | 124 | 97    | 83  | —              |  | 451            | 49                                                                                    |
|        | V 2   | P90  | 200       | 165 | 130 | M10X15 | 24 | 27.3  | 8  | 74.1 | 137   | 120 | 113   | 83  | 410            | 46                                                                                  | 495            | 54                                                                                    |
|        | V 3   | P100 | 250       | 215 | 180 | M12    | 28 | 31.3  | 8  | 91   | 172.5 | —   | 150.5 | 109 | 452            | 66                                                                                  | 559            | 78                                                                                    |
|        | V 5.5 | P112 | 250       | 215 | 180 | M12    | 28 | 31.3  | 8  | 91   | 172.5 | —   | 150.5 | 109 | 452            | 67                                                                                  | 559            | 80                                                                                    |
|        | V 10  | P132 | 300       | 265 | 230 | M12    | 38 | 41.3  | 10 | 108  | 193.5 | —   | 206.5 | 109 | —              |  | 636            | 138                                                                                   |

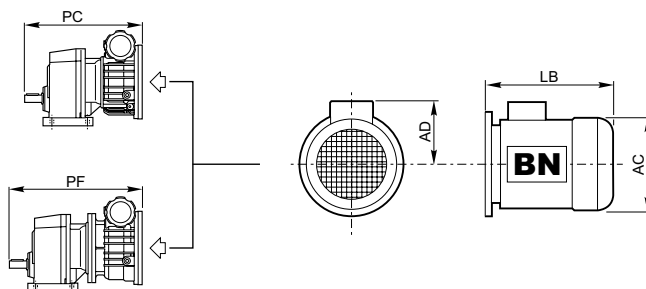
\* Utilizzare linguetta ribassata 8x6x35 "A"

\* Use lowered key 8x6x35 "A"

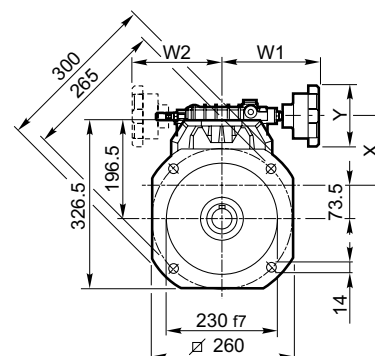
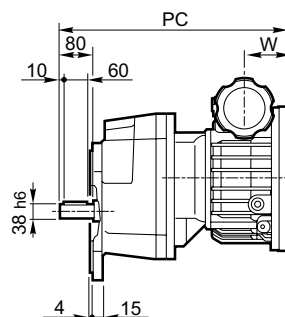
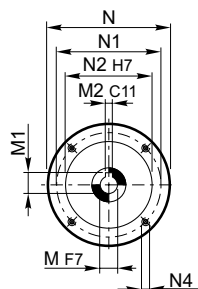
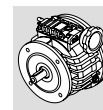
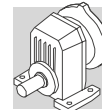
\* Den abgeflachten Federkeil 8x6x35 "A" verwenden

\* Utiliser une languette rabaissée taille 8x6x35 "A"

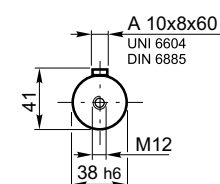
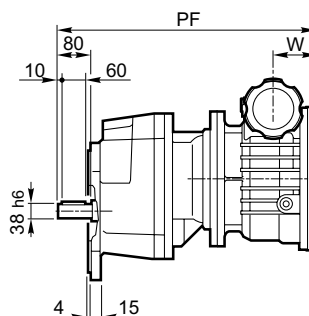
### S 501 P + V\_P + BN



|        | IEC   | BN   |     |     | S 501P + V_C |     | S 501P + V_F |     |
|--------|-------|------|-----|-----|--------------|-----|--------------|-----|
|        |       | AC   | AD  | LB  | PC+LB        | Kg  | PF+LB        | Kg  |
| S 501P | V 1   | 80   | 156 | 119 | 234          | —   | 685          | 59  |
|        | V 1   | 90S  | 176 | 133 | 276          | —   | 727          | 61  |
|        | V 1   | 90L  | 176 | 133 | 276          | —   | 727          | 63  |
|        | V 2   | 90S  | 176 | 133 | 276          | 686 | 771          | 66  |
|        | V 2   | 90L  | 176 | 133 | 276          | 686 | 771          | 68  |
|        | V 2   | 100R | 195 | 135 | 307          | 717 | 802          | 76  |
|        | V 3   | 100  | 195 | 135 | 306          | 758 | 865          | 100 |
|        | V 3   | 112  | 219 | 150 | 325          | 777 | 884          | 108 |
|        | V 5.5 | 112  | 219 | 150 | 325          | 777 | 884          | 110 |
|        | V 10  | 132S | 258 | 193 | 375          | —   | 1011         | 181 |
|        | V 10  | 132M | 258 | 193 | 413          | —   | 1049         | 196 |



## S 501 F + V\_P (IEC)



|        |       | IEC  | V_C - V_F |     |     |        |    |       |    |      |       |     |       |     | S 501F+ V_C |    | S 501F+ V_F |     |
|--------|-------|------|-----------|-----|-----|--------|----|-------|----|------|-------|-----|-------|-----|-------------|----|-------------|-----|
|        |       |      | N         | N1  | N2  | N4     | M  | M1    | M2 | W    | W1    | W2  | X     | Y   | PC          |    | PF          |     |
| S 501F | V 1   | P80  | 200       | 165 | 130 | M10X20 | 19 | 21.8  | 6  | 59   | 133   | 124 | 97    | 83  | —           | —  | 451         | 51  |
|        | V 1   | P90  | 200       | 165 | 130 | M10X20 | 24 | 26.3* | 8  | 59   | 133   | 124 | 97    | 83  | —           | —  | 451         | 51  |
|        | V 2   | P90  | 200       | 165 | 130 | M10X15 | 24 | 27.3  | 8  | 74.1 | 137   | 120 | 113   | 83  | 410         | 48 | 495         | 56  |
|        | V 3   | P100 | 250       | 215 | 180 | M12    | 28 | 31.3  | 8  | 91   | 172.5 | —   | 150.5 | 109 | 451.5       | 69 | 559         | 81  |
|        | V 5.5 | P112 | 250       | 215 | 180 | M12    | 28 | 31.3  | 8  | 91   | 172.5 | —   | 150.5 | 109 | 451.5       | 70 | 559         | 83  |
|        | V 10  | P132 | 300       | 265 | 230 | M12    | 38 | 41.3  | 10 | 108  | 193.5 | —   | 206.5 | 109 | —           | —  | 636         | 141 |

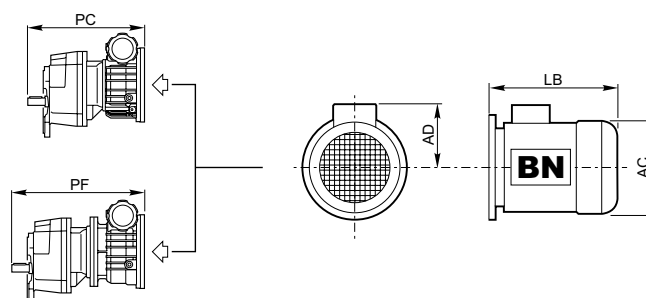
\* Utilizzare linguetta ribassata 8x6x35 "A"

\* Use lowered key 8x6x35 "A"

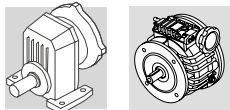
\* Den abgeflachten Federkeil 8x6x35 "A" verwenden

\* Utiliser une languette rabaissée taille 8x6x35 "A"

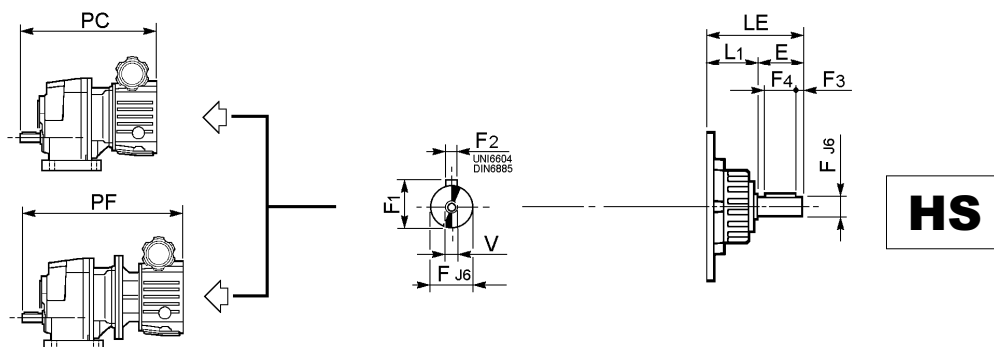
## S 501 F + V\_P + BN



|        |       | IEC  | BN  |     |     | S 501F + V_C |     | S 501F + V_F |     |
|--------|-------|------|-----|-----|-----|--------------|-----|--------------|-----|
|        |       |      | AC  | AD  | LB  | PC+LB        |     | PF+LB        |     |
| S 501F | V 1   | 80   | 156 | 119 | 234 | —            | —   | 685          | 61  |
|        | V 1   | 90S  | 176 | 133 | 276 | —            | —   | 727          | 63  |
|        | V 1   | 90L  | 176 | 133 | 276 | —            | —   | 727          | 65  |
|        | V 2   | 90S  | 176 | 133 | 276 | 686          | 60  | 771          | 68  |
|        | V 2   | 90L  | 176 | 133 | 276 | 686          | 62  | 771          | 70  |
|        | V 2   | 100R | 195 | 142 | 307 | 717          | 70  | 802          | 78  |
|        | V 3   | 100  | 195 | 135 | 306 | 758          | 91  | 865          | 103 |
|        | V 3   | 112  | 219 | 150 | 325 | 777          | 99  | 884          | 111 |
|        | V 5.5 | 112  | 219 | 150 | 325 | 777          | 100 | 884          | 113 |
|        | V 10  | 132S | 258 | 193 | 375 | —            | —   | 1011         | 184 |
|        | V 10  | 132M | 258 | 193 | 413 | —            | —   | 1049         | 199 |

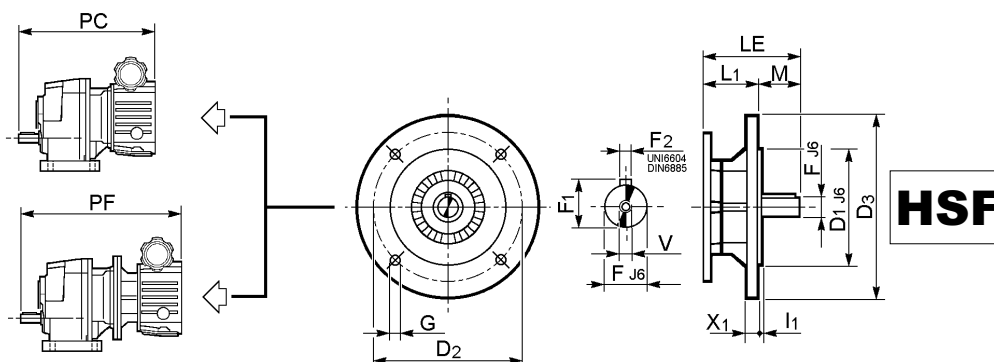


**S<sub>-</sub> + V<sub>-</sub>**



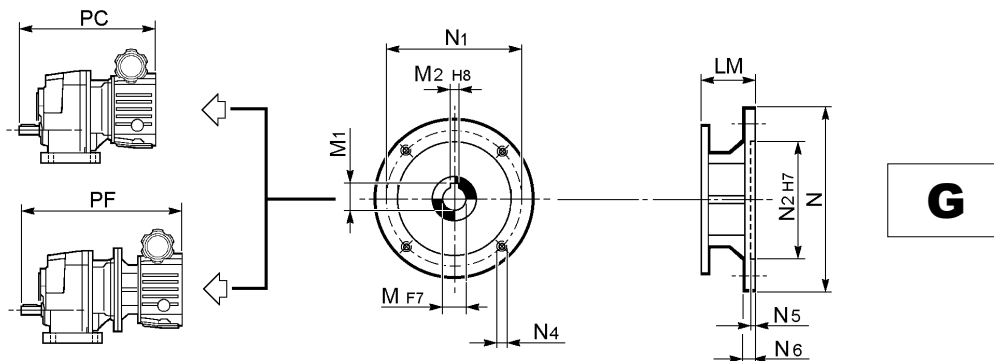
|               | E  | F  | F1   | F2 | F3  | F4 | LE    | L1   | V   | Kg   |
|---------------|----|----|------|----|-----|----|-------|------|-----|------|
| <b>V 0.25</b> | 23 | 11 | 12.5 | 4  | 2   | 20 | 58.5  | 35.5 | M4  | 1.1  |
| <b>V 0.5</b>  | 30 | 14 | 16   | 5  | 2.5 | 25 | 67    | 37   | M5  | 1.6  |
| <b>V 1</b>    | 40 | 19 | 21.5 | 6  | 5   | 30 | 88.5  | 48.5 | M6  | 2.8  |
| <b>V 2</b>    | 50 | 24 | 27   | 8  | 5   | 40 | 103.5 | 53.5 | M8  | 4.0  |
| <b>V 3</b>    | 60 | 28 | 31   | 8  | 5   | 50 | 121.5 | 61.5 | M10 | 7.0  |
| <b>V 5.5</b>  | 60 | 28 | 31   | 8  | 5   | 50 | 121.5 | 61.5 | M10 | 7.0  |
| <b>V 10</b>   | 80 | 38 | 41   | 10 | 5   | 70 | 160.5 | 80.5 | M12 | 11.0 |

**S<sub>-</sub> + V<sub>-</sub>**



|               | D1  | D2  | D3  | F  | F1   | F2 | G    | I1  | LE    | L1   | M  | V   | X1 | Kg   |
|---------------|-----|-----|-----|----|------|----|------|-----|-------|------|----|-----|----|------|
| <b>V 0.25</b> | 95  | 115 | 140 | 11 | 12.5 | 4  | 8.5  | 3   | 58.5  | 37.5 | 21 | M4  | 8  | 1.6  |
| <b>V 0.5</b>  | 110 | 130 | 160 | 14 | 16   | 5  | 8.5  | 3.5 | 67    | 37   | 30 | M5  | 8  | 2.5  |
| <b>V 1</b>    | 130 | 165 | 200 | 19 | 21.5 | 6  | 11.5 | 3.5 | 88.5  | 48.5 | 40 | M6  | 12 | 4.5  |
| <b>V 2</b>    | 130 | 165 | 200 | 24 | 27   | 8  | 11.5 | 3.5 | 103.5 | 53.5 | 50 | M8  | 12 | 5.9  |
| <b>V 3</b>    | 180 | 215 | 250 | 28 | 31   | 8  | 14   | 4   | 121.5 | 61.5 | 60 | M10 | 14 | 11.0 |
| <b>V 5.5</b>  | 180 | 215 | 250 | 28 | 31   | 8  | 14   | 4   | 121.5 | 61.5 | 60 | M10 | 14 | 11.0 |
| <b>V 10</b>   | 230 | 265 | 300 | 38 | 41   | 10 | 14   | 5   | 160.5 | 80.5 | 80 | M12 | 16 | 20   |

**S<sub>-</sub> + V<sub>-</sub>**



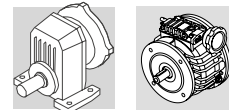
|                   | LM   | M  | M1   | M2 | N   | N1  | N2  | N4  | N5  | N6   | Kg   |
|-------------------|------|----|------|----|-----|-----|-----|-----|-----|------|------|
| <b>V 0.25 G71</b> | 42   | 14 | 16.3 | 5  | 160 | 130 | 110 | M8  | 4.5 | 11   | 1.8  |
| <b>V 0.5 G80</b>  | 54   | 19 | 21.8 | 6  | 200 | 165 | 130 | M10 | 4.5 | 11.5 | 2.8  |
| <b>V 1 G90</b>    | 59   | 24 | 27.3 | 8  | 200 | 165 | 130 | M10 | 4.5 | 11.5 | 5.0  |
| <b>V 2 G112</b>   | 67   | 28 | 31.3 | 8  | 250 | 215 | 180 | M12 | 5   | 14   | 6.8  |
| <b>V 3 G132</b>   | 88.5 | 38 | 41.3 | 10 | 300 | 265 | 230 | M12 | 5   | 15   | 12.0 |
| <b>V 5.5 G132</b> | 88.5 | 38 | 41.3 | 10 | 300 | 265 | 230 | M12 | 5   | 15   | 12.0 |
| <b>V 10 G160</b>  | 120  | 42 | 45.3 | 12 | 350 | 300 | 250 | M16 | 6   | 18   | 22   |

N.B. I pesi riportati in questa pagina si riferiscono alle sole entrate.

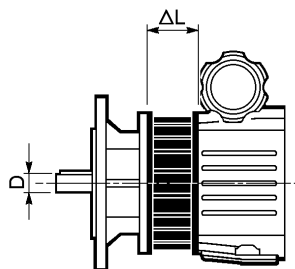
NOTE: Weights charted in this page apply to the additional input parts only.

HINWEIS: Die in dieser Tabelle angegebenen Gewichte beziehen sich nur auf den Antrieb.

N.B. : Les poids indiqués à cette page se réfèrent uniquement aux entrées.



## VD\_P (IEC)



N.B. Le dimensioni mancanti sono riportate nelle pagine 124-133.

N.B.: missing dimensions are listed on pages 124-133.

ACHTUNG: Die fehlenden Maße werden auf den Seiten 124-133 angegeben.

N.B. : Les dimensions manquantes sont indiquées pages 124-133.

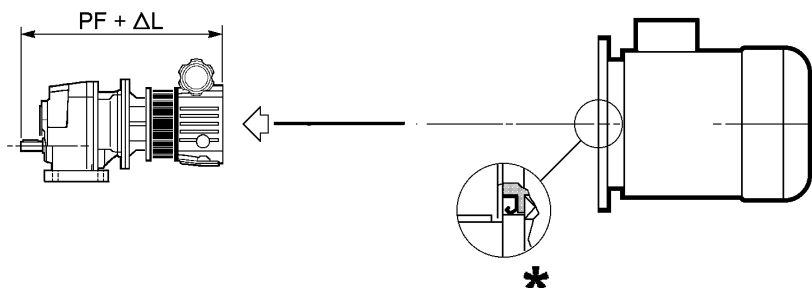
|           | D  | L     |  Kg |
|-----------|----|-------|----------------------------------------------------------------------------------------|
| VD 0.5_P_ | 14 | 69    | 3.1                                                                                    |
| VD 1_P_   | 19 | 80.5  | 4.7                                                                                    |
| VD 2_P_   | 24 | 89.5  | 7.7                                                                                    |
| VD 3_P_   | 28 | 100.4 | 16.3                                                                                   |
| VD 5.5_P_ | 28 | 100.4 | 16.3                                                                                   |
| VD 10_P_  | 38 | 119.2 | 27.7                                                                                   |

N.B. Il differenziale è applicabile esclusivamente ai variatori nella forma costruttiva UF. I pesi riportati in tabella si riferiscono al solo differenziale.

N.B.: Differential will only fit UF type variators. Weight refer to differential only.

HINWEIS: Das Differential kann ausschließlich nur an den Verstellgetrieben der Bauform UF appliziert werden. Die in dieser Tabelle angegebenen Gewichte beziehen sich nur auf das Differential.

N.B. : Le différentiel est applicable uniquement aux variateurs dans la forme de construction UF. Les poids indiqués à cette page se réfèrent uniquement au différentiel.



\* Nei variatori con differenziale, quando il motore elettrico è installato dall'utente, è necessario verificare che esso sia dotato di un anello di tenuta olio sull'albero montato secondo lo schema e che la flangia sia stagna. La tenuta olio fra la flangia motore e la flangia variatore è assicurata da una guarnizione fornita di serie sul variatore stesso.

\* On fitting the electric motor onto variators featuring the differential unit make sure that the electric motor itself is oiltight and an oil seal is provided on drive end shaft. Sealing between flange of motor and variator is ensured by a gasket provided with the variator unit.

\* Wenn der Elektromotor vom Kunden angebaut wird, ist es bei den Verstellgetrieben mit Differential erforderlich, die Motorwelle mit einem öldichten Wellendichtring auszustatten. Die Abdichtung zwischen Motor- und Verstellgetriebeflansch wird durch eine Dichtung gewährleistet, die beim Verstellgetriebe serienmäßig mitgeliefert wird.

\* Sur les variateurs avec différentiel, lorsque le moteur électrique est installé par l'utilisateur, il est nécessaire de vérifier qu'il soit doté d'une bague d'étanchéité sur l'arbre monté selon le schéma. L'étanchéité à l'huile entre la bride moteur et la bride variateur est assurée par un joint fourni de série et présent sur le variateur.

N.B. Le dimensioni e i pesi dei motori elettrici sono riportati nelle pag. 340-358.

N.B. Dimensions and weights of electric motors are listed at page 340-358.

ACHTUNG: Die Maße und Gewichte der Elektromotoren werden auf den Seiten 340-358 aufgeführt.

N.B. : Les dimensions et les poids des moteurs électriques sont indiqués à pages 340-358.

## Accessori:

- CGY
- KITCGY
- ENTHS
- ENTG
- ENTN
- INDGRAV

Vedi pag. 90-97

## Accessories:

- CGY
- KITCGY
- ENTHS
- ENTG
- ENTN
- INDGRAV

See page 90-97

## Zubehör:

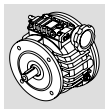
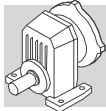
- CGY
- KITCGY
- ENTHS
- ENTG
- ENTN
- INDGRAV

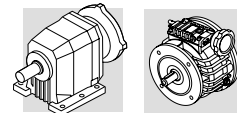
Siehe Seite 90-97

## Accessoires:

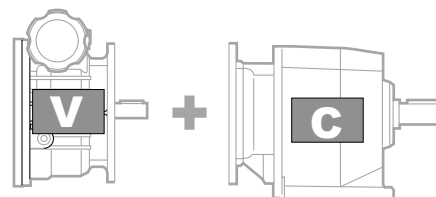
- CGY
- KITCGY
- ENTHS
- ENTG
- ENTN
- INDGRAV

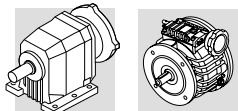
Voir page 90-97





**23.0 - MOTOVARIARIDUTTORI**  
***MOTOVARIATOR-GEARBOX UNITS***  
**VERSTELLGETRIEBEMOTOREN**  
***MOTOVARIAREDUCTEURS***





# 23.1 - Designazione riduttore

# 23.1 - Gearbox designation

# 23.1 - Getriebe- bezeichnung

# 23.1 - Désignation réducteur

**C 11 2 P 55.2 V05 B3 .....**

OPZIONI / OPTIONS  
OPTIONEN / OPTIONS

POS. DI MONTAGGIO / MOUNTING POSITION  
EINBAULAGEN / POS. DE MONTAGE

**B3** (Standard), **B5** (Standard), **B51**, **B52**, **B53**, **B6**, **B7**, **B8**, **V1**, **V3**, **V5**, **V6**

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DESIGNAZIONE INGRESSO / INPUT DESIGNATION  
BEZEICHNUNG DER ANTRIEBSSEITE / DESIGNATION ENTREE

**V** + grandezza variatore = Predisposto per variatore compatto

**V** + variator size = suitable to fit compact variator

**V** + Verstellgetriebegröße = für kompaktes Verstellgetriebe geeignet

**V** + grandeur variateur = prédisposé pour variateur compact

| V025   | V05   | V1  | V2  | V3  | V55   | V10  |
|--------|-------|-----|-----|-----|-------|------|
| V 0.25 | V 0.5 | V 1 | V 2 | V 3 | V 5.5 | V 10 |

**P** + grandezza motore = Predisposto per variatore flangiato

**P** + motor size = suitable to fit flanged output variator

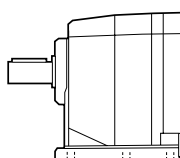
**P** + Motorgröße = für geflanshtes Verstellgetriebe geeignet

**P** + taille moteur = prédisposé pour variateur avec bride

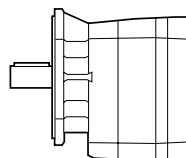
| P63    | P71   | P80          | P90        | P100 | P112  | P132 |
|--------|-------|--------------|------------|------|-------|------|
| V 0.25 | V 0.5 | V 0.5<br>V 1 | V 1<br>V 2 | V 3  | V 5.5 | V 10 |

RAPPORTO DI RIDUZIONE / GEAR RATIO  
ÜBERSETZUNG / RAPPORT DE REDUCTION

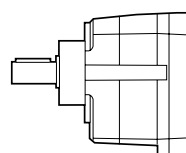
FORMA COSTRUTTIVA / VERSION / BAUFORM / FORME DE CONSTRUCTION



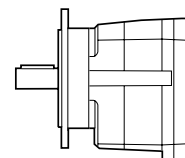
**P**  
(C11...C100)



**F**  
(C05...C31)  
(C70...C100)



**U**  
(C11...C61)



**UFA**  
**UFB**  
**UFC**  
(C11...C61)

N° STADI DI RIDUZIONE / N° OF REDUCTION STAGES  
ANZAHL DER GETRIEBESTUFEN / N.bre ETAGES DE REDUCTION

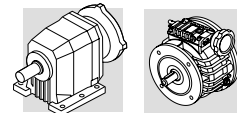
**2, 3, 4**

GRANDEZZA RIDUTTORE / GEARBOX SIZE / GETRIEBEBAUGRÖSSE / TAILLE REDUCTEUR

**11, 21, 31, 35, 41, 51, 61, 70, 80, 90, 100**

TIPO RIDUTTORE: **C** = coassiale  
GETRIEBETYP: **C** = Stirnradgetriebe

GEARBOX TYPE: **C** = helical in-line  
TYP DU REDUCTEUR: **C** = coaxial



# 23.2 - Designazione variatore

# 23.2 - Designation of variator

# 23.2 - Bezeichnung für Drehzahlwandler

# 23.2 - Désignation variateur

**V** ☐ **0.5** **C** ☐ ☐ **P71** **B3** **1** **PDN** **SCT** ....

OPZIONI / OPTIONS  
OPTIONEN / OPTIONS

TIPO DI COMANDO / REMOTE CONTROL TYPE  
VERSTELLEINRICHTUNG / TYPE DE COMMANDE  
**A, VG, VA, VAG, SCT (3Ø), TC (1Ø)**

SONDA RILEVATRICE / SPEED SENSOR  
MEßSONDE / SONDE DE DETECTION  
**PDN, PDNA, PDP**

POSIZIONE DISPOSITIVO DI COMANDO / SPEED KNOB POSITION  
EINBAULAGE DER VERSTELLEINRICHTUNG / POSITION COMMANDE  
**1 (default), 2 (V 3...V 10)**

POSIZIONE DI MONTAGGIO / MOUNTING POSITION  
MOTOR BAUFORM / FORME DE CONSTRUCTION DU MOTEUR  
**B3 (default), B6, B7, B8, V5, V51, V52, V53, V6, V61, V62, V63**

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CONFIGURAZIONE INGRESSO / INPUT CONFIGURATION  
BEZEICHNUNG DER ANTRIEBSSEITE / DESIGNATION ENTREE

- P (IEC)** - predisposizione IEC / Provided with IEC motor adaptor  
vorbereitet für den Anbau eines IEC-Motors / prédisposé IEC
- HS** - albero cilindrico / solid input shaft / freier Antriebswelle / arbre rapide sortant
- HSF** - albero cilindrico e flangia riportata / solid input shaft and bolt-on flange  
freier Antriebswelle und Flansch / arbre rapide sortant et adjonction de bride
- N (NEMA)** - predisposizione motore NEMA / provided with Nema motor adaptor  
vorbereitet für den Anschluß eines NEMA-Motors / prédisposé moteur NEMA
- G (IEC)** - flangia IEC maggiorata / provided with IEC extended adaptor  
mit zusätzlicher Baueinheit für IEC-Motore / avec module supplémentaire prédisposé IEC

DIAMETRO ALBERO LENTO / OUTPUT SHAFT BORE  
ABTRIEBSWELLE DURCHMESSER / DIAMETRE ARBRE LENT

**D** + diametro in mm / diameter in mm  
Durchmesser in mm / diamètre en mm **(11,14,...)**

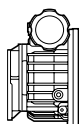
|            |            |            |            |            |            |            |
|------------|------------|------------|------------|------------|------------|------------|
| <b>D11</b> | <b>D14</b> | <b>D19</b> | <b>D24</b> | <b>D28</b> | <b>D28</b> | <b>D38</b> |
| (V 0.25)   | (V 0.5)    | (V 1)      | (V 2)      | (V 3)      | (V 5.5)    | (V 10)     |

**IMP** albero in pollici / inch series shaft / Nema-Welle / arbre NEMA

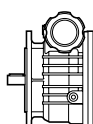
TIPO DI FISSAGGIO (per gruppi tipo U) / OUTPUT CONFIGURATION (only for U version)  
MONTAGEMÖGLICHKEIT (ausschließlich für die Bauform U) / TIPE DE FIXATION (pour forme de construction U)

- F (IEC)** - flangia IEC riportata / bolt-on IEC flange / Flansch IEC / adjonction de bride IEC
- F (NEMA)** - flangia NEMA / NEMA flange mounted / NEMA Flansch / bride Nema

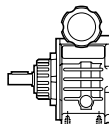
FORMA COSTRUTTIVA / VERSION / BAUFORM / VERSION



**C**



**F**



**U**

GRANDEZZA VARIATORE / VARIATOR SIZE / BAUGRÖSSE / TAILLE VARIATEUR  
**0.25, 0.5, 1, 2, 3, 5.5, 10**

DIFFERENZIALE / DIFFERENTIAL / DIFFERENTIAL / DIFFERENTIEL  
**D**

VARIATORE / VARIATOR TYPE / VERSTELLGETRIEBETYP / TYPE VARIATEUR  
**V**

# 22.3 - Designazione motore

# 22.3 - Motor designation

# 22.3 - Motor bezeichnung

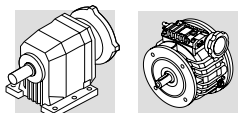
# 22.3 - Désignation moteur

27

27

27

27



### 23.4 - Opzioni riduttori

#### SO

I riduttori C11, C21, C31, C35, C41, solitamente forniti con lubrificante dalla BONFIGLIOLI RIDUTTORI, sono forniti privi di lubrificante.

#### LO

I riduttori C51, C61, C70, C80, C90, C100 solitamente sprovvisti di lubrificante, sono richiesti con olio sintetico del tipo correntemente utilizzato dalla BONFIGLIOLI RIDUTTORI e riempiti in accordo alla posizione di montaggio richiesta.

#### DL

L'albero lento è dotato di doppio anello di tenuta.

#### VV

Anello di tenuta in Viton sull'albero veloce.

#### PV

Tutti gli anelli di tenuta in Viton.

### 23.4 - Gearbox options

#### SO

*Gearboxes C11, C21, C31, C35, C41, supplied without oil.*

#### LO

*Gearboxes C51, C61, C70, C80, C90, C100 usually supplied without oil, to be supplied with synthetic oil currently used by BONFIGLIOLI RIDUTTORI and filled according to requested mounting position.*

#### DL

*The low speed shaft accommodates a dual oil seal.*

#### VV

*Viton oil seal on input shaft.*

#### PV

*All oil seals in Viton.*

### 23.4 - Getriebe Optionen

#### SO

Bei Lieferung ohne Schmierstoff (nur bei C11, C21, C31, C35 und C41).

#### LO

Für Getriebe C51, C61, C70, C80, C90, C100 die gewöhnlich ohne Schmiermittel geliefert werden, in Übereinstimmung mit der Einbaulage gefüllt mit dem normalerweise von BONFIGLIOLI RIDUTTORI verwendeten synthetischen Schmierstoff.

#### DL

Die Abtriebswelle ist mit Doppeldichtring geliefert.

#### VV

Wellendichtringe aus Viton auf der eintreibenden Welle.

#### PV

Alle Wellendichtringe aus Viton.

### 23.4 - Options réducteurs

#### SO

*Les réducteurs C11, C21, C31, C35, C41, habituellement fournis avec lubrifiant par la société BONFIGLIOLI RIDUTTORI, sont demandés sans lubrifiant.*

#### LO

*Les réducteurs C51, C61, C70, C80, C90, C100 habituellement dépourvus de lubrifiants, sont demandés avec huile synthétique du type couramment utilisé par BONFIGLIOLI RIDUTTORI et remplis conformément à la position de montage demandée.*

#### DL

*L'arbre lent est équipé avec double joint d'étanchéité.*

#### VV

*Bague d'étanchéité en Viton sur l'arbre rapide.*

#### PV

*Toutes les bagues d'étanchéité en Viton.*

### 23.5 - Opzioni variatori

#### CU

Cassa universale con piano di appoggio spianato e relativi fori di fissaggio (pag. 30).

#### FL

Cassa universale con fianchi laterali spianati e relativi fori di fissaggio (pag. 30).

#### PDN

Predisposizione al rilevamento di giri digitale incorporato all'interno del variatore con sonda rilevatrice di tipo NPN.

#### PDP

Predisposizione al rilevamento di giri digitale incorporato all'interno del variatore con sonda rilevatrice di tipo PNP.

La tabella (E01) riporta le possibilità di applicazione e le dimensioni delle sonde NPN e PNP utilizzate.

### 23.5 - Variator options

#### CU

*Universal casing featuring machined supporting surface with drilled and tapped holes (page 30).*

#### FL

*Universal casing featuring machined sides with drilled and tapped holes (page 30).*

#### PDN

*Configured for digital speed detection by NPN sensor incorporated into variator.*

#### PDP

*Configured for digital speed detection by PNP sensor incorporated into variator.*

*Table (E01) shows which units support which options and provides the (plug thread) dimensions of the various NPN and PNP sensors used.*

### 23.5 - Optionen – Verstellgetriebemotor

#### CU

Universalgehäuse mit plangeschliffener Auflagefläche und entsprechenden Befestigungsbohrungen (Seite 30).

#### FL

Universalgehäuse mit plangeschliffenen Seitenflanken und entsprechenden Befestigungsbohrungen (Seite 30).

#### PDN

Vorbereitet für im Verstellgetriebe eingebaute digitale Vorrichtung für die Drehzahlerhebung über eine NPN-Sonde.

#### PDP

Vorbereitet für im Verstellgetriebe eingebaute digitale Vorrichtung für die Drehzahlerhebung über eine PNP-Sonde.

In der Tabelle (E01) werden die möglichen Applikationsmöglichkeiten der verwendeten NPN- und PNP-Sonden aufgeführt.

### 23.5 - Options variateurs

#### CU

*Caisse universelle avec plan d'appui aplati et orifices de fixation correspondants (page 30).*

#### FL

*Caisse universelle avec flancs latéraux aplatis et orifices de fixation correspondants (page 30).*

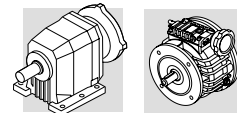
#### PDN

*Prédisposition pour le dispositif de mesure du nombre de tours digital incorporé à l'intérieur du variateur avec sonde de détection de type NPN.*

#### PDP

*Prédisposition pour le dispositif de mesure du nombre de tours digital incorporé à l'intérieur du variateur avec sonde de détection de type PNP.*

*Le tableau (E01) indique les différentes possibilités d'application ainsi que les dimensions des sondes NPN et PNP utilisées.*



(E01)

| Riduttore<br>Gearbox<br>Getriebe<br>Réducteur | Sonda<br>Plug thread<br>Sonde<br>(NPN/PNP) | Variatore<br>Variator<br>Verstellgetriebe<br>Variateur | Forme costruttive / Versions<br>Bauformen / Formes de construction |         |        |
|-----------------------------------------------|--------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------|---------|--------|
|                                               |                                            |                                                        | C                                                                  | V_ F-UF | V_D UF |
| <b>C 112</b>                                  | M8x1                                       | V 0.25                                                 | #                                                                  |         |        |
|                                               | M8x1                                       | V 0.5                                                  | #                                                                  |         |        |
| <b>C 212</b>                                  | M8x1                                       | V 0.25                                                 | #                                                                  |         |        |
|                                               | M8x1                                       | V 0.5                                                  | #                                                                  |         |        |
|                                               | M10x1                                      | V 1                                                    | #                                                                  |         |        |
| <b>C 312</b>                                  | M8x1                                       | V 0.25                                                 | #                                                                  |         |        |
|                                               | M8x1                                       | V 0.5                                                  | #                                                                  |         |        |
|                                               | M8x1                                       | V 1                                                    | #                                                                  |         |        |
|                                               | M10x1                                      | V 2                                                    | #                                                                  |         |        |
| <b>C 313</b>                                  | M8x1                                       | V 0.25                                                 | #                                                                  |         |        |
| <b>C 352<br/>C 353</b>                        | M8x1                                       | V 0.25                                                 | #                                                                  |         |        |
|                                               | M8x1                                       | V 0.5                                                  | #                                                                  |         |        |
|                                               | M10x1                                      | V 1                                                    | #                                                                  |         |        |
|                                               | M10x1                                      | V 2                                                    | #                                                                  |         |        |
|                                               | M12x1                                      | V 3                                                    | #                                                                  |         |        |
| <b>C 354</b>                                  | M8x1                                       | V 0.25                                                 | #                                                                  |         |        |
|                                               | M8x1                                       | V 0.5                                                  | #                                                                  |         |        |
|                                               | M10x1                                      | V 1                                                    | #                                                                  |         |        |
| <b>C 412<br/>C 413</b>                        | M8x1                                       | V 0.5                                                  | #                                                                  |         |        |
|                                               | M10x1                                      | V 1                                                    | #                                                                  |         |        |
|                                               | M10x1                                      | V 2                                                    | #                                                                  |         |        |
| <b>C 414</b>                                  | M12x1                                      | V 3                                                    | #                                                                  |         |        |
|                                               | M8x1                                       | V 0.25                                                 | #                                                                  |         |        |
|                                               | M8x1                                       | V 0.5                                                  | #                                                                  |         |        |
| <b>C 512<br/>C 513</b>                        | M10x1                                      | V 1                                                    | #                                                                  |         |        |
|                                               | M10x1                                      | V 2                                                    | #                                                                  |         |        |
|                                               | M12x1                                      | V 3/5.5                                                |                                                                    |         |        |

| Riduttore<br>Gearbox<br>Getriebe<br>Réducteur | Sonda<br>Plug thread<br>Sonde<br>(NPN/PNP) | Variatore<br>Variator<br>Verstellgetriebe<br>Variateur | Forme costruttive / Versions<br>Bauformen / Formes de construction |         |        |
|-----------------------------------------------|--------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------|---------|--------|
|                                               |                                            |                                                        | C                                                                  | V_ F-UF | V_D UF |
| <b>C 514</b>                                  | M8x1                                       | V 0.5                                                  | #                                                                  |         |        |
|                                               | M10x1                                      | V 1                                                    | #                                                                  |         |        |
| <b>C 612<br/>C 613</b>                        | M10x1                                      | V 1                                                    | #                                                                  |         |        |
|                                               |                                            | V 2                                                    | #                                                                  |         |        |
|                                               | M12x1                                      | V 3/5.5                                                |                                                                    |         |        |
|                                               |                                            | V 10                                                   |                                                                    |         |        |
| <b>C 614</b>                                  | M8x1                                       | V 0.5                                                  | #                                                                  |         |        |
|                                               | M10x1                                      | V 1                                                    | #                                                                  |         |        |
|                                               |                                            | V 2                                                    | #                                                                  |         |        |
| <b>C 702</b>                                  | M12x1                                      | V 3/5.5                                                |                                                                    |         |        |
|                                               |                                            | V 10                                                   | —                                                                  |         |        |
| <b>C 703</b>                                  | M10x1                                      | V 1                                                    | #                                                                  |         |        |
|                                               |                                            | V 2                                                    | #                                                                  |         |        |
|                                               | M12x1                                      | V 3/5.5                                                |                                                                    |         |        |
|                                               |                                            | V 10                                                   | —                                                                  |         |        |
| <b>C 802</b>                                  | M12x1                                      | V 5.5                                                  | —                                                                  |         |        |
|                                               |                                            | V 10                                                   | —                                                                  |         |        |
| <b>C 803</b>                                  | M10x1                                      | V 2                                                    | #                                                                  |         |        |
|                                               | M12x1                                      | V 3/5.5                                                | —                                                                  |         |        |
|                                               |                                            | V 10                                                   | —                                                                  |         |        |
| <b>C 902</b>                                  | M12x1                                      | V 10                                                   | —                                                                  |         |        |
| <b>C 903</b>                                  | M12x1                                      | V 3/5.5                                                | —                                                                  |         |        |
|                                               |                                            | V 10                                                   | —                                                                  |         |        |
| <b>C 1003</b>                                 | M12x1                                      | V 10                                                   | —                                                                  |         |        |

Applicazioni disponibili

Option availability

Zur Verfügung stehende  
Anwendungen

Applications disponibles

# Applicazione disponibile per le posizioni di montaggio B3, a richiesta (come esecuzione speciale) per le altre posizioni di montaggio.

# The option is available for units in the B3 mounting position. For other positions, please enquire with Bonfiglioli.

# Anwendung auch für die Montagepositionen B3 erhältlich; auf Anfrage (als Sonderausführung) auch für die anderen Montagepositionen.

# Application disponible pour les positions de montage B3, sur demande (exécution spéciale) pour les autres positions de montage.

## PV

Anelli di tenuta in Viton.

## PV

Viton seals

## PV

Dichtringe in Viton.

## PV

Bagues d'étanchéité en Viton

## SO

I variatori V 0.25 - V 10 solitamente forniti con lubrificante dalla Bonfiglioli Riduttori sono forniti privi di lubrificante. Questa opzione non è prevista per i variatori con differenziale V 0.5D - V 10D con ingresso P.. in quanto normalmente forniti privi di lubrificante.

## SO

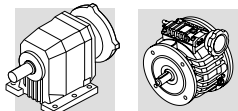
The V 0.25 - V 10 variators - normally factory-filled with oil - are supplied dry. This option is not available on the V 0.5D - V 10D variators with differential unit and P input, that are normally supplied dry.

## SO

Die üblicherweise von der Bonfiglioli Riduttori mit Schmiermittel gelieferten Verstellgetriebe V 0.25 - V 10 werden bei dieser Ausführungsart ohne Schmiermittel geliefert. Diese Option ist bei den Verstellgetrieben mit Antrieb P.. VBG 0.5D - VBG 10D mit Differential nicht gegeben, da diese normalerweise ohne Schmiermittel geliefert werden.

## SO

Les variateurs V 0.25-V 10 généralement fournis avec du lubrifiant par Bonfiglioli Riduttori sont fournis sans lubrifiant. Cette option n'est pas prévue pour les variateurs avec différentiel V 0.5D - V 10D avec entrée P.. dans la mesure où il sont normalement fournis sans lubrifiant.



### 23.6 - Lubrificazione

#### Lubrificazione riduttori serie C

Gli organi interni dei riduttori Bonfiglioli sono lubrificati con un sistema misto di immersione e sbattimento dell'olio.

I gruppi C05, C11, C21, C31, C35 e C41 sono normalmente consegnati con carica di lubrificante dalla fabbrica, o dalla rete di vendita ufficiale.

Per questi stessi gruppi, nell'esecuzione predisposta per motorizzazione normalizzata IEC, un tappo di sfiato è fornito a corredo e dovrà essere installato a cura dell'utilizzatore, prima della messa in esercizio del riduttore.

I gruppi di grandezza C51 e superiori sono normalmente forniti privi di lubrificante, e sarà cura dell'utilizzatore riempirli di olio prima della messa in servizio.

Le tavole che seguono sono da riferimento nell'interpretazione delle posizioni di montaggio, della collocazione dei tappi di servizio e delle quantità di lubrificante.

Queste ultime sono indicative, e per il corretto riempimento si dovrà fare riferimento alla mezzeria del tappo, o dell'astina di livello, se presente.

Rispetto a questa condizione la quantità di lubrificante riportata in tabella può presentare scostamenti, occasionalmente anche rilevanti.

Il lubrificante "long life" fornito di serie è di natura sintetica e, a meno di contaminazione dall'esterno, non richiede sostituzioni periodiche per tutto l'arco di vita del riduttore.

Lo stesso lubrificante consente inoltre funzionamenti a temperature ambiente  $0 < t_a < 50^\circ\text{C}$ .

Per funzionamento a temperature inferiori consultare il ns. Servizio Tecnico.

### 23.6 - Lubrication

#### Lubrication of C gearboxes

*The inner parts of Bonfiglioli gear units are oil-bath and splash lubricated.*

*Frame sizes C05, C11, C21, C31, C35 and C41 are supplied by the factory, or by the authorized dealers, already filled with oil.*

*For same units configured with the IEC-normalized motor mounting flange a breather plug is also supplied. This must replace the closed plug supplied for transportation purposes, at the customer care, prior to putting the gear unit into operation.*

*Unless otherwise specified, units size C51 and larger are usually supplied unlubricated at it will be the customer care to fill them with oil prior to putting them into operation.*

*The charts here after must be referred to as for the mounting position pattern and the corresponding oil plugs, if applicable, and related lubricant quantity.*

*Values for the oil quantity are indicative with the proper filling always represented by the center of the sight glass, or the dipstick, when this is supplied.*

*In some cases, discrepancies, occasionally also substantial, versus the oil quantities listed in the chart may be noticed.*

*The "long life" polyglycol-based lubricant supplied by the factory, in the absence of contamination, does not require periodical oil changes throughout the lifetime of the gear unit.*

*Operation at an ambient temperature  $0 < t_a < 50^\circ\text{C}$  is allowed.*

*Should the gear unit operate at temperature below  $0^\circ\text{C}$ , please consult Bonfiglioli Technical Service Dept. for advise.*

### 23.6 - Schmierung

#### Schmierung der Getriebe der Serie C

Die Schmierung der Getriebe von Bonfiglioli erfolgt durch eine Kombination aus Ölbad- und Tauchschmierung.

Die Getriebegrößen C05, C11, C21, C31, C35 und C 41 sind ab Werk mit einer Lebensdauerschmierung versehen.

Wenn diese Größen mit einem IEC-Eingang ausgeliefert werden, dann befindet sich ein Lüfter am Motorflansch, der für den Transport mit einem Stopfen verschlossen wird. Vor dem Einsatz des Getriebes muss dieser Stopfen durch einen Lüfter ersetzt werden.

Die Getriebe ab der Größe C51 werden ohne Ölfüllung ausgeliefert. Vor der Inbetriebnahme muss deshalb auf das Einfüllen der richtigen Ölfüllmenge geachtet werden!

Bitte beachten Sie dazu auch die nachfolgenden Kapitel über die Positionen der Stopfen und Ölschaugläser und den entsprechenden Ölfüllmengen.

Die im Katalog angegeben Ölfüllmengen sind Anhaltswerte! Maßgebend ist, das der Ölstand bis Mitte des Ölschauglas für die entsprechende Einbaulage aufgefüllt wird.

Auf Abweichungen gegenüber den in der Tabelle angegebenen Ölmengen, gelegentlich nicht unwesentliche, wird hingewiesen.

Die mit Lebensdauerschmierung gelieferten Serien sind mit synthetischem Öl auf Polyglykollbasis gefüllt. Falls dieses Öl nicht verunreinigt wird, ist während der Lebensdauer des Getriebes kein Ölwechsel nötig.

Die zulässige Umgebungstemperatur für den Betrieb liegt im Bereich von  $0 < t_a < 50^\circ\text{C}$ .

Falls ein Antrieb bei Temperaturen unterhalb von  $0^\circ$  betrieben werden soll, kontaktieren sie bitte unseren technischen Service für weitere Anweisungen.

### 23.6 - Lubrification

#### Lubrification réducteurs Série C

*Les organes internes des réducteurs Bonfiglioli sont lubrifiés avec un système mixte d'immersion et de battement de l'huile.*

*Les groupes C05, C11, C21, C31, C35 et C41 sont normalement livrés avec charge de lubrifiant de l'usine, ou du réseau de vente officielle.*

*Pour ces mêmes groupes, dans l'exécution prévue pour motorisation normalisée IEC, un bouchon de reniflard est fourni, et devra être installé par l'utilisateur, avant la mise en service du réducteur.*

*Les groupes de grandeur C51 et supérieur sont normalement fournis sans lubrifiant, et sera par l'utilisateur le remplissage d'huile avant la mise en service.*

*Les tables suivantes sont de référence dans l'interprétation des positions de montage, du placement des bouchons de service et de la quantité de lubrifiant.*

*Ces dernières sont indicatives, et pour le correct remplissage il faut faire référence au bouchon de niveau ou à la jauge à huile, si présent.*

*Par rapport à cette condition la quantité de lubrifiant indiqué dans le tableau peut présenter des écartement, occasionnellement considérables.*

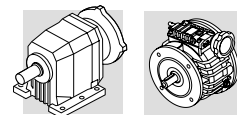
*Le lubrifiant "long life" ; fourni de série est de nature synthétique et, à moins de contamination par l'extérieur, il ne demande pas des remplacements périodiques pour tout l'arc de vie du réducteur.*

*Le même lubrifiant permet fonctionnements à des températures ambiant  $0 < t_a < 50^\circ\text{C}$ .*

*Pour fonctionnement à des températures inférieures consulter notre Service Technique.*

(E02)

| Tipo di carico / Type of duty<br>Art der Belastung / Type de charge | ta<br>0 °C - 20 °C                                                    |                                                                              | ta<br>20 °C - 40 °C                                                   |                                                                              |
|---------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------|
|                                                                     | Olio minerale<br>Mineral oil<br>Mineralöl<br>Huile minérale<br>ISO VG | Olio sintetico<br>Synthetic oil<br>Syntheseöl<br>Huile synthétique<br>ISO VG | Olio minerale<br>Mineral oil<br>Mineralöl<br>Huile minérale<br>ISO VG | Olio sintetico<br>Synthetic oil<br>Syntheseöl<br>Huile synthétique<br>ISO VG |
| Carico leggero / Light duty / Leicht / Charge légère                | 150                                                                   | 150                                                                          | 220                                                                   | 220                                                                          |
| Carico medio / Medium duty / Normal / Charge moyenne                | 150                                                                   | 150                                                                          | 320                                                                   | 220                                                                          |
| Carico pesante / Heavy duty / Schwer / Charge lourde                | 200                                                                   | 200                                                                          | 460                                                                   | 320                                                                          |



Quantità di lubrificante [ l ]

Oil quantity [ l ]

Schmiermittelmenge [ l ]

Quantité de lubrifiant [ l ]

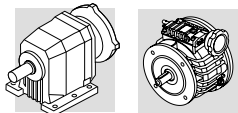
(E03)



|  | P    |      |      |      |      |      | F    |      |      |      |      |      | U - UF |      |      |      |      |      |
|-----------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|--------|------|------|------|------|------|
|                                                                                   | B3   | B6   |      | B8   | V5   |      | B5   | B51  |      | B52  | V1   |      | B5     | B51  |      | B52  | V1   |      |
| C 11 2                                                                            | 0.45 | 0.45 | 0.45 | 0.45 | 0.50 | 0.60 | 0.40 | 0.40 | 0.50 | 0.50 | 0.50 | 0.60 | 0.40   | 0.40 | 0.50 | 0.50 | 0.50 | 0.60 |
| C 21 2                                                                            | 0.80 | 0.80 | 0.80 | 0.80 | 0.85 | 1.1  | 0.75 | 0.75 | 0.75 | 0.75 | 0.80 | 1.00 | 0.75   | 0.75 | 0.75 | 0.75 | 0.80 | 1.00 |
| C 21 3                                                                            | 1.2  | 1.2  | 1.2  | 1.2  | 1.3  | 1.4  | 1.2  | 1.2  | 1.2  | 1.2  | 1.3  | 1.4  | 1.2    | 1.2  | 1.2  | 1.2  | 1.3  | 1.4  |
| C 31 2                                                                            | 1.4  | 1.4  | 1.4  | 1.4  | 1.5  | 1.5  | 1.3  | 1.3  | 1.3  | 1.3  | 1.5  | 1.5  | 1.3    | 1.3  | 1.3  | 1.3  | 1.5  | 1.5  |
| C 31 3                                                                            | 1.6  | 1.6  | 1.6  | 1.6  | 1.8  | 1.8  | 1.6  | 1.6  | 1.6  | 1.6  | 1.8  | 1.8  | 1.6    | 1.6  | 1.6  | 1.6  | 1.8  | 1.8  |
| C 35 2                                                                            | 1.6  | 1.5  | 1.5  | 1.3  | 2.1  | 2.4  | -    | -    | -    | -    | -    | -    | 1.6    | 1.5  | 1.5  | 1.3  | 2.1  | 2.4  |
| C 35 3                                                                            | 1.5  | 1.4  | 1.5  | 1.3  | 2.0  | 2.3  | -    | -    | -    | -    | -    | -    | 1.5    | 1.4  | 1.5  | 1.3  | 2.0  | 2.3  |
| C 35 4                                                                            | 2.3  | 2.1  | 2.3  | 2.1  | 2.7  | 3.1  | -    | -    | -    | -    | -    | -    | 2.3    | 2.1  | 2.3  | 2.1  | 2.7  | 3.1  |
| C 41 2                                                                            | 2.2  | 2.0  | 2.1  | 1.9  | 2.7  | 3.4  | -    | -    | -    | -    | -    | -    | 2.2    | 2.0  | 2.1  | 1.9  | 2.7  | 3.4  |
| C 41 3                                                                            | 2.1  | 1.9  | 2.1  | 1.9  | 2.6  | 3.2  | -    | -    | -    | -    | -    | -    | 2.1    | 1.9  | 2.1  | 1.9  | 2.6  | 3.2  |
| C 41 4                                                                            | 2.8  | 2.6  | 2.8  | 2.6  | 3.5  | 3.9  | -    | -    | -    | -    | -    | -    | 2.8    | 2.6  | 2.8  | 2.6  | 3.5  | 3.9  |
| C 51 2                                                                            | 3.1  | 3.0  | 3.1  | 3.0  | 4.3  | 5.0  | -    | -    | -    | -    | -    | -    | 3.1    | 3.0  | 3.1  | 3.0  | 4.3  | 5.0  |
| C 51 3                                                                            | 3.0  | 2.8  | 3.1  | 3.0  | 4.1  | 4.9  | -    | -    | -    | -    | -    | -    | 3.0    | 2.8  | 3.1  | 3.0  | 4.1  | 4.9  |
| C 51 4                                                                            | 4.3  | 4.1  | 4.4  | 4.2  | 5.4  | 6.1  | -    | -    | -    | -    | -    | -    | 4.3    | 4.1  | 4.4  | 4.2  | 5.4  | 6.1  |
| C 61 2                                                                            | 4.2  | 4.0  | 4.2  | 4.1  | 6.0  | 6.7  | -    | -    | -    | -    | -    | -    | 4.2    | 4.0  | 4.2  | 4.1  | 6.0  | 6.7  |
| C 61 3                                                                            | 4.2  | 4.0  | 4.2  | 4.1  | 6.0  | 6.7  | -    | -    | -    | -    | -    | -    | 4.2    | 4.0  | 4.2  | 4.1  | 6.0  | 6.7  |
| C 61 4                                                                            | 6.1  | 5.9  | 6.1  | 6.0  | 7.9  | 8.6  | -    | -    | -    | -    | -    | -    | 6.1    | 5.9  | 6.1  | 6.0  | 7.9  | 8.6  |
| C 70 2                                                                            | 6.5  | 8.5  | 8.5  | 7.5  | 11   | 7.5  | 6.5  | 8.5  | 8.5  | 7.5  | 11   | 7.5  | -      | -    | -    | -    | -    | -    |
| C 70 3                                                                            | 6.5  | 8.5  | 8.5  | 7.5  | 11   | 7.5  | 6.5  | 8.5  | 8.5  | 7.5  | 11   | 7.5  | -      | -    | -    | -    | -    | -    |
| C 70 4                                                                            | 6.5  | 8.5  | 8.5  | 7.5  | 11   | 8    | 6.5  | 8.5  | 8.5  | 7.5  | 11   | 7.5  | -      | -    | -    | -    | -    | -    |
| C 80 2                                                                            | 11   | 14   | 14   | 13   | 18   | 13   | 11   | 14   | 14   | 13   | 18   | 13   | -      | -    | -    | -    | -    | -    |
| C 80 3                                                                            | 11   | 14   | 14   | 13   | 18   | 13   | 11   | 14   | 14   | 13   | 18   | 13   | -      | -    | -    | -    | -    | -    |
| C 80 4                                                                            | 11   | 14   | 14   | 13   | 18   | 13   | 11   | 14   | 14   | 13   | 18   | 13   | -      | -    | -    | -    | -    | -    |
| C 90 2                                                                            | 19   | 25   | 25   | 22   | 31   | 22   | 19   | 25   | 25   | 22   | 31   | 22   | -      | -    | -    | -    | -    | -    |
| C 90 3                                                                            | 19   | 25   | 25   | 22   | 31   | 22   | 19   | 25   | 25   | 22   | 31   | 22   | -      | -    | -    | -    | -    | -    |
| C 90 4                                                                            | 19   | 25   | 25   | 22   | 31   | 22   | 19   | 25   | 25   | 22   | 31   | 22   | -      | -    | -    | -    | -    | -    |
| C 100 2                                                                           | 27   | 37   | 37   | 33   | 45   | 33   | 27   | 37   | 37   | 33   | 45   | 33   | -      | -    | -    | -    | -    | -    |
| C 100 3                                                                           | 27   | 37   | 37   | 33   | 45   | 33   | 27   | 37   | 37   | 33   | 45   | 33   | -      | -    | -    | -    | -    | -    |
| C 100 4                                                                           | 27   | 37   | 37   | 33   | 45   | 33   | 27   | 37   | 37   | 33   | 45   | 33   | -      | -    | -    | -    | -    | -    |

Lubrificazione permanente / Life lubricated / Dauerschmierung / Lubrification permanente

 SHELL Tivela OIL SC 320 (for life)



### 23.7 - POSIZIONI DI MONTAGGIO E ORIENTAMENTO MORSETTIERA

Gli orientamenti delle morsettiere dei motori sono identificati osservando il motore dal lato ventola; l'orientamento standard è evidenziato in nero (W).

#### Posizione angolare leva di sblocco freno.

Nei motori autofrenanti, la leva di sblocco freno (se richiesta) ha l'orientamento standard a 90° rispetto alla morsettiera (posizione AB); specificare con relative opzioni qualora l'orientamento desiderato sia diverso.

### 23.7 - MOUNTING POSITION AND TERMINAL BOX ORIENTATION

*Location of motor terminal box can be specified by viewing the motor from the fan side; standard location is shown in black (W).*

#### Angular position of the brake release lever.

*Unless otherwise specified, brake motors have the manual device side located, 90° apart from terminal box. Different angles can be specified through the relevant options available.*

### 23.7 - EINBAULAGEN UND LAGE DES KLEMMENKASTENS

Die Angaben zur Lage des Klemmenkastens beziehen sich auf das von der Lüfterseite her betrachtete Getriebe. Die Standardorientierung ist schwarz hervorgehoben (W).

#### Winkellage des Handlüfterhebels.

Bei Bremsmotoren wird der Handlüfterhebel (auf Anfrage) standardmäßig auf 90° gegenüber des Klemmkastens (AB-Anordnung) geliefert; wird eine andere Anordnung verlangt, muß dies bei der Bestellung durch das geeignete Option angegeben werden.

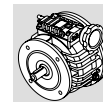
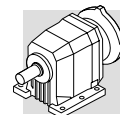
### 23.7 - POSITIONS DE MONTAGE ET ORIENTATION BOITE A BORNE

*Les orientations des boîtes à bornes des moteurs sont définies en regardant le moteur du côté ventilateur. L'orientation standard est indiquée en noir (W).*

#### Position angulaire levier déblocage frein.

*Dans les moteurs freins, ce levier (si requis) aura l'orientation standard de 90° par rapport à la boîte à bornes (position AB); spécifier avec options relatives si l'orientation désirée est différente.*

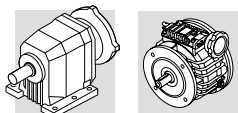
|                                                                                     | Legenda:                 | Key:                    | Zeichenerklärung:       | Légende:                       |
|-------------------------------------------------------------------------------------|--------------------------|-------------------------|-------------------------|--------------------------------|
|  | Tappo di sfiato / carico | Filling / breather plug | Einfüll / Ablasschraube | Bouchon de event / remplissage |
|  | Tappo di livello         | Level plug              | Ölstandsschraube        | Bouchon de niveau              |
|  | Tappo di scarico         | Drain plug              | Ölablasschraube         | Bouchon de vidange             |



(E04)

C\_P

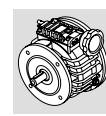
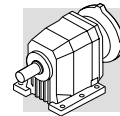
| P (IEC) |  | V  |  |
|---------|--|----|--|
| B3      |  | B8 |  |
|         |  |    |  |
|         |  |    |  |
|         |  |    |  |
|         |  |    |  |
| B6      |  | V5 |  |
|         |  |    |  |
|         |  |    |  |
|         |  |    |  |
|         |  |    |  |
| B7      |  | V6 |  |
|         |  |    |  |
|         |  |    |  |
|         |  |    |  |
|         |  |    |  |



# C 11...C41

(E05)

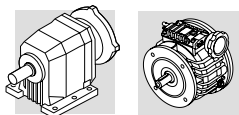
| C_U                          |                                                                           | C_F                                                                                        |                                                                              |                                              |
|------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------|
| P (IEC)                      | V                                                                         | P (IEC)                                                                                    | V                                                                            |                                              |
| B5                           |                                                                           | B52                                                                                        |                                                                              |                                              |
| <p>(C35, C41)</p> <p>F U</p> | <p>(C11_U)<br/>(C11_F)<br/>(C35_U, C41_U)<br/>(C21, C31)</p> <p>F U</p>   | <p>(C11_U)<br/>(C21_U, C31_U)<br/>(C11_F)<br/>(C21_F, C31_F)<br/>(C35, C41)</p> <p>U F</p> | <p>(C11_F)<br/>(C21_F, C31_F)<br/>(C35, C41)</p> <p>U F</p>                  | <p>C11-C21-C31<br/>2x<br/>3x<br/>C35-C41</p> |
| <p>(C35, C41)</p> <p>F U</p> | <p>(C35, C41)</p> <p>F U</p>                                              | <p>(C35, C41)</p> <p>U F</p>                                                               | <p>(C21_F, C31_F)<br/>(C35, C41)</p> <p>U F</p>                              | <p>C21-C31<br/>3x<br/>4x<br/>C35-C41</p>     |
| B51                          |                                                                           | V1                                                                                         |                                                                              |                                              |
| <p>(C35, C41)</p> <p>U F</p> | <p>(C11_F, C21_F, C21_U, C31_F)<br/>(C35, C41)<br/>(C11_U)</p> <p>U F</p> | <p>(C21, C31)</p> <p>F U</p>                                                               | <p>(C21, C31)<br/>(C35, C41)<br/>(C11)</p> <p>F U</p>                        | <p>C11-C21-C31<br/>2x<br/>3x<br/>C35-C41</p> |
| <p>(C35, C41)</p> <p>U F</p> | <p>(C35, C41)<br/>(C31_U)</p> <p>U F</p>                                  | <p>(C21, C31)</p> <p>F U</p>                                                               | <p>(C21, C31)</p> <p>F U</p>                                                 | <p>C21-C31<br/>3x<br/>4x<br/>C35-C41</p>     |
| B53                          |                                                                           | V3                                                                                         |                                                                              |                                              |
| <p>(C35, C41)</p> <p>F U</p> | <p>(C11_U)<br/>(C35, C41)</p> <p>F U</p>                                  | <p>(C11_F)<br/>(C21_F)<br/>(C31_F)<br/>(C35, C41)<br/>(C11_U)</p> <p>U F</p>               | <p>(C21_F)<br/>(C31_F)<br/>(C35, C41)<br/>(C11_U)</p> <p>U F</p>             | <p>C11-C21-C31<br/>2x<br/>3x<br/>C35-C41</p> |
| <p>(C35, C41)</p> <p>F U</p> | <p>(C21_F, C31_F)<br/>(C35, C41)<br/>(C21_U)<br/>(C31_U)</p> <p>F U</p>   | <p>(C21_U)<br/>(C31_U)<br/>(C35, C41)</p> <p>U F</p>                                       | <p>(C21_F)<br/>(C31_F)<br/>(C35, C41)<br/>(C21_U)<br/>(C31_U)</p> <p>U F</p> | <p>C21-C31<br/>3x<br/>4x<br/>C35-C41</p>     |



(E06)

C\_P

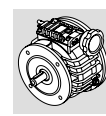
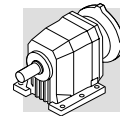
| P (IEC) |  | V  |          |
|---------|--|----|----------|
| B3      |  | B8 |          |
|         |  |    |          |
|         |  |    |          |
|         |  |    | 2x<br>3x |
|         |  |    | 4x       |
| B6      |  | V5 |          |
|         |  |    |          |
|         |  |    |          |
|         |  |    | 2x<br>3x |
|         |  |    | 4x       |
| B7      |  | V6 |          |
|         |  |    |          |
|         |  |    |          |
|         |  |    | 2x<br>3x |
|         |  |    | 4x       |



# C 51...C 61

(E07)

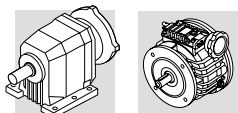
| C_U     |   | C_F     |   |
|---------|---|---------|---|
| P (IEC) | V | P (IEC) | V |
| B5      |   | B52     |   |
|         |   |         |   |
|         |   |         |   |
| B51     |   | V1      |   |
|         |   |         |   |
|         |   |         |   |
| B53     |   | V3      |   |
|         |   |         |   |
|         |   |         |   |



(E08)

C\_P

| P (IEC) |  | V  |  |
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| B3      |  | B8 |  |
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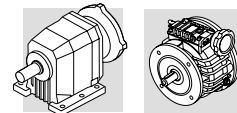


# C 70...C 100

(E09)

C\_F

| P (IEC) |  | V   |  |  |  |
|---------|--|-----|--|--|--|
| B5      |  | B52 |  |  |  |
|         |  |     |  |  |  |
|         |  |     |  |  |  |
| B51     |  | V1  |  |  |  |
|         |  |     |  |  |  |
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| B53     |  | V3  |  |  |  |
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## Lubrificazione variatori

### V, VD

La lubrificazione dei variatori V e VD avviene per sbattimento dell'olio. Prima della messa in funzione dei variatori accertarsi della presenza di olio al loro interno assicurandosi che esso compaia nella spia di livello. I variatori/motovariatori, se non diversamente specificato in fase di ordine, vengono forniti con il quantitativo di olio per la posizione di montaggio B3.

**Si consiglia di specificare sempre in fase di ordine la posizione di montaggio desiderata.**

### VD

Tutti i variatori con differenziale VD completi di motore vengono forniti con carico di olio. Tutti i variatori con differenziale VD in configurazione P... (IEC), vengono forniti privi di olio. In questo caso l'utente dovrà provvedere al riempimento immettendo le quantità di olio indicate nelle tabelle (E10-E11) e dovrà utilizzare motori elettrici con l'anello di tenuta lato albero e la flangia di accoppiamento al variatore a tenuta di olio.

**Benchè i variatori siano abbinabili a qualsiasi motore normalizzato IEC, BONFIGLIOLI raccomanda che siano utilizzati solo motori originali, provvisti di anelli di tenuta per l'olio.**

## Lubrication of variators

### V and VD

*Variators V and VD are splash-lubricated. Before putting the variator into operation make sure there is oil inside up to the sight glass level. Unless otherwise specified in the order, the variators are filled with an oil quantity suitable for B3 mounting position.*

***To avoid further manipulation it is strongly recommended that the actual mounting position is specified in the ordering code.***

### VD

*Motorized VD variators featuring the differential unit are factory filled with oil unlike VD variators with the IEC motor adapter (P...) which are supplied unlubricated and must be filled with oil prior to be put into operation. Proper oil quantity is shown in table (E10-E11) for each mounting position.*

***Although speed variators can match any IEC motors, BONFIGLIOLI recommends the use of genuine motors only, complete with oil seals.***

## Schmierung der Verstellgetriebe

### V, VD

Die Schmierung der Verstellgetriebe V und VD erfolgt durch Tauchschmierung im Ölbad. Vor der Inbetriebnahme der Verstellgetriebe muß geprüft werden, ob sie bis zur Ölstandskontrolle mit Öl gefüllt sind. Falls im Auftrag nicht anderweitig angegeben, werden die Verstellgetriebe mit der für die Einbaulage B3 vorgeschriebenen Ölmenge geliefert.

**Es wird in jedem Fall geraten, bei der Bestellung immer die gewünschte Einbaulage anzugeben.**

### VD

Alle Verstellgetriebe mit Differential VD und Motor, sind bei Lieferung mit Öl gefüllt. Alle Verstellgetriebe mit Differential V-D für den Anbau eines IEC-Motors werden ohne Öl geliefert. Wenn der Kunde die Getriebe selbst mit Öl füllt, müssen die in Tabelle (E10-E11) angegebenen Ölmengen verwendet werden. Die zu verwendenden Motoren müssen einen Dichtring auf der Seite der Welle haben und der Flansch zur Kopplung an das Verstellgetriebe muß öldicht sein.

**Es wird empfohlen, die Verstellgetriebe mit Differential mit öldichten BONFIGLIOLI RIDUTTORI Motoren zu kaufen.**

## Lubrification variateurs

### V, VD

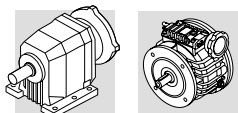
*La lubrification des variateurs V et VD s'effectue par barbotage de l'huile. Avant la mise en service des variateurs/motovariateurs, vérifier la présence d'huile à l'intérieur en contrôlant que celle-ci apparaisse dans le témoin de niveau. Les variateurs/motovariateurs, sauf spécification contraire au moment de la commande, sont fournis avec une quantité d'huile relative à la position de montage B3.*

***Dans tous les cas, il est conseillé de toujours spécifier la position de montage désirée au moment de la commande.***

### VD

*Tous les variateurs avec différentiel VD avec moteur sont fournis avec le plein d'huile. Tous les variateurs avec différentiel VD en configuration P... (IEC) sont fournis sans huile. Dans ce cas, l'utilisateur doit effectuer le remplissage en versant la quantité d'huile indiquée dans le tableau (E10-E11) et doit utiliser des moteurs électriques avec bague d'étanchéité côté arbre et bride d'accouplement au variateur étanche à l'huile.*

***Dans tous les cas, il est conseillé d'acquérir des variateurs avec différentiel avec moteurs avec étanchéité à l'huile BONFIGLIOLI RIDUTTORI.***



I variatori V 0.25 e V 0.5 vengono forniti completi di olio lubrificante "long life" sintetico **Shell Donax TX**. Eventuali sostituzioni o rabbocchi dovranno essere effettuati utilizzando lo stesso tipo di prodotto.

*Variator units V 0.25 and V 0.5 are factory filled with "long life" synthetic oil **Shell Donax TX**. Use same oil when topping up or refilling.*

Die Verstellgetriebe V 0.25 und V 0.5 werden mit Schmieröl **Shell Donax TX** geliefert. Eventuelle Ölwechsel oder Nachfüllungen müssen unter Anwendung des gleichen Produkttyps erfolgen.

*Les variateurs V 0.25 et V 0.5 sont fournis avec de l'huile lubrifiante "long life" **Shell Donax TX**. Utiliser le même type d'huile pour les éventuels vidanges ou remplissages.*

| <b>Shell Donax TX</b> (Caratteristiche indicative / indicative features / Anhaltswerte / Caractéristiques indicatives)                        |          |                    |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|-------|
| Massa volumica / <i>density</i> / Volumenmasse / <i>Masse volumique</i>                                                                       | ISO 3675 | kg/dm <sup>3</sup> | 0.852 |
| Viscosità cinematica a 40°C / <i>kinematic viscosity at 40°C</i> / Kinematische Viskosität bei 40°C / <i>Viscosité cinématique à 40°C</i>     | ISO 3104 | cSt                | 34    |
| Viscosità cinematica a 100°C / <i>kinematic viscosity at 100°C</i> / Kinematische Viskosität bei 100°C / <i>Viscosité cinématique à 100°C</i> | ISO 3104 | cSt                | 7.4   |
| Indice di viscosità / <i>viscosity index</i> / Viskositätsindex / <i>Indice de viscosité</i>                                                  | ISO 2909 | -                  | 196   |
| Punto di infiammabilità / <i>flash point</i> / Entflammungspunkt / <i>Point d'inflammabilité</i>                                              | ISO 2592 | °C                 | 198   |
| Punto di scorrimento / <i>pour point</i> / Stockpunkt / <i>Point de glissement</i>                                                            | ISO 3016 | °C                 | -48   |

I variatori V 1...V 10 vengono forniti completi di olio lubrificante minerale **Shell Donax TA**. Eventuali sostituzioni o rabbocchi potranno essere effettuati utilizzando lubrificanti compatibili.

*Variator units V 1 through V 10 are factory filled with mineral oil **Shell Donax TA**. Use same type of oil when topping up or refilling.*

Die Verstellgetriebe V 1...V 10 werden mit dem Schmieröl **Shell Donax TA** geliefert. Ein eventueller Wechsel oder ein etwaiges Auffüllen sollte unter Verwendung der Schmiermittel erfolgen.

*Les variateurs V 1...V 10 sont fournis avec de l'huile lubrifiante **Shell Donax TA**. Utiliser le même type d'huiles pour les éventuels vidanges ou remplissages.*

| <b>Shell Donax TA</b> (Caratteristiche indicative / indicative features / Anhaltswerte / Caractéristiques indicatives)                        |          |                    |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|-------|
| Massa volumica / <i>density</i> / Volumenmasse / <i>Masse volumique</i>                                                                       | ISO 3675 | kg/dm <sup>3</sup> | 0.873 |
| Viscosità cinematica a 40°C / <i>kinematic viscosity at 40°C</i> / Kinematische Viskosität bei 40°C / <i>Viscosité cinématique à 40°C</i>     | ISO 3104 | cSt                | 37.3  |
| Viscosità cinematica a 100°C / <i>kinematic viscosity at 100°C</i> / Kinematische Viskosität bei 100°C / <i>Viscosité cinématique à 100°C</i> | ISO 3104 | cSt                | 7.0   |
| Indice di viscosità / <i>viscosity index</i> / Viskositätsindex / <i>Indice de viscosité</i>                                                  | ISO 2909 | -                  | 151   |
| Punto di infiammabilità / <i>flash point</i> / Entflammungspunkt / <i>Point d'inflammabilité</i>                                              | ISO 2592 | °C                 | 196   |
| Punto di scorrimento / <i>pour point</i> / Stockpunkt / <i>Point de glissement</i>                                                            | ISO 3016 | °C                 | -42   |

Riduzione **R** lubrificata "a vita" con grasso **Shell TVX Compound B**.

Tutti i variatori sono forniti con carica di lubrificante, ad eccezione dei tipi **VD\_P(IEC)**.

Il tappo di sfiato, fornito a corredo, va posizionato come indicato nelle tabelle (E10 - E11).

*Helical reduction **R** is grease lubed "for life" with **Shell TVX Compound B**.*

*All speed variators are factory filled with lubricant, with the only exception of units type **VD\_P(IEC)**.*

*The breather plug, supplied along with every unit, shall be located as per the schemes (E10) and (E11).*

Die Vorstufe **R** ist mit Fett Typ **Shell TVX Compound B** gefüllt.

Alle Verstellgetriebe sind ab Werk mit Öl gefüllt, außer dem Typ **VD\_P(IEC)**.

Der Entlüftungsstopfen, der jedem Getriebe beiligt, muss entsprechend der obige Skizze montiert werden.

*Réduction **R** avec lubrification permanente au moyen de graisse **Shell TVX Compound B**.*

*Tous les variateurs sont fournis avec le lubrifiant, à l'exception des les models **VD\_P (IEC)**.*

*Le bouchon d'évent, fourni avec chaque variateur, doit être positionné comme indiqué dans les schémas (E10 - E11).*



Non mescolare olii di natura diversa.



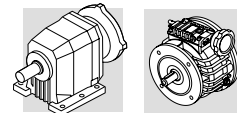
Do not mix synthetic oil with mineral oil.



Auf keinen Fall darf synthetisches Öl mit mineralischem gemischt werden !



Ne pas mélanger huiles de nature différente.



Posizioni di montaggio

Mounting positions

Einbaulagen

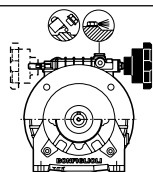
Positions de montage

(E10)

## V 0.25 - V 0.5

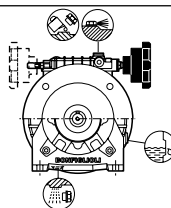
## V 1 - V 2

B3



|                      |      |
|----------------------|------|
| V 0.25 F             | 0.14 |
| V 0.5 F              | 0.18 |
| V 0.25 U / VR 0.25 _ | 0.12 |
| V 0.5 U _ / VR 0.5 _ | 0.15 |
| VD 0.5 U _ / VRD 0.5 | 0.30 |

Oil Donax TX (for life)

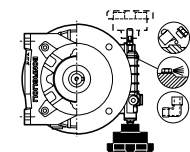


|                  |      |
|------------------|------|
| V 1 F            | 0.30 |
| V 2 F            | 0.40 |
| V 1 U / VR 1 _   | 0.25 |
| V 2 U _ / VR 2 _ | 0.32 |
| VD 1 U _ / VRD 1 | 0.35 |
| VD 2 U _ / VRD 2 | 0.46 |

Oil Donax TA (2000-3000 hrs.)

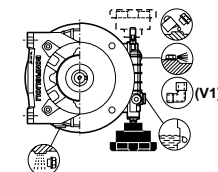


B6



|                      |      |
|----------------------|------|
| V 0.25 F             | 0.14 |
| V 0.5 F              | 0.18 |
| V 0.25 U / VR 0.25 _ | 0.12 |
| V 0.5 U _ / VR 0.5 _ | 0.15 |
| VD 0.5 U _ / VRD 0.5 | 0.30 |

Oil Donax TX (for life)

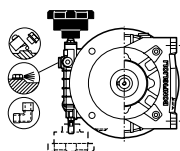


|                  |      |
|------------------|------|
| V 1 F            | 0.30 |
| V 2 F            | 0.40 |
| V 1 U / VR 1 _   | 0.25 |
| V 2 U _ / VR 2 _ | 0.32 |
| VD 1 U _ / VRD 1 | 0.35 |
| VD 2 U _ / VRD 2 | 0.46 |

Oil Donax TA (2000-3000 hrs.)

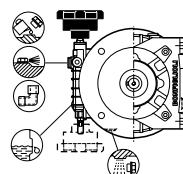


B7



|                      |      |
|----------------------|------|
| V 0.25 F             | 0.14 |
| V 0.5 F              | 0.18 |
| V 0.25 U / VR 0.25 _ | 0.12 |
| V 0.5 U _ / VR 0.5 _ | 0.15 |
| VD 0.5 U _ / VRD 0.5 | 0.30 |

Oil Donax TX (for life)

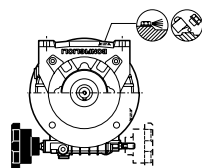


|                  |      |
|------------------|------|
| V 1 F            | 0.30 |
| V 2 F            | 0.40 |
| V 1 U / VR 1 _   | 0.25 |
| V 2 U _ / VR 2 _ | 0.32 |
| VD 1 U _ / VRD 1 | 0.35 |
| VD 2 U _ / VRD 2 | 0.46 |

Oil Donax TA (2000-3000 hrs.)

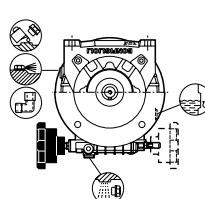


B8



|                      |      |
|----------------------|------|
| V 0.25 F             | 0.14 |
| V 0.5 F              | 0.18 |
| V 0.25 U / VR 0.25 _ | 0.12 |
| V 0.5 U _ / VR 0.5 _ | 0.15 |
| VD 0.5 U _ / VRD 0.5 | 0.30 |

Oil Donax TX (for life)

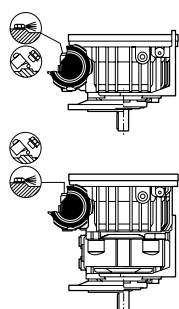


|                  |      |
|------------------|------|
| V 1 F            | 0.30 |
| V 2 F            | 0.40 |
| V 1 U / VR 1 _   | 0.25 |
| V 2 U _ / VR 2 _ | 0.32 |
| VD 1 U _ / VRD 1 | 0.35 |
| VD 2 U _ / VRD 2 | 0.46 |

Oil Donax TA (2000-3000 hrs.)



V5



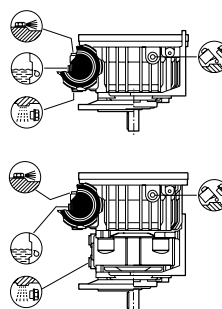
|                      |      |
|----------------------|------|
| V 0.25 F             | 0.28 |
| V 0.5 F              | 0.30 |
| V 0.25 U / VR 0.25 _ | 0.22 |
| V 0.5 U _ / VR 0.5 _ | 0.27 |

Oil Donax TX (for life)



|                      |      |
|----------------------|------|
| VD 0.5 U _ / VRD 0.5 | 0.70 |
|----------------------|------|

Oil Donax TX (for life)



|                  |      |
|------------------|------|
| V 1 F            | 0.58 |
| V 2 F            | 0.78 |
| V 1 U / VR 1 _   | 0.40 |
| V 2 U _ / VR 2 _ | 0.54 |

Oil Donax TA (2000-3000 hrs.)

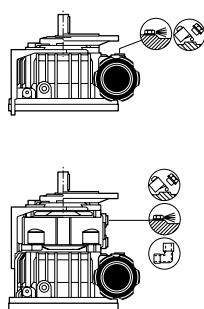


|                  |      |
|------------------|------|
| VD 1 U _ / VRD 1 | 1.00 |
| VD 2 U _ / VRD 2 | 1.5  |

Oil Donax TA (for life)



V6



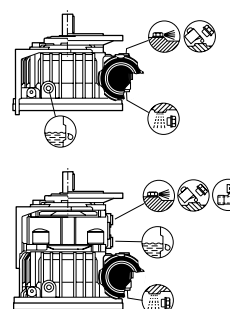
|                      |      |
|----------------------|------|
| V 0.25 F             | 0.14 |
| V 0.5 F              | 0.18 |
| V 0.25 U / VR 0.25 _ | 0.12 |
| V 0.5 U _ / VR 0.5 _ | 0.15 |

Oil Donax TX (for life)



|                      |      |
|----------------------|------|
| VD 0.5 U _ / VRD 0.5 | 0.40 |
|----------------------|------|

Oil Donax TX (for life)



|                  |      |
|------------------|------|
| V 1 F            | 0.30 |
| V 2 F            | 0.40 |
| V 1 U / VR 1 _   | 0.25 |
| V 2 U _ / VR 2 _ | 0.32 |

Oil Donax TA (2000-3000 hrs.)



|                  |      |
|------------------|------|
| VD 1 U _ / VRD 1 | 0.50 |
| VD 2 U _ / VRD 2 | 0.70 |

Oil Donax TA (for life)



Tappo di sfiato  
Breather plug  
Entlüftungstopfen  
Bouchon d'évent



Tappo di carico  
Filler plug  
Einfüllstopfen  
Bouchon de remplissage



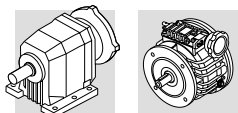
Tappo di scarico  
Drain plug  
Ablassstopfen  
Bouchon de vidange



Tappo di livello  
Level plug  
Olstandsstopfen  
Bouchon de niveau



Raccordo orientabile  
90° elbow  
90° Winkel  
Raccord coudé



Posizioni di montaggio

Mounting positions

Einbaulagen

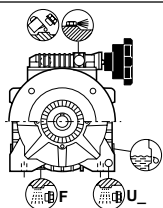
Positions de montage

(E11)

## V 3 - V 5.5

## V 10

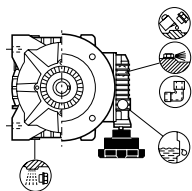
B3



|                        |      |
|------------------------|------|
| V 3 F - V 5.5 F_       | 0.70 |
| V 3 U_ / VR 3          | 1.0  |
| V 5.5 U_ / VR 5.5      | 1.3  |
| VD 3 F                 | 1.6  |
| VD 5.5 F               | 1.6  |
| VD 3 U_ / VRD 3 U      | 1.6  |
| VD 5.5 U_ / VRD 5.5 U_ | 1.6  |

Oil Donax TA (2000-3000 hrs.)

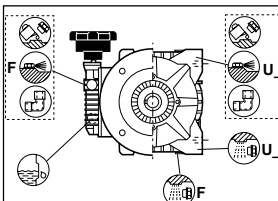
B6



|                        |      |
|------------------------|------|
| V 3 F - V 5.5 F_       | 0.90 |
| V 3 U_ / VR 3          | 1.0  |
| V 5.5 U_ / VR 5.5      | 1.3  |
| VD 3 F                 | 1.6  |
| VD 5.5 F               | 1.6  |
| VD 3 U_ / VRD 3 U      | 1.6  |
| VD 5.5 U_ / VRD 5.5 U_ | 1.6  |

Oil Donax TA (2000-3000 hrs.)

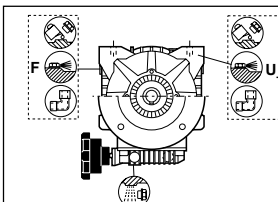
B7



|                        |      |
|------------------------|------|
| V 3 F - V 5.5 F_       | 0.90 |
| V 3 U_ / VR 3          | 1.0  |
| V 5.5 U_ / VR 5.5      | 1.3  |
| VD 3 F                 | 1.6  |
| VD 5.5 F               | 1.6  |
| VD 3 U_ / VRD 3 U      | 1.6  |
| VD 5.5 U_ / VRD 5.5 U_ | 1.6  |

Oil Donax TA (2000-3000 hrs.)

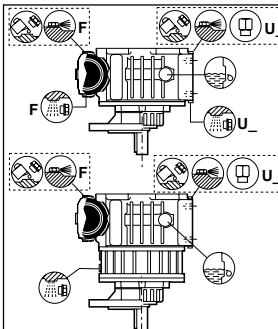
B8



|                        |     |
|------------------------|-----|
| V 3 F - V 5.5 F_       | 1.0 |
| V 3 U_ / VR 3          | 1.3 |
| V 5.5 U_ / VR 5.5      | 1.6 |
| VD 3 F                 | 1.9 |
| VD 5.5 F               | 1.9 |
| VD 3 U_ / VRD 3 U      | 1.9 |
| VD 5.5 U_ / VRD 5.5 U_ | 1.9 |

Oil Donax TA (2000-3000 hrs.)

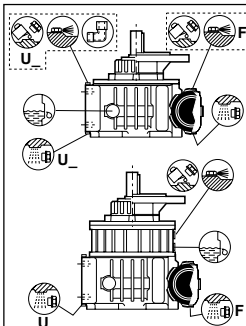
V5



|                        |     |
|------------------------|-----|
| V 3 F - V 5.5 F_       | 2.1 |
| V 3 U_ / VR 3          | 2.0 |
| V 5.5 U_ / VR 5.5      | 2.0 |
| VD 3 F                 | 4.5 |
| VD 5.5 F               | 4.8 |
| VD 3 U_ / VRD 3 U      | 4.8 |
| VD 5.5 U_ / VRD 5.5 U_ | 4.8 |

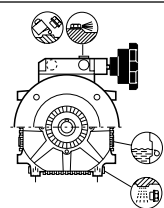
Oil Donax TA (2000-3000 hrs.)

V6



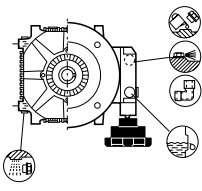
|                        |     |
|------------------------|-----|
| V 3 F - V 5.5 F_       | 1.0 |
| V 3 U_ / VR 3          | 1.3 |
| V 5.5 U_ / VR 5.5      | 1.3 |
| VD 3 F                 | 2.8 |
| VD 5.5 F               | 3.0 |
| VD 3 U_ / VRD 3 U      | 3.0 |
| VD 5.5 U_ / VRD 5.5 U_ | 3.0 |

Oil Donax TA (2000-3000 hrs.)



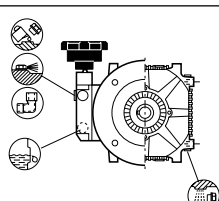
|                      |     |
|----------------------|-----|
| V 10 F               | 1.8 |
| V 10 U_ / VR 10      | 2.0 |
| VD 10 F              | 2.0 |
| VD 10 U_ / VRD 10 U_ | 2.0 |

Oil Donax TA (2000-3000 hrs.)



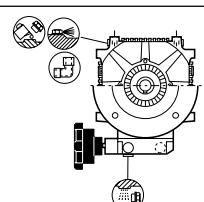
|                      |     |
|----------------------|-----|
| V 10 F               | 1.8 |
| V 10 U_ / VR 10      | 2.0 |
| VD 10 F              | 2.0 |
| VD 10 U_ / VRD 10 U_ | 2.0 |

Oil Donax TA (2000-3000 hrs.)



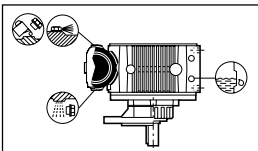
|                      |     |
|----------------------|-----|
| V 10 F               | 1.8 |
| V 10 U_ / VR 10      | 2.0 |
| VD 10 F              | 2.0 |
| VD 10 U_ / VRD 10 U_ | 2.0 |

Oil Donax TA (2000-3000 hrs.)



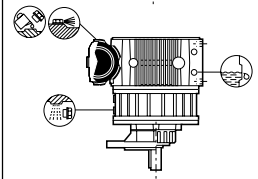
|                      |     |
|----------------------|-----|
| V 10 F               | 2.1 |
| V 10 U_ / VR 10      | 2.1 |
| VD 10 F              | 2.1 |
| VD 10 U_ / VRD 10 U_ | 2.1 |

Oil Donax TA (2000-3000 hrs.)



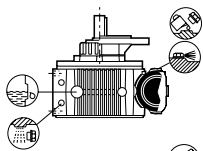
|                      |     |
|----------------------|-----|
| V 10 F               | 3.2 |
| V 10 U_ / VR 10      | 3.2 |
| VD 10 F              | 3.2 |
| VD 10 U_ / VRD 10 U_ | 3.2 |

Oil Donax TA (2000-3000 hrs.)



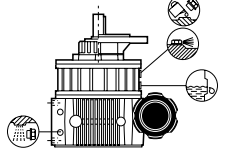
|                      |     |
|----------------------|-----|
| VD 10 F              | 8.5 |
| VD 10 U_ / VRD 10 U_ | 8.5 |

Oil Donax TA (2000-3000 hrs.)



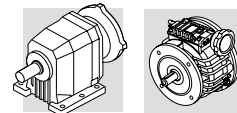
|                      |     |
|----------------------|-----|
| V 10 F               | 2.8 |
| V 10 U_ / VR 10      | 2.8 |
| VD 10 F              | 2.8 |
| VD 10 U_ / VRD 10 U_ | 2.8 |

Oil Donax TA (2000-3000 hrs.)



|                      |     |
|----------------------|-----|
| VD 10 F              | 7.0 |
| VD 10 U_ / VRD 10 U_ | 7.0 |

Oil Donax TA (2000-3000 hrs.)



### 23.8 - Posizioni di montaggio e orientamento morsettiera

Le tabelle (E13-E14-E15) evidenziano le posizioni che può assumere il variatore rispetto alla posizione di montaggio del riduttore.  
In fase di ordine è necessario specificare oltre alla posizione di montaggio del riduttore anche la posizione del variatore e l'orientamento della morsettiera (W,N,E,S) scegliendo fra le alternative illustrate nelle tabelle. La tabella (E12) facilita l'interpretazione delle varie posizioni di montaggio riportate.

### 23.8 - Mounting position and terminal box angular position

Tables (E13-E14-E15) show the mounting positions of the variator depending on reducer mounting position.  
Reducer mounting position and variator arrangement must be specified on order, as well as terminal board arrangement (W, N, E, S). Choose from the options shown in the tables.  
Table (E12) provides examples of the various mounting positions for better understanding.

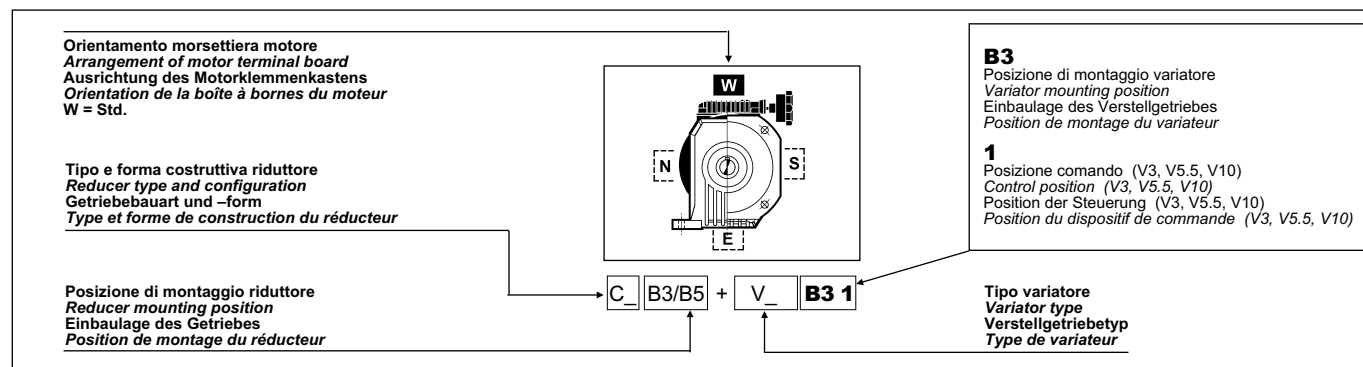
### 23.8 - Einbautagen und lage des klemmenkastens

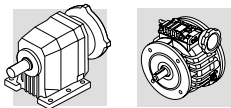
Die Tabellen (E13-E14-E15) stellen die Positionen dar, die das Verstellgetriebe den Einbautagen des Getriebes gegenüber einnehmen kann.  
In der Auftragsphase muß daher über die Montageposition des Getriebes hinaus, auch die Lage des Verstellgetriebes und die Ausrichtung der Klemmenleiste (W, N, E, S) angegeben werden, die unter den in der Tabelle angegebenen Möglichkeiten ausgewählt werden können.  
Die Tabelle (E12) erleichtert die Auslegung der verschiedenen, dargestellten Einbautagen.

### 23.8 - Positions de montage et orientation boîte a borne

Les tableaux (E13-E14-E15) indiquent les positions possibles du variateur par rapport à la position de montage du réducteur.  
Au moment de la commande, il est nécessaire de préciser la position de montage du réducteur ainsi que la position du variateur et l'orientation de la boîte à bornes (W,N,E,S), en choisissant parmi les alternatives indiquées dans les tableaux.  
Le tableau (E12) facilite l'interprétation des différentes positions de montage indiquées.

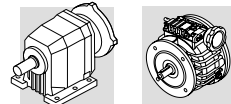
(E12)





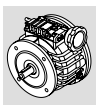
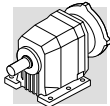
(E13)

|           |                                |                            |                            |                            |                            |
|-----------|--------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| <b>B3</b> | <b>B5</b>                      |                            |                            |                            |                            |
|           |                                | C_ B3/B5 + V_ <b>B3 1</b>  | C_ B3/B5 + V_ <b>B6 1</b>  | C_ B3/B5 + V_ <b>B7 1</b>  | C_ B3/B5 + V_ <b>B8 1</b>  |
| C_P_B3    | C_F_B5<br>C_U_B5<br>C_UF_B5    |                            |                            |                            |                            |
|           |                                | C_ B3/B5 + V_ <b>B3 2</b>  | C_ B3/B5 + V_ <b>B6 2</b>  | C_ B3/B5 + V_ <b>B7 2</b>  | C_ B3/B5 + V_ <b>B8 2</b>  |
| <b>B6</b> | <b>B51</b>                     |                            |                            |                            |                            |
|           |                                | C_ B6/B51 + V_ <b>B3 1</b> | C_ B6/B51 + V_ <b>B6 1</b> | C_ B6/B51 + V_ <b>B7 1</b> | C_ B6/B51 + V_ <b>B8 1</b> |
| C_P_B6    | C_F_B51<br>C_U_B51<br>C_UF_B51 |                            |                            |                            |                            |
|           |                                | C_ B6/B51 + V_ <b>B3 2</b> | C_ B6/B51 + V_ <b>B6 2</b> | C_ B6/B51 + V_ <b>B7 2</b> | C_ B6/B51 + V_ <b>B8 2</b> |
| <b>B7</b> | <b>B53</b>                     |                            |                            |                            |                            |
|           |                                | C_ B7/B53 + V_ <b>B3 1</b> | C_ B7/B53 + V_ <b>B6 1</b> | C_ B7/B53 + V_ <b>B7 1</b> | C_ B7/B53 + V_ <b>B8 1</b> |
| C_P_B7    | C_F_B53<br>C_U_B53<br>C_UF_B53 |                            |                            |                            |                            |
|           |                                | C_ B7/B53 + V_ <b>B3 2</b> | C_ B7/B53 + V_ <b>B6 2</b> | C_ B7/B53 + V_ <b>B7 2</b> | C_ B7/B53 + V_ <b>B8 2</b> |



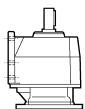
(E14)

|           |                                |                                   |                                    |                                    |                                    |
|-----------|--------------------------------|-----------------------------------|------------------------------------|------------------------------------|------------------------------------|
| <b>B8</b> | <b>B52</b>                     |                                   |                                    |                                    |                                    |
|           |                                | C_ B8/B52 + V_ <b>B3 1</b>        | C_ B8/B52+ V_ <b>B6 1</b>          | C_ B8/B52+ V_ <b>B7 1</b>          | C_ B8/B52+ V_ <b>B8 1</b>          |
| C_P_B8    | C_F_B52<br>C_U_B52<br>C_UF_B52 |                                   |                                    |                                    |                                    |
|           |                                | C_ B8/B52+ V_ <b>B3 2</b>         | C_ B8/B52+ V_ <b>B6 2</b>          | C_ B8/B52+ V_ <b>B7 2</b>          | C_ B8/B52+ V_ <b>B8 2</b>          |
| <b>V5</b> | <b>V1</b>                      |                                   |                                    |                                    |                                    |
|           |                                |                                   |                                    |                                    |                                    |
| C_P_V5    | C_F_V1<br>C_U_V1<br>C_UF_V1    | C_P V5<br>C_F V1 + V_ <b>V5 1</b> | C_P V5<br>C_F V1 + V_ <b>V51 1</b> | C_P V5<br>C_F V1 + V_ <b>V53 1</b> | C_P V5<br>C_F V1 + V_ <b>V52 1</b> |
|           |                                |                                   |                                    |                                    |                                    |
|           |                                |                                   |                                    |                                    |                                    |
|           |                                | C_P V5<br>C_F V1 + V_ <b>V5 2</b> | C_P V5<br>C_F V1 + V_ <b>V51 2</b> | C_P V5<br>C_F V1 + V_ <b>V53 2</b> | C_P V5<br>C_F V1 + V_ <b>V52 2</b> |



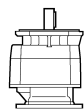
(E15)

**V6**

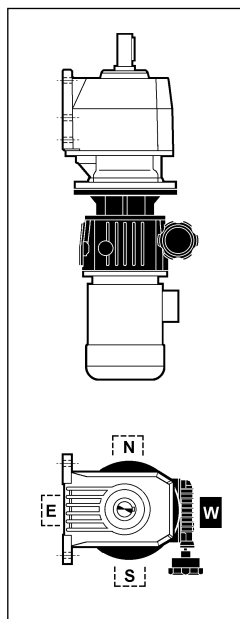


C\_P\_V6

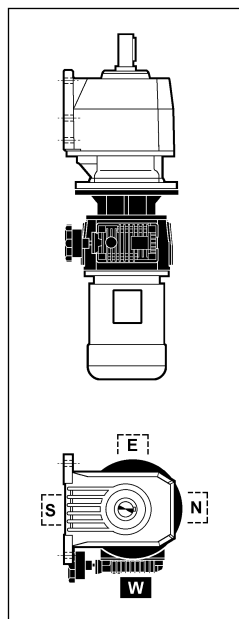
**V3**



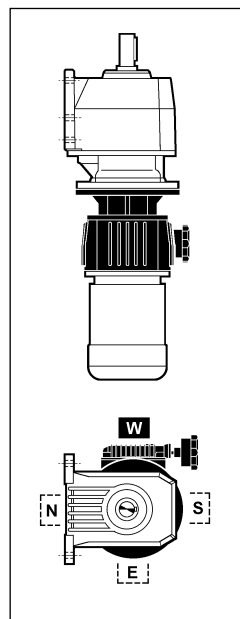
C\_F\_V3  
C\_U\_V3  
C\_UF\_V3



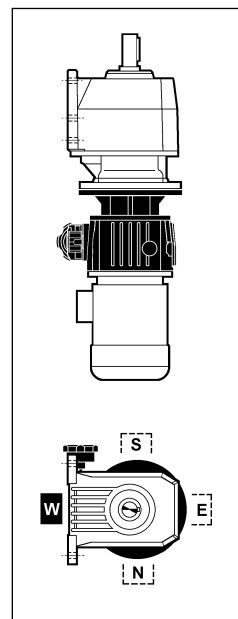
C\_P V6  
C\_F V3 + V\_ **V6 1**



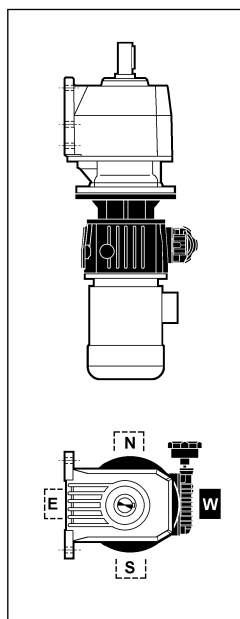
C\_P V6  
C\_F V3 + V\_ **V61 1**



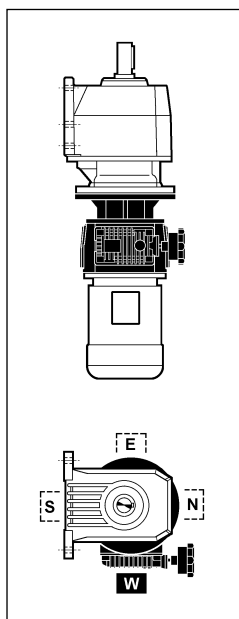
C\_P V6  
C\_F V3 + V\_ **V63 1**



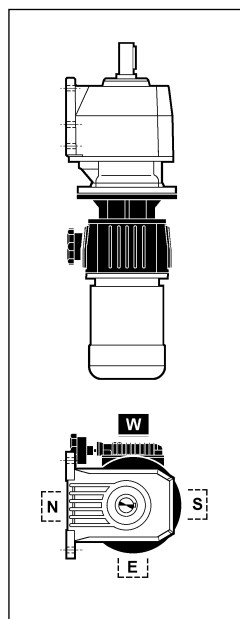
C\_P V6  
C\_F B5 + V\_ **V62 1**



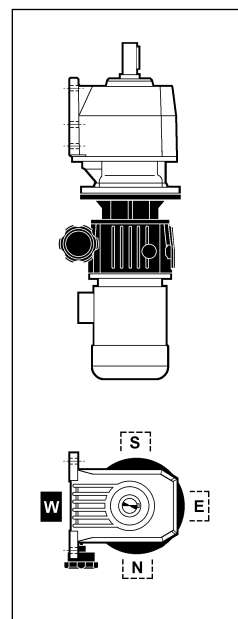
C\_P V6  
C\_F V3 + V\_ **V6 2**



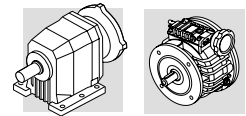
C\_P V6  
C\_F V3 + V\_ **V61 2**



C\_P V6  
C\_F V3 + V\_ **V63 2**



C\_P V6  
C\_F V3 + V\_ **V62 2**

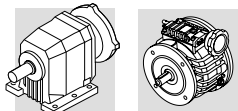


## 0.12 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i     | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|-------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 2.0                        | 0.41                        | 388                  | 1024                  | 1.5 | 0.6 | 304.2 | 7000                 | C414_304.2                                                                        | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 198-199                                                                             |
| 2.6                        | 0.54                        | 296                  | 782                   | 1.5 | 0.6 | 232.3 | 6500                 | C354_232.3                                                                        | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 196-197                                                                             |
| 3.7                        | 0.77                        | 211                  | 557                   | 2.1 | 0.8 | 162.0 | 6500                 | C353_162.0                                                                        | —<br>P63                                                                          | —<br>V 0.25 F                                                                       | P63                                                                                 | BN63B6                                                                                  | 196-197                                                                             |
| 4.9                        | 1.0                         | 159                  | 421                   | 1.9 | 0.7 | 122.4 | 5500                 | C313_122.4                                                                        | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 194-195                                                                             |
| 5.8                        | 1.2                         | 134                  | 356                   | 2.2 | 0.8 | 103.3 | 5500                 | C313_103.3                                                                        | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 194-195                                                                             |
| 7.3                        | 1.5                         | 108                  | 284                   | 2.8 | 1.1 | 82.6  | 5500                 | C313_82.6                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 194-195                                                                             |
| 9.5                        | 2.0                         | 84                   | 223                   | 1.6 | 0.6 | 63.3  | 5000                 | C212_63.3                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 192-193                                                                             |
| 11.0                       | 2.3                         | 73                   | 192                   | 2.2 | 0.9 | 54.7  | 5000                 | C212_54.7                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 192-193                                                                             |
| 13.9                       | 2.9                         | 58                   | 152                   | 3.3 | 1.2 | 43.3  | 5000                 | C212_43.3                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 192-193                                                                             |
| 16.3                       | 3.4                         | 49                   | 130                   | 1.8 | 0.7 | 37.0  | 2000                 | C112_37.0                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 190-191                                                                             |
| 16.4                       | 3.4                         | 49                   | 129                   | 4.1 | 1.5 | 36.8  | 5000                 | C212_36.8                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 192-193                                                                             |
| 18.4                       | 3.8                         | 44                   | 115                   | 2.1 | 0.8 | 32.8  | 2000                 | C112_32.8                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 190-191                                                                             |
| 20.4                       | 4.2                         | 39                   | 104                   | 5.1 | 1.9 | 29.6  | 5000                 | C212_29.6                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 192-193                                                                             |
| 20.5                       | 4.2                         | 39                   | 104                   | 2.5 | 1.0 | 29.5  | 2000                 | C112_29.5                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 190-191                                                                             |
| 23.8                       | 4.9                         | 34                   | 89                    | 2.6 | 1.0 | 25.4  | 2000                 | C112_25.4                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 190-191                                                                             |
| 26.4                       | 5.5                         | 31                   | 81                    | 3.3 | 1.2 | 22.9  | 2000                 | C112_22.9                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 190-191                                                                             |
| 29.3                       | 6.1                         | 27                   | 72                    | 3.2 | 1.2 | 20.6  | 2000                 | C112_20.6                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 190-191                                                                             |
| 35                         | 7.3                         | 23                   | 60                    | 3.8 | 1.5 | 17.2  | 2000                 | C112_17.2                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 190-191                                                                             |
| 39                         | 8.1                         | 21                   | 54                    | 4.2 | 1.8 | 15.5  | 2000                 | C112_15.5                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 190-191                                                                             |
| 45                         | 9.3                         | 18                   | 47                    | 4.5 | 1.9 | 13.4  | 2000                 | C112_13.4                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 190-191                                                                             |
| 60                         | 12.4                        | 13                   | 36                    | 5.4 | 2.5 | 10.1  | 2000                 | C112_10.1                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 190-191                                                                             |
| 79                         | 16.4                        | 10                   | 27                    | 6.4 | 3.0 | 7.6   | 2000                 | C112_7.6                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 190-191                                                                             |
| 97                         | 20.2                        | 8                    | 22                    | 7.4 | 3.2 | 6.2   | 2000                 | C112_6.2                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 190-191                                                                             |
| 123                        | 25.5                        | 7                    | 17                    | 8.4 | 3.9 | 4.9   | 2000                 | C112_4.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B6                                                                                  | 190-191                                                                             |

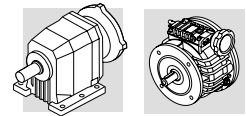
## 0.18 kW

|     |      |     |     |     |     |       |      |            |             |                      |     |         |         |
|-----|------|-----|-----|-----|-----|-------|------|------------|-------------|----------------------|-----|---------|---------|
| 2.5 | 0.52 | 437 | 873 | 1.4 | 0.7 | 239.9 | 7000 | C414_239.9 | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN71A6R | 198-199 |
| 3.5 | 0.72 | 359 | 957 | 1.7 | 0.6 | 263.0 | 7000 | C414_263.0 | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63B4  | 198-199 |
| 3.8 | 0.79 | 327 | 873 | 1.8 | 0.7 | 239.9 | 7000 | C414_239.9 | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63B4  | 198-199 |
| 4.4 | 0.92 | 288 | 768 | 1.6 | 0.6 | 206.4 | 6500 | C353_206.4 | —<br>P63    | —<br>V 0.25 F        | P63 | BN63B4  | 196-197 |
| 5.8 | 1.2  | 192 | 384 | 1.6 | 0.8 | 103.3 | 5500 | C313_103.3 | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN71A6R | 194-195 |



## 0.18 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i     | R <sub>n2</sub><br>N |  |  |  |  |  |  |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|-------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 6.5                        | 1.3                         | 173                  | 346                   | 1.7 | 0.9 | 93.0  | 5500                 | C313_93.0                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                             | 194-195                                                                             |
| 7.1                        | 1.5                         | 178                  | 474                   | 2.5 | 1.0 | 127.3 | 6500                 | C353_127.3                                                                        | —<br>P63                                                                          | —<br>V 0.25 F                                                                       | P63                                                                                 | BN63B4                                                                              | 196-197                                                                             |
| 7.3                        | 1.5                         | 154                  | 307                   | 2.0 | 1.0 | 82.6  | 5500                 | C313_82.6                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                             | 194-195                                                                             |
| 8.2                        | 1.7                         | 156                  | 415                   | 2.9 | 1.1 | 111.5 | 6500                 | C353_111.5                                                                        | —<br>P63                                                                          | —<br>V 0.25 F                                                                       | P63                                                                                 | BN63B4                                                                              | 196-197                                                                             |
| 8.8                        | 1.8                         | 144                  | 384                   | 2.1 | 0.8 | 103.3 | 5500                 | C313_103.3                                                                        | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                              | 194-195                                                                             |
| 9.0                        | 1.9                         | 142                  | 378                   | 3.2 | 1.2 | 101.6 | 6500                 | C353_101.6                                                                        | —<br>P63                                                                          | —<br>V 0.25 F                                                                       | P63                                                                                 | BN63B4                                                                              | 196-197                                                                             |
| 9.0                        | 1.9                         | 127                  | 254                   | 1.7 | 0.9 | 66.8  | 5500                 | C312_66.8                                                                         | —<br>P63                                                                          | —<br>V 0.25 F                                                                       | P63                                                                                 | BN71A6R                                                                             | 194-195                                                                             |
| 11.0                       | 2.3                         | 115                  | 307                   | 2.6 | 1.0 | 82.6  | 5500                 | C313_82.6                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                              | 194-195                                                                             |
| 11.5                       | 2.4                         | 100                  | 199                   | 3.0 | 1.5 | 52.4  | 5500                 | C312_52.4                                                                         | —<br>P63                                                                          | —<br>V 0.25 F                                                                       | P63                                                                                 | BN71A6R                                                                             | 194-195                                                                             |
| 13.3                       | 2.8                         | 86                   | 172                   | 3.5 | 1.7 | 45.3  | 5500                 | C312_45.3                                                                         | —<br>P63                                                                          | —<br>V 0.25 F                                                                       | P63                                                                                 | BN71A6R                                                                             | 194-195                                                                             |
| 13.6                       | 2.8                         | 95                   | 254                   | 2.3 | 0.9 | 66.8  | 5500                 | C312_66.8                                                                         | —<br>P63                                                                          | —<br>V 0.25 F                                                                       | P63                                                                                 | BN63B4                                                                              | 194-195                                                                             |
| 13.9                       | 2.9                         | 82                   | 165                   | 2.3 | 1.2 | 43.3  | 5000                 | C212_43.3                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                             | 192-193                                                                             |
| 16.4                       | 3.4                         | 70                   | 140                   | 2.9 | 1.4 | 36.8  | 5000                 | C212_36.8                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                             | 192-193                                                                             |
| 17.4                       | 3.6                         | 75                   | 199                   | 4.0 | 1.5 | 52.4  | 5500                 | C312_52.4                                                                         | —<br>P63                                                                          | —<br>V 0.25 F                                                                       | P63                                                                                 | BN63B4                                                                              | 194-195                                                                             |
| 20.1                       | 4.2                         | 65                   | 172                   | 4.6 | 1.7 | 45.3  | 5500                 | C312_45.3                                                                         | —<br>P63                                                                          | —<br>V 0.25 F                                                                       | P63                                                                                 | BN63B4                                                                              | 194-195                                                                             |
| 20.4                       | 4.2                         | 56                   | 113                   | 3.6 | 1.8 | 29.6  | 5000                 | C212_29.6                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                             | 192-193                                                                             |
| 21.0                       | 4.4                         | 62                   | 165                   | 3.1 | 1.2 | 43.3  | 5000                 | C212_43.3                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                              | 192-193                                                                             |
| 23.8                       | 4.9                         | 48                   | 97                    | 1.8 | 0.9 | 25.4  | 2000                 | C112_25.4                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                             | 190-191                                                                             |
| 24.7                       | 5.2                         | 52                   | 140                   | 3.8 | 1.4 | 36.8  | 5000                 | C212_36.8                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                              | 192-193                                                                             |
| 24.9                       | 5.1                         | 46                   | 92                    | 4.3 | 2.2 | 24.3  | 5000                 | C212_24.3                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                             | 192-193                                                                             |
| 27.7                       | 5.8                         | 47                   | 125                   | 1.9 | 0.7 | 32.8  | 2000                 | C112_32.8                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                              | 190-191                                                                             |
| 29.3                       | 6.1                         | 39                   | 78                    | 2.3 | 1.1 | 20.6  | 2000                 | C112_20.6                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                             | 190-191                                                                             |
| 30                         | 6.3                         | 38                   | 76                    | 5.3 | 2.6 | 20.0  | 5000                 | C212_20.0                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                             | 192-193                                                                             |
| 31                         | 6.4                         | 42                   | 112                   | 2.4 | 0.9 | 29.5  | 2000                 | C112_29.5                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                              | 190-191                                                                             |
| 35                         | 7.3                         | 33                   | 65                    | 2.7 | 1.4 | 17.2  | 2000                 | C112_17.2                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                             | 190-191                                                                             |
| 36                         | 7.5                         | 36                   | 97                    | 2.5 | 0.9 | 25.4  | 2000                 | C112_25.4                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                              | 190-191                                                                             |
| 37                         | 7.8                         | 35                   | 92                    | 5.8 | 2.2 | 24.3  | 4760                 | C212_24.3                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                              | 192-193                                                                             |
| 44                         | 9.2                         | 29                   | 78                    | 3.0 | 1.1 | 20.6  | 2000                 | C112_20.6                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                              | 190-191                                                                             |
| 45                         | 9.3                         | 25                   | 51                    | 3.2 | 1.8 | 13.4  | 2000                 | C112_13.4                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                             | 190-191                                                                             |
| 53                         | 11.0                        | 25                   | 65                    | 3.6 | 1.4 | 17.2  | 2000                 | C112_17.2                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                              | 190-191                                                                             |
| 58                         | 12.0                        | 23                   | 60                    | 8.9 | 3.3 | 15.8  | 4160                 | C212_15.8                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                              | 192-193                                                                             |
| 60                         | 12.4                        | 19                   | 38                    | 3.8 | 2.3 | 10.1  | 2000                 | C112_10.1                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                             | 190-191                                                                             |
| 68                         | 14.2                        | 19                   | 51                    | 4.2 | 1.8 | 13.4  | 2000                 | C112_13.4                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                              | 190-191                                                                             |
| 79                         | 16.4                        | 14                   | 29                    | 4.5 | 2.7 | 7.6   | 2000                 | C112_7.6                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                             | 190-191                                                                             |
| 90                         | 18.8                        | 14                   | 38                    | 5.0 | 2.3 | 10.1  | 2000                 | C112_10.1                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                              | 190-191                                                                             |
| 97                         | 20.2                        | 12                   | 24                    | 5.2 | 3.0 | 6.2   | 2000                 | C112_6.2                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                             | 190-191                                                                             |

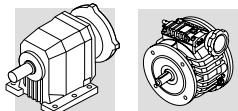


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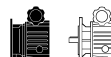
| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i   | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|-----|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 120                        | 25.0                        | 11                   | 29                    | 6.0 | 2.7 | 7.6 | 2000                 | C112_7.6                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                                  | 190-191                                                                             |
| 123                        | 25.5                        | 9                    | 19                    | 5.9 | 3.6 | 4.9 | 2000                 | C112_4.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN71A6R                                                                                 | 190-191                                                                             |
| 147                        | 31                          | 9                    | 24                    | 6.9 | 3.0 | 6.2 | 1950                 | C112_6.2                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                                  | 190-191                                                                             |
| 186                        | 39                          | 7                    | 19                    | 7.9 | 3.6 | 4.9 | 1800                 | C112_4.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B4                                                                                  | 190-191                                                                             |

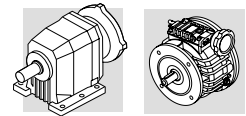
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|      |      |     |      |     |     |       |       |            |             |                      |     |        |         |
|------|------|-----|------|-----|-----|-------|-------|------------|-------------|----------------------|-----|--------|---------|
| 2.2  | 0.41 | 841 | 2102 | 1.9 | 0.8 | 462.0 | 7000  | C614_462.0 | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 202-203 |
| 3.0  | 0.56 | 615 | 1537 | 2.6 | 1.0 | 337.7 | 16000 | C614_337.7 | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 202-203 |
| 3.8  | 0.72 | 480 | 1200 | 2.1 | 0.8 | 263.8 | 10000 | C514_263.8 | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 200-201 |
| 4.2  | 0.79 | 438 | 1096 | 2.3 | 0.9 | 240.9 | 10000 | C514_240.9 | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 200-201 |
| 4.2  | 0.80 | 434 | 1084 | 3.7 | 1.5 | 238.3 | 16000 | C614_238.3 | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 202-203 |
| 5.2  | 1.0  | 355 | 887  | 1.7 | 0.7 | 190.8 | 7000  | C413_190.8 | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 198-199 |
| 6.1  | 1.2  | 305 | 763  | 2.0 | 0.8 | 164.1 | 7000  | C413_164.1 | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 198-199 |
| 6.2  | 1.2  | 301 | 753  | 1.5 | 0.6 | 162.0 | 6500  | C353_162.0 | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 196-197 |
| 6.8  | 1.3  | 275 | 686  | 1.6 | 0.7 | 147.6 | 6500  | C353_147.6 | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 196-197 |
| 7.1  | 1.5  | 213 | 474  | 2.1 | 1.0 | 127.3 | 6500  | C353_127.3 | —<br>P63    | V 0.25 F             | P63 | BN63C4 | 196-197 |
| 7.2  | 1.4  | 260 | 650  | 1.7 | 0.7 | 139.8 | 6500  | C353_139.8 | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 196-197 |
| 8.2  | 1.7  | 187 | 415  | 2.4 | 1.1 | 111.5 | 6500  | C353_111.5 | —<br>P63    | V 0.25 F             | P63 | BN63C4 | 196-197 |
| 8.3  | 1.6  | 224 | 561  | 2.7 | 1.1 | 120.6 | 7000  | C413_120.6 | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 198-199 |
| 9.0  | 1.9  | 170 | 378  | 2.6 | 1.2 | 101.6 | 6500  | C353_101.6 | —<br>P63    | V 0.25 F             | P63 | BN63C4 | 196-197 |
| 9.0  | 1.7  | 207 | 518  | 2.2 | 0.9 | 111.5 | 6500  | C353_111.5 | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 196-197 |
| 9.9  | 2.1  | 154 | 342  | 2.9 | 1.3 | 91.9  | 6500  | C353_91.9  | —<br>P63    | V 0.25 F             | P63 | BN63C4 | 196-197 |
| 10.9 | 2.1  | 171 | 427  | 2.6 | 1.1 | 91.9  | 6500  | C353_91.9  | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 196-197 |
| 11.0 | 2.3  | 138 | 307  | 2.2 | 1.0 | 82.6  | 5500  | C313_82.6  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63C4 | 194-195 |
| 11.7 | 2.4  | 130 | 289  | 3.5 | 1.6 | 77.6  | 6500  | C353_77.6  | —<br>P63    | V 0.25 F             | P63 | BN63C4 | 196-197 |
| 11.9 | 2.3  | 156 | 390  | 2.9 | 1.2 | 83.8  | 6500  | C353_83.8  | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 196-197 |
| 14.1 | 2.7  | 132 | 329  | 3.4 | 1.4 | 70.7  | 6500  | C353_70.7  | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 196-197 |
| 14.7 | 3.1  | 104 | 231  | 4.3 | 2.0 | 62.0  | 6500  | C353_62.0  | —<br>P63    | V 0.25 F             | P63 | BN63C4 | 196-197 |
| 16.6 | 3.5  | 94  | 208  | 1.7 | 0.8 | 54.7  | 5000  | C212_54.7  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63C4 | 192-193 |
| 17.4 | 3.6  | 90  | 199  | 3.3 | 1.5 | 52.4  | 5500  | C312_52.4  | —<br>P63    | V 0.25 F             | P63 | BN63C4 | 194-195 |
| 17.7 | 3.4  | 105 | 263  | 4.3 | 1.7 | 56.5  | 6500  | C353_56.5  | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 196-197 |
| 19.1 | 3.6  | 100 | 249  | 3.0 | 1.2 | 52.4  | 5500  | C312_52.4  | V05<br>P71  | V 0.5 C<br>V 0.5 F   | P71 | BN71A4 | 194-195 |
| 20.1 | 4.2  | 78  | 172  | 3.9 | 1.7 | 45.3  | 5500  | C312_45.3  | —<br>P63    | V 0.25 F             | P63 | BN63C4 | 194-195 |
| 21.0 | 4.4  | 74  | 165  | 2.6 | 1.2 | 43.3  | 5000  | C212_43.3  | V025<br>P63 | V 0.25 C<br>V 0.25 F | P63 | BN63C4 | 192-193 |



## 0.25 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2</sub> '<br>Nm | S   | S'  | i    | R <sub>n2</sub><br>N |  |  |  |  |  |         |
|----------------------------|-----------------------------|----------------------|------------------------|-----|-----|------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|
| 21.2                       | 4.0                         | 90                   | 224                    | 3.3 | 1.3 | 47.2 | 5500                 | C312_47.2                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                              | 194-195 |
| 22.1                       | 4.2                         | 86                   | 215                    | 3.5 | 1.4 | 45.3 | 5500                 | C312_45.3                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                              | 194-195 |
| 24.7                       | 5.2                         | 63                   | 140                    | 3.2 | 1.4 | 36.8 | 5000                 | C212_36.8                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                              | 192-193 |
| 26.4                       | 5.0                         | 72                   | 191                    | 4.2 | 1.6 | 25.1 | 5500                 | C312_25.1                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B6                                                                              | 194-195 |
| 27.2                       | 5.7                         | 57                   | 127                    | 1.8 | 0.8 | 33.4 | 2000                 | C112_33.4                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                              | 190-191 |
| 27.2                       | 5.2                         | 70                   | 175                    | 2.9 | 1.1 | 36.8 | 5000                 | C212_36.8                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                              | 192-193 |
| 30                         | 5.7                         | 63                   | 157                    | 3.2 | 1.3 | 33.1 | 4910                 | C212_33.1                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                              | 192-193 |
| 31                         | 6.4                         | 50                   | 112                    | 2.0 | 0.9 | 29.5 | 2000                 | C112_29.5                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                              | 190-191 |
| 31                         | 6.4                         | 51                   | 112                    | 4.0 | 1.8 | 29.6 | 4970                 | C212_29.6                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                              | 192-193 |
| 34                         | 6.4                         | 56                   | 140                    | 1.8 | 0.7 | 29.5 | 2000                 | C112_29.5                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                              | 190-191 |
| 34                         | 6.4                         | 56                   | 141                    | 3.6 | 1.4 | 29.6 | 4770                 | C212_29.6                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                              | 192-193 |
| 37                         | 7.1                         | 51                   | 127                    | 3.9 | 1.6 | 26.7 | 4620                 | C212_26.7                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                              | 192-193 |
| 37                         | 7.8                         | 42                   | 92                     | 4.8 | 2.2 | 24.3 | 4690                 | C212_24.3                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                              | 192-193 |
| 38                         | 8.0                         | 45                   | 118                    | 1.9 | 0.8 | 47.6 | 2000                 | C112_47.6                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                              | 190-191 |
| 40                         | 8.3                         | 39                   | 87                     | 2.5 | 1.1 | 22.9 | 2000                 | C112_22.9                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                              | 190-191 |
| 41                         | 7.8                         | 46                   | 115                    | 4.3 | 1.7 | 24.3 | 4500                 | C212_24.3                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                              | 192-193 |
| 42                         | 8.9                         | 41                   | 106                    | 2.1 | 0.9 | 42.9 | 2000                 | C112_42.9                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                              | 190-191 |
| 42                         | 8.8                         | 41                   | 107                    | 4.5 | 1.8 | 43.3 | 4500                 | C212_43.3                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                              | 192-193 |
| 44                         | 9.2                         | 35                   | 78                     | 2.5 | 1.1 | 20.6 | 2000                 | C112_20.6                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                              | 190-191 |
| 49                         | 10.3                        | 35                   | 91                     | 2.2 | 1.0 | 37.0 | 2000                 | C112_37.0                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                              | 190-191 |
| 50                         | 9.5                         | 38                   | 95                     | 5.3 | 2.1 | 20.0 | 4250                 | C212_20.0                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                              | 192-193 |
| 53                         | 11.0                        | 29                   | 65                     | 3.0 | 1.4 | 17.2 | 2000                 | C112_17.2                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                              | 190-191 |
| 55                         | 11.6                        | 31                   | 81                     | 2.4 | 1.1 | 32.8 | 2000                 | C112_32.8                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                              | 190-191 |
| 58                         | 11.0                        | 33                   | 82                     | 2.7 | 1.1 | 17.2 | 2000                 | C112_17.2                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                              | 190-191 |
| 62                         | 12.9                        | 28                   | 73                     | 2.6 | 1.4 | 29.5 | 2000                 | C112_29.5                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                              | 190-191 |
| 65                         | 12.3                        | 29                   | 74                     | 2.9 | 1.3 | 15.5 | 2000                 | C112_15.5                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                              | 190-191 |
| 68                         | 14.2                        | 23                   | 51                     | 3.5 | 1.8 | 13.4 | 2000                 | C112_13.4                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                              | 190-191 |
| 72                         | 15.0                        | 24                   | 63                     | 2.9 | 1.4 | 25.4 | 2000                 | C112_25.4                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                              | 190-191 |
| 75                         | 15.7                        | 21                   | 46                     | 3.8 | 2.1 | 12.1 | 2000                 | C112_12.1                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                              | 190-191 |
| 79                         | 16.6                        | 22                   | 57                     | 3.1 | 1.8 | 22.9 | 2000                 | C112_22.9                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                              | 190-191 |
| 83                         | 15.7                        | 23                   | 57                     | 3.4 | 1.7 | 12.1 | 2000                 | C112_12.1                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                              | 190-191 |
| 87                         | 16.4                        | 22                   | 58                     | 3.0 | 1.4 | 7.6  | 2000                 | C112_7.6                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B6                                                                              | 190-191 |
| 88                         | 18.4                        | 20                   | 51                     | 3.3 | 1.7 | 20.6 | 2000                 | C112_20.6                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                              | 190-191 |
| 90                         | 18.8                        | 17                   | 38                     | 4.2 | 2.3 | 10.1 | 2000                 | C112_10.1                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                              | 190-191 |
| 99                         | 18.8                        | 19                   | 48                     | 3.8 | 1.8 | 10.1 | 2000                 | C112_10.1                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                              | 190-191 |
| 106                        | 22.1                        | 16                   | 42                     | 3.7 | 2.1 | 17.2 | 2000                 | C112_17.2                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                              | 190-191 |

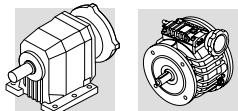


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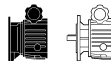
| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | $M_2$<br>Nm | $M_2'$<br>Nm | S   | S'  | i    | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|-------------|--------------|-----|-----|------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 109                        | 20.5                        | 17          | 46           | 6.3 | 2.5 | 6.1  | 3330                 | C212_6.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B6                                                                                  | 192-193                                                                             |
| 120                        | 25.0                        | 13          | 29           | 5.0 | 2.7 | 7.6  | 2000                 | C112_7.6                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                                  | 190-191                                                                             |
| 132                        | 25.0                        | 14          | 36           | 4.5 | 2.2 | 7.6  | 2000                 | C112_7.6                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                                  | 190-191                                                                             |
| 136                        | 28.4                        | 13          | 33           | 4.3 | 2.7 | 13.4 | 2000                 | C112_13.4                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                                  | 190-191                                                                             |
| 138                        | 26.0                        | 14          | 36           | 7.7 | 2.9 | 4.8  | 3080                 | C212_4.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B6                                                                                  | 192-193                                                                             |
| 147                        | 31                          | 11          | 24           | 5.8 | 3.0 | 6.2  | 1940                 | C112_6.2                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                                  | 190-191                                                                             |
| 161                        | 31                          | 12          | 29           | 5.2 | 2.4 | 6.2  | 1870                 | C112_6.2                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                                  | 190-191                                                                             |
| 164                        | 31                          | 12          | 29           | 9.5 | 4.0 | 6.1  | 2900                 | C212_6.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                                  | 192-193                                                                             |
| 180                        | 38                          | 10          | 25           | 5.1 | 3.5 | 10.1 | 1830                 | C112_10.1                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                                  | 190-191                                                                             |
| 186                        | 39                          | 8           | 19           | 6.6 | 3.6 | 4.9  | 1790                 | C112_4.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C4                                                                                  | 190-191                                                                             |
| 204                        | 39                          | 9           | 23           | 5.9 | 2.9 | 4.9  | 1730                 | C112_4.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71A4                                                                                  | 190-191                                                                             |
| 239                        | 50                          | 7           | 19           | 6.2 | 4.2 | 7.6  | 1680                 | C112_7.6                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                                  | 190-191                                                                             |
| 294                        | 61                          | 6           | 15           | 7.1 | 4.6 | 6.2  | 1550                 | C112_6.2                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                                  | 190-191                                                                             |
| 371                        | 78                          | 5           | 12           | 8.2 | 5.5 | 4.9  | 1430                 | C112_4.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63B2                                                                                  | 190-191                                                                             |

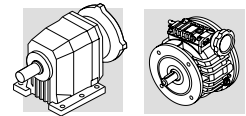
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|      |      |     |      |     |     |       |       |            |            |                    |     |        |         |
|------|------|-----|------|-----|-----|-------|-------|------------|------------|--------------------|-----|--------|---------|
| 3.6  | 0.69 | 752 | 2004 | 2.1 | 0.8 | 275.3 | 16000 | C614_275.3 | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71B4 | 202-203 |
| 4.6  | 0.87 | 594 | 1583 | 2.7 | 1.0 | 217.4 | 16000 | C614_217.4 | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71B4 | 202-203 |
| 5.5  | 1.0  | 449 | 897  | 1.3 | 0.7 | 120.6 | 7000  | C413_120.6 | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71C6 | 198-199 |
| 6.5  | 1.2  | 381 | 761  | 1.6 | 0.8 | 102.3 | 7000  | C413_102.3 | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71C6 | 198-199 |
| 8.3  | 1.6  | 336 | 897  | 1.8 | 0.7 | 120.6 | 7000  | C413_120.6 | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71B4 | 198-199 |
| 9.1  | 1.7  | 307 | 819  | 2.0 | 0.7 | 110.1 | 7000  | C413_110.1 | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71B4 | 198-199 |
| 9.8  | 1.9  | 285 | 761  | 2.1 | 0.8 | 102.3 | 7000  | C413_102.3 | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71B4 | 198-199 |
| 11.9 | 2.3  | 234 | 623  | 1.9 | 0.7 | 83.8  | 6500  | C353_83.8  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71B4 | 196-197 |
| 12.3 | 2.3  | 227 | 606  | 2.6 | 1.0 | 81.5  | 7000  | C413_81.5  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71B4 | 198-199 |
| 13.4 | 2.6  | 208 | 554  | 2.9 | 1.1 | 74.4  | 7000  | C413_74.4  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71B4 | 198-199 |
| 14.6 | 2.8  | 172 | 344  | 1.7 | 0.9 | 45.3  | 5500  | C312_45.3  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71C6 | 194-195 |
| 15.6 | 3.0  | 179 | 478  | 3.3 | 1.3 | 64.3  | 7000  | C413_64.3  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71B4 | 198-199 |
| 17.7 | 3.4  | 158 | 420  | 2.9 | 1.1 | 56.5  | 6500  | C353_56.5  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71B4 | 196-197 |
| 19.4 | 3.7  | 144 | 383  | 4.2 | 1.6 | 51.5  | 7000  | C413_51.5  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71B4 | 198-199 |
| 22.1 | 4.2  | 129 | 344  | 2.3 | 0.9 | 45.3  | 5500  | C312_45.3  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71B4 | 194-195 |
| 22.3 | 4.2  | 128 | 340  | 3.9 | 1.5 | 44.8  | 7000  | C412_44.8  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71B4 | 198-199 |
| 27.0 | 5.1  | 106 | 282  | 4.7 | 1.8 | 37.1  | 7000  | C412_37.1  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P71 | BN71B4 | 198-199 |

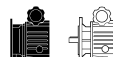


## 0.37 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i    | R <sub>n2</sub><br>N |  |  |  |  |  |         |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|
| 27.2                       | 5.7                         | 95                   | 254                   | 2.2 | 0.9 | 66.8 | 5500                 | C312_66.8                                                                         | —<br>P63                                                                          | —<br>V 0.25 F                                                                       | P63                                                                                 | BN63C2                                                                              | 194-195 |
| 27.7                       | 5.3                         | 103                  | 274                   | 2.9 | 1.1 | 36.1 | 5500                 | C312_36.1                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 194-195 |
| 32                         | 6.1                         | 89                   | 239                   | 5.6 | 2.1 | 31.4 | 7000                 | C412_31.4                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 198-199 |
| 33                         | 6.3                         | 76                   | 152                   | 2.6 | 1.3 | 20.0 | 4670                 | C212_20.0                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C6                                                                              | 192-193 |
| 34                         | 6.4                         | 84                   | 225                   | 2.4 | 0.9 | 29.6 | 4580                 | C212_29.6                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 192-193 |
| 40                         | 7.6                         | 71                   | 190                   | 7.0 | 2.6 | 25.0 | 7000                 | C412_25.0                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 198-199 |
| 41                         | 7.8                         | 69                   | 185                   | 2.9 | 1.1 | 24.3 | 4350                 | C212_24.3                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 192-193 |
| 41                         | 8.7                         | 61                   | 163                   | 7.0 | 2.8 | 43.9 | 6500                 | C353_43.9                                                                         | —<br>P63                                                                          | —<br>V 0.25 F                                                                       | P63                                                                                 | BN63C2                                                                              | 196-197 |
| 42                         | 8.8                         | 62                   | 165                   | 3.0 | 1.2 | 43.3 | 4370                 | C212_43.3                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                              | 192-193 |
| 50                         | 9.5                         | 57                   | 152                   | 3.5 | 1.3 | 20.0 | 4130                 | C212_20.0                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 192-193 |
| 50                         | 10.5                        | 51                   | 137                   | 5.4 | 2.2 | 36.1 | 5500                 | C312_36.1                                                                         | —<br>P63                                                                          | —<br>V 0.25 F                                                                       | P63                                                                                 | BN63C2                                                                              | 194-195 |
| 61                         | 12.8                        | 42                   | 112                   | 4.1 | 1.8 | 29.6 | 3930                 | C212_29.6                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                              | 192-193 |
| 63                         | 12.0                        | 45                   | 120                   | 4.4 | 1.7 | 15.8 | 3870                 | C212_15.8                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 192-193 |
| 66                         | 12.4                        | 38                   | 77                    | 1.9 | 1.1 | 10.1 | 2000                 | C112_10.1                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C6                                                                              | 190-191 |
| 68                         | 12.9                        | 37                   | 74                    | 4.6 | 2.7 | 9.7  | 3810                 | C212_9.7                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C6                                                                              | 192-193 |
| 75                         | 14.2                        | 38                   | 102                   | 2.1 | 0.9 | 13.4 | 2000                 | C112_13.4                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 190-191 |
| 81                         | 15.3                        | 35                   | 94                    | 5.2 | 2.1 | 12.4 | 3610                 | C212_12.4                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 192-193 |
| 83                         | 15.7                        | 34                   | 92                    | 2.3 | 1.0 | 12.1 | 2000                 | C112_12.1                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 190-191 |
| 88                         | 18.4                        | 29                   | 78                    | 2.2 | 1.1 | 20.6 | 2000                 | C112_20.6                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                              | 190-191 |
| 91                         | 19.0                        | 29                   | 76                    | 5.3 | 2.6 | 20.0 | 3500                 | C212_20.0                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                              | 192-193 |
| 99                         | 18.8                        | 29                   | 77                    | 2.5 | 1.1 | 10.1 | 2000                 | C112_10.1                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 190-191 |
| 103                        | 19.6                        | 28                   | 74                    | 6.1 | 2.7 | 9.7  | 3350                 | C212_9.7                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 192-193 |
| 106                        | 22.1                        | 25                   | 65                    | 2.4 | 1.4 | 17.2 | 2000                 | C112_17.2                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                              | 190-191 |
| 109                        | 20.5                        | 23                   | 46                    | 4.7 | 2.5 | 6.1  | 3300                 | C212_6.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C6                                                                              | 192-193 |
| 117                        | 24.5                        | 22                   | 59                    | 2.6 | 1.7 | 15.5 | 2000                 | C112_15.5                                                                         | V05<br>P63                                                                        | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                              | 190-191 |
| 132                        | 25.0                        | 22                   | 58                    | 3.0 | 1.4 | 7.6  | 1970                 | C112_7.6                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 190-191 |
| 136                        | 28.4                        | 19                   | 51                    | 2.9 | 1.8 | 13.4 | 1960                 | C112_13.4                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                              | 190-191 |
| 161                        | 31                          | 18                   | 47                    | 3.5 | 1.5 | 6.2  | 1830                 | C112_6.2                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 190-191 |
| 164                        | 31                          | 17                   | 46                    | 6.3 | 2.5 | 6.1  | 2870                 | C212_6.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 192-193 |
| 180                        | 38                          | 14                   | 38                    | 3.4 | 2.3 | 10.1 | 1800                 | C112_10.1                                                                         | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                              | 190-191 |
| 204                        | 39                          | 14                   | 37                    | 3.9 | 1.8 | 4.9  | 1700                 | C112_4.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 190-191 |
| 239                        | 50                          | 11                   | 29                    | 4.2 | 2.7 | 7.6  | 1660                 | C112_7.6                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                              | 190-191 |
| 270                        | 51                          | 11                   | 28                    | 4.6 | 2.1 | 3.7  | 1560                 | C112_3.7                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B4                                                                              | 190-191 |
| 294                        | 61                          | 9                    | 24                    | 4.8 | 3.0 | 6.2  | 1530                 | C112_6.2                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                              | 190-191 |
| 371                        | 78                          | 7                    | 19                    | 5.4 | 3.6 | 4.9  | 1420                 | C112_4.9                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                              | 190-191 |

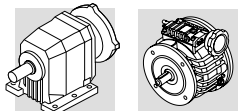


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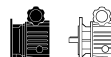
| $n_2$<br>$\text{min}^{-1}$ | $n_2'$<br>$\text{min}^{-1}$ | $M_2$<br>Nm | $M_2'$<br>Nm | S   | S'  | i   | $R_{n2}$<br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|-------------|--------------|-----|-----|-----|---------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 492                        | 103                         | 5           | 14           | 6.4 | 4.3 | 3.7 | 1300          | C112_3.7                                                                          | V025<br>P63                                                                       | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                 | BN63C2                                                                                  | 190-191                                                                             |
| 650                        | 136                         | 4           | 11           | 7.5 | 5.0 | 2.8 | 1190          |                                                                                   | C112_2.8                                                                          | V025<br>P63                                                                         | V 0.25 C<br>V 0.25 F                                                                | P63                                                                                     | BN63C2                                                                              |

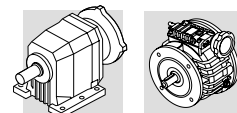
## 0.55 kW

|      |      |      |      |     |     |       |       |            |            |                    |     |        |         |
|------|------|------|------|-----|-----|-------|-------|------------|------------|--------------------|-----|--------|---------|
| 3.4  | 0.60 | 1083 | 2888 | 2.1 | 0.8 | 194.1 | 25000 | C703_194.1 | —<br>P80   | —<br>V 1 F         | P80 | BN80B6 | 204-205 |
| 3.6  | 0.69 | 1127 | 2004 | 1.4 | 0.8 | 275.3 | 16000 | C614_275.3 | V05<br>P71 | V 0.5 C<br>V 0.5 F | P80 | BN80A4 | 202-203 |
| 3.7  | 0.70 | 1000 | 2666 | 2.3 | 0.9 | 179.2 | 25000 | C703_179.2 | —<br>P80   | —<br>V 1 F         | P80 | BN80B6 | 204-205 |
| 4.2  | 0.80 | 976  | 1735 | 1.6 | 0.9 | 238.3 | 16000 | C614_238.3 | V05<br>P71 | V 0.5 C<br>V 0.5 F | P80 | BN80A4 | 202-203 |
| 4.2  | 0.80 | 1001 | 2671 | 2.3 | 0.9 | 239.3 | 25000 | C703_239.3 | —<br>P80   | —<br>V 1 F         | P80 | BN80A4 | 204-205 |
| 4.5  | 0.90 | 924  | 2465 | 2.4 | 0.9 | 220.9 | 25000 | C703_220.9 | —<br>P80   | —<br>V 1 F         | P80 | BN80A4 | 204-205 |
| 4.6  | 0.87 | 890  | 1583 | 1.8 | 1.0 | 217.4 | 16000 | C614_217.4 | V05<br>P71 | V 0.5 C<br>V 0.5 F | P80 | BN80A4 | 202-203 |
| 4.8  | 0.90 | 767  | 2045 | 3.0 | 1.1 | 137.4 | 25000 | C703_137.4 | —<br>P80   | —<br>V 1 F         | P80 | BN80B6 | 204-205 |
| 5.1  | 0.97 | 819  | 2185 | 2.0 | 0.7 | 195.8 | 16000 | C613_195.8 | —<br>P80   | —<br>V 1 F         | P80 | BN80A4 | 202-203 |
| 5.2  | 1.0  | 812  | 2166 | 2.8 | 1.1 | 194.1 | 25000 | C703_194.1 | —<br>P80   | —<br>V 1 F         | P80 | BN80A4 | 204-205 |
| 5.6  | 1.1  | 747  | 1993 | 2.1 | 0.8 | 178.6 | 16000 | C613_178.6 | —<br>P80   | —<br>V 1 F         | P80 | BN80A4 | 202-203 |
| 5.6  | 1.1  | 750  | 2000 | 3.1 | 1.2 | 179.2 | 25000 | C703_179.2 | —<br>P80   | —<br>V 1 F         | P80 | BN80A4 | 204-205 |
| 6.1  | 1.2  | 681  | 1817 | 3.4 | 1.3 | 162.8 | 25000 | C703_162.8 | —<br>P80   | —<br>V 1 F         | P80 | BN80A4 | 204-205 |
| 6.4  | 1.2  | 578  | 1542 | 2.8 | 1.0 | 103.6 | 16000 | C613_103.6 | —<br>P80   | —<br>V 1 F         | P80 | BN80B6 | 202-203 |
| 6.5  | 1.2  | 571  | 761  | 1.1 | 0.8 | 102.3 | 7000  | C413_102.3 | V05<br>P71 | V 0.5 C<br>V 0.5 F | P80 | BN80B6 | 198-199 |
| 7.1  | 1.3  | 521  | 694  | 1.2 | 0.9 | 93.3  | 7000  | C413_93.3  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P80 | BN80B6 | 198-199 |
| 7.4  | 1.4  | 563  | 1502 | 1.8 | 0.7 | 134.6 | 10000 | C513_134.6 | —<br>P80   | —<br>V 1 F         | P80 | BN80A4 | 200-201 |
| 7.8  | 1.5  | 536  | 1430 | 3.0 | 1.1 | 128.1 | 16000 | C613_128.1 | —<br>P80   | —<br>V 1 F         | P80 | BN80A4 | 202-203 |
| 7.9  | 1.5  | 531  | 1415 | 4.3 | 1.6 | 126.8 | 25000 | C703_126.8 | —<br>P80   | —<br>V 1 F         | P80 | BN80A4 | 204-205 |
| 8.0  | 1.5  | 463  | 1235 | 3.5 | 1.3 | 83.0  | 16000 | C613_83.0  | —<br>P80   | —<br>V 1 F         | P80 | BN80B6 | 202-203 |
| 8.8  | 1.7  | 475  | 1268 | 2.1 | 0.8 | 113.6 | 10000 | C513_113.6 | —<br>P80   | —<br>V 1 F         | P80 | BN80A4 | 200-201 |
| 8.8  | 1.7  | 475  | 1268 | 3.4 | 1.3 | 113.6 | 16000 | C613_113.6 | —<br>P80   | —<br>V 1 F         | P80 | BN80A4 | 202-203 |
| 8.9  | 1.7  | 415  | 554  | 1.4 | 1.1 | 74.4  | 7000  | C413_74.4  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P80 | BN80B6 | 198-199 |
| 9.7  | 1.8  | 434  | 1156 | 3.7 | 1.4 | 103.6 | 16000 | C613_103.6 | —<br>P80   | —<br>V 1 F         | P80 | BN80A4 | 202-203 |
| 9.8  | 1.9  | 426  | 1136 | 2.3 | 0.9 | 101.8 | 10000 | C513_101.8 | —<br>P80   | —<br>V 1 F         | P80 | BN80A4 | 200-201 |
| 10.3 | 1.9  | 359  | 478  | 1.7 | 1.3 | 64.3  | 7000  | C413_64.3  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P80 | BN80B6 | 198-199 |
| 11.6 | 2.2  | 325  | 866  | 2.4 | 0.9 | 57.0  | 10000 | C512_57.0  | —<br>P80   | —<br>V 1 F         | P80 | BN80B6 | 200-201 |
| 11.7 | 2.2  | 315  | 420  | 1.4 | 1.1 | 56.5  | 6500  | C353_56.5  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P80 | BN80B6 | 196-197 |
| 12.3 | 2.3  | 341  | 606  | 1.8 | 1.0 | 81.5  | 7000  | C413_81.5  | V05<br>P71 | V 0.5 C<br>V 0.5 F | P80 | BN80A4 | 198-199 |
| 12.3 | 2.3  | 341  | 910  | 1.8 | 0.7 | 81.5  | 7000  | C413_81.5  | V1<br>P80  | V 1 C<br>V 1 F     | P80 | BN80A4 | 198-199 |



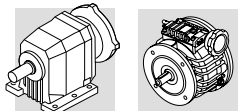
## 0.55 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i     | R <sub>n2</sub><br>N |  |  |  |  |  |         |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|-------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|
| 12.5                       | 2.4                         | 334                  | 892                   | 3.0 | 1.1 | 79.9  | 10000                | C513_79.9                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80A4                                                                              | 200-201 |
| 13.4                       | 2.6                         | 311                  | 554                   | 1.9 | 1.1 | 74.4  | 7000                 | C413_74.4                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                              | 198-199 |
| 13.4                       | 2.6                         | 311                  | 830                   | 1.9 | 0.7 | 74.4  | 7000                 | C413_74.4                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                              | 198-199 |
| 13.9                       | 2.6                         | 266                  | 708                   | 6.0 | 2.3 | 47.6  | 16000                | C613_47.6                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B6                                                                              | 202-203 |
| 14.1                       | 2.7                         | 262                  | 699                   | 2.3 | 0.9 | 47.0  | 7000                 | C413_47.0                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B6                                                                              | 198-199 |
| 14.1                       | 2.7                         | 296                  | 526                   | 1.5 | 0.9 | 70.7  | 6500                 | C353_70.7                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                              | 196-197 |
| 15.5                       | 2.9                         | 270                  | 721                   | 3.7 | 1.4 | 64.6  | 10000                | C513_64.6                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80A4                                                                              | 200-201 |
| 15.6                       | 3.0                         | 269                  | 478                   | 2.2 | 1.3 | 64.3  | 7000                 | C413_64.3                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                              | 198-199 |
| 15.6                       | 3.0                         | 269                  | 718                   | 2.2 | 0.8 | 64.3  | 7000                 | C413_64.3                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                              | 198-199 |
| 17.5                       | 3.3                         | 244                  | 650                   | 3.3 | 1.2 | 57.0  | 10000                | C512_57.0                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80A4                                                                              | 200-201 |
| 17.7                       | 3.4                         | 236                  | 420                   | 1.9 | 1.1 | 56.5  | 6500                 | C353_56.5                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                              | 196-197 |
| 17.9                       | 3.4                         | 211                  | 564                   | 2.4 | 0.9 | 37.1  | 7000                 | C412_37.1                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B6                                                                              | 198-199 |
| 19.5                       | 3.7                         | 214                  | 571                   | 4.7 | 1.8 | 51.2  | 10000                | C513_51.2                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80A4                                                                              | 200-201 |
| 19.7                       | 3.7                         | 189                  | 472                   | 2.4 | 1.0 | 101.6 | 6500                 | C353_101.6                                                                        | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                              | 196-197 |
| 19.9                       | 3.7                         | 190                  | 508                   | 2.6 | 1.0 | 33.4  | 7000                 | C412_33.4                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B6                                                                              | 198-199 |
| 22.2                       | 4.2                         | 170                  | 453                   | 4.7 | 1.8 | 29.8  | 10000                | C512_29.8                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B6                                                                              | 200-201 |
| 22.3                       | 4.2                         | 192                  | 340                   | 2.6 | 1.5 | 44.8  | 7000                 | C412_44.8                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                              | 198-199 |
| 22.3                       | 4.2                         | 192                  | 511                   | 2.6 | 1.0 | 44.8  | 7000                 | C412_44.8                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                              | 198-199 |
| 26.2                       | 5.0                         | 159                  | 283                   | 2.8 | 1.6 | 38.1  | 6500                 | C353_38.1                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                              | 196-197 |
| 26.2                       | 5.0                         | 159                  | 425                   | 2.8 | 1.1 | 38.1  | 6500                 | C353_38.1                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                              | 196-197 |
| 27.0                       | 5.1                         | 159                  | 423                   | 3.2 | 1.2 | 37.1  | 7000                 | C412_37.1                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                              | 198-199 |
| 32                         | 6.1                         | 131                  | 232                   | 4.6 | 2.6 | 31.2  | 7000                 | C413_31.2                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                              | 198-199 |
| 32                         | 6.1                         | 131                  | 348                   | 4.6 | 1.7 | 31.2  | 7000                 | C413_31.2                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                              | 198-199 |
| 35                         | 6.6                         | 120                  | 214                   | 3.7 | 2.1 | 28.7  | 6500                 | C353_28.7                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                              | 196-197 |
| 35                         | 6.6                         | 120                  | 320                   | 3.7 | 1.4 | 28.7  | 6500                 | C353_28.7                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                              | 196-197 |
| 38                         | 7.3                         | 100                  | 249                   | 3.0 | 1.2 | 52.4  | 5500                 | C312_52.4                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                              | 194-195 |
| 38                         | 7.3                         | 110                  | 195                   | 4.1 | 2.3 | 26.2  | 6500                 | C353_26.2                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                              | 196-197 |
| 38                         | 7.3                         | 110                  | 292                   | 4.1 | 1.5 | 26.2  | 6500                 | C353_26.2                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                              | 196-197 |
| 40                         | 7.6                         | 107                  | 286                   | 2.8 | 1.0 | 25.1  | 5500                 | C312_25.1                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                              | 194-195 |
| 40                         | 7.6                         | 107                  | 285                   | 4.7 | 1.8 | 25.0  | 7000                 | C412_25.0                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                              | 198-199 |
| 44                         | 8.4                         | 86                   | 215                   | 3.5 | 1.4 | 45.3  | 5500                 | C312_45.3                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                              | 194-195 |
| 45                         | 8.6                         | 92                   | 164                   | 4.9 | 2.7 | 22.1  | 6500                 | C353_22.1                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                              | 196-197 |
| 45                         | 8.6                         | 92                   | 247                   | 4.9 | 1.8 | 22.1  | 6500                 | C353_22.1                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                              | 196-197 |
| 50                         | 9.5                         | 86                   | 228                   | 2.3 | 0.9 | 20.0  | 3940                 | C212_20.0                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80A4                                                                              | 192-193 |
| 53                         | 10.0                        | 81                   | 217                   | 4.7 | 1.8 | 19.0  | 6500                 | C352_19.0                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                              | 196-197 |

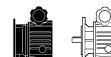


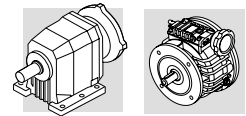
## 0.55 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i    | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 54                         | 10.3                        | 70                   | 175                   | 2.6 | 1.1 | 36.8 | 3920                 | C212_36.8                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 192-193                                                                             |
| 56                         | 10.6                        | 77                   | 137                   | 2.6 | 1.5 | 18.0 | 3840                 | C212_18.0                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 192-193                                                                             |
| 63                         | 12.0                        | 68                   | 180                   | 3.0 | 1.1 | 15.8 | 3720                 | C212_15.8                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80A4                                                                                  | 192-193                                                                             |
| 63                         | 12.0                        | 68                   | 120                   | 3.0 | 1.7 | 15.8 | 3720                 | C212_15.8                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 192-193                                                                             |
| 68                         | 12.8                        | 56                   | 141                   | 3.1 | 1.4 | 29.6 | 3710                 | C212_29.6                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 192-193                                                                             |
| 75                         | 14.2                        | 57                   | 102                   | 1.4 | 0.9 | 13.4 | 2000                 | C112_13.4                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 190-191                                                                             |
| 81                         | 15.3                        | 53                   | 141                   | 3.5 | 1.4 | 12.4 | 3500                 | C212_12.4                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80A4                                                                                  | 192-193                                                                             |
| 82                         | 15.6                        | 46                   | 115                   | 3.5 | 1.7 | 24.3 | 3510                 | C212_24.3                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 192-193                                                                             |
| 83                         | 15.7                        | 52                   | 92                    | 1.5 | 1.0 | 12.1 | 2000                 | C112_12.1                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 190-191                                                                             |
| 93                         | 17.6                        | 40                   | 108                   | 3.7 | 1.7 | 7.1  | 3390                 | C212_7.1                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B6                                                                                  | 192-193                                                                             |
| 96                         | 18.1                        | 39                   | 52                    | 1.6 | 1.4 | 6.9  | 2000                 | C112_6.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B6                                                                                  | 190-191                                                                             |
| 100                        | 19.0                        | 38                   | 95                    | 3.9 | 2.1 | 20.0 | 3330                 | C212_20.0                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 192-193                                                                             |
| 103                        | 19.6                        | 41                   | 111                   | 4.1 | 1.8 | 9.7  | 3260                 | C212_9.7                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80A4                                                                                  | 192-193                                                                             |
| 103                        | 19.6                        | 41                   | 74                    | 4.1 | 2.7 | 9.7  | 3260                 | C212_9.7                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 192-193                                                                             |
| 110                        | 20.9                        | 39                   | 69                    | 1.8 | 1.2 | 9.1  | 1990                 | C112_9.1                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 190-191                                                                             |
| 116                        | 22.1                        | 33                   | 82                    | 1.8 | 1.1 | 17.2 | 1990                 | C112_17.2                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 190-191                                                                             |
| 129                        | 24.5                        | 29                   | 74                    | 2.0 | 1.3 | 15.5 | 1930                 | C112_15.5                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 190-191                                                                             |
| 139                        | 26.4                        | 31                   | 82                    | 7.6 | 3.5 | 7.2  | 4460                 | C312_7.2                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                                  | 194-195                                                                             |
| 141                        | 26.8                        | 30                   | 81                    | 4.9 | 2.2 | 7.1  | 2990                 | C212_7.1                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80A4                                                                                  | 192-193                                                                             |
| 149                        | 28.4                        | 25                   | 64                    | 2.2 | 1.4 | 13.4 | 1860                 | C112_13.4                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 190-191                                                                             |
| 159                        | 30                          | 27                   | 72                    | 6.6 | 2.8 | 6.3  | 4120                 | C312_6.3                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80A4                                                                                  | 194-195                                                                             |
| 161                        | 31                          | 24                   | 59                    | 5.3 | 3.4 | 12.4 | 2910                 | C212_12.4                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 192-193                                                                             |
| 164                        | 31                          | 26                   | 70                    | 4.2 | 1.7 | 6.1  | 2820                 | C212_6.1                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80A4                                                                                  | 192-193                                                                             |
| 198                        | 38                          | 19                   | 48                    | 2.6 | 1.8 | 10.1 | 1720                 | C112_10.1                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 190-191                                                                             |
| 204                        | 39                          | 21                   | 37                    | 2.6 | 1.8 | 4.9  | 1650                 | C112_4.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 190-191                                                                             |
| 206                        | 39                          | 18                   | 46                    | 6.2 | 4.3 | 9.7  | 2670                 | C212_9.7                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 192-193                                                                             |
| 208                        | 40                          | 21                   | 55                    | 5.1 | 1.9 | 4.8  | 2630                 | C212_4.8                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80A4                                                                                  | 192-193                                                                             |
| 263                        | 50                          | 14                   | 36                    | 3.1 | 2.2 | 7.6  | 1580                 | C112_7.6                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 190-191                                                                             |
| 323                        | 61                          | 12                   | 29                    | 3.6 | 2.4 | 6.2  | 1460                 | C112_6.2                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 190-191                                                                             |
| 357                        | 68                          | 12                   | 21                    | 3.6 | 2.5 | 2.8  | 1400                 | C112_2.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80A4                                                                                  | 190-191                                                                             |
| 408                        | 78                          | 9                    | 23                    | 4.1 | 2.9 | 4.9  | 1360                 | C112_4.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 190-191                                                                             |
| 541                        | 103                         | 7                    | 18                    | 4.8 | 3.4 | 3.7  | 1240                 | C112_3.7                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 190-191                                                                             |
| 714                        | 136                         | 5                    | 13                    | 5.6 | 4.0 | 2.8  | 1140                 | C112_2.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71B2                                                                                  | 190-191                                                                             |



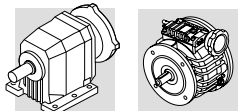
## 0.75 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i     | R <sub>n2</sub><br>N |  |  |  |  |  |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|-------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 3.0                        | 0.60                        | 1643                 | 3287                  | 1.4 | 0.7 | 220.9 | 25000                | C703_220.9                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80C6                                                                              | 204-205                                                                             |
| 3.4                        | 0.60                        | 1444                 | 2888                  | 1.6 | 0.8 | 194.1 | 25000                | C703_194.1                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80C6                                                                              | 204-205                                                                             |
| 3.6                        | 0.69                        | 1503                 | 2004                  | 1.1 | 0.8 | 275.3 | 16000                | C614_275.3                                                                        | <div><div>V05<br/>P71</div><div>V 0.5 C<br/>V 0.5 F</div></div>                   | P80                                                                                 | BN80B4                                                                              | 202-203                                                                             |
| 3.7                        | 0.70                        | 1333                 | 2666                  | 1.7 | 0.9 | 179.2 | 25000                | C703_179.2                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80C6                                                                              | 204-205                                                                             |
| 4.2                        | 0.80                        | 1335                 | 3561                  | 1.7 | 0.6 | 239.3 | 25000                | C703_239.3                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80B4                                                                              | 204-205                                                                             |
| 4.4                        | 0.83                        | 1116                 | 2232                  | 1.4 | 0.7 | 150.0 | 16000                | C613_150.0                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80C6                                                                              | 202-203                                                                             |
| 4.5                        | 0.90                        | 1233                 | 3287                  | 1.8 | 0.7 | 220.9 | 25000                | C703_220.9                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80B4                                                                              | 204-205                                                                             |
| 4.8                        | 0.90                        | 1022                 | 2045                  | 2.2 | 1.1 | 137.4 | 25000                | C703_137.4                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80C6                                                                              | 204-205                                                                             |
| 5.2                        | 0.98                        | 953                  | 1906                  | 1.7 | 0.8 | 128.1 | 16000                | C613_128.1                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80C6                                                                              | 202-203                                                                             |
| 5.2                        | 1.0                         | 1083                 | 2888                  | 2.1 | 0.8 | 194.1 | 25000                | C703_194.1                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80B4                                                                              | 204-205                                                                             |
| 5.6                        | 1.1                         | 1000                 | 2666                  | 2.3 | 0.9 | 179.2 | 25000                | C703_179.2                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80B4                                                                              | 204-205                                                                             |
| 5.8                        | 1.1                         | 845                  | 1690                  | 1.9 | 0.9 | 113.6 | 16000                | C613_113.6                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80C6                                                                              | 202-203                                                                             |
| 6.1                        | 1.2                         | 908                  | 2422                  | 2.5 | 0.9 | 162.8 | 25000                | C703_162.8                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80B4                                                                              | 204-205                                                                             |
| 6.4                        | 1.2                         | 771                  | 1542                  | 2.1 | 1.0 | 103.6 | 16000                | C613_103.6                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80C6                                                                              | 202-203                                                                             |
| 6.7                        | 1.3                         | 837                  | 2232                  | 1.9 | 0.7 | 150.0 | 16000                | C613_150.0                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80B4                                                                              | 202-203                                                                             |
| 6.7                        | 1.3                         | 839                  | 2236                  | 2.7 | 1.0 | 150.3 | 25000                | C703_150.3                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80B4                                                                              | 204-205                                                                             |
| 7.3                        | 1.4                         | 677                  | 1354                  | 2.4 | 1.2 | 91.0  | 16000                | C613_91.0                                                                         | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80C6                                                                              | 202-203                                                                             |
| 7.3                        | 1.4                         | 767                  | 2045                  | 3.0 | 1.1 | 137.4 | 25000                | C703_137.4                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80B4                                                                              | 204-205                                                                             |
| 7.9                        | 1.5                         | 708                  | 1887                  | 3.3 | 1.2 | 126.8 | 25000                | C703_126.8                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80B4                                                                              | 204-205                                                                             |
| 8.0                        | 1.5                         | 618                  | 1235                  | 2.6 | 1.3 | 83.0  | 16000                | C613_83.0                                                                         | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80C6                                                                              | 202-203                                                                             |
| 8.3                        | 1.6                         | 594                  | 1189                  | 1.7 | 0.8 | 79.9  | 10000                | C513_79.9                                                                         | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80C6                                                                              | 200-201                                                                             |
| 8.8                        | 1.7                         | 634                  | 1690                  | 2.5 | 0.9 | 113.6 | 16000                | C613_113.6                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80B4                                                                              | 202-203                                                                             |
| 8.9                        | 1.7                         | 627                  | 1673                  | 3.7 | 1.4 | 112.4 | 25000                | C703_112.4                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80B4                                                                              | 204-205                                                                             |
| 9.7                        | 1.8                         | 578                  | 1542                  | 2.8 | 1.0 | 103.6 | 16000                | C613_103.6                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80B4                                                                              | 202-203                                                                             |
| 9.8                        | 1.9                         | 571                  | 761                   | 1.1 | 0.8 | 102.3 | 7000                 | C413_102.3                                                                        | <div><div>V05<br/>P71</div><div>V 0.5 C<br/>V 0.5 F</div></div>                   | P80                                                                                 | BN80B4                                                                              | 198-199                                                                             |
| 9.8                        | 1.9                         | 568                  | 1515                  | 1.8 | 0.7 | 101.8 | 10000                | C513_101.8                                                                        | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80B4                                                                              | 200-201                                                                             |
| 11.0                       | 2.1                         | 508                  | 1354                  | 3.2 | 1.2 | 91.0  | 16000                | C613_91.0                                                                         | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80B4                                                                              | 202-203                                                                             |
| 11.9                       | 2.3                         | 468                  | 623                   | 1.0 | 0.7 | 83.8  | 6500                 | C353_83.8                                                                         | <div><div>V05<br/>P71</div><div>V 0.5 C<br/>V 0.5 F</div></div>                   | P80                                                                                 | BN80B4                                                                              | 196-197                                                                             |
| 12.3                       | 2.3                         | 455                  | 606                   | 1.3 | 1.0 | 81.5  | 7000                 | C413_81.5                                                                         | <div><div>V05<br/>P71</div><div>V 0.5 C<br/>V 0.5 F</div></div>                   | P80                                                                                 | BN80B4                                                                              | 198-199                                                                             |
| 13.7                       | 2.6                         | 407                  | 1085                  | 2.5 | 0.9 | 72.9  | 10000                | C513_72.9                                                                         | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80B4                                                                              | 200-201                                                                             |
| 14.1                       | 2.7                         | 350                  | 699                   | 1.7 | 0.9 | 47.0  | 7000                 | C413_47.0                                                                         | <div><div>V1<br/>P80</div><div>V 1 C<br/>V 1 F</div></div>                        | P80                                                                                 | BN80C6                                                                              | 198-199                                                                             |
| 14.1                       | 2.7                         | 395                  | 526                   | 1.1 | 0.9 | 70.7  | 6500                 | C353_70.7                                                                         | <div><div>V05<br/>P71</div><div>V 0.5 C<br/>V 0.5 F</div></div>                   | P80                                                                                 | BN80B4                                                                              | 196-197                                                                             |
| 16.9                       | 3.2                         | 329                  | 878                   | 3.0 | 1.1 | 59.0  | 10000                | C513_59.0                                                                         | <div><div>—<br/>P80</div><div>—<br/>V 1 F</div></div>                             | P80                                                                                 | BN80B4                                                                              | 200-201                                                                             |
| 17.0                       | 3.2                         | 328                  | 437                   | 1.8 | 1.4 | 58.7  | 7000                 | C413_58.7                                                                         | <div><div>V05<br/>P71</div><div>V 0.5 C<br/>V 0.5 F</div></div>                   | P80                                                                                 | BN80B4                                                                              | 198-199                                                                             |
| 17.0                       | 3.2                         | 328                  | 873                   | 1.8 | 0.7 | 58.7  | 7000                 | C413_58.7                                                                         | <div><div>V1<br/>P80</div><div>V 1 C<br/>V 1 F</div></div>                        | P80                                                                                 | BN80B4                                                                              | 198-199                                                                             |
| 19.4                       | 3.7                         | 287                  | 383                   | 2.1 | 1.6 | 51.5  | 7000                 | C413_51.5                                                                         | <div><div>V05<br/>P71</div><div>V 0.5 C<br/>V 0.5 F</div></div>                   | P80                                                                                 | BN80B4                                                                              | 198-199                                                                             |



## 0.75 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i    | R <sub>n2</sub><br>N |  |  |  |  |  |  |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 19.4                       | 3.7                         | 287                  | 766                   | 2.1 | 0.8 | 51.5 | 7000                 | C413_51.5                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                              | 198-199                                                                             |
| 21.3                       | 4.0                         | 262                  | 350                   | 2.3 | 1.7 | 47.0 | 7000                 | C413_47.0                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B4                                                                              | 198-199                                                                             |
| 21.3                       | 4.0                         | 262                  | 699                   | 2.3 | 0.9 | 47.0 | 7000                 | C413_47.0                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                              | 198-199                                                                             |
| 24.8                       | 4.7                         | 225                  | 600                   | 2.7 | 1.0 | 40.3 | 7000                 | C413_40.3                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                              | 198-199                                                                             |
| 26.2                       | 5.0                         | 213                  | 283                   | 2.1 | 1.6 | 38.1 | 6500                 | C353_38.1                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B4                                                                              | 196-197                                                                             |
| 28.8                       | 5.5                         | 194                  | 258                   | 2.3 | 1.7 | 34.7 | 6500                 | C353_34.7                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B4                                                                              | 196-197                                                                             |
| 28.8                       | 5.5                         | 194                  | 516                   | 2.3 | 0.9 | 34.7 | 6500                 | C353_34.7                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                              | 196-197                                                                             |
| 35                         | 6.6                         | 160                  | 214                   | 2.8 | 2.1 | 28.7 | 6500                 | C353_28.7                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B4                                                                              | 196-197                                                                             |
| 35                         | 6.6                         | 160                  | 427                   | 2.8 | 1.1 | 28.7 | 6500                 | C353_28.7                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                              | 196-197                                                                             |
| 37                         | 7.1                         | 153                  | 407                   | 2.0 | 0.7 | 26.8 | 5500                 | C312_26.8                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                              | 194-195                                                                             |
| 38                         | 7.3                         | 146                  | 195                   | 3.1 | 2.3 | 26.2 | 6500                 | C353_26.2                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B4                                                                              | 196-197                                                                             |
| 38                         | 7.3                         | 146                  | 390                   | 3.1 | 1.2 | 26.2 | 6500                 | C353_26.2                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                              | 196-197                                                                             |
| 43                         | 8.0                         | 119                  | 237                   | 2.5 | 1.3 | 15.6 | 5500                 | C312_15.6                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C6                                                                              | 194-195                                                                             |
| 45                         | 8.6                         | 123                  | 329                   | 3.6 | 1.4 | 22.1 | 6500                 | C353_22.1                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                              | 196-197                                                                             |
| 50                         | 9.5                         | 114                  | 304                   | 1.8 | 0.7 | 20.0 | 3760                 | C212_20.0                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B4                                                                              | 192-193                                                                             |
| 54                         | 10.3                        | 105                  | 280                   | 1.8 | 0.7 | 36.8 | 3690                 | C212_36.8                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                              | 192-193                                                                             |
| 55                         | 10.5                        | 103                  | 274                   | 2.7 | 1.1 | 36.1 | 5500                 | C312_36.1                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                              | 194-195                                                                             |
| 64                         | 12.2                        | 89                   | 237                   | 3.4 | 1.3 | 15.6 | 5350                 | C312_15.6                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                              | 194-195                                                                             |
| 68                         | 12.8                        | 84                   | 225                   | 2.1 | 0.9 | 29.6 | 3520                 | C212_29.6                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                              | 192-193                                                                             |
| 71                         | 13.6                        | 80                   | 213                   | 3.8 | 1.4 | 14.0 | 5190                 | C312_14.0                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                              | 194-195                                                                             |
| 80                         | 15.1                        | 72                   | 191                   | 3.5 | 1.6 | 25.1 | 5030                 | C312_25.1                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                              | 194-195                                                                             |
| 81                         | 15.3                        | 71                   | 94                    | 2.6 | 2.1 | 12.4 | 3380                 | C212_12.4                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B4                                                                              | 192-193                                                                             |
| 81                         | 15.4                        | 70                   | 187                   | 4.1 | 1.6 | 12.3 | 5010                 | C312_12.3                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                              | 194-195                                                                             |
| 92                         | 17.4                        | 55                   | 109                   | 4.3 | 2.6 | 7.2  | 4860                 | C312_7.2                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C6                                                                              | 194-195                                                                             |
| 97                         | 18.4                        | 59                   | 157                   | 1.1 | 0.6 | 20.6 | 1960                 | C112_20.6                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                              | 190-191                                                                             |
| 100                        | 19.0                        | 57                   | 152                   | 2.6 | 1.3 | 20.0 | 3200                 | C212_20.0                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                              | 192-193                                                                             |
| 103                        | 19.6                        | 55                   | 147                   | 3.1 | 1.4 | 9.7  | 3170                 | C212_9.7                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B4                                                                              | 192-193                                                                             |
| 108                        | 20.4                        | 53                   | 141                   | 4.9 | 2.1 | 9.3  | 4620                 | C312_9.3                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                              | 194-195                                                                             |
| 115                        | 21.8                        | 50                   | 132                   | 3.3 | 1.5 | 8.7  | 3080                 | C212_8.7                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B4                                                                              | 192-193                                                                             |
| 127                        | 24.1                        | 45                   | 120                   | 3.1 | 1.7 | 15.8 | 3010                 | C212_15.8                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                              | 192-193                                                                             |
| 140                        | 26.6                        | 41                   | 109                   | 3.3 | 1.8 | 14.3 | 2920                 | C212_14.3                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P715                                                                                | BN71C2                                                                              | 192-193                                                                             |
| 141                        | 26.8                        | 40                   | 108                   | 3.7 | 1.7 | 7.1  | 2920                 | C212_7.1                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B4                                                                              | 192-193                                                                             |
| 149                        | 28.4                        | 38                   | 102                   | 1.4 | 0.9 | 13.4 | 1780                 | C112_13.4                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                              | 190-191                                                                             |
| 161                        | 31                          | 35                   | 94                    | 3.5 | 2.1 | 12.4 | 2820                 | C212_12.4                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                              | 192-193                                                                             |
| 164                        | 31                          | 35                   | 93                    | 3.2 | 1.3 | 6.1  | 2840                 | C212_6.1                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B4                                                                              | 192-193                                                                             |
| 165                        | 31                          | 34                   | 92                    | 1.5 | 1.0 | 12.1 | 1730                 | C112_12.1                                                                         | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                              | 190-191                                                                             |

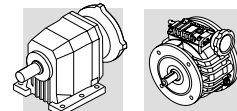


## 0.75 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2</sub> '<br>Nm | S   | S'  | i   | R <sub>n2</sub><br>N |  |  |  |  |  |  |
|----------------------------|-----------------------------|----------------------|------------------------|-----|-----|-----|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 200                        | 38                          | 29                   | 76                     | 5.7 | 2.6 | 5.0 | 3820                 | C312_5.0                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B4                                                                              | 194-195                                                                             |
| 206                        | 39                          | 28                   | 74                     | 4.2 | 2.7 | 9.7 | 2620                 | C212_9.7                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                              | 192-193                                                                             |
| 208                        | 40                          | 27                   | 36                     | 3.8 | 2.9 | 4.8 | 2590                 | C212_4.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B4                                                                              | 192-193                                                                             |
| 263                        | 50                          | 22                   | 58                     | 2.1 | 1.4 | 7.6 | 1550                 | C112_7.6                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                              | 190-191                                                                             |
| 323                        | 61                          | 18                   | 47                     | 2.4 | 1.5 | 6.2 | 1430                 | C112_6.2                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                              | 190-191                                                                             |
| 357                        | 68                          | 16                   | 21                     | 2.7 | 2.5 | 2.8 | 1380                 | C112_2.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B4                                                                              | 190-191                                                                             |
| 408                        | 78                          | 14                   | 37                     | 2.7 | 1.8 | 4.9 | 1330                 | C112_4.9                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                              | 190-191                                                                             |
| 541                        | 103                         | 11                   | 28                     | 3.2 | 2.1 | 3.7 | 1220                 | C112_3.7                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                              | 190-191                                                                             |
| 714                        | 136                         | 8                    | 21                     | 3.8 | 2.5 | 2.8 | 1130                 | C112_2.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P71                                                                                 | BN71C2                                                                              | 190-191                                                                             |

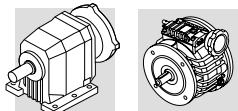
## 1.1 kW

|     |      |      |      |     |     |       |       |            |          |            |     |        |         |
|-----|------|------|------|-----|-----|-------|-------|------------|----------|------------|-----|--------|---------|
| 3.6 | 0.70 | 2058 | 5488 | 1.9 | 0.7 | 184.4 | 35000 | C803_184.4 | —<br>P90 | —<br>V 2 F | P90 | BN90L6 | 206     |
| 3.9 | 0.70 | 1886 | 5029 | 2.1 | 0.8 | 169.0 | 35000 | C803_169.0 | —<br>P90 | —<br>V 2 F | P90 | BN90L6 | 206     |
| 4.4 | 0.80 | 1664 | 4437 | 2.4 | 0.9 | 149.1 | 35000 | C803_149.1 | —<br>P90 | —<br>V 2 F | P90 | BN90L6 | 206     |
| 4.6 | 0.90 | 1807 | 4819 | 2.2 | 0.8 | 215.9 | 35000 | C803_215.9 | —<br>P90 | —<br>V 2 F | P90 | BN90S4 | 206     |
| 4.7 | 0.98 | 1430 | 1906 | 1.1 | 0.8 | 128.1 | 16000 | C613_128.1 | —<br>P80 | —<br>V 1 F | P90 | BN90L6 | 202-203 |
| 4.9 | 0.90 | 1526 | 4068 | 2.6 | 1.0 | 136.7 | 35000 | C803_136.7 | —<br>P90 | —<br>V 2 F | P90 | BN90L6 | 206     |
| 5.1 | 1.0  | 1656 | 4417 | 2.3 | 0.9 | 197.9 | 35000 | C803_197.9 | —<br>P90 | —<br>V 2 F | P90 | BN90S4 | 206     |
| 5.2 | 1.1  | 1268 | 1690 | 1.3 | 0.9 | 113.6 | 16000 | C613_113.6 | —<br>P80 | —<br>V 1 F | P90 | BN90L6 | 202-203 |
| 5.4 | 1.0  | 1543 | 4116 | 2.6 | 1.0 | 184.4 | 35000 | C803_184.4 | —<br>P90 | —<br>V 2 F | P90 | BN90S4 | 206     |
| 5.8 | 1.2  | 1156 | 1542 | 1.4 | 1.0 | 103.6 | 16000 | C613_103.6 | —<br>P80 | —<br>V 1 F | P90 | BN90L6 | 202-203 |
| 5.9 | 1.1  | 1415 | 3772 | 2.8 | 1.1 | 169.0 | 35000 | C803_169.0 | —<br>P90 | —<br>V 2 F | P90 | BN90S4 | 206     |
| 6.7 | 1.3  | 1248 | 3328 | 3.2 | 1.2 | 149.1 | 35000 | C803_149.1 | —<br>P90 | —<br>V 2 F | P90 | BN90S4 | 206     |
| 7.0 | 1.5  | 1084 | 1906 | 1.5 | 0.8 | 128.1 | 16000 | C613_128.1 | —<br>P80 | —<br>V 1 F | P90 | BN90S4 | 202-203 |
| 7.3 | 1.4  | 1144 | 3051 | 3.5 | 1.3 | 136.7 | 35000 | C803_136.7 | —<br>P90 | —<br>V 2 F | P90 | BN90S4 | 206     |
| 7.5 | 1.6  | 892  | 1189 | 1.1 | 0.8 | 79.9  | 10000 | C513_79.9  | —<br>P80 | —<br>V 1 F | P90 | BN90L6 | 200-201 |
| 7.5 | 1.4  | 984  | 2625 | 2.3 | 0.9 | 88.2  | 25000 | C703_88.2  | —<br>P90 | —<br>V 2 F | P90 | BN90L6 | 204-205 |
| 7.9 | 1.5  | 1061 | 2830 | 2.2 | 0.8 | 126.8 | 25000 | C703_126.8 | —<br>P90 | —<br>V 2 F | P90 | BN90S4 | 204-205 |
| 7.9 | 1.7  | 961  | 1690 | 1.7 | 0.9 | 113.6 | 16000 | C613_113.6 | —<br>P80 | —<br>V 1 F | P90 | BN90S4 | 202-203 |
| 8.4 | 1.6  | 1000 | 2667 | 4.0 | 1.5 | 119.5 | 25000 | C803_119.5 | —<br>P90 | —<br>V 2 F | P90 | BN90S4 | 206     |
| 8.7 | 1.8  | 877  | 1542 | 1.8 | 1.0 | 103.6 | 16000 | C613_103.6 | —<br>P80 | —<br>V 1 F | P90 | BN90S4 | 202-203 |
| 8.9 | 1.7  | 941  | 2509 | 2.4 | 0.9 | 112.4 | 25000 | C703_112.4 | —<br>P90 | —<br>V 2 F | P90 | BN90S4 | 204-205 |
| 9.1 | 1.7  | 917  | 2444 | 4.4 | 1.6 | 109.5 | 35000 | C803_109.5 | —<br>P90 | —<br>V 2 F | P90 | BN90S4 | 206     |
| 9.6 | 1.8  | 869  | 2317 | 2.6 | 1.0 | 103.8 | 25000 | C703_103.8 | —<br>P90 | —<br>V 2 F | P90 | BN90S4 | 204-205 |

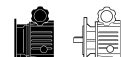


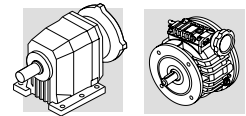
# 1.1 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i     | R <sub>n2</sub><br>N |  |  |  |  |  |  |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|-------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 9.7                        | 1.8                         | 867                  | 2312                  | 1.8 | 0.7 | 103.6 | 16000                | C613_103.6                                                                        | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 202-203                                                                             |
| 9.9                        | 2.1                         | 770                  | 1354                  | 2.1 | 1.2 | 91.0  | 16000                |                                                                                   | C613_91.0                                                                         | —<br>P80                                                                            | —<br>V 1 F                                                                          | P90                                                                                 | BN90S4                                                                              |
| 10.1                       | 1.9                         | 735                  | 1961                  | 3.1 | 1.2 | 65.9  | 25000                | C703_65.9                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90L6                                                                              | 204-205                                                                             |
| 11.0                       | 2.1                         | 762                  | 2031                  | 2.1 | 0.8 | 91.0  | 16000                | C613_91.0                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 202-203                                                                             |
| 11.2                       | 2.1                         | 750                  | 2000                  | 3.1 | 1.2 | 179.2 | 25000                |                                                                                   | C703_179.2                                                                        | —<br>P80                                                                            | —<br>V 1 F                                                                          | P80                                                                                 | BN80B2                                                                              |
| 11.3                       | 2.4                         | 676                  | 1189                  | 1.5 | 0.8 | 79.9  | 10000                | C513_79.9                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P90                                                                                 | BN90S4                                                                              | 200-201                                                                             |
| 11.3                       | 2.2                         | 738                  | 1969                  | 3.1 | 1.2 | 88.2  | 25000                | C703_88.2                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90S4                                                                              | 204-205                                                                             |
| 12.3                       | 2.3                         | 681                  | 1817                  | 3.4 | 1.3 | 81.4  | 25000                | C703_81.4                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90S4                                                                              | 204-205                                                                             |
| 12.3                       | 2.6                         | 617                  | 1085                  | 1.6 | 0.9 | 72.9  | 10000                |                                                                                   | C513_72.9                                                                         | —<br>P80                                                                            | —<br>V 1 F                                                                          | P90                                                                                 | BN90S4                                                                              |
| 12.4                       | 2.3                         | 597                  | 1592                  | 2.7 | 1.0 | 53.5  | 16000                | C613_53.5                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90L6                                                                              | 202-203                                                                             |
| 12.9                       | 2.4                         | 571                  | 1524                  | 1.8 | 0.7 | 51.2  | 10000                | C513_51.2                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90L6                                                                              | 200-201                                                                             |
| 13.3                       | 2.8                         | 511                  | 681                   | 1.0 | 0.7 | 44.8  | 7000                 | C412_44.8                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P90                                                                                 | BN90L6                                                                              | 198-199                                                                             |
| 13.5                       | 2.6                         | 621                  | 1656                  | 2.6 | 1.0 | 74.2  | 16000                | C613_74.2                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 202-203                                                                             |
| 15.3                       | 3.2                         | 499                  | 878                   | 2.0 | 1.1 | 59.0  | 10000                | C513_59.0                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P90                                                                                 | BN90S4                                                                              | 200-201                                                                             |
| 15.3                       | 3.2                         | 497                  | 873                   | 1.2 | 0.7 | 58.7  | 7000                 | C413_58.7                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P90                                                                                 | BN90S4                                                                              | 198-199                                                                             |
| 15.5                       | 2.9                         | 541                  | 1442                  | 1.8 | 0.7 | 64.6  | 10000                | C513_64.6                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 200-201                                                                             |
| 16.9                       | 3.2                         | 494                  | 1317                  | 2.0 | 0.8 | 59.0  | 10000                | C513_59.0                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 200-201                                                                             |
| 17.1                       | 3.2                         | 490                  | 1308                  | 3.3 | 1.2 | 58.6  | 16000                | C613_58.6                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 202-203                                                                             |
| 17.5                       | 3.7                         | 436                  | 766                   | 1.4 | 0.8 | 51.5  | 7000                 | C413_51.5                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P90                                                                                 | BN90S4                                                                              | 198-199                                                                             |
| 18.7                       | 3.6                         | 448                  | 1194                  | 3.6 | 1.3 | 53.5  | 16000                | C613_53.5                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 202-203                                                                             |
| 19.0                       | 4.0                         | 358                  | 477                   | 1.4 | 1.0 | 31.4  | 7000                 | C412_31.4                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P90                                                                                 | BN90L6                                                                              | 198-199                                                                             |
| 19.3                       | 4.1                         | 395                  | 695                   | 2.5 | 1.4 | 46.7  | 10000                | C513_46.7                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P90                                                                                 | BN90S4                                                                              | 200-201                                                                             |
| 21.4                       | 4.1                         | 391                  | 1042                  | 2.6 | 1.0 | 46.7  | 10000                | C513_46.7                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 200-201                                                                             |
| 21.8                       | 4.6                         | 306                  | 408                   | 3.3 | 2.5 | 27.4  | 10000                | C513_27.4                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P90                                                                                 | BN90L6                                                                              | 200-201                                                                             |
| 23.2                       | 4.4                         | 369                  | 983                   | 2.2 | 0.8 | 43.1  | 10000                | C512_43.1                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 200-201                                                                             |
| 23.3                       | 4.4                         | 318                  | 848                   | 1.9 | 0.7 | 28.5  | 7000                 | C413_28.5                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90L6                                                                              | 198-199                                                                             |
| 24.8                       | 4.7                         | 345                  | 921                   | 2.3 | 0.9 | 40.4  | 10000                | C512_40.4                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 200-201                                                                             |
| 25.9                       | 5.5                         | 294                  | 516                   | 1.5 | 0.9 | 34.7  | 6500                 | C353_34.7                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P90                                                                                 | BN90S4                                                                              | 196-197                                                                             |
| 26.3                       | 5.0                         | 325                  | 866                   | 4.2 | 1.6 | 38.0  | 16000                | C612_38.0                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 202-203                                                                             |
| 26.5                       | 5.0                         | 285                  | 760                   | 1.8 | 0.7 | 25.0  | 7000                 | C412_25.0                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90L6                                                                              | 198-199                                                                             |
| 30                         | 5.8                         | 282                  | 752                   | 2.8 | 1.1 | 33.0  | 10000                | C512_33.0                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 200-201                                                                             |
| 31                         | 5.9                         | 269                  | 718                   | 2.1 | 0.8 | 64.3  | 7000                 | C413_64.3                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                              | 198-199                                                                             |
| 32                         | 6.1                         | 268                  | 716                   | 1.9 | 0.7 | 31.4  | 7000                 | C412_31.4                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 198-199                                                                             |
| 35                         | 6.7                         | 242                  | 645                   | 2.1 | 0.8 | 28.3  | 7000                 | C412_28.3                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 198-199                                                                             |
| 39                         | 7.3                         | 221                  | 591                   | 3.6 | 1.4 | 25.9  | 10000                | C512_25.9                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 200-201                                                                             |



# 1.1 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i    | R <sub>n2</sub><br>N |  |  |  |  |  |         |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|
| 40                         | 7.6                         | 214                  | 570                   | 2.3 | 0.9 | 25.0 | 7000                 | C412_25.0                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 198-199 |
| 41                         | 8.6                         | 187                  | 329                   | 2.4 | 1.4 | 22.1 | 6430                 | C353_22.1                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P90                                                                                 | BN90S4                                                                              | 196-197 |
| 42                         | 7.9                         | 180                  | 480                   | 2.8 | 1.0 | 15.8 | 7000                 | C412_15.8                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90L6                                                                              | 198-199 |
| 43                         | 8.1                         | 200                  | 534                   | 4.0 | 1.5 | 23.4 | 10000                | C512_23.4                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 200-201 |
| 45                         | 8.4                         | 169                  | 450                   | 2.3 | 0.8 | 14.8 | 6500                 | C352_14.8                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90L6                                                                              | 196-197 |
| 48                         | 9.0                         | 180                  | 479                   | 4.5 | 1.7 | 21.0 | 10000                | C512_21.0                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 200-201 |
| 50                         | 9.4                         | 169                  | 451                   | 2.7 | 1.0 | 20.2 | 6270                 | C353_20.2                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90S4                                                                              | 196-197 |
| 51                         | 9.6                         | 169                  | 451                   | 3.0 | 1.1 | 19.8 | 7000                 | C412_19.8                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 198-199 |
| 53                         | 10.1                        | 141                  | 377                   | 3.5 | 1.3 | 12.4 | 7000                 | C412_12.4                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90L6                                                                              | 198-199 |
| 54                         | 10.2                        | 159                  | 423                   | 3.0 | 1.2 | 37.1 | 7000                 | C412_37.1                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                              | 198-199 |
| 60                         | 11.4                        | 142                  | 378                   | 5.6 | 2.1 | 16.6 | 10000                | C512_16.6                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 200-201 |
| 63                         | 11.9                        | 120                  | 319                   | 3.2 | 1.2 | 10.5 | 5970                 | C352_10.5                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90L6                                                                              | 196-197 |
| 63                         | 12.0                        | 135                  | 360                   | 3.7 | 1.4 | 15.8 | 6900                 | C412_15.8                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 198-199 |
| 67                         | 12.8                        | 127                  | 340                   | 2.1 | 0.9 | 29.8 | 5060                 | C312_29.8                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                              | 194-195 |
| 70                         | 13.4                        | 121                  | 324                   | 4.1 | 1.5 | 14.2 | 6700                 | C412_14.2                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 198-199 |
| 71                         | 13.4                        | 106                  | 283                   | 2.5 | 1.1 | 9.3  | 5060                 | C312_9.3                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90L6                                                                              | 194-195 |
| 80                         | 15.1                        | 107                  | 286                   | 2.3 | 1.0 | 25.1 | 4850                 | C312_25.1                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                              | 194-195 |
| 81                         | 15.3                        | 106                  | 283                   | 4.7 | 1.8 | 12.4 | 6700                 | C412_12.4                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 198-199 |
| 93                         | 17.6                        | 81                   | 216                   | 5.1 | 2.3 | 7.1  | 6240                 | C412_7.1                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90L6                                                                              | 198-199 |
| 100                        | 18.9                        | 86                   | 229                   | 2.7 | 1.3 | 20.1 | 4570                 | C312_20.1                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                              | 194-195 |
| 101                        | 19.2                        | 85                   | 226                   | 4.5 | 2.2 | 19.8 | 6050                 | C412_19.8                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                              | 198-199 |
| 104                        | 19.8                        | 82                   | 219                   | 5.5 | 2.3 | 9.6  | 6000                 | C412_9.6                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 198-199 |
| 108                        | 20.4                        | 80                   | 212                   | 3.3 | 1.4 | 9.3  | 4480                 | C312_9.3                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90S4                                                                              | 194-195 |
| 111                        | 20.8                        | 68                   | 182                   | 3.8 | 1.4 | 6.0  | 5800                 | C412_6.0                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90L6                                                                              | 198-199 |
| 127                        | 24.1                        | 68                   | 180                   | 2.1 | 1.1 | 15.8 | 2860                 | C212_15.8                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B2                                                                              | 192-193 |
| 128                        | 24.4                        | 67                   | 178                   | 3.2 | 1.7 | 15.6 | 4270                 | C312_15.6                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                              | 194-195 |
| 139                        | 26.4                        | 62                   | 164                   | 3.8 | 1.7 | 7.2  | 4170                 | C312_7.2                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90S4                                                                              | 194-195 |
| 140                        | 26.6                        | 61                   | 163                   | 2.2 | 1.2 | 14.3 | 2790                 | C212_14.3                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B2                                                                              | 192-193 |
| 141                        | 26.8                        | 61                   | 162                   | 6.8 | 3.1 | 7.1  | 5500                 | C412_7.1                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 198-199 |
| 159                        | 30                          | 54                   | 144                   | 3.3 | 1.4 | 6.3  | 3950                 | C312_6.3                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90S4                                                                              | 194-195 |
| 161                        | 31                          | 53                   | 141                   | 2.4 | 1.4 | 12.4 | 2700                 | C212_12.4                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B2                                                                              | 192-193 |
| 163                        | 31                          | 53                   | 140                   | 3.7 | 2.1 | 12.3 | 3990                 | C312_12.3                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                              | 194-195 |
| 167                        | 32                          | 51                   | 137                   | 5.1 | 1.9 | 6.0  | 5200                 | C412_6.0                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 198-199 |
| 200                        | 38                          | 43                   | 114                   | 3.8 | 1.7 | 5.0  | 3700                 | C312_5                                                                            | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90S4                                                                              | 194-195 |
| 206                        | 39                          | 41                   | 111                   | 2.8 | 1.8 | 9.7  | 2530                 | C212_9.7                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B2                                                                              | 192-193 |

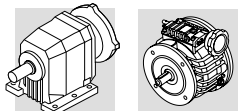


## 1.1 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i   | R <sub>n2</sub><br>N |  |  |  |  |  |  |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|-----|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 213                        | 40                          | 40                   | 107                   | 6.5 | 2.4 | 4.7 | 5000                 | C412_4.7                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90S4                                                                              | 198-199                                                                             |
| 215                        | 41                          | 40                   | 106                   | 4.4 | 2.8 | 9.3 | 3670                 | C312_9.3                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                              | 194-195                                                                             |
| 278                        | 53                          | 31                   | 82                    | 5.2 | 3.5 | 7.2 | 3400                 | C312_7.2                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                              | 194-195                                                                             |
| 282                        | 54                          | 30                   | 81                    | 3.5 | 2.2 | 7.1 | 2330                 | C212_7.1                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B2                                                                              | 192-193                                                                             |
| 317                        | 60                          | 27                   | 72                    | 5.6 | 2.8 | 6.3 | 3230                 | C312_6.3                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                              | 194-195                                                                             |
| 328                        | 62                          | 26                   | 70                    | 3.3 | 1.7 | 6.1 | 2210                 | C212_6.1                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B2                                                                              | 192-193                                                                             |
| 400                        | 76                          | 21                   | 57                    | 6.3 | 3.5 | 5.0 | 3020                 | C312_5.0                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                              | 194-195                                                                             |
| 417                        | 79                          | 21                   | 55                    | 3.9 | 1.9 | 4.8 | 2060                 | C212_4.8                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B2                                                                              | 192-193                                                                             |
| 541                        | 103                         | 16                   | 28                    | 2.1 | 2.1 | 3.7 | 1190                 | C112_3.7                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B2                                                                              | 190-191                                                                             |
| 541                        | 103                         | 16                   | 42                    | 7.6 | 4.1 | 3.7 | 2760                 | C312_3.7                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80B2                                                                              | 194-195                                                                             |
| 714                        | 136                         | 12                   | 21                    | 2.5 | 2.5 | 2.8 | 1100                 | C112_2.8                                                                          | V05<br>P71                                                                        | V 0.5 C<br>V 0.5 F                                                                  | P80                                                                                 | BN80B2                                                                              | 190-191                                                                             |
| 741                        | 141                         | 12                   | 31                    | 5.6 | 3.2 | 2.7 | 1750                 | C212_2.7                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80B2                                                                              | 192-193                                                                             |

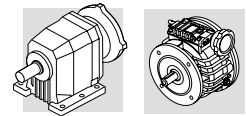
## 1.5 kW

|     |      |      |      |     |     |       |       |            |           |                |     |           |         |
|-----|------|------|------|-----|-----|-------|-------|------------|-----------|----------------|-----|-----------|---------|
| 3.1 | 0.60 | 3213 | 7028 | 1.2 | 0.6 | 215.9 | 35000 | C803_215.9 | —<br>P90  | —<br>V 2 F     | P90 | BN100LA6R | 206     |
| 3.4 | 0.60 | 2945 | 6442 | 1.3 | 0.6 | 197.9 | 35000 | C803_197.9 | —<br>P90  | —<br>V 2 F     | P90 | BN100LA6R | 206     |
| 3.6 | 0.70 | 2744 | 6002 | 1.5 | 0.7 | 184.4 | 35000 | C803_184.4 | —<br>P90  | —<br>V 2 F     | P90 | BN100LA6R | 206     |
| 3.9 | 0.70 | 2515 | 5501 | 1.6 | 0.7 | 169.0 | 35000 | C803_169.0 | —<br>P90  | —<br>V 2 F     | P90 | BN100LA6R | 206     |
| 4.4 | 0.80 | 2219 | 4853 | 1.8 | 0.8 | 149.1 | 35000 | C803_149.1 | —<br>P90  | —<br>V 2 F     | P90 | BN100LA6R | 206     |
| 4.9 | 0.90 | 2034 | 4450 | 2.0 | 0.9 | 136.7 | 35000 | C803_136.7 | —<br>P90  | —<br>V 2 F     | P90 | BN100LA6R | 206     |
| 5.4 | 1.0  | 2058 | 5488 | 1.9 | 0.7 | 184.4 | 35000 | C803_184.4 | —<br>P90  | —<br>V 2 F     | P90 | BN90LA4   | 206     |
| 5.9 | 1.1  | 1886 | 5029 | 2.1 | 0.8 | 169.0 | 35000 | C803_169.0 | —<br>P90  | —<br>V 2 F     | P90 | BN90LA4   | 206     |
| 6.0 | 1.3  | 1674 | 2232 | 1.0 | 0.7 | 150.0 | 16000 | C613_150.0 | —<br>P80  | —<br>V 1 F     | P90 | BN90LA4   | 202-203 |
| 6.1 | 1.1  | 1629 | 3564 | 2.5 | 1.1 | 109.5 | 35000 | C803_109.5 | —<br>P90  | —<br>V 2 F     | P90 | BN100LA6R | 206     |
| 6.7 | 1.3  | 1664 | 4437 | 2.4 | 0.9 | 149.1 | 35000 | C803_149.1 | —<br>P90  | —<br>V 2 F     | P90 | BN90LA4   | 206     |
| 6.8 | 1.3  | 1449 | 3170 | 2.8 | 1.3 | 97.4  | 35000 | C803_97.4  | —<br>P90  | —<br>V 2 F     | P90 | BN100LA6R | 206     |
| 7.3 | 1.4  | 1526 | 4068 | 2.6 | 1.0 | 136.7 | 35000 | C803_136.7 | —<br>P90  | —<br>V 2 F     | P90 | BN90LA4   | 206     |
| 8.0 | 1.5  | 1235 | 2702 | 1.3 | 0.6 | 83.0  | 16000 | C613_83.0  | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN100LA6R | 202-203 |
| 8.4 | 1.6  | 1335 | 3561 | 1.7 | 0.6 | 239.3 | 25000 | C703_239.3 | —<br>P80  | —<br>V 1 F     | P80 | BN80C2    | 204-205 |
| 8.4 | 1.6  | 1334 | 3556 | 3.0 | 1.1 | 119.5 | 35000 | C803_119.5 | —<br>P90  | —<br>V 2 F     | P90 | BN90LA4   | 206     |
| 9.1 | 1.7  | 1233 | 3287 | 1.8 | 0.7 | 220.9 | 25000 | C703_220.9 | —<br>P80  | —<br>V 1 F     | P80 | BN80C2    | 204-205 |
| 9.1 | 1.7  | 1222 | 3259 | 3.3 | 1.2 | 109.5 | 35000 | C803_109.5 | —<br>P90  | —<br>V 2 F     | P90 | BN90LA4   | 206     |
| 9.3 | 1.8  | 1061 | 2321 | 2.2 | 1.0 | 71.3  | 25000 | C703_71.3  | —<br>P90  | —<br>V 2 F     | P90 | BN100LA6R | 204-205 |



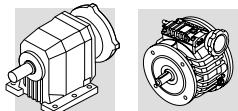
# 1.5 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2</sub> '<br>Nm | S   | S'  | i     | R <sub>n2</sub><br>N |  |  |  |  |  |  |
|----------------------------|-----------------------------|----------------------|------------------------|-----|-----|-------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 9.8                        | 1.8                         | 1007                 | 2204                   | 1.6 | 0.7 | 67.7  | 16000                | C613_67.7                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                           | 202-203                                                                             |
| 10.3                       | 2.0                         | 1083                 | 2888                   | 2.1 | 0.8 | 194.1 | 25000                | C703_194.1                                                                        | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80C2                                                                              | 204-205                                                                             |
| 10.3                       | 2.0                         | 1087                 | 2899                   | 3.7 | 1.4 | 97.4  | 35000                | C803_97.4                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                             | 206                                                                                 |
| 11.2                       | 2.1                         | 997                  | 2658                   | 4.0 | 1.5 | 89.3  | 35000                | C803_89.3                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                             | 206                                                                                 |
| 11.3                       | 2.2                         | 984                  | 2625                   | 2.3 | 0.9 | 88.2  | 25000                | C703_88.2                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                             | 204-205                                                                             |
| 11.7                       | 2.2                         | 841                  | 1839                   | 2.7 | 1.3 | 56.5  | 25000                | C703_56.5                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN100LA6R                                                                           | 204-205                                                                             |
| 12.1                       | 2.6                         | 828                  | 1104                   | 1.9 | 1.4 | 74.2  | 16000                | C613_74.2                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P90                                                                                 | BN90LA4                                                                             | 202-203                                                                             |
| 12.3                       | 2.3                         | 908                  | 2422                   | 2.5 | 0.9 | 81.4  | 25000                | C703_81.4                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                             | 204-205                                                                             |
| 12.4                       | 2.3                         | 796                  | 1741                   | 2.0 | 0.9 | 53.5  | 16000                | C613_53.5                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                           | 202-203                                                                             |
| 13.0                       | 2.5                         | 858                  | 2289                   | 4.7 | 1.7 | 76.9  | 35000                | C803_76.9                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                             | 206                                                                                 |
| 13.3                       | 2.5                         | 839                  | 2236                   | 2.7 | 1.0 | 150.3 | 25000                | C703_150.3                                                                        | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80C2                                                                              | 204-205                                                                             |
| 13.9                       | 2.6                         | 708                  | 1549                   | 2.3 | 1.0 | 47.6  | 16000                | C613_47.6                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                           | 202-203                                                                             |
| 14.0                       | 2.7                         | 796                  | 2122                   | 2.9 | 1.1 | 71.3  | 25000                | C703_71.3                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                             | 204-205                                                                             |
| 14.2                       | 2.7                         | 787                  | 2098                   | 5.1 | 1.9 | 70.5  | 35000                | C803_70.5                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                             | 206                                                                                 |
| 15.2                       | 2.9                         | 735                  | 1961                   | 3.1 | 1.2 | 65.9  | 25000                | C703_65.9                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                             | 204-205                                                                             |
| 16.0                       | 3.0                         | 698                  | 1860                   | 5.7 | 2.2 | 62.5  | 35000                | C803_62.5                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                             | 206                                                                                 |
| 17.1                       | 3.2                         | 654                  | 1744                   | 2.4 | 0.9 | 58.6  | 16000                | C613_58.6                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                             | 202-203                                                                             |
| 17.7                       | 3.4                         | 631                  | 1681                   | 3.6 | 1.4 | 56.5  | 25000                | C703_56.5                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                             | 204-205                                                                             |
| 18.7                       | 3.6                         | 597                  | 1592                   | 2.7 | 1.0 | 53.5  | 16000                | C613_53.5                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                             | 202-203                                                                             |
| 19.1                       | 4.0                         | 525                  | 699                    | 1.1 | 0.9 | 47.0  | 7000                 | C413_47.0                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P90                                                                                 | BN90LA4                                                                             | 198-199                                                                             |
| 19.2                       | 3.6                         | 583                  | 1553                   | 3.9 | 1.5 | 52.2  | 25000                | C703_52.2                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                             | 204-205                                                                             |
| 20.1                       | 4.2                         | 511                  | 681                    | 1.0 | 0.7 | 44.8  | 7000                 | C412_44.8                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P90                                                                                 | BN90LA4                                                                             | 198-199                                                                             |
| 21.0                       | 4.0                         | 531                  | 1417                   | 3.0 | 1.1 | 47.6  | 16000                | C613_47.6                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                             | 202-203                                                                             |
| 22.4                       | 4.3                         | 499                  | 1330                   | 4.6 | 1.7 | 44.7  | 25000                | C703_44.7                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                             | 204-205                                                                             |
| 23.0                       | 4.4                         | 484                  | 1292                   | 3.3 | 1.2 | 43.4  | 16000                | C613_43.4                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                             | 202-203                                                                             |
| 23.2                       | 4.4                         | 491                  | 1310                   | 1.6 | 0.6 | 43.1  | 10000                | C512_43.1                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                             | 200-201                                                                             |
| 24.2                       | 4.6                         | 461                  | 1229                   | 5.0 | 1.9 | 41.3  | 25000                | C703_41.3                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                             | 204-205                                                                             |
| 24.5                       | 4.7                         | 455                  | 1213                   | 1.3 | 0.5 | 81.5  | 10000                | C413_81.5                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2                                                                              | 198-199                                                                             |
| 25.6                       | 4.8                         | 394                  | 861                    | 2.0 | 0.9 | 25.9  | 10000                | C512_25.9                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                           | 200-201                                                                             |
| 26.3                       | 5.0                         | 433                  | 1155                   | 3.1 | 1.2 | 38.0  | 16000                | C612_38.0                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                             | 202-203                                                                             |
| 26.7                       | 5.0                         | 377                  | 825                    | 3.6 | 1.6 | 24.8  | 16000                | C612_24.8                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                           | 202-203                                                                             |
| 27.4                       | 5.2                         | 407                  | 1085                   | 2.5 | 0.9 | 72.9  | 10000                | C513_72.9                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80C2                                                                              | 200-201                                                                             |
| 30                         | 5.8                         | 376                  | 1003                   | 2.1 | 0.8 | 33.0  | 10000                | C512_33.0                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                             | 200-201                                                                             |
| 32                         | 6.0                         | 319                  | 698                    | 2.5 | 1.1 | 21.0  | 10000                | C512_21.0                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                           | 200-201                                                                             |
| 33                         | 6.3                         | 347                  | 924                    | 3.9 | 1.5 | 30.4  | 16000                | C612_30.4                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                             | 202-203                                                                             |
| 35                         | 6.7                         | 318                  | 848                    | 1.9 | 0.7 | 28.5  | 7000                 | C413_28.5                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                             | 198-199                                                                             |

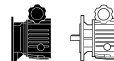


# 1.5 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i    | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 35                         | 6.7                         | 325                  | 866                   | 2.3 | 0.9 | 57.0 | 10000                | C512_57.0                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80C2                                                                                  | 200-201                                                                             |
| 39                         | 7.3                         | 295                  | 787                   | 2.7 | 1.0 | 25.9 | 10000                | C512_25.9                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 200-201                                                                             |
| 40                         | 7.7                         | 283                  | 754                   | 4.8 | 1.8 | 24.8 | 16000                | C612_24.8                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 202-203                                                                             |
| 42                         | 7.9                         | 240                  | 525                   | 2.1 | 1.0 | 15.8 | 7000                 | C412_15.8                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                               | 198-199                                                                             |
| 48                         | 9.0                         | 239                  | 638                   | 3.3 | 1.3 | 21.0 | 10000                | C512_21.0                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 200-201                                                                             |
| 51                         | 9.6                         | 226                  | 602                   | 2.2 | 0.8 | 19.8 | 7000                 | C412_19.8                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 198-199                                                                             |
| 51                         | 9.5                         | 199                  | 436                   | 4.0 | 1.8 | 13.1 | 10000                | C512_13.1                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                               | 200-201                                                                             |
| 51                         | 9.7                         | 223                  | 596                   | 6.0 | 2.3 | 19.6 | 16000                | C612_19.6                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 202-203                                                                             |
| 54                         | 10.2                        | 211                  | 564                   | 2.2 | 0.9 | 37.1 | 6930                 | C412_37.1                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2                                                                                  | 198-199                                                                             |
| 60                         | 11.4                        | 189                  | 505                   | 4.2 | 1.6 | 16.6 | 10000                | C512_16.6                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 200-201                                                                             |
| 61                         | 11.5                        | 188                  | 502                   | 4.1 | 1.6 | 33.0 | 10000                | C512_33.0                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80C2                                                                                  | 200-201                                                                             |
| 63                         | 12.0                        | 180                  | 480                   | 2.8 | 1.0 | 15.8 | 6670                 | C412_15.8                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 198-199                                                                             |
| 64                         | 12.1                        | 179                  | 477                   | 2.5 | 1.0 | 31.4 | 6660                 | C412_31.4                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2                                                                                  | 198-199                                                                             |
| 67                         | 12.7                        | 171                  | 456                   | 4.7 | 1.8 | 15.0 | 10000                | C512_15.0                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 200-201                                                                             |
| 68                         | 12.8                        | 169                  | 450                   | 2.3 | 0.8 | 14.8 | 5590                 | C352_14.8                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                                 | 196-197                                                                             |
| 70                         | 13.4                        | 162                  | 432                   | 3.1 | 1.2 | 14.2 | 6490                 | C412_14.2                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 198-199                                                                             |
| 76                         | 14.5                        | 149                  | 398                   | 5.4 | 2.0 | 13.1 | 10000                | C512_13.1                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 200-201                                                                             |
| 80                         | 15.1                        | 143                  | 382                   | 1.7 | 0.8 | 25.1 | 4670                 | C312_25.1                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2                                                                                  | 194-195                                                                             |
| 81                         | 15.3                        | 141                  | 377                   | 3.5 | 1.3 | 12.4 | 6270                 | C412_12.4                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 198-199                                                                             |
| 93                         | 17.6                        | 108                  | 236                   | 3.8 | 2.1 | 7.1  | 6100                 | C412_7.1                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN100LA6R                                                                               | 198-199                                                                             |
| 95                         | 18.1                        | 120                  | 319                   | 3.2 | 1.2 | 10.5 | 5130                 | C352_10.5                                                                         | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                                 | 196-197                                                                             |
| 100                        | 18.9                        | 115                  | 306                   | 2.1 | 1.0 | 20.1 | 4430                 | C312_20.1                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2                                                                                  | 194-195                                                                             |
| 104                        | 19.8                        | 109                  | 292                   | 4.1 | 1.7 | 9.6  | 5860                 | C412_9.6                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 198-199                                                                             |
| 105                        | 20.0                        | 108                  | 289                   | 3.5 | 1.3 | 19.0 | 5100                 | C352_19.0                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2                                                                                  | 196-197                                                                             |
| 108                        | 20.4                        | 106                  | 283                   | 2.5 | 1.1 | 9.3  | 4340                 | C312_9.3                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                                 | 194-195                                                                             |
| 127                        | 24.1                        | 90                   | 240                   | 1.6 | 0.8 | 15.8 | 2710                 | C212_15.8                                                                         | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80C2                                                                                  | 192-193                                                                             |
| 128                        | 24.4                        | 89                   | 237                   | 2.4 | 1.3 | 15.6 | 4150                 | C312_15.6                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2                                                                                  | 194-195                                                                             |
| 139                        | 26.4                        | 82                   | 219                   | 2.9 | 1.3 | 7.2  | 4060                 | C312_7.2                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                                 | 194-195                                                                             |
| 141                        | 26.8                        | 81                   | 216                   | 5.1 | 2.3 | 7.1  | 5500                 | C412_7.1                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 198-199                                                                             |
| 159                        | 30                          | 72                   | 192                   | 2.5 | 1.0 | 6.3  | 3840                 | C312_6.3                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                                 | 194-195                                                                             |
| 163                        | 31                          | 70                   | 187                   | 2.8 | 1.6 | 12.3 | 3900                 | C312_12.3                                                                         | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2                                                                                  | 194-195                                                                             |
| 167                        | 32                          | 68                   | 182                   | 3.8 | 1.4 | 6.0  | 5000                 | C412_6.0                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 198-199                                                                             |
| 200                        | 38                          | 57                   | 152                   | 2.8 | 1.3 | 5.0  | 3610                 | C312_5.0                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LA4                                                                                 | 194-195                                                                             |
| 206                        | 39                          | 55                   | 147                   | 2.1 | 1.4 | 9.7  | 2440                 | C212_9.7                                                                          | —<br>P80                                                                          | —<br>V 1 F                                                                          | P80                                                                                 | BN80C2                                                                                  | 192-193                                                                             |
| 213                        | 40                          | 54                   | 143                   | 4.9 | 1.8 | 4.7  | 4670                 | C412_4.7                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LA4                                                                                 | 198-199                                                                             |
| 215                        | 41                          | 53                   | 141                   | 3.3 | 2.1 | 9.3  | 3610                 | C312_9.3                                                                          | V1<br>P80                                                                         | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2                                                                                  | 194-195                                                                             |

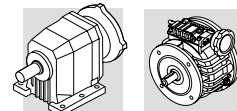


## 1.5 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i   | R <sub>n2</sub><br>N |  |  |  |  |  |        |         |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|-----|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------|---------|
| 278                        | 53                          | 41                   | 109                   | 3.9 | 2.6 | 7.2 | 3340                 | C312_7.2                                                                          |                                                                                   | V1<br>P80                                                                           | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2 | 194-195 |
| 282                        | 54                          | 40                   | 108                   | 2.6 | 1.7 | 7.1 | 2270                 |                                                                                   | C212_7.1                                                                          | —<br>P80                                                                            | —<br>V 1 F                                                                          | P80                                                                                 | BN80C2 | 192-193 |
| 317                        | 60                          | 36                   | 96                    | 4.2 | 2.1 | 6.3 | 3240                 | C312_6.3                                                                          |                                                                                   | V1<br>P80                                                                           | V 1 C<br>V 1 F                                                                      | P80                                                                                 | BN80C2 | 194-195 |
| 328                        | 62                          | 35                   | 93                    | 2.4 | 1.3 | 6.1 | 2140                 |                                                                                   | C212_6.1                                                                          | —<br>P80                                                                            | —<br>V 1 F                                                                          | P80                                                                                 | BN80C2 | 192-193 |
| 417                        | 79                          | 27                   | 73                    | 2.9 | 1.4 | 4.8 | 2010                 | C212_4.8                                                                          |                                                                                   | —<br>P80                                                                            | —<br>V 1 F                                                                          | P80                                                                                 | BN80C2 | 192-193 |
| 541                        | 103                         | 21                   | 56                    | 3.3 | 1.9 | 3.7 | 1880                 |                                                                                   | C212_3.7                                                                          | —<br>P80                                                                            | —<br>V 1 F                                                                          | P80                                                                                 | BN80C2 | 192-193 |

## 1.85 kW

|      |      |      |      |     |     |       |       |            |           |                |     |         |         |
|------|------|------|------|-----|-----|-------|-------|------------|-----------|----------------|-----|---------|---------|
| 4.6  | 0.90 | 2811 | 7028 | 1.4 | 0.6 | 215.9 | 35000 | C803_215.9 | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 206     |
| 5.1  | 1.0  | 2577 | 6442 | 1.5 | 0.6 | 197.9 | 35000 | C803_197.9 | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 206     |
| 5.4  | 1.0  | 2401 | 6002 | 1.7 | 0.7 | 184.4 | 35000 | C803_184.4 | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 206     |
| 5.9  | 1.1  | 2200 | 5501 | 1.8 | 0.7 | 169.0 | 35000 | C803_169.0 | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 206     |
| 6.7  | 1.3  | 1941 | 4853 | 2.1 | 0.8 | 149.1 | 35000 | C803_149.1 | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 206     |
| 7.3  | 1.4  | 1780 | 4450 | 2.2 | 0.9 | 136.7 | 35000 | C803_136.7 | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 206     |
| 8.4  | 1.6  | 1556 | 3890 | 2.6 | 1.0 | 119.5 | 35000 | C803_119.5 | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 206     |
| 9.1  | 1.7  | 1426 | 3564 | 2.8 | 1.1 | 109.5 | 35000 | C803_109.5 | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 206     |
| 10.3 | 2.0  | 1268 | 3170 | 3.2 | 1.3 | 97.4  | 35000 | C803_97.4  | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 206     |
| 11.2 | 2.1  | 1163 | 2907 | 3.4 | 1.4 | 89.3  | 35000 | C803_89.3  | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 206     |
| 12.3 | 2.3  | 1060 | 2650 | 2.2 | 0.9 | 81.4  | 25000 | C703_81.4  | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 204-205 |
| 14.0 | 2.7  | 928  | 2321 | 2.5 | 1.0 | 71.3  | 25000 | C703_71.3  | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 204-205 |
| 14.2 | 2.7  | 918  | 2295 | 4.4 | 1.7 | 70.5  | 35000 | C803_70.5  | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 206     |
| 15.2 | 2.9  | 858  | 2145 | 2.7 | 1.1 | 65.9  | 25000 | C703_65.9  | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 204-205 |
| 16.0 | 3.0  | 814  | 2034 | 4.9 | 2.0 | 62.5  | 35000 | C803_62.5  | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 206     |
| 17.5 | 3.3  | 746  | 1865 | 5.4 | 2.1 | 57.3  | 35000 | C803_57.3  | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 206     |
| 17.7 | 3.4  | 736  | 1839 | 3.1 | 1.3 | 56.5  | 25000 | C703_56.5  | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 204-205 |
| 18.7 | 3.6  | 697  | 1741 | 2.3 | 0.9 | 53.5  | 16000 | C613_53.5  | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 202-203 |
| 21.0 | 4.0  | 620  | 1549 | 2.6 | 1.0 | 47.6  | 16000 | C613_47.6  | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 202-203 |
| 22.4 | 4.3  | 582  | 1455 | 4.0 | 1.6 | 44.7  | 25000 | C703_44.7  | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 204-205 |
| 24.2 | 4.6  | 538  | 1344 | 4.3 | 1.7 | 41.3  | 25000 | C703_41.3  | —<br>P90  | —<br>V 2 F     | P90 | BN90LB4 | 204-205 |
| 26.3 | 5.0  | 505  | 1264 | 2.7 | 1.1 | 38.0  | 16000 | C612_38.0  | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 202-203 |
| 33   | 6.3  | 404  | 1011 | 3.3 | 1.3 | 30.4  | 16000 | C612_30.4  | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 202-203 |
| 39   | 7.3  | 344  | 861  | 2.3 | 0.9 | 25.9  | 10000 | C512_25.9  | V2<br>P90 | V 2 C<br>V 2 F | P90 | BN90LB4 | 200-201 |

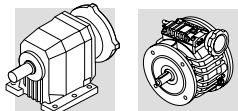


## 1.85 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i    | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 40                         | 7.7                         | 330                  | 825                   | 4.1 | 1.6 | 24.8 | 16000                | C612_24.8                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LB4                                                                                 | 202-203                                                                             |
| 48                         | 9.0                         | 279                  | 698                   | 2.9 | 1.1 | 21.0 | 10000                | C512_21.0                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LB4                                                                                 | 200-201                                                                             |
| 51                         | 9.6                         | 263                  | 658                   | 1.9 | 0.8 | 19.8 | 6840                 | C412_19.8                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LB4                                                                                 | 198-199                                                                             |
| 51                         | 9.7                         | 261                  | 652                   | 5.2 | 2.1 | 19.6 | 16000                | C612_19.6                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LB4                                                                                 | 202-203                                                                             |
| 60                         | 11.4                        | 221                  | 552                   | 3.6 | 1.4 | 16.6 | 10000                | C512_16.6                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LB4                                                                                 | 200-201                                                                             |
| 63                         | 11.9                        | 211                  | 529                   | 6.4 | 2.6 | 15.9 | 16000                | C612_15.9                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LB4                                                                                 | 202-203                                                                             |
| 63                         | 12.0                        | 210                  | 525                   | 2.4 | 1.0 | 15.8 | 6520                 | C412_15.8                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LB4                                                                                 | 198-199                                                                             |
| 76                         | 14.5                        | 174                  | 436                   | 4.6 | 1.8 | 13.1 | 10000                | C512_13.1                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LB4                                                                                 | 200-201                                                                             |
| 81                         | 15.3                        | 165                  | 412                   | 3.0 | 1.2 | 12.4 | 6160                 | C412_12.4                                                                         | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LB4                                                                                 | 198-199                                                                             |
| 102                        | 19.4                        | 130                  | 326                   | 6.1 | 2.5 | 9.8  | 10000                | C512_9.8                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LB4                                                                                 | 200-201                                                                             |
| 104                        | 19.8                        | 128                  | 319                   | 3.5 | 1.6 | 9.6  | 5770                 | C412_9.6                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LB4                                                                                 | 198-199                                                                             |
| 108                        | 20.4                        | 124                  | 309                   | 2.1 | 1.0 | 9.3  | 4250                 | C312_9.3                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LB4                                                                                 | 194-195                                                                             |
| 139                        | 26.4                        | 96                   | 239                   | 2.5 | 1.2 | 7.2  | 3990                 | C312_7.2                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LB4                                                                                 | 194-195                                                                             |
| 141                        | 26.8                        | 94                   | 236                   | 4.4 | 2.1 | 7.1  | 5320                 | C412_7.1                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LB4                                                                                 | 198-199                                                                             |
| 159                        | 30                          | 84                   | 209                   | 2.1 | 1.0 | 6.3  | 3770                 | C312_6.3                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LB4                                                                                 | 194-195                                                                             |
| 167                        | 32                          | 80                   | 200                   | 3.3 | 1.3 | 6.0  | 4920                 | C412_6.0                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LB4                                                                                 | 198-199                                                                             |
| 200                        | 38                          | 67                   | 166                   | 2.4 | 1.2 | 5.0  | 3550                 | C312_5.0                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LB4                                                                                 | 194-195                                                                             |
| 213                        | 40                          | 63                   | 156                   | 4.2 | 1.7 | 4.7  | 4610                 | C412_4.7                                                                          | V2<br>P90                                                                         | V 2 C<br>V 2 F                                                                      | P90                                                                                 | BN90LB4                                                                                 | 198-199                                                                             |
| 270                        | 51                          | 49                   | 123                   | 3.1 | 1.4 | 3.7  | 3300                 | C312_3.7                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LB4                                                                                 | 194-195                                                                             |
| 345                        | 66                          | 39                   | 96                    | 3.9 | 1.6 | 2.9  | 3070                 | C312_2.9                                                                          | —<br>P90                                                                          | —<br>V 2 F                                                                          | P90                                                                                 | BN90LB4                                                                                 | 194-195                                                                             |

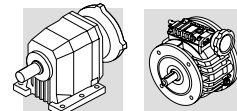
## 2.2 kW

|     |      |      |      |     |     |       |       |            |           |            |      |          |     |
|-----|------|------|------|-----|-----|-------|-------|------------|-----------|------------|------|----------|-----|
| 3.9 | 0.70 | 3841 | 8963 | 1.9 | 0.8 | 172.1 | 60000 | C903_172.1 | —<br>P100 | —<br>V 3 F | P100 | BN112M6  | 207 |
| 4.2 | 0.80 | 3522 | 8218 | 2.0 | 0.9 | 157.8 | 60000 | C903_157.8 | —<br>P100 | —<br>V 3 F | P100 | BN112M6  | 207 |
| 4.9 | 0.90 | 3051 | 7119 | 1.3 | 0.6 | 136.7 | 35000 | C803_136.7 | —<br>P100 | —<br>V 3 F | P100 | BN112M6  | 206 |
| 4.9 | 0.90 | 2993 | 6984 | 2.4 | 1.0 | 134.1 | 60000 | C903_134.1 | —<br>P100 | —<br>V 3 F | P100 | BN112M6  | 207 |
| 5.5 | 1.0  | 2667 | 6224 | 1.5 | 0.6 | 119.5 | 35000 | C803_119.5 | —<br>P100 | —<br>V 3 F | P100 | BN112M6  | 206 |
| 5.8 | 1.1  | 2561 | 6402 | 2.8 | 1.1 | 172.1 | 60000 | C903_172.1 | —<br>P100 | —<br>V 3 F | P100 | BN100LA4 | 207 |
| 6.1 | 1.1  | 2444 | 5703 | 1.6 | 0.7 | 109.5 | 35000 | C803_109.5 | —<br>P100 | —<br>V 3 F | P100 | BN112M6  | 206 |
| 6.3 | 1.2  | 2348 | 5870 | 3.0 | 1.2 | 157.8 | 60000 | C903_157.8 | —<br>P100 | —<br>V 3 F | P100 | BN100LA4 | 207 |
| 6.8 | 1.3  | 2174 | 5073 | 1.8 | 0.8 | 97.4  | 35000 | C803_97.4  | —<br>P100 | —<br>V 3 F | P100 | BN112M6  | 206 |
| 6.8 | 1.3  | 2201 | 5442 | 3.3 | 1.3 | 146.3 | 60000 | C903_146.3 | —<br>P100 | —<br>V 3 F | P100 | BN100LA4 | 207 |
| 7.3 | 1.4  | 2034 | 5085 | 2.0 | 0.8 | 136.7 | 35000 | C803_136.7 | —<br>P100 | —<br>V 3 F | P100 | BN100LA4 | 206 |

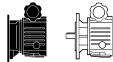


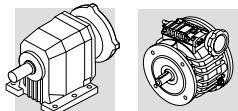
## 2.2 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i     | R <sub>n2</sub><br>N |  |  |  |  |  |          |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|-------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------|
| 7.4                        | 1.4                         | 1993                 | 4651                  | 2.0 | 0.9 | 89.3  | 35000                | C803_89.3                                                                         | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN112M6                                                                             | 206      |
| 7.5                        | 1.4                         | 1995                 | 4989                  | 3.6 | 1.4 | 134.1 | 60000                |                                                                                   | C903_134.1                                                                        | —<br>P100                                                                           | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4 |
| 8.1                        | 1.5                         | 1817                 | 4239                  | 1.3 | 0.5 | 81.4  | 25000                | C703_81.4                                                                         |                                                                                   | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN112M6  |
| 8.4                        | 1.6                         | 1778                 | 4445                  | 2.2 | 0.9 | 119.5 | 35000                |                                                                                   | C803_119.5                                                                        | —<br>P100                                                                           | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4 |
| 8.6                        | 1.6                         | 1716                 | 4005                  | 2.3 | 1.0 | 76.9  | 35000                | C803_76.9                                                                         |                                                                                   | —<br>P100                                                                           | —<br>V 3 F                                                                          | P100                                                                                | BN112M6  |
| 9.1                        | 1.7                         | 1629                 | 4073                  | 2.5 | 1.0 | 109.5 | 35000                |                                                                                   | C803_109.5                                                                        | —<br>P100                                                                           | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4 |
| 9.3                        | 1.8                         | 1591                 | 3713                  | 1.4 | 0.6 | 71.3  | 25000                | C703_71.3                                                                         |                                                                                   | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN112M6  |
| 9.3                        | 1.8                         | 1592                 | 3980                  | 4.5 | 1.8 | 107.0 | 60000                |                                                                                   | C903_107.0                                                                        | —<br>P100                                                                           | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4 |
| 10.1                       | 1.9                         | 1471                 | 3432                  | 1.6 | 0.7 | 65.9  | 25000                | C703_65.9                                                                         |                                                                                   | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN112M6  |
| 10.3                       | 2.0                         | 1449                 | 3623                  | 2.8 | 1.1 | 97.4  | 35000                |                                                                                   | C803_97.4                                                                         | —<br>P100                                                                           | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4 |
| 10.4                       | 2.0                         | 1431                 | 3579                  | 5.0 | 2.0 | 96.2  | 60000                | C903_96.2                                                                         |                                                                                   | —<br>P100                                                                           | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4 |
| 11.2                       | 2.1                         | 1329                 | 3322                  | 3.0 | 1.2 | 89.3  | 35000                |                                                                                   | C803_89.3                                                                         | —<br>P100                                                                           | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4 |
| 11.3                       | 2.2                         | 1312                 | 3281                  | 1.8 | 0.7 | 88.2  | 25000                | C703_88.2                                                                         |                                                                                   | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4 |
| 11.7                       | 2.2                         | 1261                 | 2943                  | 1.8 | 0.8 | 56.5  | 25000                |                                                                                   | C703_56.5                                                                         | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN112M6  |
| 12.3                       | 2.3                         | 1211                 | 3028                  | 1.9 | 0.8 | 81.4  | 25000                | C703_81.4                                                                         |                                                                                   | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4 |
| 12.7                       | 2.4                         | 1165                 | 2719                  | 2.0 | 0.8 | 52.2  | 25000                |                                                                                   | C703_52.2                                                                         | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN112M6  |
| 13.0                       | 2.5                         | 1144                 | 2861                  | 3.5 | 1.4 | 76.9  | 35000                | C803_76.9                                                                         |                                                                                   | —<br>P100                                                                           | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4 |
| 14.0                       | 2.7                         | 1061                 | 2652                  | 2.2 | 0.9 | 71.3  | 25000                |                                                                                   | C703_71.3                                                                         | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4 |
| 14.2                       | 2.7                         | 1049                 | 2623                  | 3.8 | 1.5 | 70.5  | 35000                | C803_70.5                                                                         |                                                                                   | —<br>P100                                                                           | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4 |
| 14.8                       | 2.8                         | 998                  | 2328                  | 2.3 | 1.0 | 44.7  | 25000                |                                                                                   | C703_44.7                                                                         | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN112M6  |
| 15.2                       | 2.9                         | 981                  | 2451                  | 2.3 | 0.9 | 65.9  | 25000                | C703_65.9                                                                         |                                                                                   | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4 |
| 16.0                       | 3.0                         | 930                  | 2325                  | 4.3 | 1.7 | 62.5  | 35000                |                                                                                   | C803_62.5                                                                         | —<br>P100                                                                           | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4 |
| 16.1                       | 3.0                         | 922                  | 2151                  | 2.5 | 1.1 | 41.3  | 25000                | C703_41.3                                                                         |                                                                                   | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN112M6  |
| 17.1                       | 3.2                         | 872                  | 2180                  | 1.8 | 0.7 | 58.6  | 16000                |                                                                                   | C613_58.6                                                                         | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4 |
| 17.5                       | 3.3                         | 853                  | 2132                  | 4.7 | 1.9 | 57.3  | 35000                | C803_57.3                                                                         |                                                                                   | —<br>P100                                                                           | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4 |
| 17.7                       | 3.4                         | 841                  | 2102                  | 2.7 | 1.1 | 56.5  | 25000                |                                                                                   | C703_56.5                                                                         | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4 |
| 19.1                       | 3.6                         | 791                  | 1846                  | 2.7 | 1.1 | 34.7  | 25000                | C702_34.7                                                                         |                                                                                   | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN112M6  |
| 19.2                       | 3.6                         | 777                  | 1942                  | 3.0 | 1.2 | 52.2  | 25000                |                                                                                   | C703_52.2                                                                         | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4 |
| 21.0                       | 4.0                         | 708                  | 177                   | 2.3 | 0.9 | 47.6  | 16000                | C613_47.6                                                                         |                                                                                   | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4 |
| 21.1                       | 4.0                         | 705                  | 2003                  | 5.7 | 2.3 | 47.4  | 35000                |                                                                                   | C803_47.4                                                                         | —<br>P100                                                                           | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4 |
| 22.4                       | 4.3                         | 665                  | 1663                  | 3.5 | 1.4 | 44.7  | 25000                | C703_44.7                                                                         |                                                                                   | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4 |
| 23.9                       | 4.5                         | 632                  | 1474                  | 3.3 | 1.4 | 27.7  | 25000                |                                                                                   | C702_27.7                                                                         | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN112M6  |
| 24.2                       | 4.6                         | 615                  | 1536                  | 3.7 | 1.5 | 41.3  | 25000                | C703_41.3                                                                         |                                                                                   | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4 |
| 26.3                       | 5.0                         | 578                  | 1444                  | 2.3 | 0.9 | 38.0  | 16000                |                                                                                   | C612_38.0                                                                         | V3<br>P100                                                                          | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4 |



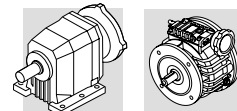
## 2.2 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i    | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 27.0                       | 5.1                         | 551                  | 1376                  | 1.8 | 0.7 | 37.0 | 10000                | C513_37.0                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 200-201                                                                             |
| 28.8                       | 5.5                         | 527                  | 1319                  | 4.0 | 1.6 | 34.7 | 25000                | C702_34.7                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 204-205                                                                             |
| 29.2                       | 5.6                         | 520                  | 1300                  | 2.4 | 1.0 | 34.2 | 16000                | C612_34.2                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 202-203                                                                             |
| 32                         | 6.0                         | 479                  | 1117                  | 1.7 | 0.7 | 21.0 | 10000                | C512_21.0                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P112                                                                                | BN112M6                                                                                 | 200-201                                                                             |
| 33                         | 6.3                         | 462                  | 1155                  | 2.9 | 1.2 | 30.4 | 16000                | C612_30.4                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 202-203                                                                             |
| 33                         | 6.3                         | 448                  | 1120                  | 2.2 | 0.9 | 30.1 | 10000                | C513_30.1                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 200-201                                                                             |
| 36                         | 6.9                         | 421                  | 1053                  | 5.0 | 2.0 | 27.7 | 25000                | C702_27.7                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 204-205                                                                             |
| 36                         | 6.9                         | 408                  | 1019                  | 2.5 | 1.0 | 27.4 | 10000                | C513_27.4                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 200-201                                                                             |
| 40                         | 7.7                         | 377                  | 942                   | 3.6 | 1.4 | 24.8 | 16000                | C612_24.8                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 202-203                                                                             |
| 43                         | 8.1                         | 356                  | 889                   | 2.2 | 0.9 | 23.4 | 10000                | C512_23.4                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 200-201                                                                             |
| 51                         | 9.7                         | 298                  | 745                   | 4.5 | 1.8 | 19.6 | 16000                | C612_19.6                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 202-203                                                                             |
| 53                         | 10.1                        | 287                  | 718                   | 2.8 | 1.1 | 18.9 | 10000                | C512_18.9                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 200-201                                                                             |
| 56                         | 10.7                        | 271                  | 676                   | 1.8 | 0.7 | 17.8 | 6500                 | C412_17.8                                                                         | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 198-199                                                                             |
| 60                         | 11.4                        | 252                  | 631                   | 3.2 | 1.3 | 16.6 | 10000                | C512_16.6                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 200-201                                                                             |
| 63                         | 12.0                        | 240                  | 600                   | 2.1 | 0.8 | 15.8 | 6370                 | C412_15.8                                                                         | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 198-199                                                                             |
| 76                         | 14.5                        | 199                  | 498                   | 4.0 | 1.6 | 13.1 | 10000                | C512_13.1                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 200-201                                                                             |
| 81                         | 15.3                        | 188                  | 471                   | 2.6 | 1.1 | 12.4 | 6040                 | C412_12.4                                                                         | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 198-199                                                                             |
| 89                         | 17.0                        | 170                  | 426                   | 2.9 | 1.2 | 11.2 | 5880                 | C412_11.2                                                                         | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 198-199                                                                             |
| 95                         | 18.1                        | 160                  | 399                   | 2.4 | 1.0 | 10.5 | 4930                 | C352_10.5                                                                         | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 196-197                                                                             |
| 102                        | 19.4                        | 149                  | 372                   | 5.4 | 2.1 | 9.8  | 10000                | C512_9.8                                                                          | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 200-201                                                                             |
| 114                        | 21.6                        | 134                  | 334                   | 2.8 | 1.1 | 8.8  | 4740                 | C352_8.8                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 196-197                                                                             |
| 127                        | 24.1                        | 120                  | 300                   | 3.2 | 1.3 | 7.9  | 4610                 | C352_7.9                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 196-197                                                                             |
| 128                        | 24.4                        | 119                  | 296                   | 6.2 | 2.7 | 7.8  | 10000                | C512_7.8                                                                          | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 200-201                                                                             |
| 141                        | 26.8                        | 108                  | 270                   | 3.8 | 1.9 | 7.1  | 5250                 | C412_7.1                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 198-199                                                                             |
| 156                        | 29.7                        | 97                   | 243                   | 4.1 | 2.0 | 6.4  | 5100                 | C412_6.4                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 198-199                                                                             |
| 164                        | 31                          | 93                   | 232                   | 4.1 | 1.6 | 6.1  | 4310                 | C352_6.1                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 196-197                                                                             |
| 179                        | 34                          | 85                   | 213                   | 5.1 | 2.0 | 5.6  | 10000                | C512_5.6                                                                          | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 200-201                                                                             |
| 213                        | 40                          | 71                   | 179                   | 3.6 | 1.5 | 4.7  | 4550                 | C412_4.7                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 198-199                                                                             |
| 217                        | 41                          | 70                   | 175                   | 2.9 | 1.1 | 4.6  | 3930                 | C352_4.6                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 196-197                                                                             |
| 278                        | 53                          | 55                   | 137                   | 4.7 | 1.9 | 3.6  | 4250                 | C412_3.6                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 198-199                                                                             |
| 303                        | 58                          | 50                   | 125                   | 8.4 | 3.3 | 3.3  | 10000                | C512_3.3                                                                          | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LA4                                                                                | 200-201                                                                             |
| 370                        | 70                          | 41                   | 103                   | 4.6 | 1.9 | 2.7  | 3390                 | C352_2.7                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LA4                                                                                | 196-197                                                                             |



## 3 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | $M_2$<br>Nm | $M_2'$<br>Nm | S   | S'  | i     | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|-------------|--------------|-----|-----|-------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 5.8                        | 1.1                         | 3841        | 8963         | 1.9 | 0.8 | 172.1 | 60000                | C903_172.1                                                                        | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 207                                                                                 |
| 6.3                        | 1.2                         | 3522        | 8218         | 2.0 | 0.9 | 157.8 | 60000                | C903_157.8                                                                        | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 207                                                                                 |
| 6.8                        | 1.3                         | 3265        | 7619         | 2.2 | 0.9 | 146.3 | 60000                | C903_146.3                                                                        | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 207                                                                                 |
| 7.5                        | 1.4                         | 2993        | 6984         | 2.4 | 1.0 | 134.1 | 60000                | C903_134.1                                                                        | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 207                                                                                 |
| 8.6                        | 1.6                         | 2605        | 6078         | 2.8 | 1.2 | 116.7 | 60000                | C903_116.7                                                                        | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 207                                                                                 |
| 9.1                        | 1.7                         | 2444        | 5703         | 1.6 | 0.7 | 109.5 | 35000                | C803_109.5                                                                        | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 206                                                                                 |
| 9.3                        | 1.8                         | 2388        | 5573         | 3.0 | 1.3 | 107.0 | 60000                | C903_107.0                                                                        | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 207                                                                                 |
| 10.4                       | 2.0                         | 2147        | 5010         | 3.4 | 1.4 | 96.2  | 60000                | C903_96.2                                                                         | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 207                                                                                 |
| 11.2                       | 2.1                         | 1993        | 4651         | 2.0 | 0.9 | 89.3  | 35000                | C803_89.3                                                                         | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 206                                                                                 |
| 11.3                       | 2.2                         | 1969        | 4593         | 3.6 | 1.5 | 88.2  | 60000                | C903_88.2                                                                         | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 207                                                                                 |
| 12.3                       | 2.3                         | 1817        | 4239         | 1.3 | 0.5 | 81.4  | 25000                | C703_81.4                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 204-205                                                                             |
| 13.0                       | 2.5                         | 1716        | 4005         | 2.3 | 1.0 | 76.9  | 35000                | C803_76.9                                                                         | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 206                                                                                 |
| 14.0                       | 2.7                         | 1591        | 3713         | 1.4 | 0.6 | 71.3  | 25000                | C703_71.3                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 204-205                                                                             |
| 14.2                       | 2.7                         | 1574        | 3672         | 2.5 | 1.1 | 70.5  | 35000                | C803_70.5                                                                         | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 206                                                                                 |
| 15.2                       | 2.9                         | 1471        | 3432         | 1.6 | 0.7 | 65.9  | 25000                | C703_65.9                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 204-205                                                                             |
| 16.0                       | 3.0                         | 1395        | 3255         | 2.9 | 1.2 | 62.5  | 35000                | C803_62.5                                                                         | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 206                                                                                 |
| 17.7                       | 3.4                         | 1261        | 2943         | 1.8 | 0.8 | 56.5  | 25000                | C703_56.5                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 204-205                                                                             |
| 19.2                       | 3.6                         | 1165        | 2719         | 2.0 | 0.8 | 52.2  | 25000                | C703_52.2                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 204-205                                                                             |
| 21.1                       | 4.0                         | 1058        | 2469         | 3.8 | 1.6 | 47.4  | 35000                | C803_47.4                                                                         | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 206                                                                                 |
| 22.4                       | 4.3                         | 998         | 2328         | 2.3 | 1.0 | 44.7  | 25000                | C703_44.7                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 204-205                                                                             |
| 24.2                       | 4.6                         | 922         | 2151         | 2.5 | 1.1 | 41.3  | 25000                | C703_41.3                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 204-205                                                                             |
| 26.3                       | 5.0                         | 866         | 2022         | 1.6 | 0.7 | 38.0  | 16000                | C612_38.0                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 202-203                                                                             |
| 28.8                       | 5.5                         | 791         | 1846         | 2.7 | 1.1 | 34.7  | 25000                | C702_34.7                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 204-205                                                                             |
| 29.2                       | 5.6                         | 780         | 1819         | 1.6 | 0.7 | 34.2  | 16000                | C612_34.2                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 202-203                                                                             |
| 33                         | 6.3                         | 693         | 1617         | 1.9 | 0.8 | 30.4  | 16000                | C612_30.4                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 202-203                                                                             |
| 36                         | 6.9                         | 632         | 1474         | 3.3 | 1.4 | 27.7  | 25000                | C702_27.7                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 204-205                                                                             |
| 40                         | 7.7                         | 565         | 1319         | 2.4 | 1.0 | 24.8  | 16000                | C612_24.8                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 202-203                                                                             |
| 44                         | 8.3                         | 522         | 1218         | 4.0 | 1.7 | 22.9  | 25000                | C702_22.9                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 204-205                                                                             |
| 48                         | 9.0                         | 479         | 1117         | 1.7 | 0.7 | 21.0  | 10000                | C512_21.0                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 200-201                                                                             |
| 51                         | 9.7                         | 447         | 1043         | 3.0 | 1.3 | 19.6  | 15800                | C612_19.6                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 202-203                                                                             |
| 52                         | 9.8                         | 440         | 1027         | 4.8 | 2.0 | 19.3  | 25000                | C702_19.3                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 204-205                                                                             |
| 60                         | 11.4                        | 378         | 883          | 2.1 | 0.9 | 16.6  | 10000                | C512_16.6                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 200-201                                                                             |
| 63                         | 11.9                        | 363         | 846          | 3.7 | 1.6 | 15.9  | 14900                | C612_15.9                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 202-203                                                                             |
| 63                         | 12.0                        | 360         | 841          | 1.4 | 0.6 | 15.8  | 5770                 | C412_15.8                                                                         | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 198-199                                                                             |
| 76                         | 14.5                        | 299         | 697          | 2.7 | 1.1 | 13.1  | 10000                | C512_13.1                                                                         | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 200-201                                                                             |

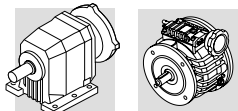


## 3 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | $M_2$<br>Nm | $M_2'$<br>Nm | S   | S'  | i    | R <sub>N2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|-------------|--------------|-----|-----|------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 81                         | 15.3                        | 283         | 660          | 1.8 | 0.8 | 12.4 | 5570                 | C412_12.4                                                                         | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 198-199                                                                             |
| 85                         | 16.2                        | 267         | 622          | 1.4 | 0.6 | 11.7 | 4630                 | C352_11.7                                                                         | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 196-197                                                                             |
| 102                        | 19.4                        | 223         | 521          | 3.6 | 1.5 | 9.8  | 9460                 | C512_9.8                                                                          | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 200-201                                                                             |
| 104                        | 19.8                        | 219         | 511          | 2.1 | 1.0 | 9.6  | 5320                 | C412_9.6                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 198-199                                                                             |
| 114                        | 21.6                        | 201         | 468          | 1.9 | 0.8 | 8.8  | 4410                 | C352_8.8                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 196-197                                                                             |
| 141                        | 26.8                        | 162         | 378          | 2.6 | 1.3 | 7.1  | 4980                 | C412_7.1                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 198-199                                                                             |
| 143                        | 27.1                        | 160         | 372          | 4.6 | 2.1 | 7.0  | 8610                 | C512_7.0                                                                          | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 200-201                                                                             |
| 147                        | 27.9                        | 155         | 362          | 2.5 | 1.1 | 6.8  | 4190                 | C352_6.8                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 196-197                                                                             |
| 167                        | 32                          | 137         | 319          | 1.9 | 0.8 | 6.0  | 4530                 | C412_6.0                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 198-199                                                                             |
| 179                        | 34                          | 128         | 298          | 3.4 | 1.5 | 5.6  | 7980                 | C512_5.6                                                                          | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 200-201                                                                             |
| 213                        | 40                          | 107         | 250          | 2.4 | 1.0 | 4.7  | 4310                 | C412_4.7                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 198-199                                                                             |
| 217                        | 41                          | 105         | 245          | 1.9 | 0.8 | 4.6  | 3720                 | C352_4.6                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 196-197                                                                             |
| 222                        | 42                          | 103         | 239          | 4.2 | 1.8 | 4.5  | 7450                 | C512_4.5                                                                          | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 200-201                                                                             |
| 278                        | 53                          | 82          | 192          | 3.1 | 1.3 | 3.6  | 4060                 | C412_3.6                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 198-199                                                                             |
| 286                        | 54                          | 80          | 186          | 2.5 | 1.1 | 3.5  | 3480                 | C352_3.5                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 196-197                                                                             |
| 303                        | 58                          | 75          | 176          | 5.6 | 2.4 | 3.3  | 7000                 | C512_3.3                                                                          | V3<br>P100                                                                        | V 3 C<br>V 3 F                                                                      | P100                                                                                | BN100LB4                                                                                | 200-201                                                                             |
| 370                        | 70                          | 62          | 144          | 3.1 | 1.4 | 2.7  | 3260                 | C352_2.7                                                                          | —<br>P100                                                                         | —<br>V 3 F                                                                          | P100                                                                                | BN100LB4                                                                                | 196-197                                                                             |

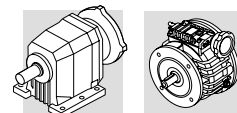
## 4 kW

|     |      |      |       |     |     |       |       |            |           |              |      |          |     |
|-----|------|------|-------|-----|-----|-------|-------|------------|-----------|--------------|------|----------|-----|
| 3.9 | 0.70 | 6882 | 13765 | 1.0 | 0.5 | 172.1 | 60000 | C903_172.1 | —<br>P132 | —<br>V 10 F  | P132 | BN132MA6 | 207 |
| 4.2 | 0.80 | 6310 | 12621 | 1.1 | 0.6 | 157.8 | 60000 | C903_157.8 | —<br>P132 | —<br>V 10 F  | P132 | BN132MA6 | 207 |
| 4.5 | 0.90 | 5851 | 11701 | 1.2 | 0.6 | 146.3 | 60000 | C903_146.3 | —<br>P132 | —<br>V 10 F  | P132 | BN132MA6 | 207 |
| 4.9 | 0.90 | 5363 | 10725 | 1.3 | 0.7 | 134.1 | 60000 | C903_134.1 | —<br>P132 | —<br>V 10 F  | P132 | BN132MA6 | 207 |
| 5.8 | 1.1  | 5122 | 11524 | 1.4 | 0.6 | 172.1 | 60000 | C903_172.1 | —<br>P112 | —<br>V 5.5 F | P112 | BN112M4  | 207 |
| 6.2 | 1.2  | 4279 | 8558  | 1.7 | 0.8 | 107.0 | 60000 | C903_107.0 | —<br>P132 | —<br>V 10 F  | P132 | BN132MA6 | 207 |
| 6.3 | 1.2  | 4696 | 10566 | 1.5 | 0.7 | 157.8 | 60000 | C903_157.8 | —<br>P112 | —<br>V 5.5 F | P112 | BN112M4  | 207 |
| 6.8 | 1.3  | 4354 | 9796  | 1.7 | 0.7 | 146.3 | 60000 | C903_146.3 | —<br>P112 | —<br>V 5.5 F | P112 | BN112M4  | 207 |
| 7.5 | 1.4  | 3991 | 8979  | 1.8 | 0.8 | 134.1 | 60000 | C903_134.1 | —<br>P112 | —<br>V 5.5 F | P112 | BN112M4  | 207 |
| 7.5 | 1.4  | 3527 | 7054  | 2.0 | 1.0 | 88.2  | 60000 | C903_88.2  | —<br>P132 | —<br>V 10 F  | P132 | BN132MA6 | 207 |
| 8.2 | 1.5  | 3247 | 6494  | 2.2 | 1.1 | 81.2  | 60000 | C903_81.2  | —<br>P132 | —<br>V 10 F  | P132 | BN132MA6 | 207 |
| 8.4 | 1.6  | 3556 | 8002  | 1.1 | 0.5 | 119.5 | 35000 | C803_119.5 | —<br>P112 | —<br>V 5.5 F | P112 | BN112M4  | 206 |
| 8.6 | 1.6  | 3473 | 7814  | 2.1 | 0.9 | 116.7 | 60000 | C903_116.7 | —<br>P112 | —<br>V 5.5 F | P112 | BN112M4  | 207 |
| 9.1 | 1.7  | 3259 | 7332  | 1.2 | 0.5 | 109.5 | 35000 | C803_109.5 | —<br>P112 | —<br>V 5.5 F | P112 | BN112M4  | 206 |
| 9.3 | 1.8  | 3184 | 7165  | 2.2 | 1.0 | 107.0 | 60000 | C903_107.0 | —<br>P112 | —<br>V 5.5 F | P112 | BN112M4  | 207 |



## 4 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2'</sub><br>Nm | S   | S'  | i    | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|----------------------|-----------------------|-----|-----|------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 9.4                        | 1.8                         | 2819                 | 5639                  | 1.4 | 0.7 | 70.5 | 35000                | C803_70.5                                                                         | —<br>P132                                                                         | —<br>V 10 F                                                                         | P132                                                                                | BN132MA6                                                                                | 206                                                                                 |
| 10.3                       | 2.0                         | 2899                 | 6522                  | 1.4 | 0.6 | 97.4 | 35000                | C803_97.4                                                                         | —<br>P112                                                                         | —<br>V 5.5 F                                                                        | P112                                                                                | BN112M4                                                                                 | 206                                                                                 |
| 10.4                       | 2.0                         | 2863                 | 6442                  | 2.5 | 1.1 | 96.2 | 60000                | C903_96.2                                                                         | —<br>P112                                                                         | —<br>V 5.5 F                                                                        | P112                                                                                | BN112M4                                                                                 | 207                                                                                 |
| 10.6                       | 2.0                         | 2499                 | 4999                  | 1.6 | 0.8 | 62.5 | 35000                | C803_62.5                                                                         | —<br>P132                                                                         | —<br>V 10 F                                                                         | P132                                                                                | BN132MA6                                                                                | 206                                                                                 |
| 11.2                       | 2.1                         | 2658                 | 5980                  | 1.5 | 0.7 | 89.3 | 35000                | C803_89.3                                                                         | —<br>P112                                                                         | —<br>V 5.5 F                                                                        | P112                                                                                | BN112M4                                                                                 | 206                                                                                 |
| 11.3                       | 2.2                         | 2625                 | 5906                  | 2.7 | 1.2 | 88.2 | 60000                | C903_88.2                                                                         | —<br>P112                                                                         | —<br>V 5.5 F                                                                        | P112                                                                                | BN112M4                                                                                 | 207                                                                                 |
| 11.6                       | 2.2                         | 2291                 | 4583                  | 1.7 | 0.9 | 57.3 | 35000                | C803_57.3                                                                         | —<br>P132                                                                         | —<br>V 10 F                                                                         | P132                                                                                | BN132MA6                                                                                | 206                                                                                 |
| 12.3                       | 2.3                         | 2417                 | 5437                  | 3.0 | 1.3 | 81.2 | 60000                | C903_81.2                                                                         | —<br>P112                                                                         | —<br>V 5.5 F                                                                        | P112                                                                                | BN112M4                                                                                 | 207                                                                                 |
| 13.0                       | 2.5                         | 2289                 | 5149                  | 1.7 | 0.8 | 76.9 | 35000                | C803_76.9                                                                         | —<br>P112                                                                         | —<br>V 5.5 F                                                                        | P112                                                                                | BN112M4                                                                                 | 206                                                                                 |
| 13.4                       | 2.6                         | 2214                 | 4982                  | 3.2 | 1.4 | 74.4 | 60000                | C903_74.4                                                                         | —<br>P112                                                                         | —<br>V 5.5 F                                                                        | P112                                                                                | BN112M4                                                                                 | 207                                                                                 |
| 14.0                       | 2.7                         | 2122                 | 4774                  | 1.1 | 0.5 | 71.3 | 25000                | C703_71.3                                                                         | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 204-205                                                                             |
| 14.2                       | 2.7                         | 2098                 | 4721                  | 1.9 | 0.8 | 70.5 | 35000                | C803_70.5                                                                         | —<br>P112                                                                         | —<br>V 5.5 F                                                                        | P112                                                                                | BN112M4                                                                                 | 206                                                                                 |
| 15.2                       | 2.9                         | 1961                 | 4413                  | 1.2 | 0.5 | 65.9 | 25000                | C703_65.9                                                                         | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 204-205                                                                             |
| 16.0                       | 3.0                         | 1860                 | 4185                  | 2.2 | 1.0 | 62.5 | 35000                | C803_62.5                                                                         | —<br>P112                                                                         | —<br>V 5.5 F                                                                        | P112                                                                                | BN112M4                                                                                 | 206                                                                                 |
| 16.1                       | 3.0                         | 1652                 | 3303                  | 1.4 | 0.7 | 41.3 | 25000                | C703_41.3                                                                         | —<br>P132                                                                         | —<br>V 10 F                                                                         | P132                                                                                | BN132MA6                                                                                | 204-205                                                                             |
| 17.0                       | 3.2                         | 1597                 | 3194                  | 2.0 | 1.0 | 39.1 | 35000                | C802_39.1                                                                         | —<br>P132                                                                         | —<br>V 10 F                                                                         | P132                                                                                | BN132MA6                                                                                | 206                                                                                 |
| 17.5                       | 3.3                         | 1705                 | 3837                  | 2.3 | 1.0 | 57.3 | 35000                | C803_57.3                                                                         | —<br>P112                                                                         | —<br>V 5.5 F                                                                        | P112                                                                                | BN112M4                                                                                 | 206                                                                                 |
| 17.7                       | 3.4                         | 1681                 | 3783                  | 1.4 | 0.6 | 56.5 | 25000                | C703_56.5                                                                         | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 204-205                                                                             |
| 19.1                       | 3.6                         | 1417                 | 2835                  | 1.5 | 0.7 | 34.7 | 25000                | C702_34.7                                                                         | —<br>P132                                                                         | —<br>V 10 F                                                                         | P132                                                                                | BN132MA6                                                                                | 204-205                                                                             |
| 19.2                       | 3.6                         | 1553                 | 3495                  | 1.5 | 0.7 | 52.2 | 25000                | C703_52.2                                                                         | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 204-205                                                                             |
| 21.1                       | 4.0                         | 1411                 | 3174                  | 2.8 | 1.3 | 47.4 | 35000                | C803_47.4                                                                         | —<br>P112                                                                         | —<br>V 5.5 F                                                                        | P112                                                                                | BN112M4                                                                                 | 206                                                                                 |
| 22.4                       | 4.3                         | 1330                 | 2993                  | 1.7 | 0.8 | 44.7 | 25000                | C703_44.7                                                                         | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 204-205                                                                             |
| 23.0                       | 4.4                         | 1295                 | 2913                  | 3.1 | 1.4 | 43.5 | 35000                | C803_43.5                                                                         | —<br>P112                                                                         | —<br>V 5.5 F                                                                        | P112                                                                                | BN112M4                                                                                 | 206                                                                                 |
| 23.9                       | 4.5                         | 1132                 | 2263                  | 1.9 | 0.9 | 27.7 | 25000                | C702_27.7                                                                         | —<br>P132                                                                         | —<br>V 10 F                                                                         | P132                                                                                | BN132MA6                                                                                | 204-205                                                                             |
| 24.2                       | 4.6                         | 1229                 | 2765                  | 1.9 | 0.8 | 41.3 | 25000                | C703_41.3                                                                         | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 204-205                                                                             |
| 25.6                       | 4.9                         | 1189                 | 2674                  | 2.7 | 1.2 | 39.1 | 35000                | C802_39.1                                                                         | —<br>P112                                                                         | —<br>V 5.5 F                                                                        | P112                                                                                | BN112M4                                                                                 | 206                                                                                 |
| 27.6                       | 5.2                         | 980                  | 1961                  | 3.6 | 1.8 | 24.0 | 35000                | C802_24.0                                                                         | —<br>P132                                                                         | —<br>V 10 F                                                                         | P132                                                                                | BN132MA6                                                                                | 206                                                                                 |
| 28.8                       | 5.5                         | 1055                 | 2373                  | 2.0 | 0.9 | 34.7 | 25000                | C702_34.7                                                                         | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 204-205                                                                             |
| 29.0                       | 5.5                         | 935                  | 1871                  | 2.2 | 1.1 | 22.9 | 25000                | C702_22.9                                                                         | —<br>P132                                                                         | —<br>V 10 F                                                                         | P132                                                                                | BN132MA6                                                                                | 204-205                                                                             |
| 32                         | 6.1                         | 952                  | 2141                  | 3.9 | 1.7 | 31.3 | 35000                | C802_31.3                                                                         | —<br>P112                                                                         | —<br>V 5.5 F                                                                        | P112                                                                                | BN112M4                                                                                 | 206                                                                                 |
| 34                         | 6.4                         | 1173                 | 2160                  | 1.2 | 0.6 | 19.6 | 16000                | C612_19.6                                                                         | V10<br>P132                                                                       | V 10 C<br>V 10 F                                                                    | P132                                                                                | BN132MA6                                                                                | 202-203                                                                             |
| 34                         | 6.5                         | 788                  | 1577                  | 2.7 | 1.3 | 19.3 | 25000                | C702_19.3                                                                         | —<br>P132                                                                         | —<br>V 10 F                                                                         | P132                                                                                | BN132MA6                                                                                | 204-205                                                                             |
| 36                         | 6.9                         | 842                  | 1895                  | 2.5 | 1.1 | 27.7 | 25000                | C702_27.7                                                                         | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 204-205                                                                             |
| 39                         | 7.3                         | 787                  | 1772                  | 4.7 | 2.1 | 25.9 | 35000                | C802_25.9                                                                         | —<br>P112                                                                         | —<br>V 5.5 F                                                                        | P112                                                                                | BN112M4                                                                                 | 206                                                                                 |
| 42                         | 7.9                         | 952                  | 1752                  | 1.4 | 0.8 | 15.9 | 16000                | C612_15.9                                                                         | V10<br>P132                                                                       | V 10 C<br>V 10 F                                                                    | P132                                                                                | BN132MA6                                                                                | 202-203                                                                             |

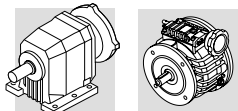


## 4 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | $M_2$<br>Nm | $M_2'$<br>Nm | S   | S'  | i    | R <sub>n2</sub><br>N |  |  |  |  | IEC  |  |
|----------------------------|-----------------------------|-------------|--------------|-----|-----|------|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 43                         | 8.2                         | 625         | 1250         | 3.4 | 1.7 | 15.3 | 25000                | C702_15.3                                                                         | —<br>P132                                                                         | —<br>V 10 F                                                                         | P132                                                                                | BN132MA6                                                                                | 204-205                                                                             |
| 44                         | 8.3                         | 696         | 1566         | 3.0 | 1.3 | 22.9 | 25000                | C702_22.9                                                                         | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 204-205                                                                             |
| 47                         | 8.9                         | 576         | 1152         | 3.7 | 1.9 | 14.1 | 25000                | C702_14.1                                                                         | —<br>P132                                                                         | —<br>V 10 F                                                                         | P132                                                                                | BN132MA6                                                                                | 204-205                                                                             |
| 51                         | 9.7                         | 596         | 134          | 2.3 | 1.0 | 19.6 | 15300                | C612_19.6                                                                         | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 202-203                                                                             |
| 52                         | 9.8                         | 587         | 1320         | 3.6 | 1.6 | 19.3 | 25000                | C702_19.3                                                                         | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 204-205                                                                             |
| 55                         | 10.3                        | 724         | 1333         | 1.9 | 1.0 | 12.1 | 15200                | C612_12.1                                                                         | V10<br>P132                                                                       | V 10 C<br>V 10 F                                                                    | P132                                                                                | BN132MA6                                                                                | 202-203                                                                             |
| 60                         | 11.4                        | 505         | 1135         | 1.6 | 0.7 | 16.6 | 10000                | C512_16.6                                                                         | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 200-201                                                                             |
| 61                         | 11.5                        | 652         | 1201         | 2.1 | 1.1 | 10.9 | 14800                | C612_10.9                                                                         | V10<br>P132                                                                       | V 10 C<br>V 10 F                                                                    | P132                                                                                | BN132MA6                                                                                | 202-203                                                                             |
| 68                         | 12.8                        | 587         | 1080         | 2.3 | 1.3 | 9.8  | 14400                | C612_9.8                                                                          | V10<br>P132                                                                       | V 10 C<br>V 10 F                                                                    | P132                                                                                | BN132MA6                                                                                | 202-203                                                                             |
| 75                         | 14.2                        | 527         | 970          | 2.6 | 1.4 | 8.8  | 13900                | C612_8.8                                                                          | V10<br>P132                                                                       | V 10 C<br>V 10 F                                                                    | P132                                                                                | BN132MA6                                                                                | 202-203                                                                             |
| 76                         | 14.5                        | 398         | 896          | 2.0 | 0.9 | 13.1 | 9900                 | C512_13.1                                                                         | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 200-201                                                                             |
| 88                         | 16.7                        | 449         | 827          | 3.0 | 1.6 | 7.5  | 13300                | C612_7.5                                                                          | V10<br>P132                                                                       | V 10 C<br>V 10 F                                                                    | P132                                                                                | BN132MA6                                                                                | 202-203                                                                             |
| 99                         | 18.7                        | 401         | 738          | 3.4 | 1.8 | 6.7  | 12900                | C612_6.7                                                                          | V10<br>P132                                                                       | V 10 C<br>V 10 F                                                                    | P132                                                                                | BN132MA6                                                                                | 202-203                                                                             |
| 102                        | 19.4                        | 298         | 670          | 2.7 | 1.2 | 9.8  | 9200                 | C512_9.8                                                                          | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 200-201                                                                             |
| 114                        | 21.6                        | 268         | 602          | 3.0 | 1.3 | 8.8  | 8960                 | C512_8.8                                                                          | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 200-201                                                                             |
| 128                        | 24.4                        | 237         | 534          | 3.1 | 1.5 | 7.8  | 8660                 | C512_7.8                                                                          | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 200-201                                                                             |
| 143                        | 27.1                        | 213         | 479          | 3.4 | 1.7 | 7.0  | 8420                 | C512_7.0                                                                          | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 200-201                                                                             |
| 179                        | 34                          | 170         | 383          | 2.6 | 1.1 | 5.6  | 7790                 | C512_5.6                                                                          | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 200-201                                                                             |
| 179                        | 34                          | 221         | 408          | 2.8 | 1.6 | 3.7  | 10700                | C612_3.7                                                                          | V10<br>P132                                                                       | V 10 C<br>V 10 F                                                                    | P132                                                                                | BN132MA6                                                                                | 202-203                                                                             |
| 222                        | 42                          | 137         | 308          | 3.2 | 1.4 | 4.5  | 7310                 | C512_4.5                                                                          | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 200-201                                                                             |
| 237                        | 45                          | 168         | 309          | 3.4 | 2.2 | 2.8  | 10000                | C612_2.8                                                                          | V10<br>P132                                                                       | V 10 C<br>V 10 F                                                                    | P132                                                                                | BN132MA6                                                                                | 202-203                                                                             |
| 270                        | 51                          | 112         | 253          | 5.6 | 2.6 | 3.7  | 9500                 | C612_3.7                                                                          | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 202-203                                                                             |
| 303                        | 58                          | 100         | 226          | 4.2 | 1.9 | 3.3  | 6710                 | C512_3.3                                                                          | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 200-201                                                                             |
| 357                        | 68                          | 85          | 192          | 6.6 | 3.5 | 2.8  | 9000                 | C612_2.8                                                                          | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 202-203                                                                             |
| 385                        | 73                          | 79          | 178          | 5.1 | 2.2 | 2.6  | 6280                 | C512_2.6                                                                          | V55<br>P112                                                                       | V 5.5 C<br>V 5.5 F                                                                  | P112                                                                                | BN112M4                                                                                 | 200-201                                                                             |

## 5.5 kW

|     |     |      |       |     |     |       |       |            |           |             |      |          |     |
|-----|-----|------|-------|-----|-----|-------|-------|------------|-----------|-------------|------|----------|-----|
| 5.7 | 1.1 | 6837 | 12590 | 1.1 | 0.6 | 116.7 | 60000 | C903_116.7 | —<br>P132 | —<br>V 10 F | P132 | BN132MB6 | 207 |
| 5.8 | 1.1 | 6882 | 13765 | 1.0 | 0.5 | 172.1 | 60000 | C903_172.1 | —<br>P132 | —<br>V 10 F | P132 | BN132S4  | 207 |
| 6.3 | 1.2 | 6310 | 12621 | 1.1 | 0.6 | 157.8 | 60000 | C903_157.8 | —<br>P132 | —<br>V 10 F | P132 | BN132S4  | 207 |
| 6.8 | 1.3 | 5851 | 11701 | 1.2 | 0.6 | 146.3 | 60000 | C903_146.3 | —<br>P132 | —<br>V 10 F | P132 | BN132S4  | 207 |
| 6.9 | 1.3 | 5636 | 10378 | 1.3 | 0.7 | 96.2  | 60000 | C903_96.2  | —<br>P132 | —<br>V 10 F | P132 | BN132MB6 | 207 |
| 7.5 | 1.4 | 5363 | 10725 | 1.3 | 0.7 | 134.1 | 60000 | C903_134.1 | —<br>P132 | —<br>V 10 F | P132 | BN132S4  | 207 |
| 8.6 | 1.6 | 4667 | 9334  | 1.5 | 0.8 | 116.7 | 60000 | C903_116.7 | —<br>P132 | —<br>V 10 F | P132 | BN132S4  | 207 |



## 5.5 kW

| $n_2$<br>min <sup>-1</sup> | $n_2'$<br>min <sup>-1</sup> | M <sub>2</sub><br>Nm | M <sub>2</sub> '<br>Nm | S   | S'  | i     | R <sub>n2</sub><br>N |  |    |    |  | IEC  |  |
|----------------------------|-----------------------------|----------------------|------------------------|-----|-----|-------|----------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 9.3                        | 1.8                         | 4279                 | 8558                   | 1.7 | 0.8 | 107.0 | 60000                | C903_107.0                                                                        |    |    | P132                                                                                | BN132S4                                                                                 | 201                                                                                 |
| 9.4                        | 1.8                         | 4131                 | 7606                   | 1.0 | 0.5 | 70.5  | 35000                | C803_70.5                                                                         |    |    | P132                                                                                | BN132MB6                                                                                | 206                                                                                 |
| 10.3                       | 2.0                         | 3895                 | 7790                   | 1.0 | 0.5 | 97.4  | 35000                | C803_97.4                                                                         |    |    | P132                                                                                | BN132S4                                                                                 | 206                                                                                 |
| 10.4                       | 2.0                         | 3847                 | 7694                   | 1.9 | 0.9 | 96.2  | 60000                | C903_96.2                                                                         |    |    | P132                                                                                | BN132S4                                                                                 | 207                                                                                 |
| 10.6                       | 2.0                         | 3662                 | 6743                   | 1.1 | 0.6 | 62.5  | 35000                | C803_62.5                                                                         |    |    | P132                                                                                | BN132MB6                                                                                | 206                                                                                 |
| 11.2                       | 2.1                         | 3571                 | 7142                   | 1.1 | 0.6 | 89.3  | 35000                | C803_89.3                                                                         |    |    | P132                                                                                | BN132S4                                                                                 | 206                                                                                 |
| 11.2                       | 2.1                         | 3469                 | 6386                   | 2.0 | 1.1 | 59.2  | 60000                | C903_59.2                                                                         |    |    | P132                                                                                | BN132MB6                                                                                | 207                                                                                 |
| 11.3                       | 2.2                         | 3527                 | 7054                   | 2.0 | 1.0 | 88.2  | 60000                | C903_88.2                                                                         |    |    | P132                                                                                | BN132S4                                                                                 | 207                                                                                 |
| 12.3                       | 2.3                         | 3247                 | 6494                   | 2.2 | 1.1 | 81.2  | 60000                | C903_81.2                                                                         |    |    | P132                                                                                | BN132S4                                                                                 | 207                                                                                 |
| 13.0                       | 2.5                         | 3075                 | 6150                   | 1.3 | 0.7 | 76.9  | 35000                | C803_76.9                                                                         |    |    | P132                                                                                | BN132S4                                                                                 | 206                                                                                 |
| 13.4                       | 2.6                         | 2975                 | 5951                   | 2.4 | 1.2 | 74.4  | 60000                | C903_74.4                                                                         |    |    | P132                                                                                | BN132S4                                                                                 | 207                                                                                 |
| 14.2                       | 2.7                         | 2819                 | 5639                   | 1.4 | 0.7 | 70.5  | 35000                | C803_70.5                                                                         |    |    | P132                                                                                | BN132S4                                                                                 | 206                                                                                 |
| 15.5                       | 2.9                         | 2583                 | 5167                   | 2.8 | 1.4 | 64.6  | 60000                | C903_64.6                                                                         |    |    | P132                                                                                | BN132S4                                                                                 | 207                                                                                 |
| 16.0                       | 3.0                         | 2499                 | 4999                   | 1.6 | 0.8 | 62.5  | 35000                | C803_62.5                                                                         |   |   | P132                                                                                | BN132S4                                                                                 | 206                                                                                 |
| 16.1                       | 3.0                         | 2420                 | 4455                   | 1.0 | 0.5 | 41.3  | 25000                | C703_41.3                                                                         |  |  | P132                                                                                | BN132MB6                                                                                | 204-205                                                                             |
| 16.9                       | 3.2                         | 2367                 | 4735                   | 3.0 | 1.5 | 59.2  | 60000                | C903_59.2                                                                         |  |  | P132                                                                                | BN132S4                                                                                 | 207                                                                                 |
| 17.0                       | 3.2                         | 2340                 | 4309                   | 1.4 | 0.7 | 39.1  | 35000                | C802_39.1                                                                         |  |  | P132                                                                                | BN132MB6                                                                                | 206                                                                                 |
| 17.5                       | 3.3                         | 2291                 | 4583                   | 1.7 | 0.9 | 57.3  | 35000                | C803_57.3                                                                         |  |  | P132                                                                                | BN132S4                                                                                 | 206                                                                                 |
| 18.2                       | 3.5                         | 2195                 | 4391                   | 3.3 | 1.6 | 54.9  | 60000                | C903_54.9                                                                         |  |  | P132                                                                                | BN132S4                                                                                 | 207                                                                                 |
| 18.9                       | 3.6                         | 2101                 | 3868                   | 2.6 | 1.4 | 35.1  | 35000                | C902_35.1                                                                         |  |  | P132                                                                                | BN132MB6                                                                                | 207                                                                                 |
| 19.1                       | 3.6                         | 2077                 | 3824                   | 1.0 | 0.5 | 34.7  | 25000                | C702_34.7                                                                         |  |  | P132                                                                                | BN132MB6                                                                                | 204-205                                                                             |
| 21.1                       | 4.0                         | 1896                 | 3791                   | 2.1 | 1.1 | 47.4  | 35000                | C803_47.4                                                                         |  |  | P132                                                                                | BN132S4                                                                                 | 206                                                                                 |
| 23.0                       | 4.4                         | 1740                 | 3479                   | 2.3 | 1.1 | 43.5  | 35000                | C803_43.5                                                                         |  |  | P132                                                                                | BN132S4                                                                                 | 206                                                                                 |
| 23.3                       | 4.4                         | 1720                 | 3439                   | 4.2 | 2.1 | 43.0  | 57000                | C903_43.0                                                                         |  |  | P132                                                                                | BN132S4                                                                                 | 207                                                                                 |
| 23.9                       | 4.5                         | 1658                 | 3053                   | 1.3 | 0.7 | 27.7  | 25000                | C702_27.7                                                                         |  |  | P132                                                                                | BN132MB6                                                                                | 204-205                                                                             |
| 24.2                       | 4.6                         | 1652                 | 3303                   | 1.4 | 0.7 | 41.3  | 25000                | C703_41.3                                                                         |  |  | P132                                                                                | BN132S4                                                                                 | 204-205                                                                             |
| 25.4                       | 4.8                         | 1576                 | 3151                   | 4.5 | 2.3 | 39.4  | 55900                | C903_39.4                                                                         |  |  | P132                                                                                | BN132S4                                                                                 | 207                                                                                 |
| 25.6                       | 4.9                         | 1597                 | 3194                   | 2.0 | 1.0 | 39.1  | 35000                | C802_39.1                                                                         |  |  | P132                                                                                | BN132S4                                                                                 | 206                                                                                 |
| 27.6                       | 5.2                         | 1436                 | 2645                   | 2.5 | 1.3 | 24.0  | 35000                | C802_24.0                                                                         |  |  | P132                                                                                | BN132MB6                                                                                | 206                                                                                 |
| 28.8                       | 5.5                         | 1417                 | 2835                   | 1.5 | 0.7 | 34.7  | 25000                | C702_34.7                                                                         |  |  | P132                                                                                | BN132S4                                                                                 | 204-205                                                                             |
| 29.0                       | 5.5                         | 1371                 | 2524                   | 1.5 | 0.8 | 22.9  | 25000                | C702_22.9                                                                         |  |  | P132                                                                                | BN132MB6                                                                                | 204-205                                                                             |
| 32                         | 6.1                         | 1279                 | 2557                   | 2.9 | 1.4 | 31.3  | 35000                | C802_31.3                                                                         |  |  | P132                                                                                | BN132S4                                                                                 | 206                                                                                 |
| 34                         | 6.5                         | 1155                 | 2127                   | 1.8 | 1.0 | 19.3  | 25000                | C702_19.3                                                                         |  |  | P132                                                                                | BN132MB6                                                                                | 204-205                                                                             |
| 34                         | 6.5                         | 1176                 | 2351                   | 1.4 | 0.7 | 29.4  | 15800                | C613_29.4                                                                         |  |  | P132                                                                                | BN132S4                                                                                 | 202-203                                                                             |
| 36                         | 6.9                         | 1132                 | 2263                   | 1.9 | 0.9 | 27.7  | 25000                | C702_27..7                                                                        |  |  | P132                                                                                | BN132S4                                                                                 | 204-205                                                                             |
| 37                         | 6.9                         | 1083                 | 1995                   | 3.4 | 1.9 | 18.1  | 35000                | C802_18.1                                                                         |  |  | P132                                                                                | BN132MB6                                                                                | 206                                                                                 |