

**CATALOGO RO•RV**  
**RO•RV CATALOGUE /**  
**RO•RV-KATALOG /**





## L'esperienza al servizio dell'innovazione

IT

Dal 1955 il Gruppo Varvel progetta e realizza sistemi di trasmissione di potenza impiegati in numerosi settori dell'industria. "Know-how to do it": Varvel ha le competenze per soddisfare al meglio le richieste dei clienti. Grazie alla grande esperienza maturata in oltre sessant'anni, Varvel offre alla clientela un'ampia gamma di soluzioni standard e prodotti personalizzati per esigenze specifiche. L'intera gamma di prodotti Varvel è progettata e realizzata in Italia, ma il Gruppo è presente in tutto il mondo con due filiali (una in USA e l'altra in India) e una rete globale con oltre 100 partner commerciali.

## Experience at the service of innovation

EN

The Varvel Group has been designing and producing power transmission systems for numerous areas of industry since 1955. "Know-how to do it": Varvel has the know-how needed to satisfy customers' requests in the best way possible. Thanks to over sixty years of accumulated experience, Varvel can offer customers a vast range of standard solutions and customise products for specific needs. The entire product range is designed and made in Italy and sold worldwide through two subsidiaries (in the USA and India) and a global network of over 100 commercial partners.

## Erfahrung im Dienste der Innovation

DE

Die Varvel-Gruppe entwickelt und produziert seit 1955 Kraftübertragungssysteme für viele Industriezweige. "Know-how to do it": Varvel verfügt über das Know-how, um die Anforderungen der Kunden bestmöglich zu erfüllen. Dank der in über sechzig Jahren Firmenaktivität gesammelten Erfahrung kann Varvel seinen Kunden eine breite Palette von Standardlösungen und maßgeschneiderten Produkten für alle spezifischen Anforderungen bieten. Die gesamte Varvel-Produktpalette wird in Italien entwickelt und hergestellt; darüber hinaus ist die Gruppe aber auch weltweit mit zwei Tochtergesellschaften (die eine in den USA und die andere in Indien) und einem globalen Netzwerk mit über 100 Geschäftspartnern präsent.

UNI EN ISO 9001:2015  
UNI EN ISO 14001:2015  
BS OHSAS 18001:2007



EC DIRECTIVE 2014/34/EC (ATEX)



# RO-RV

## RIDUTTORI AD ASSI ORTOGONALI

tre coppie di ingranaggi  
versioni in linea e a squadra

## BEVEL/HELICAL GEARBOXES

three gear trains  
in-line and right angle versions

## KEGELRADGETRIEBE

Dreistufig  
In-Linie- u. Winkelausführungen



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La serie dei riduttori RO-RV è concepita secondo le norme di progettazione ISO con l'ausilio di analisi strutturale per verifica della deformata e dello stress.

La robusta struttura non subisce deformazioni significative sotto effetto della coppia di funzionamento e dei carichi esterni con positivi risultati sulle superfici di tenuta.

I riduttori delle serie RO-RV sono costruiti in alluminio pressofuso per le prime 3 grandezze ed in ghisa per le rimanenti.

La versione pendolare permette la conversione in forma flangiata B5 applicando semplicemente una delle diverse flange di uscita disponibili.

Diverse dimensioni e tipi di alberi di uscita (cavo con chiavetta, cavo con calettatore e pieno con una o due sporgenze) sono disponibili per la più ampia possibilità di applicazioni.

La serie RO-RV è prevista in 6 grandezze, 30 rapporti di riduzione e momenti torcenti fra 180 e 3400 Nm.

La serie dei riduttori RO-RV è costituita da riduttori ad assi ortogonali, con una coppia conica e due cilindriche, e con albero di uscita cavo in esecuzione standard.

### Direttiva ATEX

I riduttori VARVEL-ATEX fornibili su richiesta, sono progettati e costruiti in accordo alla Direttiva 94/9/CE "ATEX" e sono pertanto idonei alla installazione in atmosfere potenzialmente esplosive:

- Zone di Gruppo II
- Categoria 2 (o 3)
- Pericolo di esplosione in presenza di gas (Zona 1 o 2)
- Pericolo di esplosione in presenza di Polveri combustibili (Zona 21 o 22)

Vedi informazioni dettagliate alle pagine 90 e 91.

La serie VARVEL-ATEX viene identificata mediante la seguente marcatura supplementare:

The gearboxes, series RO-RV are designed according to latest ISO engineering specifications with the help of computer aided structural analysis for displacement and stress field.

The monolithic framework does not deflect under the effect of torque and external loads with effective results on sealing surfaces.

The gearboxes of series RO-RV are manufactured of aluminium pressure die cast for the first 3 sizes and of cast iron for the others. The shaft mount version allows the flange mount B5 conversion by simply fitting one of the many output flanges available.

Various dimensions and types of output shafts (hollow with through keyway, hollow with shrink disk and solid with single or double end) are available for the majority of applications.

The series RO-RV is made in 6 sizes for each type of gearboxes, 30 reduction ratios and output torques between 180 and 3400 Nm.

The gearboxes series RO-RV consist of bevel/helical gearboxes with one bevel and two helical trains, and hollow output shaft as standard.

### Directive ATEX

The gearboxes VARVEL-ATEX, supplied on demand, are designed and manufactured according to Directive 94/9/CE "ATEX" and therefore, they are qualified for installation in potentially explosive atmospheres:

- Zones of Group II
- Category 2 (or 3)
- Explosion hazard with gas presence (Zone 1 or 2)
- Explosion hazard with combustible dust presence (Zone 21 or 22)

See detailed information at pages 90 and 91.

The units VARVEL-ATEX are identified by the following additional marking:

Die Getriebe der Baureihe RO-RV nach den ISO Normen konstruiert und anhand von Analysen auf Deformation und Kräfteeinwirkung nachgerechnet sind mit einem gemeinsamen Gehäuse hergestellt und haben somit die gleichen Befestigungsanschlüsse. Die Gehäusestruktur wird von den Betriebsdrehmomenten und durch außen am Getriebe wirkende Kräfte nahezu nicht beeinflusst, was sich positiv auf die Lebensdauer der Wellendichtungen auswirkt. Die ersten drei Größen der Getriebe der Baureihe RO-RV sind aus Aluminiumdruckguss die restlichen aus Grauguss. Die Aufsteckausführung kann in Flanschausführung B5 nachgerüstet werden mittels eines der vielen zur Auswahl stehenden Ausgangsflansche. Eine breite Auswahl an Wellenabmessungen am Ausgang (Hohlwelle mit Nut, Hohlwelle mit Schrumpfscheibe oder Vollwelle ein- oder beidseitig) ist verfügbar. Die Serie RO-RV ist für 6 Baugrößen lieferbar mit 30 Untersetzungen und Ausgangsdrehmomenten zwischen 180 u. 3400 Nm. Die Serie der RO-RV besteht aus Kegelradgetrieben mit einem konischen und zwei zylindrischen Reduktionsmoment und mit einer Ausgangshohlwelle in Standardausführung.

### ATEX Richtlinien

Die Getriebe Varvel-ATEX, ausschließlich auf Anfrage geliefert, sind entsprechend den ATEX-Richtlinien 94/9/EG "ATEX" konstruiert und hergestellt und somit zugelassen für die Installation in potentiell zündfähigen Atmosphäre:

- Gefahrenbereiche der Gruppe II
- Kategorie 2 (oder 3)
- Explosionsgefährdeter Bereich mit Gase (Gefahrenbereiche 1 oder 2)
- Explosionsgefährdeter Bereich mit zündfähigen Stäube (Gefahrenbereiche 21 oder 22)

Ausführliche Informationen finden Sie auf den Seiten 90 und 91.

Die VARVEL-ATEX Produkte sind mit folgenden zusätzlichen Stempelung versehen:

 II 2 GD ck IP66  $\text{C} \leq T_{\text{max}}=135^{\circ}\text{C}$



RO

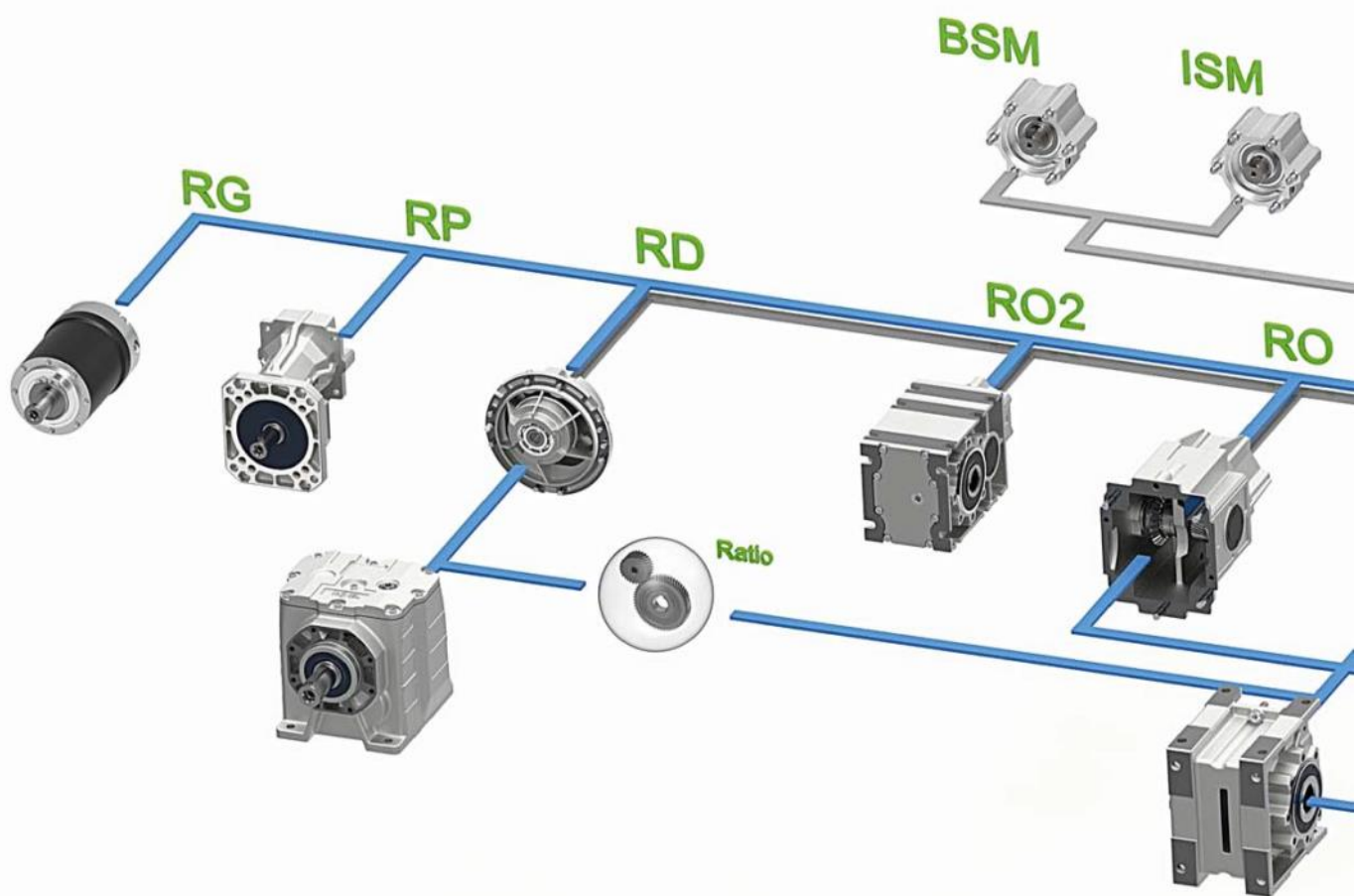


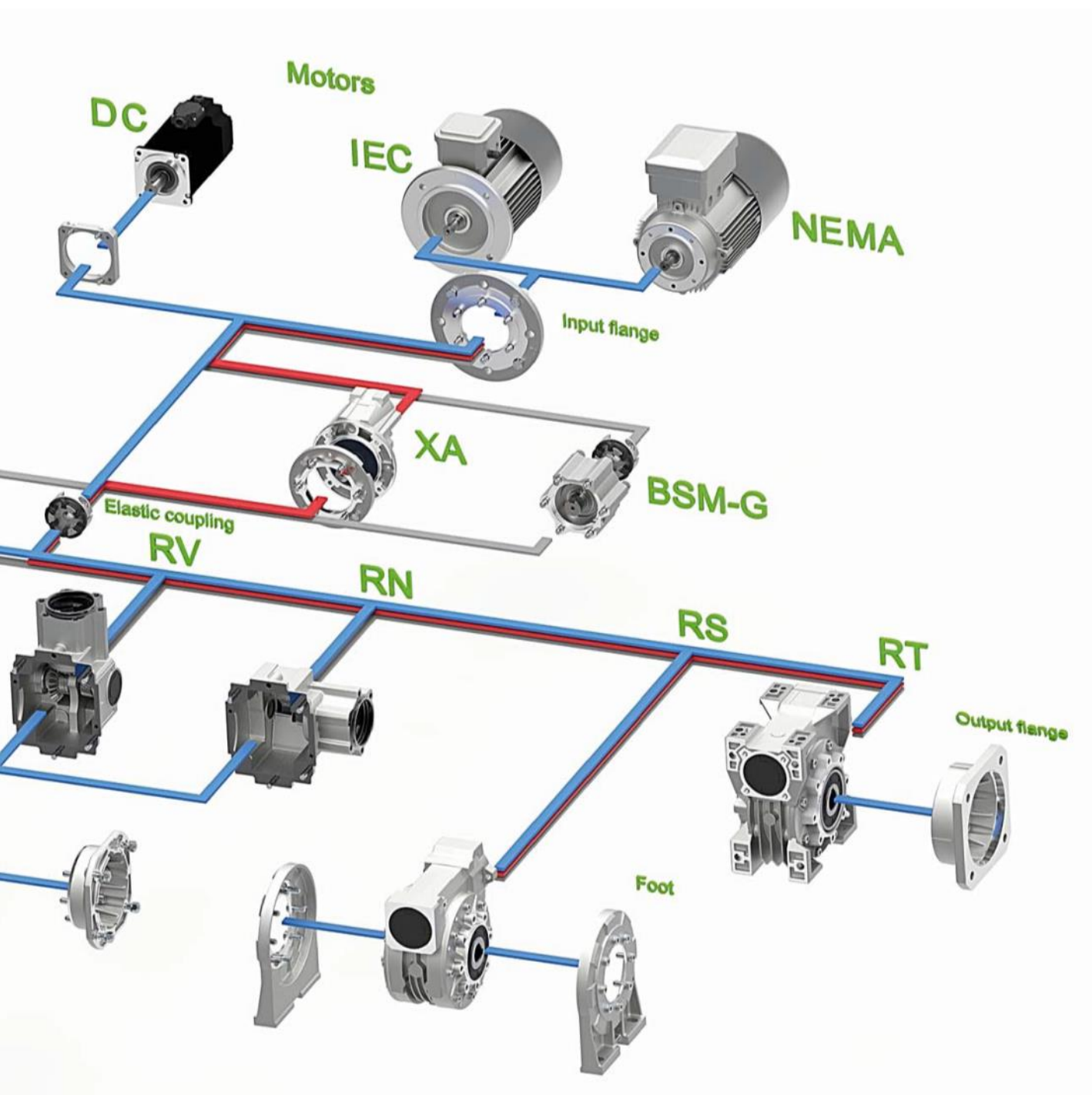
RV

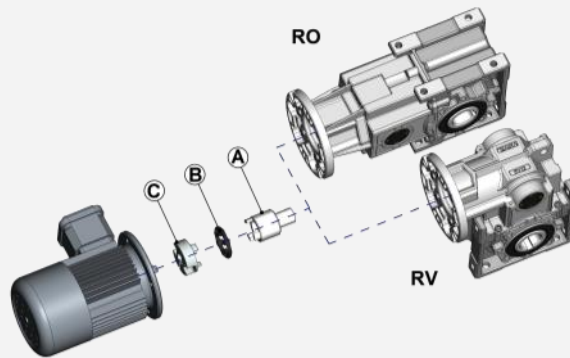
| Serie RO - RV<br>Riduttori ad assi ortogonali                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Series RO - RV<br>Parallel shaft gearboxes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Baureihe RO - RV<br>Flachgetriebe mit Hohlwelle                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Carcassa multiuso</b><br>Montaggio con Piedi e Piedi/Flangia<br>Unica carcassa per versione RO e RV<br><br><b>Carcasse e Coperchi</b><br>Alluminio in pressofusione (3 grandezze)<br>Ghisa (3 grandezze)<br><br><b>Entrata</b><br>Flange IEC e NEMA<br>con giunto elastico o montaggio<br>con foro tradizionale con chiavetta<br><br><b>Ingranaggi</b><br>Acciaio legato<br>Cementato e temprato<br>Profilo dei denti rettificato/sbarbato<br><br><b>Paraoli</b><br>Nitrile Butadiene Rubber - NBR<br>come standard;<br>Viton e Silicone a richiesta<br><br><b>Cuscinetti</b><br>A sfera o a rulli<br>secondo le grandezze<br>e caratteristiche tecniche<br><br><b>Uscita</b><br>Alberi metrici<br>in pollici a richiesta.<br><br><b>Lubrificazione</b><br>Olio Sintetico di lunga durata<br>Gradazione ISO VG 320<br>Senza tappi<br>Riempimento in fabbrica | <b>Multipurpose Housing</b><br>Foot & Foot/Flange Versions<br>Same housing for RO and RV versions<br><br><b>Housing &amp; Covers</b><br>Aluminium die cast (3 sizes);<br>Grey cast iron (3 sizes).<br><br><b>Input</b><br>IEC and NEMA motor adapters<br>with universal flexible coupling<br>or traditional bore and keyway fitting<br><br><b>Gearing</b><br>Alloy steel<br>Case hardened<br>Profile ground or shaved<br><br><b>Oil seals</b><br>NBR - Nitrile Butadiene Rubber<br>as standard;<br>Viton and Silicone on request<br><br><b>Bearings</b><br>Ball or roller types<br>according to sizes<br>and technical requirements<br><br><b>Output</b><br>Solid shafts<br>metric and imperial.<br><br><b>Lubrication</b><br>Synthetic long-life oil<br>Grade ISO VG 320<br>No oil/vent plugs<br>In-house filling | <b>Mehrzweckgehäuse</b><br>Montage mit Fuß, Fuß/Flansch<br>einheitliches Gehäuse für RO u. RV typen<br><br><b>Gehäuse u. Deckeln</b><br>Aluminium-Druckguß (3 Größen)<br>Grauguß (3 Größen)<br><br><b>Eingang</b><br>Flansche in IEC- u. NEMA-Ausführung<br>mit elastischer Kupplung oder<br>Hochwelle mit Paßfederverbindung<br><br><b>Verzahnungen</b><br>legierter Stahl<br>Vergütet u. gehärtet<br>geschliffen / rasiert Zahnprofil<br><br><b>Wellendichtringe</b><br>Nitrilbutadiengummi NBR<br>als Standard;<br>Viton u. Silikon auf Anfrage<br><br><b>Lager</b><br>Kegel- oder Rollenlager<br>nach die Größen<br>u. technische Spezifikationen<br><br><b>Ausgang</b><br>metrische Wellen<br>Zollmaß auf Anfrage.<br><br><b>Schmierung</b><br>Langzeitschmiermittelfüllung<br>ISO VG 320<br>ohne zusätzliche Verschlussschrauben<br>Füllung im Werk |

|                                                           | <b>SPECIFICHE GENERALI</b>                                                                                                           | <b>GENERAL SPECIFICATIONS</b>                                                                                                        | <b>ALLGEMEINE EIGENSCHAFTEN</b>                                                                                                   |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Gamma Range Bereich                                       | 6 grandezze<br>30 rapporti in 3 coppie di riduzione<br>3400 Nm coppia uscita max                                                     | 6 sizes<br>30 ratios on 3-stages<br>3400 Nm max. output torque                                                                       | 6 Baugrößen<br>30 Dreistufige Übersetzungen<br>3400 Nm max. Abtriebsmoment                                                        |
| Dimensionamento Sizing Auslegung                          | Secondo ISO6336 / DIN3990<br>Vita media 10.000 ore con fattore di servizio SF1                                                       | According to ISO6336/DIN3990<br>10,000 hrs average lifetime with service factor SF1                                                  | Laut ISO6336/DIN3990<br>10.000 Stunden Lebensdauer für Verzahnung und Lagerung bei einem Betriebsfaktor SF1                       |
| Carcassa. Coperchi Housing. Covers Gehäuse. Flansche      | Pressofusione in alluminio fino taglia 3 e ghisa dalla taglia 4                                                                      | Pressure die cast aluminium up to size 3 and cast iron from size 4                                                                   | Aluminium-Druckguss bis Größe 3 und Grauguss ab Größe 4                                                                           |
| Entrata con giunto G Coupling G input Kupplungseingang G  | Pressofusione in alluminio per G3, G5, G6 e acciaio per GS3, GS5, GS6, GS8                                                           | Pressure die cast aluminium for sizes G3, G5, G6 and alloyed steel for GS3, GS5, GS6, GS8                                            | Aluminium-Druckguss Größen G3, G5, G6 und Stahl für GS3, GS5, GS6, GS8                                                            |
| Parti dentate Toothed parts Verzahnung                    | Acciaio cmt / tmp<br>Evolvente rettificato o sbarbato<br>Coppie coniche rodete                                                       | Steel case hardened<br>Tooth profile ground or shaved<br>Run-in bevel gears                                                          | Stahl einsatzgehärtet<br>Zahnprofil geschliffen / rasiert<br>Kegelräder eingelaufen                                               |
| Alberi uscita cavi Hollow output shafts Abtriebshohlwelle | Ghisa sferoidale                                                                                                                     | Ductile cast iron                                                                                                                    | Duktilen Gusseisen                                                                                                                |
| Alberi & Linguetta Shafts & Keys Wellen                   | Acciaio<br>Tolleranze: Alberi h6<br>Fori E8<br>Linguetta secondo DIN6885 B1                                                          | Steel<br>Tolerances: Shafts h6<br>Bores E8<br>Keys according to DIN6885 B1                                                           | Stahl<br>Toleranzen: Wellen h6<br>Bohrungen E8<br>Passfedern nach DIN6885 B1                                                      |
| Cuscinetti Bearings Lagerung                              | Sfere o rulli secondo grandezza e specifiche tecniche                                                                                | Ball- or roller-types according to sizes and technical requirements                                                                  | Kugel- oder Rollenlager entsprechend den technischen Vorschriften                                                                 |
| Paraolio Oil seals Dichtungen                             | Tipo NBR - Nitril-Butadiene Rubber con secondo labbro parapolvere secondo DIN 3760<br>Tipo FKM - Fluoro-elastomero Viton a richiesta | Type NBR - Nitril-Butadiene Rubber with additional anti-dust lip according to DIN 3760<br>Type FKM - Fluoroelastomer Viton on demand | Typ NBR - Nitril-Butadien Rubber mit zusätzlicher Staublippe entsprechend DIN 3760<br>Typ FKM - Fluoroelastomer Viton auf Anfrage |
| Lubrificante Lubricant Schmierung                         | Olio sintetico a lunga durata<br>Gradazione ISO VG 320                                                                               | Synthetic long-life oil<br>Grade ISO VG 320                                                                                          | Synthetisches Getriebeöl<br>ISO VG 320 als Langzeit-Füllung                                                                       |
| Verniciatura Powder coating Gehäuselackierung             | Alluminio naturale fino taglia 3 e vernice a polveri epossidiche colore standard RAL 7012 dalla taglia 4                             | Aluminium until size 3<br>From size 4 epoxy powder-coating<br>Standard colour RAL 7012                                               | Aluminium bis Größe 3<br>Epoxydpuverfarbe Standard-farbtone RAL 7012 ab Größe 4                                                   |
| ATEX                                                      | A richiesta                                                                                                                          | On demand                                                                                                                            | Auf Anfrage                                                                                                                       |

| Simbolo<br>Symbol<br>Abkürzung | Descrizione                                                                                                 | Description                                                                               | Beschreibung                                                                                        |
|--------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| D [mm]                         | Diametro primitivo dell'elemento di trasmissione $k_{(t)}$                                                  | PCD of transmission element $k_{(t)}$                                                     | Wirkkreisdurchmesser des Übertragungselementes $k_{(t)}$                                            |
| $F_r$ [N]                      | Carico radiale dell'applicazione                                                                            | Application radial load                                                                   | Radialkraft der Anwendung                                                                           |
| $F_{r1}$ [N]                   | Carico radiale di catalogo (entrata)                                                                        | Catalogue radial load (input)                                                             | Radialkraft aus dem Katalog (Eingang)                                                               |
| $F_{r2}$ [N]                   | Carico radiale di catalogo (uscita)                                                                         | Catalogue radial load (output)                                                            | Radialkraft aus dem Katalog (Ausgang)                                                               |
| $F_{r2b(x)}$ [N]               | Carico radiale ammissibile in posizione "X" sull'albero di uscita. Basato sulla vita dei cuscinetti         | Permissible radial load at position "X" on output shaft. Based on bearing lifetime        | Zulässige Radialkraft an der Position "X" der Ausgangswelle basierend auf der Lagerlebensdauer      |
| $F_{r2s(x)}$ [N]               | Carico radiale ammissibile come $F_{r2b(x)}$ Basato sulla resistenza a flessione e torsione dell'albero.    | Permissible radial load same as $F_{r2b(x)}$ Based on shaft bending and torsional stress. | Zulässige Radialkraft wie $F_{r2b(x)}$ aber basierend auf Biegung und Verdrehung der Ausgangswelle. |
| FS                             | Fattore di servizio<br>Service factor<br>Betriebsfaktor                                                     | $FS = \frac{M_2}{M_{(app)}}$                                                              |                                                                                                     |
| $i_n$                          | Rapporto di riduzione nominale                                                                              | Nominal reduction ratio                                                                   | Nominelle Übersetzung                                                                               |
| $i_r$                          | Rapporto di riduzione reale                                                                                 | Actual reduction ratio                                                                    | Tatsächliche Übersetzung                                                                            |
| $J_1$ [kgm <sup>2</sup> ]      | Momento d'inerzia del riduttore all'albero di entrata del riduttore                                         | Moment of inertia of the gearbox at gearbox input shaft                                   | Trägheitsmoment des Getriebes an der Eingangswelle                                                  |
| $J_2$ [kgm <sup>2</sup> ]      | Momento d'inerzia dell'applicazione                                                                         | Moment of inertia of the application                                                      | Trägheitsmoment der Anwendung                                                                       |
| $J_m$ [kgm <sup>2</sup> ]      | Momento d'inerzia del motore                                                                                | Moment of inertia of the motor                                                            | Trägheitsmoment des Motors                                                                          |
| $k_{(a)}$                      | Fattore d'accelerazione delle masse                                                                         | Mass acceleration factor                                                                  | Beschleunigungsfaktor der Massen                                                                    |
| $k_{(t)}$                      | Fattore dell'elemento della trasmissione                                                                    | Transmission element factor                                                               | Kennwert des Übertragungs-Elements                                                                  |
| Lub H/V [l]                    | Lubrificante (litri)<br>H - Montaggio orizzontale<br>V - Montaggio verticale                                | Lubricant (litres)<br>H - Horizontal mounting<br>V - Vertical mounting                    | Schmierstoff (Liter)<br>H - waagrechte Einbaulage<br>V - senkrechte Einbaulage                      |
| $M_2$ [Nm]                     | Coppia massima di uscita del riduttore<br>Gearbox maximum output torque<br>Abtriebsdrehmoment des Getriebes | $M_2 = \frac{9550 * P_1 * \eta}{n_2}$                                                     |                                                                                                     |
| $M_{(app)}$ [Nm]               | Coppia dell'applicazione                                                                                    | Application torque                                                                        | Erforderliches Drehmoment der Anwendung                                                             |
| $n_1$ [rpm]                    | Velocità di entrata                                                                                         | Input speed                                                                               | Eingangsdrehzahl                                                                                    |
| $n_2$ [rpm]                    | Velocità di uscita                                                                                          | Output speed                                                                              | Ausgangsdrehzahl                                                                                    |
| $P_1$ [kW]                     | Potenza in entrata<br>Input power<br>Motorleistung                                                          | $P_1 = \frac{M_2 * n_2}{9550 * \eta}$                                                     |                                                                                                     |
| $P_{(kg)}$ [kg]                | Peso per montaggio B3H e rapporto di riduzione medio                                                        | Weight: for mounting B3H and average reduction ratio                                      | Gewicht für Bauform B3H und durchschnittliche Getriebeübersetzungen                                 |
| $\eta$                         | Rendimento<br>Efficiency<br>Wirkungsgrad                                                                    | $\eta = 0.96$ - 2 coppie. stages. Stufen<br>$\eta = 0.94$ - 3 coppie. stages. Stufen      |                                                                                                     |







### A) Semi-giunto riduttore

- Materiale: acciaio
- Integrale con albero entrata
- Supportato con due cuscinetti
- Dimensioni lato entrata invariate

### B) Anello elastico

- Denti: collegati esternamente
- Materiale: Elastomero Termoplastico IXEF® - Polyarylamide
- Durezza 90 Shore D
- Temperatura -30/+135° C (-22/+275°F)

### C) Semi-giunto motore

- Materiale:
  - Alluminio pressofuso (G3, G5, G6)
  - Acciaio (GS3, GS5, GS6, GS8)
- Bilanciatura dinamica
- Calettamento:
  - Morsetto (G3, G5, G6)
  - Chiavetta (GS3, GS5, GS6, GS8)
- Fori disponibili secondo: IEC 72 / DIN42948
- NEMA C e TC

### Vantaggi:

- Un solo riduttore per rapporto di riduzione
- Maggiore flessibilità
- Aumentata rotazione dello stock
- Eliminazione sfregamento fra chiavetta e cava (tribocorrosione)
- Collegamento riduttore / motore con gioco zero
- Disallineamento angolare ammesso max 1°
- Elevata rigidità torsionale
- Elevato smorzamento delle vibrazioni

### Flange entrata:

- Materiale:
  - Alluminio fino IEC112 e NEMA TC180
  - Ghisa da IEC 132 e NEMA TC200

### A) Reducer-side coupling hub

- Material: steel
- One piece machined on input shaft
- Two bearing setting
- Unchanged casing dimensions

### B) Spider

- External tooth connection
- Material: Thermoplastic Elastomer: IXEF® - Polyarylamide
- Hardness 90 Shore D
- Temperature -30/+135°C (-22/+275°F)

### C Motor-side coupling hub

- Material:
  - Aluminium pressure die cast (G3, G5, G6)
  - Steel (GS3, GS5, GS6, GS8)
- Dynamic balancing
- Fitting:
  - Clamp (G3, G5, G6)
  - Key (GS3, GS5, GS6, GS8)
- Bores, available according to: IEC 72 / DIN42948
- NEMA C and TC

### Advantages:

- One gearbox only for each reduction ratio
- Greater flexibility
- Increased stock rotation
- Elimination of fretting corrosion between key and keyway
- Gearbox / motor connection with zero backlash
- Allowed angular misalignment 1° max.
- High torsional rigidity
- High vibration damping

### Input flanges:

- Material:
  - Aluminium up to IEC112 & NEMA TC180
  - Cast iron from IEC 132 & NEMA TC200

### A) Getriebekupplungshäfte

- Material: Stahl
- integrierte Eingangswelle
- Zwei-Lager-Anordnung
- unveränderte Eingang Abmessungen

### B) Kupplungsscheibe

- Äußerliche Zahnverbindung
- Material Thermoplastisch Elastomer: IXEF® - Polyarylamide
- Härte 90Shore D
- Temperatur -30/+135° C (-22/+275°F)

### C) Motorkupplungshäfte

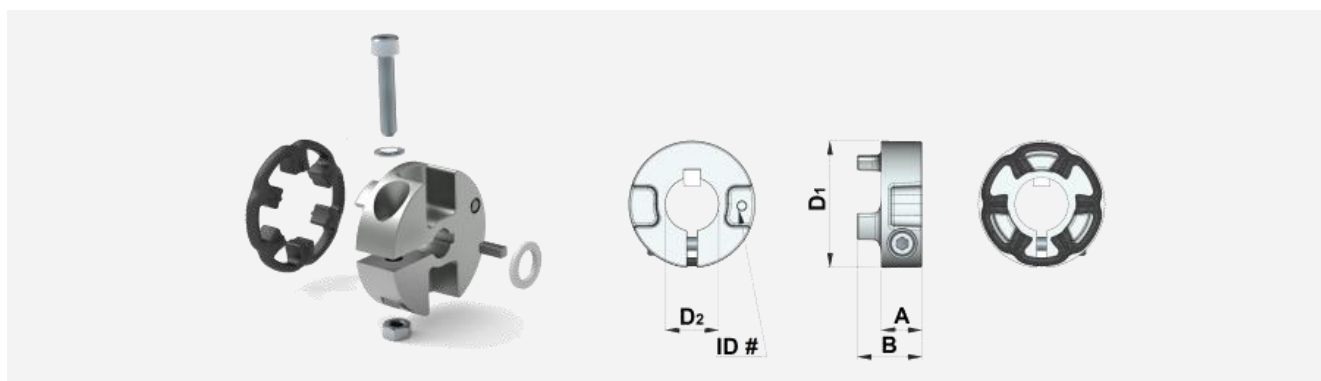
- Material:
  - Aluminium Druckguss (G3, G5, G6)
  - Stahl (GS3, GS5, GS6, GS8)
- dynamische Auswuchtung
- Verkeilung:
  - Klammer (G3, G5, G6)
  - Keil (GS3, GS5, GS6, GS8)
- Bohrungen, nach: IEC 72 / DIN42948
- NEMA C u. TC

### Vorzüge:

- nur eine Getriebekomponente je Übersetzung
- gesteigerte Flexibilität
- höher Lagerumschlag
- Vermeidung von Passungsrost zwischen Keil u. Keil Einschnitt
- Getriebe / Motor Spielfrei Verkeilung
- erlaubt Winkelausgleich bis 1°
- hohe Verdrehsteifigkeit
- hohe Dämpfung von Schwingungen

### Eingangsflansche:

- Material:
  - Aluminium bis IEC112 u. NEMA C180
  - Grauguss ab IEC 132 u. NEMA C200



| Tipo<br>Type<br>Typ | IEC<br>NEMA | Codice Kit<br>Kit Part No.<br>Kit Teil Nr.                                 | RO - RV                                                         | Mt<br>[Nm] | Mt <sub>1</sub><br>[Nm]                | Mt <sub>2</sub><br>[Nm]                | A<br>[mm] | B<br>[mm] | D <sub>1</sub><br>[mm/<br>inch] | D <sub>2</sub><br>[mm/<br>inch]            | ID#                             |
|---------------------|-------------|----------------------------------------------------------------------------|-----------------------------------------------------------------|------------|----------------------------------------|----------------------------------------|-----------|-----------|---------------------------------|--------------------------------------------|---------------------------------|
| G5                  | IEC         | KG5.009/X<br>KG5.011/X<br>KG5.014/X<br>KG5.019/X<br>KG5.024/X              | RO13 - RV13                                                     | 10         | 14<br>15<br>30<br>40<br>70             | 10<br>10<br>17<br>25<br>40             | 14.5      | 23        | 45<br>45<br>45<br>45<br>52      | 9<br>11<br>14<br>19<br>24                  | 509<br>511<br>514<br>519<br>524 |
|                     | NEMA        | KG5.N56/X<br>KG5.N140/X                                                    | RO13 - RV13                                                     |            | 45<br>60                               | 35<br>45                               |           |           | 1.77<br>2.05                    | 5/8"<br>7/8"                               | 5N56<br>5N140                   |
| G6                  | IEC         | KG6.014/X<br>KG6.019/X<br>KG6.024/X<br>KG6.028/X<br>KGs6.038X              | RO23 - RV23<br>RO33 - RV33<br>RO43 - RV43                       | 18         | 60<br>90<br>130<br>180<br>500          | 40<br>65<br>100<br>120<br>---          | 19.5      | 31.5      | 58                              | 14<br>19<br>24<br>28<br>38                 | 614<br>619<br>624<br>628<br>--- |
|                     | NEMA        | KG6.N56/X<br>KG6.N140/X<br>KG6.N180/X                                      | RO-RV23-33-43<br>RO-RV23-33-43<br>RO-RV43                       |            | 50<br>85<br>200                        | ---<br>---<br>---                      |           |           | 2.28                            | 5/8"<br>7/8"<br>1-1/8"                     | 6N56<br>6N140<br>6N180          |
| GS8                 | IEC         | KGS8.19/X<br>KGS8.24/X<br>KGS8.28/X<br>KGS8.38/X<br>KGS8.42/X<br>KGS8.48/X | RO53 - RV53<br>RO63 - RV63                                      | 15         | 150<br>250<br>350<br>500<br>500<br>500 | ---<br>---<br>---<br>---<br>---<br>--- | 35        | 51        | 79                              | 19<br>24<br>28<br>38<br>42<br>48           | *<br>*<br>*<br>*<br>*<br>*      |
|                     | NEMA        | KGS8.N056/X<br>KGS8.N140/X<br>KGS8.N180/X<br>KGS8.N210/X<br>KGS8.N250/X    | RO-RV53-63<br>RO-RV53-63<br>RO-RV53-63<br>RO-RV53-63<br>RO-RV63 |            | 140<br>200<br>300<br>500<br>500        | ---<br>---<br>---<br>---<br>---        |           |           | 3.11                            | 5/8"<br>7/8"<br>1-1/8"<br>1-3/8"<br>1-5/8" | *<br>*<br>*<br>*<br>*           |

Mt - Coppia di serraggio vite  
 Mt<sub>1</sub> - Coppia trasmissibile con chiavetta  
 Mt<sub>2</sub> - Coppia trasmissibile senza chiavetta  
 \* - Giunto GS8: serraggio con chiavetta e grano di bloccaggio assiale  
 ../X - Codice del giunto con anello nero IXEF

**Nota** - Nessun ID# marcato sul Giunto GS8

Mt - Screw locking torque  
 Mt<sub>1</sub> - Transmissible torque with key  
 Mt<sub>2</sub> - Transmissible torque without key  
 \* - Coupling GS8: steel. key fit and grub screw  
 ../X - Code of coupling with IXEF black-spider

**Note** - No ID# marked on Coupling GS8

Mt - Schraubenklemmenmoment  
 Mt<sub>1</sub> - Übertragbar Drehmoment mit Keil  
 Mt<sub>2</sub> - Übertragbar Drehmoment ohne Keil  
 \* - Kupplung GS8: Stahl. Keilverkeilung u. gewindestift  
 ../X - Kupplungscode mit schwarzen IXEF-Ring

**Anmerkung** - Kein ID# auf dem Kupplung GS8 markiert ist

## RO-RV

### IEC - Flange e Giunto - Flanges & Coupling - Flansche u. Kupplung

| Riduttore<br>Gearbox<br>Getriebe | Flangia - Flange - Flansch |                                                                  |                                                                                              |                                                                     | Giunto - Coupling - Kupplung                                                     |                                                                                  |
|----------------------------------|----------------------------|------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
|                                  | Tipo - Type - Typ          | IEC                                                              | Kit Part No.<br>B5                                                                           | Kit Part No.<br>B14                                                 | Tipo - Type - Typ                                                                | Kit Part No.                                                                     |
| RO13<br>RV13                     | FM 50                      | IEC56<br>IEC63<br>IEC71<br>IEC80<br>IEC90                        | K532.206.120<br>K532.206.140<br>K532.206.160<br>K532.206.200<br>K532.206.200                 | ---<br>K532.206.090<br>K532.206.105<br>K532.206.120<br>K532.206.140 | G5 ø9<br>G5 ø11<br>G5 ø14<br>G5 ø19<br>G5 ø24                                    | KG5.009/X<br>KG5.011/X<br>KG5.014/X<br>KG5.019/X<br>KG5.024/X                    |
| RO23<br>RV23                     | FM 70                      | IEC71<br>IEC80<br>IEC90<br>IEC 100/112                           | K533.206.160<br>K533.206.200<br>K533.206.200<br>K533.206.250                                 | K533.206.105<br>K533.206.120<br>K533.206.140<br>K533.206.160        | G6 ø14<br>G6 ø19<br>G6 ø24<br>G6 ø28                                             | KG6.014/X<br>KG6.019/X<br>KG6.024/X<br>KG6.028/X                                 |
| RO33<br>RV33                     | FM 85                      | IEC71<br>IEC80<br>IEC90<br>IEC 100/112                           | K534.206.160<br>K534.206.200<br>K534.206.200<br>K534.206.250                                 | ---<br>K534.206.120<br>K534.206.140<br>K534.206.160                 | G6 ø14<br>G6 ø19<br>G6 ø24<br>G6 ø28                                             | KG6.014/X<br>KG6.019/X<br>KG6.024/X<br>KG6.028/X                                 |
| RO43<br>RV43                     | FM 110                     | IEC71<br>IEC80<br>IEC90<br>IEC 100/112<br>IEC132                 | K535.206.160<br>K535.206.200<br>K535.206.200<br>K535.206.250<br>K535.206.300                 | ---<br>---<br>---<br>K535.206.160<br>K535.206.200                   | G6 ø14<br>G6 ø19<br>G6 ø24<br>G6 ø28<br>Gs6 ø38                                  | KG6.014/X<br>KG6.019/X<br>KG6.024/X<br>KG6.028/X<br>KGS6.038/X                   |
| RO53<br>RV53                     | FM 130<br>&<br>FM 150      | IEC 80<br>IEC 90<br>IEC 100/112<br>IEC 132<br>IEC 160<br>IEC 180 | K536.206.200<br>K536.206.200<br>K536.206.250<br>K537.206.300<br>K565.206.350<br>K565.206.350 | ---<br>---<br>---<br>K536.206.200<br>---<br>---                     | ** GS8 ø19<br>** GS8 ø24<br>** GS8 ø28<br>** GS8 ø38<br>** GS8 ø42<br>** GS8 ø48 | KGS8.019/X<br>KGS8.024/X<br>KGS8.028/X<br>KGS8.038/X<br>KGS8.042/X<br>KGS8.048/X |
| RO63<br>RV63                     | FM 130<br>&<br>FM 150      | IEC 80<br>IEC 90<br>IEC 100/112<br>IEC 132<br>IEC 160<br>IEC 180 | K536.206.200<br>K536.206.200<br>K536.206.250<br>K537.206.300<br>K565.206.350<br>K565.206.350 | ---<br>---<br>---<br>K536.206.200<br>---<br>---                     | ** GS8 ø19<br>** GS8 ø24<br>** GS8 ø28<br>** GS8 ø38<br>** GS8 ø42<br>** GS8 ø48 | KGS8.019/X<br>KGS8.024/X<br>KGS8.028/X<br>KGS8.038/X<br>KGS8.042/X<br>KGS8.048/X |

\*\* - Giunto GS8: montaggio con chiavetta  
e grano di bloccaggio assiale  
../X - Codice del giunto con anello nero  
IXEF

\*\* - Coupling GS8: key fitting and axial  
locking grub screw  
../X - Code of coupling with IXEF black-  
spider

\*\* - Kupplung GS8: Keilmontage  
u. gewindestift  
../X - Kupplungscode mit schwarzen IXEF-  
Ring

| Riduttore<br>Gearbox<br>Getriebe | Flangia - Flange - Flansch |                                    |                                                                | Giunto - Coupling - Kupplung                                     |                                                         |
|----------------------------------|----------------------------|------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------|
|                                  | Tipo - Type - Typ          | NEMA                               | Kit Part No.                                                   | Tipo - Type - Typ                                                | Kit Part No.                                            |
| RO13<br>RV13                     | FM 50                      | 56 C<br>140 TC                     | K532.227.N56<br>K532.227.N56                                   | G5 ø 5/8"<br>G5 ø 7/8"                                           | KG5.N56/X<br>KG5.N140/X                                 |
| RO23<br>RV23                     | FM 70                      | 56 C<br>140 C                      | K533.227.N56<br>K533.227.N56                                   | G6 ø 5/8"<br>G6 ø 7/8"                                           | KG6.N56/X<br>KG6.N140/X                                 |
| RO33<br>RV33                     | FM 85                      | 56 C<br>140 TC                     | K534.227.N56<br>K534.227.N56                                   | G6 ø 5/8"<br>G6 ø 7/8"                                           | KG6.N56/X<br>KG6.N140/X                                 |
| RO43<br>RV43                     | FM 110                     | 56 C<br>140 TC<br>180 TC           | K535.227.N56<br>K535.227.N56<br>K535.227.N180                  | G6 ø 5/8"<br>G6 ø 7/8"<br>G6 ø 1-1/8"                            | KG6.N56/X<br>KG6.N140/X<br>KG6.N180/X                   |
| RO53<br>RV53                     | FM 150                     | 56 C<br>140 TC<br>180 TC           | K537.227.N56<br>K537.227.N56<br>K537.227.N180                  | * GS8 ø 5/8"<br>* GS8 ø 7/8"<br>* GS8 ø 1-1/8"                   | KGS8.N56/X<br>KGS8.N140/X<br>KGS8.N180/X                |
| RO63<br>RV63                     | FM 150                     | 56 C<br>140 TC<br>180 TC<br>210 TC | K537.227.N56<br>K537.227.N56<br>K537.227.N180<br>K537.227.N180 | * GS8 ø 5/8"<br>* GS8 ø 7/8"<br>* GS8 ø 1-1/8"<br>* GS8 ø 1-3/8" | KGS8.N56/X<br>KGS8.N140/X<br>KGS8.N180/X<br>KGS8.N210/X |

\*\* - Giunto GS8: montaggio con chiavetta  
e grano di bloccaggio assiale  
../X - Codice del giunto con anello nero  
IXEF

\*\* - Coupling GS8: key fitting and axial  
locking grub screw  
../X - Code of coupling with IXEF black-  
spider

\*\* - Kupplung GS8: Keilmontage  
u. gewindestift  
../X - Kupplungscode mit schwarzen IXEF-  
Ring

### DESIGNAZIONE DEL RIDUTTORE - GEARBOX DESIGNATION - GETRIEBEBEZEICHNUNG

|                                                      |           |           |                                           |          |             |                                 |            |             |                                                                                                    |
|------------------------------------------------------|-----------|-----------|-------------------------------------------|----------|-------------|---------------------------------|------------|-------------|----------------------------------------------------------------------------------------------------|
| <b>F</b>                                             | <b>RO</b> | <b>33</b> | <b>/B3</b>                                | <b>H</b> | <b>31.5</b> | <b>IEC80</b>                    | <b>-B5</b> | <b>AU30</b> | <b>DFU200</b>                                                                                      |
|                                                      |           |           |                                           |          |             |                                 |            |             | Flangia uscita ø - Output flange - Ausgangsflansch                                                 |
|                                                      |           |           |                                           |          |             |                                 |            |             | Albero uscita ø - Output shaft ø - Ausgangswelle ø                                                 |
|                                                      |           |           |                                           |          |             |                                 |            |             | B5. B14 = Forma del motore - Motor form - Motorbauform                                             |
|                                                      |           |           |                                           |          |             |                                 |            |             | Grandezza del motore elettrico - Electric motor frame - Motorbaugröße                              |
|                                                      |           |           |                                           |          |             |                                 |            |             | Rapporto di riduzione - Reduction ratio - Getriebeübersetzung                                      |
|                                                      |           |           |                                           |          |             |                                 |            |             | H. V = Posizione di montaggio del riduttore - Gearbox mounting position - Einbaulage des Getriebes |
|                                                      |           |           |                                           |          |             |                                 |            |             | B3. B5. B3/B5 = Forma costruttiva del riduttore - Gearbox form - Bauform des Getriebes             |
|                                                      |           |           |                                           |          |             |                                 |            |             | Grandezza e coppie del riduttore - Gearbox size and stages - Baugröße u. Stufen des Getriebes      |
|                                                      |           |           |                                           |          |             |                                 |            |             | RO. RV = Tipo del riduttore - Gearbox type - Getriebetyp                                           |
| M = Motoriduttore                                    |           |           | - Geared motor                            |          |             | - Getriebemotor                 |            |             |                                                                                                    |
| F = Riduttore con entrata IEC                        |           |           | - Gearbox with input flange               |          |             | - Getriebe mit Eingangsflansch  |            |             |                                                                                                    |
| S = Riduttore senza flangia entrata IEC              |           |           | - Gearbox without input flange            |          |             | - Getriebe ohne Eingangsflansch |            |             |                                                                                                    |
| ... = (nulla) Riduttore con albero entrata sporgente |           |           | - (nothing) Gearbox with input free shaft |          |             | - (kein) Freie Eingangswelle    |            |             |                                                                                                    |

### DESIGNAZIONE DEL MOTORE- MOTOR DESIGNATION - MOTORBEZEICHNUNG

|                          |         |      |                      |    |            |                   |   |                                                                             |
|--------------------------|---------|------|----------------------|----|------------|-------------------|---|-----------------------------------------------------------------------------|
| MT                       | 0.75 kW | 80 B | 4                    | B5 | 230/400/50 | IP55              | F | X4                                                                          |
|                          |         |      |                      |    |            |                   |   | Posizione della morsettiera<br>Terminal box position<br>Klemmkastenposition |
|                          |         |      |                      |    |            |                   |   | Classe F (std) = Classe isolamento<br>Insulation class<br>Isolationsklasse  |
|                          |         |      |                      |    |            |                   |   | IP55 (std) = Grado di protezione - Protection class - Schutzart             |
|                          |         |      |                      |    |            |                   |   | Tensione / Frequenza - Voltage/frequency - Spannung/Frequenz                |
|                          |         |      |                      |    |            |                   |   | B5, B14 = Forma costruttiva - Mounting form - Bauform                       |
|                          |         |      |                      |    |            |                   |   | Numero poli - Number of poles - Polzahl                                     |
|                          |         |      |                      |    |            |                   |   | Grandezza IEC del motore - IEC motor frame - IEC-Motorbaugröße              |
|                          |         |      |                      |    |            |                   |   | Potenza del motore - Motor power - Motorleistung                            |
|                          |         |      |                      |    |            |                   |   | X3                                                                          |
|                          |         |      |                      |    |            |                   |   | X4<br>std                                                                   |
|                          |         |      |                      |    |            |                   |   | X2                                                                          |
|                          |         |      |                      |    |            |                   |   | X1                                                                          |
| MT = Motore trifase      |         |      | - Three-phase motor  |    |            | - Dreiphasenmotor |   |                                                                             |
| MM = Motore monofase     |         |      | - Single-phase motor |    |            | - Einphasenmotor  |   |                                                                             |
| MA = Motore autofrenante |         |      | - Brake motor        |    |            | - Bremsmotor      |   |                                                                             |



### Modularità e flessibilità

Questa prerogativa ha guidato il progetto dei prodotti VARVEL a cominciare dagli anni 2000.

La disponibilità di riduttori in kit ha permesso il montaggio in pochi minuti utilizzando una normale attrezzatura.

Questo permette la massima flessibilità ai distributori e rivenditori VARVEL che, grazie ad un numero limitato di elementi, possono configurare all'istante il prodotto richiesto dai clienti.

Il programma di selezione **VARSIZE®** disponibile nel sito web

[www.varvel.com](http://www.varvel.com)

permette un facile dimensionamento dei prodotti VARVEL.

### Disegni 2D/3D

Tramite configurazione assistita si generano modelli 3D e disegni 2D nei formati CAD più diffusi.

### Configurazione assistita

Identifica, fra tutte le serie, i riduttori adeguati per soddisfare i parametri di funzionamento richiesti (potenza, coppia, velocità, fattore di servizio, ecc.).

Viene generato un documento PDF con dati prestazionali e disegni dimensionali per ciascuna configurazione rilasciati all'utente in formato 2D o 3D secondo richiesta

### Modularity and flexibility

have been leading the design of VARVEL products since the years 2000: this way, the gearbox-kit concept was carried out allowing anyone to assemble the unit in few minutes with standard tooling.

This feature provides the highest flexibility to VARVEL's distributors and resellers who - thanks to a limited kit selection - are able to immediately configure the required product.

**VARSIZE®** selection program, available from our web-site

[www.varvel.com](http://www.varvel.com)

allows a friendly sizing of VARVEL product range.

### 2D/3D Drawings

A guided selection lets 2D/3D models downloaded for the most popular CAD systems.

### Guided selection

This option returns a list of applicable product configurations upon a given sequence of application parameters (power, output torque, rpm, service factor etc.); a PDF data sheet featuring performance data and dimensional drawings is generated for each configuration, as well as the 3D model and 2D drawings.

### Bausteinprinzip und Flexibilität

bestimmen die Gestaltung der VARVEL Produkte seit 2000. Dieses Konzept ermöglicht jedermann in kurzer Zeit mit Standardwerkzeugen das gewünschte Getriebe zu montieren.

Damit wird allen Verkäufern von VARVEL-antrieben ein Höchstmaß an Flexibilität gegeben, um mit wenigen Bauteilen ein gewünschtes Getriebe zu konfigurieren.

**VARSIZE®** als Auswahlprogramm auf unserer Internetseite

[www.varvel.com](http://www.varvel.com)

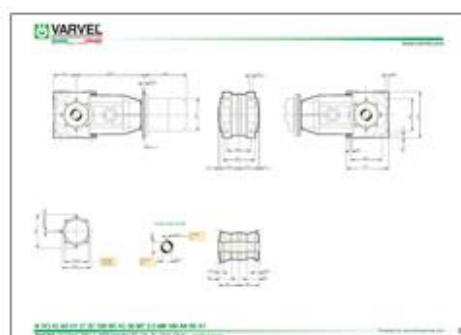
bietet eine angepasste Antriebsauslegung.

### 2D/3D-Zeichnungen

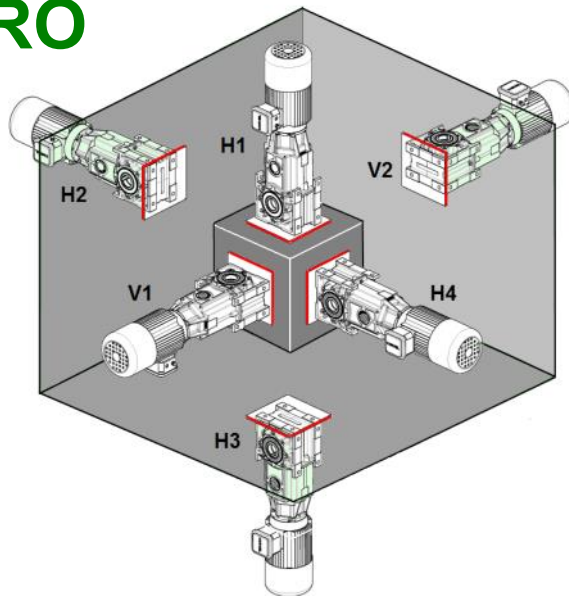
Die unterstützte Auswahl bietet die Möglichkeit 2D/3D Modelle für die gängigen CAD Systeme zu laden.

### Unterstützte Auswahl

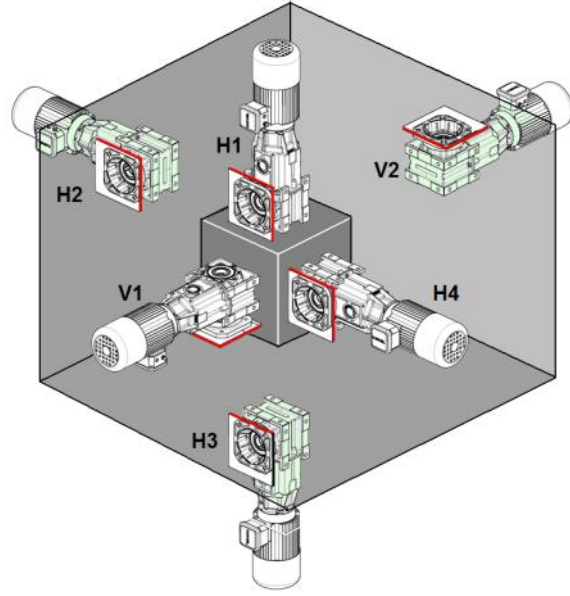
Mit diesem Dienst wird eine Liste möglicher Produktvarianten erzeugt, bestimmt durch Parameter (Leistung, Moment, Drehzahl, Betriebsfaktor usw.); ein PDF Datenblatt mit Leistungsdaten und Maßbild ist für jede dieser Konfigurationen verfügbar, ebenso wie 3D Modelle und 2D Zeichnungen.



## RO

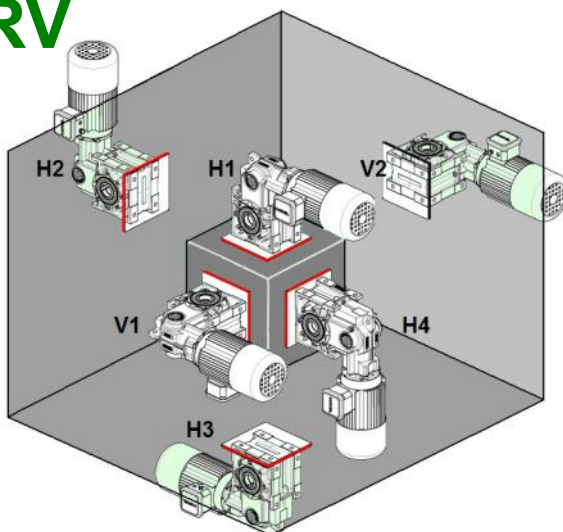


**B3**  
Montaggio a piedi  
Foot mounting  
Fußbauformen

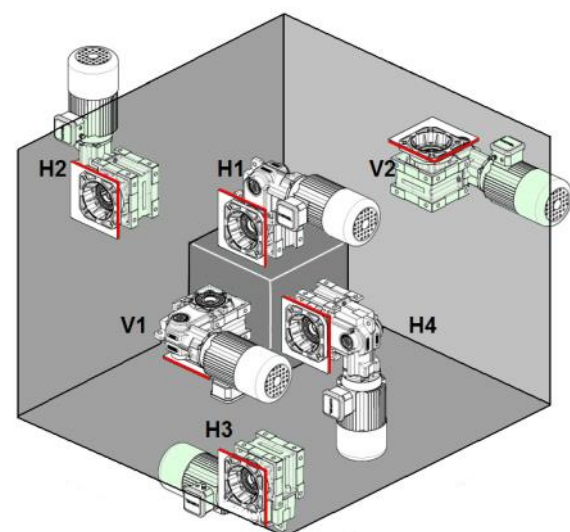


**B5**  
Montaggio a flangia  
Flange mounting  
Flanschbauformen

## RV



**B3**  
Montaggio a piedi  
Foot mounting  
Fußbauformen



**B5**  
Montaggio a flangia  
Flange mounting  
Flanschbauformen

La posizione di montaggio è riferita all'albero di uscita e non al fissaggio con piedi o con flangia.

Mounting position is referred to the output shaft and not to foot or flange fixing.

Die Montageposition bezieht sich auf die Ausgangswelle und nicht der Fußbefestigungen oder Flansches.

**FATTORE DI SERVIZIO  
del riduttore**

Il fattore di servizio FS1.0 è inteso come rappresentativo di un funzionamento di 8 ore al giorno, con carico uniforme e fattore di accelerazione delle masse  $k_{(a)} \leq 0.2$ , avviamenti inferiori a 60 all'ora e temperatura ambiente fra 15 e 35 °C.

Il rapporto fra la coppia massima di uscita  $M_2$  del gruppo e la coppia richiesta dalla applicazione  $M_{(app)}$  determina il Fattore di Utilizzo del gruppo che deve essere uguale o superiore al fattore di servizio SF.

Non è necessario tener conto della potenza termica (v. pag.19) quando la durata massima di servizio continuativo è di circa 3 h seguita da pause sufficienti (circa 2 - 4 h) a ristabilire nel riduttore la temperatura ambiente.

Per temperatura massima ambiente maggiore di 40 °C oppure minore di 0 °C interpellare il Servizio Clienti.

**SERVICE FACTOR  
of the gearbox**

Service factor FS1.0 is meant as typical of 8 hours/day operation, with uniform load and mass acceleration factor  $k_{(a)} \leq 0.2$ , starts/stops lower than 60 per hour and ambient temperature between 15 and 35 Celsius.

The ratio between the drive's maximum output torque  $M_2$  and application torque  $M_{(app)}$  defines the drive's Duty Factor that must be equal or bigger than the Service Factor SF.

Thermal power (see page19) can be not considered when the max. continuous operation is about 3 hours with long enough rest periods (about 2 to 4 hours) to restore the ambient temperature into the gearbox.

For max. ambient temperature exceeding 40 °C or below 0 °C, please ask our Customer Service.

**BETRIEBSFAKTOR  
des Getriebes**

Für den Servicefaktor FS1.0 gilt ein 8- bis 10-stündiger Betrieb mit gleichförmiger Last und einem Massenbeschleunigungs Faktor  $k_{(a)} J_2 \leq 2$ , bis zu 60 Starts/Stops je Stunde und Umgebungstemperaturen zwischen 15° und 35 °C. Das Verhältnis zwischen dem maximalen Ausgangsdrehmoment des Getriebes  $M_2$  und des erfragtem Drehmoment der Anwendung  $M_{(app)}$ , bestimmt den Ausnutzungsfaktor der Gruppe, der gleich oder größer als der Betriebsfaktor SF sein muss. Abtriebsmoment des Getriebes  $M_2$  und dem erforderlichen Moment der Anwendung  $M_{(app)}$ . Thermische Leistung (siehe Seite 19) können nicht berücksichtigt, wenn die max. Dauerbetrieb etwa 3 Stunden lang genug Ruhezeiten (ca. 2 bis 4 Stunden), um die Umgebungstemperatur in dem Getriebe wiederherzustellen. Für max. Umgebungstemperatur über 40° C oder unter 0° C, fragen Sie bitte unseren Kundenservice.

**Fattore di Servizio SF - Service Factor SF - Betriebsfaktor SF**

| Tipo di Carico - Charge type - Belastung-Typ |                                             |                                          |                                                       | Avviamenti / Ora<br>Start-Stops / Hour<br>Schaltungen/Stunde |                 | SF = SF <sub>1</sub> x SF <sub>2</sub> |
|----------------------------------------------|---------------------------------------------|------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------|-----------------|----------------------------------------|
| ore<br>hours<br>Stunden                      | uniforme<br>gleichmäßige<br>SF <sub>1</sub> | variabile<br>variable<br>SF <sub>1</sub> | a urti<br>with shocks<br>mit Stöße<br>SF <sub>1</sub> | numero<br>number<br>Anzahl                                   | SF <sub>2</sub> |                                        |
| 8                                            | 0.8                                         | 1.1                                      | 1.4                                                   | 60                                                           | 1.0             |                                        |
| 16                                           | 1.0                                         | 1.3                                      | 1.5                                                   | 600                                                          | 1.2             |                                        |
| 24                                           | 1.2                                         | 1.4                                      | 1.6                                                   | 1200                                                         | 1.3             |                                        |

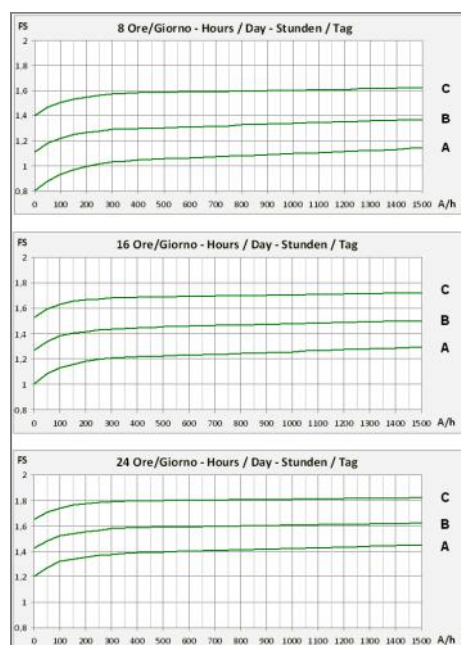
**Fattore di accelerazione delle masse  
Mass acceleration factor  
Beschleunigungsfaktor der Massen**

$$k_{(a)} = \frac{J_2}{J_m} + J_1$$

Classi di carico  
Load class  
Belastungsklassen

- A - Carico uniforme  
Uniform load  $k_{(a)} \leq 0.2$   
Gleichförmige Last
- B - Carico con urti moderati  
Moderate shock load  $0.2 < k_{(a)} \leq 3$   
Ungleichförmige Last
- C - Carico con forti urti  
Severe shock load  $3 < k_{(a)} \leq 10$   
Stark ungleichförmige Last

A/h - Numero di avviamenti/ora  
Number of starts/stops per hour  
Anzahl der Schaltungen je Stunde



### TIPO DI SERVIZIO del motore

Le specifiche dei vari tipi di servizi sono definiti dalle norme CEIEN60034-1/IEC34-1.

### DUTY TYPE of the motor

Duty types are defined by CEI EN 60034-1 / IEC34-1 Standard.

### BETRIEBSARTEN des Motors

Die Betriebsarten sind definiert in den Normen CEI EN 60034-1 / IEC34-1.

#### S1 - Servizio continuo

Funzionamento a carico costante per un periodo di tempo indefinito (N), comunque sufficiente a raggiungere l'equilibrio termico.

In servizio continuo, possono essere utilizzati i riduttori che nelle tabelle di selezione hanno un fattore di servizio SF1.0 o superiore.

#### S1 - Continuous duty

Steady load operation for an indefinite period (N), but long enough to achieve thermal balancing.

On continuous duty, the gearboxes with selection table service factor SF1.0 or higher can be accordingly used.

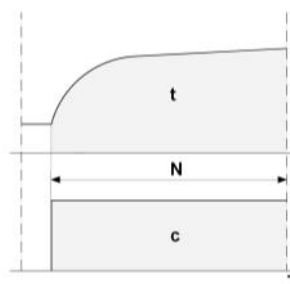
#### S1 - Dauerbetrieb

Betrieb mit konstanter Belastung über eine unbestimmte Zeit (N), ohne dass der thermische Beharrungszustand der Maschine beeinträchtigt wird. Im Dauerbetrieb können Getriebe eingesetzt werden, die in den Auswahltabellen einen Betriebsfaktor SF1.0 oder höher aufweisen.

N = Tempo di lavoro  
Operation time  
Betriebszeit

c = Carico  
Load  
Belastung

t = Temperatura  
Temperature  
Temperatur



#### S3 - Servizio intermittente periodico

Funzionamento secondo un ciclo (C) comprendente un periodo di tempo a carico costante (N) ed un periodo di tempo di riposo (R). Gli avviamenti non influiscono sulle temperature. Il ciclo (C) di riferimento è di 10 minuti complessivi.

In servizio intermittente periodico, possono essere utilizzati i riduttori che nelle tabelle di selezione hanno un fattore di servizio SF pari al rapporto di intermittenza.

Il rapporto di intermittenza viene determinato secondo la formula seguente.

#### S3 - Periodic intermittent duty

Operation according to cycle (C) including steady load time (N) and rest time (R). Starts/stops do not affect temperature. The reference cycle (C) is up to a total of 10 minutes.

On periodic intermittent duty, the gearboxes with selection table service factor matching the intermittence ratio service factor can be accordingly used.

Intermittence ratio is calculated according to the following formula.

#### S3 - Aussetzbetriebe

Betrieb als Folge (C) gleichartiger Spiele mit konstanter Last während der Zeit (N) und einer folgenden Pause (R). Starten/Anhalten beeinflussen nicht die Temperatur. Für die Zyklusdauer (C) gilt eine Zeit von 10 Minuten.

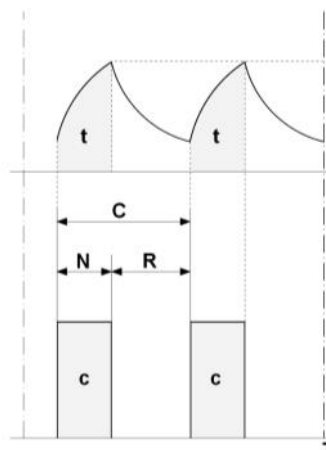
Im periodischen Intervallbetrieb können Getriebe verwendet werden, die in den Auswahltabellen einen Betriebsfaktor von SF haben, der gleich dem Intermittenzverhältnis ist. Die Intermittenzübersetzung wird nach die folgende Formel bestimmt.

$$\frac{N}{(N+R)} * 100 = \begin{matrix} 60\% & \text{FS } 0.9 \\ 40\% & \text{FS } 0.85 \\ 25\% & \text{FS } 0.75 \\ 15\% & \text{FS } 0.7 \end{matrix}$$

N = Tempo di lavoro  
Operation time  
Betriebsdauer

R = Tempo di riposo  
Rest time  
Pause

C = Ciclo di lavoro  
Duty cycle  
Zyklusdauer



## CARICHI RADIALI USCITA

Il carico radiale ( $F_r$ ) riportato nelle tabelle, deve essere verificato in base alla velocità di uscita, alla posizione di montaggio (A) e al tipo di elemento di trasmissione (B) montato sull'albero di uscita del riduttore tramite i relativi fattori  $k_L$  e  $k_T$ .

## OUTPUT RADIAL LOADS (OHL)

The radial (overhung) load shown in the tables, should be checked according to output speed, mounting position (A) and type of the transmission element (B) fitted on the gearbox output shaft by the appropriate  $k_L$  and  $k_T$  rating factors.

## AUSGANGSRADIALKRÄFTE

Die Radialkräfte in den Tabellen müssen mit entsprechender Abtriebsdrehzahl, der Montageposition (A) und dem Übertragungselement (B) montiert auf der Getriebe-Ausgangswelle durch entsprechendem Faktoren  $k_L$  und  $k_T$  verglichen werden.

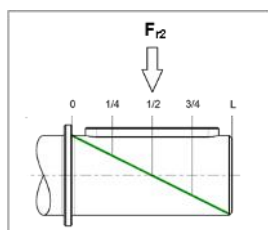
### A - Punto di applicazione del carico radiale - Application point of radial load - Anwendung Punkt der Radialbelastung

Il carico radiale è considerato applicato alla mezzzeria dell'albero di uscita.  
Altre posizioni originano carichi da correggere con l'appropriato fattore  $k_L$ .  
Esempi della distanza da spallamento dell'albero:

OHL is considered as applied at the output shaft mid-point.  
Other positions origin loads to be adjusted with the appropriate factor  $k_L$ .  
Examples of the distance from the shaft shoulder:

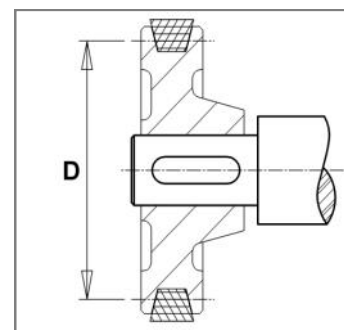
Die Radialbelastung wird auf der Mitte der Ausgangswelle angelegt.  
Andere Positionen erzeugen Lasten, die mit dem entsprechendem Faktor  $k_L$  zu korrigieren sind.  
Beispiele für den Abstand der Stufenwelle:

| $k_L$ | L         |
|-------|-----------|
| 1.1   | $1/4 * L$ |
| 1.0   | $1/2 * L$ |
| 0.9   | $3/4 * L$ |
| 0.8   | L         |



### B - Elemento della trasmissione - Transmission element - Übertragungselement

| $k_T$ | Tipo dell'elemento              | Element type                     | Elementtyp                   |
|-------|---------------------------------|----------------------------------|------------------------------|
| 1,15  | Ingranaggio<br>n. denti < 17    | Gear<br>tooth No. < 17           | Zahnrad<br>Zähnezahl < 17    |
| 1,40  | Pignone catena<br>n. denti < 13 | Chain sprocket<br>tooth No. < 13 | Kettenrad<br>Zähnezahl < 13  |
| 1,25  | n. denti < 20                   | tooth No. < 20                   | Zähnezahl < 20               |
| 1,00  | n. denti > 20                   | tooth No. > 20                   | Zähnezahl > 20               |
| 2,50  | Puleggia per<br>cinghie "V"     | Pulley for<br>V-belt             | Riemen für<br>Keilriemen "V" |
| 1,25  | cinghie dentate                 | toothed-belt                     | Zahnriemen                   |



### $F_{r2}$ - Carico radiale - Radial (overhung) load - Radialkräfte

$$F_{r2} = \frac{2000 * M_2}{D} \times k_L \times k_T$$

## CARICHI ASSIALI USCITA

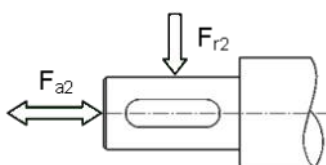
$F_{a2}$  - Il valore del carico assiale  
 $F_{a2} = F_{r2} \times 0.2$   
è incluso nel valore dei carichi radiali di catalogo ed è valido sia a trazione che a compressione.

## OUTPUT AXIAL LOADS

$F_{a2}$  - Axial load value  
 $F_{a2} = F_{r2} \times 0.2$   
is included within the catalogue radial load figure and is valid on both tensile and compressive stress.

## AUSGANGSAXIALKRÄFTE

$F_{a2}$  - Der Wert der Axialkräfte  
 $F_{a2} = F_{r2} \times 0.2$   
ist in dem Wert der Radialkräfte des Kataloges enthalten und gilt sowohl in Zug und Druck.



### MRO - MRV

- Motorriduttori a tre coppie di ingranaggi  
Potenza: 0.06 kW a 22 kW a 4 poli  
Giri uscita: 215 rpm a 4.0 rpm
- Geared motors with three gear sets  
Powers: 0.09 kW to 22 kW. 4 poles  
Output speed: 215 rpm to 4.0 rpm
- Dreistufig Getriebemotoren  
Leistung: 0.09 kW bis 22 kW. 4-polen  
Ausgangsgeschwindigkeit: 215 UpM bis 4.0 UpM

### FRO - FRV

- Riduttori a tre coppie di ingranaggi con flangia motore entrata  
Flange motore: IEC 56 a IEC 180 e NEMA 56C a NEMA 210TC  
Coppia: 180 Nm a 3400 Nm  
Rapporti di riduzione: 6.3:1 a 315:1
- Gearboxes with three gear sets and with input motor flange  
Motor flanges: IEC 56 to IEC 180 and NEMA 56C to NEMA 210TC  
Output torque: 180 Nm [1060 in-lb] to 3400 Nm [30100 in-lb]  
Reduction ratios: 6.3:1 to 315:1
- Dreistufig Getriebemotoren mit Motorflansch  
Motorflansche: IEC 56 bis IEC 180 u. NEMA 56C bis NEMA 210TC  
Ausgangsdrehmoment: 180 Nm [1060 in-lb] bis 3400 Nm [30100 in-lb]  
Untersetzungsverhältnis: 6.3:1 bis 315:1

### SRO - SRV

- Riduttori a tre coppie di ingranaggi senza flangia motore entrata  
ma con albero entrata cavo con giunto  
Coppia: 180 Nm [1060 in-lb] a 3400 Nm [30100 in-lb]  
Rapporti di riduzione: 6.3:1 a 315:1
- Gearboxes with three gear sets without input motor flange  
but with input hollow shaft with flexible coupling  
Output torque: 180 Nm [1060 in-lb] to 3400 Nm [30100 in-lb]  
Reduction ratios: 6.3:1 to 315:1
- Dreistufig Getriebemotoren ohne Motorflansch  
aber. Hohl eingangswelle mit Kupplung  
Ausgangsdrehmoment: 180 Nm [1060 in-lb] bis 3400 Nm [30100 in-lb]  
Untersetzungsverhältnis: 6.3:1 bis 315:1

### RO - RV

- Riduttori a tre coppie di ingranaggi con albero entrata sporgente  
Coppia: 120 Nm [1060 in-lb] a 3400 Nm [30100 in-lb]  
Rapporti di riduzione: 6.3:1 a 710:1
- Gearboxes with three gear sets with input solid shaft  
Output torque: 120 Nm [1060 in-lb] to 3400 Nm [30100 in-lb]  
Reduction ratios: 6.3:1 to 710:1
- Dreistufig Getriebemotoren mit Eingangs freiwelle  
Ausgangsdrehmoment: 120 Nm [1060 in-lb] bis 3400 Nm [30100 in-lb]  
Untersetzungsverhältnis: 6.3:1 bis 710:1



Serie RO - Versione in linea  
Serie RV - Versione a squadra

RO Series - In-line version  
RV Series - Right angle version

Reihe RO - Inlineausführung  
Reihe RV - Winkelausführung

**Potenza termica**

La **potenza nominale**  $P_1$ , è la potenza che può essere applicata all'entrata del riduttore, in servizio continuo, temperatura max ambiente di 40 °C, altitudine max 1000 m e velocità dell'aria 1.25 m/s, senza superare una temperatura dell'olio di circa 85 °C.

La **potenza termica**  $P_{t1}$  può limitare la nominale  $P_1$  (area in grigio) in funzione del sistema di raffreddamento, della velocità di entrata, della temperatura ambiente e del coefficiente di servizio.

**Thermal power**

The **rated power**  $P_1$ , is the power that can be applied at the gearbox input, on continuous operation, max. temperature of 40 °C, max. altitude 1000 m, air speed of 1.25 m/s, without exceeding the oil temperature of about 85 °C.

The **thermal power**  $P_{t1}$  can limit the rated  $P_1$  depending on the cooling system, input speed, ambient temperature and service factor.

**Thermische Leistung**

Die **Nennleistung**  $P_1$  ist die Leistung, die am Getriebe angewendet werden kann, Dauerbetriebstemperatur von 40 °C max., max. Höhe 1000 m, Luftgeschwindigkeit von 1.25 m/s, ohne mehr als eine Temperatur von Öl von etwa 85 °C.

Die **thermische Leistung**  $P_{t1}$  kann der Nennleistung  $P_1$  als Funktion des Kühlsystems der Antriebsdrehzahl, Umgebungstemperatur und der Koeffizient der Service begrenzen.

| $i_n$ | FRO13<br>FRV13 |                  | FRO23<br>FRV23 |                  | FRO33<br>FRV33 |                  | FRO43<br>FRV43 |                  | FRO53<br>FRV53 |                  | FRO63<br>FRV63 |                  |
|-------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|------------------|
|       | $P_1$<br>[kW]  | $P_{t1}$<br>[kW] | $P_1$<br>[kW]  | $P_{t1}$<br>[kW] | $P_1$<br>[kW]  | $P_{t1}$<br>[kW] | $P_1$<br>[kW]  | $P_{t1}$<br>[kW] | $P_1$<br>[kW]  | $P_{t1}$<br>[kW] | $P_1$<br>[kW]  | $P_{t1}$<br>[kW] |
| 6,3   | ---            | ---              | 4,70           | 5,40             | 10,20          | 7,04             | 11,10          | 9,49             | 22,40          | 16,43            | 40,30          | 22,32            |
| 7,1   | 2,70           | 3,08             | ---            | ---              | ---            | ---              | ---            | ---              | ---            | ---              | ---            | ---              |
| 8     | ---            | ---              | 4,10           | 5,11             | 8,50           | 6,68             | 9,90           | 9,01             | 20,00          | 15,40            | 31,90          | 21,56            |
| 9,0   | 2,20           | 3,11             | 3,90           | 4,28             | 6,50           | 6,22             | 11,60          | 7,07             | ---            | ---              | ---            | ---              |
| 10,0  | 2,30           | 3,01             | 3,70           | 4,85             | 7,70           | 6,33             | 9,10           | 8,51             | 17,60          | 14,37            | 28,50          | 20,46            |
| 11,2  | 2,00           | 2,90             | 3,10           | 4,12             | 5,10           | 5,98             | 9,20           | 6,68             | ---            | ---              | ---            | ---              |
| 12,5  | ---            | ---              | 3,30           | 4,56             | 6,60           | 5,98             | 7,90           | 7,98             | 16,60          | 13,45            | 25,70          | 19,19            |
| 14,0  | 1,50           | 2,92             | 2,50           | 3,93             | 5,30           | 5,26             | 5,80           | 7,99             | 12,00          | 12,43            | 18,90          | 17,80            |
| 16,0  | 1,70           | 2,68             | 2,90           | 4,20             | 5,20           | 5,53             | 7,00           | 7,53             | 14,10          | 12,65            | 22,60          | 17,91            |
| 18,0  | 1,20           | 2,70             | 2,20           | 3,89             | 4,60           | 5,07             | 5,40           | 7,64             | 10,80          | 11,87            | 17,00          | 17,01            |
| 20,0  | 1,40           | 2,47             | 2,40           | 3,95             | 3,20           | 4,84             | 6,00           | 6,97             | 12,20          | 11,48            | 19,40          | 16,44            |
| 22,4  | 1,10           | 2,27             | 1,90           | 3,72             | 4,00           | 4,93             | 4,90           | 7,30             | 9,70           | 11,30            | 15,40          | 16,36            |
| 25,0  | 0,96           | 2,27             | 1,90           | 3,41             | 3,30           | 4,63             | 5,00           | 6,21             | 9,70           | 10,20            | 14,10          | 15,21            |
| 28,0  | 0,91           | 2,06             | 1,80           | 3,54             | 2,20           | 4,15             | 4,30           | 6,83             | 8,80           | 10,76            | 13,90          | 15,57            |
| 31,5  | 0,81           | 2,13             | 1,20           | 3,22             | 2,60           | 4,23             | 4,30           | 5,81             | 8,30           | 10,13            | 14,00          | 14,11            |
| 35,5  | 0,66           | 1,75             | 1,40           | 3,32             | 2,50           | 4,35             | 3,90           | 6,45             | 7,70           | 10,14            | 12,40          | 14,77            |
| 40    | 0,68           | 2,00             | 1,20           | 3,08             | 2,20           | 4,01             | ---            | ---              | 6,40           | 9,41             | 10,80          | 13,62            |
| 45    | 0,55           | 1,87             | 1,10           | 3,18             | 2,00           | 3,97             | 3,10           | 6,00             | 6,20           | 9,26             | 9,20           | 11,88            |
| 50    | 0,56           | 1,84             | 0,92           | 2,89             | 1,80           | 3,79             | 3,00           | 6,12             | 5,20           | 8,95             | 10,30          | 12,88            |
| 56    | 0,37           | 1,85             | 0,88           | 2,80             | 1,70           | 3,72             | 2,80           | 5,40             | 4,80           | 8,38             | 9,30           | 12,13            |
| 63    | 0,43           | 1,69             | 0,74           | 2,77             | 1,00           | 3,70             | 2,40           | 5,67             | 4,20           | 8,27             | 8,10           | 12,01            |
| 71    | 0,36           | 1,64             | 0,60           | 2,57             | 1,30           | 3,48             | 2,10           | 5,10             | 3,60           | 8,05             | 6,90           | 11,36            |
| 80    | 0,30           | 1,59             | 0,59           | 2,48             | 1,10           | 3,29             | 1,90           | 5,10             | 2,50           | 8,25             | 6,20           | 10,88            |
| 90    | 0,30           | 1,51             | 0,53           | 2,48             | 0,70           | 3,08             | 1,60           | 5,39             | 3,00           | 6,83             | 5,80           | 10,67            |
| 100   | 0,27           | 1,48             | 0,39           | 2,36             | 0,86           | 3,11             | 1,40           | 4,83             | 2,80           | 7,54             | 5,20           | 10,66            |
| 112   | 0,21           | 1,51             | 0,42           | 2,23             | 0,80           | 2,92             | 1,40           | 4,85             | 2,40           | 7,25             | 4,40           | 9,73             |
| 125   | 0,22           | 1,38             | 0,33           | 2,16             | 0,60           | 2,88             | 1,00           | 3,68             | 2,30           | 6,73             | 3,00           | 9,84             |
| 140   | 0,18           | 1,26             | 0,28           | 2,13             | 0,61           | 2,77             | 1,00           | 4,58             | 2,00           | 6,74             | 3,70           | 9,55             |
| 160   | 0,16           | 1,21             | 0,26           | 1,97             | 0,41           | 2,59             | 0,71           | 3,65             | 1,80           | 6,49             | 3,40           | 9,19             |
| 180   | 0,13           | 1,15             | 0,24           | 1,90             | 0,43           | 2,58             | 0,67           | 3,49             | 1,20           | 6,03             | 2,20           | 8,40             |
| 200   | 0,12           | 1,21             | 0,20           | 1,88             | 0,32           | 2,63             | 0,61           | 3,75             | 1,00           | 6,07             | ---            | ---              |
| 224   | 0,10           | 1,15             | 0,17           | 1,74             | ---            | ---              | 0,51           | 3,48             | 0,92           | 5,62             | 1,80           | 8,54             |
| 250   | 0,09           | 1,10             | 0,16           | 1,65             | 0,27           | 2,45             | 0,46           | 3,32             | 0,82           | 5,66             | ---            | ---              |
| 280   | ---            | ---              | ---            | ---              | 0,25           | 2,36             | 0,41           | 3,14             | ---            | ---              | 1,50           | 7,85             |
| 315   | 0,06           | 0,99             | 0,13           | 1,55             | 0,20           | 2,14             | ---            | ---              | 0,66           | 5,12             | 1,30           | 7,36             |

# RO-RV

## Selezione Riduttore - Speed Reducer Selection - Getriebeauswahl

### RO1/RV1 - 180 Nm - 1400 rpm

|                                    | $i_n$ | $i_r$   | $n_2$<br>[rpm] | $M_2$<br>[Nm] | $P_1$<br>[kW] | $F_{r1}$<br>[N] | $F_{r2}$<br>[N] | $J_1 (x 10^{-4})$<br>[kgm <sup>2</sup> ] | 56<br>B5 | 63<br>B* | 71<br>B* | 80<br>B* | 90<br>B* |
|------------------------------------|-------|---------|----------------|---------------|---------------|-----------------|-----------------|------------------------------------------|----------|----------|----------|----------|----------|
| <b>FRO13</b><br><b>FRV13</b><br>3c | 7.1   | 7.58    | 185            | 130           | 2.7           | 1550            | 3310            | 1.1700                                   | ⊙        | ⊙        | ⊙        | ⊙        | ⊙        |
|                                    | 9.0   | 9.14    | 153            | 130           | 2.2           | 1580            | 3740            | 1.0754                                   | ⊙        | ⊙        | ⊙        | ⊙        | ⊙        |
|                                    | 10.0  | 9.57    | 146            | 140           | 2.3           | 1580            | 3600            | 1.0469                                   | ⊙        | ⊙        | ⊙        | ⊙        | ⊙        |
|                                    | 11.2  | 11.63   | 120            | 150           | 2.0           | 1590            | 3570            | 0.9761                                   | ⊙        | ⊙        | ⊙        | ⊙        | ⊙        |
|                                    | 14.0  | 14.02   | 100            | 130           | 1.5           | 1600            | 4040            | 0.9358                                   | ⊙        | ⊙        | ⊙        | ⊙        | ⊙        |
|                                    | 16.0  | 15.14   | 92.5           | 165           | 1.7           | 1600            | 3550            | 0.9105                                   | ⊙        | ⊙        | ⊙        | ⊙        | ⊙        |
|                                    | 18.0  | 18.25   | 76.7           | 135           | 1.2           | 1610            | 4240            | 0.8868                                   | ⊙        | ⊙        | ⊙        | ⊙        | ⊙        |
|                                    | 20.0  | 19.15   | 73.1           | 170           | 1.4           | 1610            | 3670            | 0.8712                                   | ⊙        | ⊙        | ⊙        | ⊙        | ⊙        |
|                                    | 22.4  | 23.33   | 60.0           | 170           | 1.1           | 1610            | 3820            | 0.8476                                   | ⊙        | ⊙        | ⊙        | ⊙        | ⊙        |
|                                    | 25.0  | 24.44   | 57.3           | 150           | 0.96          | 1600            | 4150            | 0.3567                                   | ⊙        | ⊙        | ⊙        | ⊙        |          |
|                                    | 28.0  | 29.18   | 48.0           | 170           | 0.91          | 1610            | 3960            | 0.8281                                   | ⊙        | ⊙        | ⊙        | ⊙        |          |
|                                    | 31.5  | 31.82   | 44.0           | 165           | 0.81          | 1600            | 4120            | 0.3418                                   | ⊙        | ⊙        | ⊙        | ⊙        |          |
|                                    | 35.5  | 37.95   | 36.9           | 160           | 0.66          | 1610            | 4430            | 0.8125                                   | ⊙        | ⊙        | ⊙        | ⊙        |          |
|                                    | 40    | 40.25   | 34.8           | 175           | 0.68          | 1610            | 4100            | 0.3329                                   | ⊙        | ⊙        | ⊙        | ⊙        |          |
|                                    | 45    | 47.88   | 29.2           | 170           | 0.55          | 1600            | 4300            | 0.2717                                   | ⊙        | ⊙        | ⊙        | ⊙        |          |
|                                    | 50    | 49.02   | 28.6           | 175           | 0.56          | 1610            | 4100            | 0.3276                                   | ⊙        | ⊙        | ⊙        | ⊙        |          |
|                                    | 56    | 59.10   | 23.7           | 140           | 0.37          | 1610            | 4820            | 0.3253                                   | ⊙        | ⊙        | ⊙        |          |          |
|                                    | 63    | 61.31   | 22.8           | 170           | 0.43          | 1610            | 4000            | 0.3231                                   | ⊙        | ⊙        | ⊙        |          |          |
|                                    | 71    | 73.77   | 19.0           | 170           | 0.36          | 1610            | 4000            | 0.2654                                   | ⊙        | ⊙        | ⊙        |          |          |
|                                    | 80    | 84.93   | 16.5           | 165           | 0.30          | 1610            | 4400            | 0.2441                                   | ⊙        | ⊙        | ⊙        |          |          |
|                                    | 90    | 92.26   | 15.2           | 180           | 0.30          | 1610            | 4000            | 0.2634                                   | ⊙        | ⊙        | ⊙        |          |          |
|                                    | 100   | 103.46  | 13.5           | 180           | 0.27          | 1610            | 4000            | 0.2429                                   | ⊙        | ⊙        | ⊙        |          |          |
|                                    | 112   | 111.22  | 12.6           | 150           | 0.21          | 1610            | 4800            | 0.2628                                   | ⊙        | ⊙        |          |          |          |
|                                    | 125   | 129.39  | 10.8           | 180           | 0.22          | 1610            | 4000            | 0.2419                                   | ⊙        | ⊙        |          |          |          |
|                                    | 140   | 132.61  | 10.6           | 150           | 0.18          | 1610            | 4700            | 0.2614                                   | ⊙        | ⊙        |          |          |          |
|                                    | 160   | 168.30  | 8.32           | 175           | 0.16          | 1610            | 4100            | 0.2411                                   | ⊙        | ⊙        |          |          |          |
|                                    | 180   | 185.98  | 7.53           | 150           | 0.13          | 1610            | 4700            | 0.2409                                   | ⊙        | ⊙        |          |          |          |
|                                    | 200   | 202.90  | 6.90           | 150           | 0.12          | 1610            | 4800            | 0.2408                                   | ⊙        |          |          |          |          |
|                                    | 224   | 224.22  | 6.24           | 150           | 0.10          | 1610            | 4800            | 0.2407                                   | ⊙        |          |          |          |          |
|                                    | 250   | 249.80  | 5.60           | 150           | 0.09          | 1610            | 4800            | 0.2405                                   | ⊙        |          |          |          |          |
|                                    | 315   | 320.513 | 4.37           | 130           | 0.06          | 1360            | 4800            | 0.2320                                   | ⊙        |          |          |          |          |

**B\*** = B5 & B14

**3c** - Numero delle coppie di riduzione

**B\*** = B5 & B14

**3c** - Number of reduction stages

**B\*** = B5 & B14

**3c** - Anzahl der Getriebestufen

|       | Olio [ litri ] - Oil [ litres ] - Öl [ Liter ] |      |      |      |      |      | Weight<br>[ kg ] |
|-------|------------------------------------------------|------|------|------|------|------|------------------|
|       | H1                                             | H2   | H3   | H4   | V1   | V2   |                  |
| FRO13 | 0.5                                            | 0.45 | 0.4  | 0.45 | 0.35 | 0.45 | 6.4              |
| FRV13 | 0.5                                            | 0.35 | 0.25 | 0.35 | 0.4  | 0.3  | 6.1              |

**RO2/RV2 - 310 Nm - 1400 rpm**

|                                    | $i_n$ | $i_r$  | $n_2$<br>[rpm] | $M_2$<br>[Nm] | $P_1$<br>[kW] | $F_{r1}$<br>[N] | $F_{r2}$<br>[N] | $J_1 (x 10^{-4})$<br>[kgm <sup>2</sup> ] | 71<br>B* | 80<br>B* | 90<br>B* | 100<br>B* | 112<br>B* |
|------------------------------------|-------|--------|----------------|---------------|---------------|-----------------|-----------------|------------------------------------------|----------|----------|----------|-----------|-----------|
| <b>FRO23</b><br><b>FRV23</b><br>3c | 6.3   | 6.62   | 211.4          | 200           | 4.7           | 2900            | 3350            | 3.7230                                   | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 8.0   | 8.47   | 165.3          | 220           | 4.1           | 2900            | 3620            | 3.4225                                   | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 9.0   | 8.97   | 156.0          | 225           | 3.9           | 2900            | 3710            | 3.4623                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 10.0  | 10.43  | 134.3          | 245           | 3.7           | 2900            | 3870            | 3.2499                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 11.2  | 11.48  | 122.0          | 230           | 3.1           | 3000            | 4040            | 3.2632                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 12.5  | 13.03  | 107.4          | 275           | 3.3           | 3000            | 3920            | 3.1175                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 14.0  | 14.13  | 99.1           | 230           | 2.5           | 3000            | 4340            | 3.1448                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 16.0  | 16.68  | 83.9           | 305           | 2.9           | 3000            | 3620            | 3.0140                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 18.0  | 17.80  | 78.6           | 250           | 2.2           | 3000            | 4480            | 1.3623                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 20.0  | 20.55  | 68.1           | 310           | 2.4           | 3000            | 3720            | 2.9511                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 22.4  | 21.91  | 63.9           | 270           | 1.9           | 3000            | 4420            | 1.3232                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 25.0  | 26.07  | 53.7           | 310           | 1.9           | 3000            | 3930            | 2.8990                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 28.0  | 27.39  | 51.1           | 310           | 1.8           | 3000            | 4180            | 1.2932                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 31.5  | 32.97  | 42.5           | 260           | 1.2           | 3000            | 4960            | 1.0795                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 35.5  | 35.06  | 39.9           | 310           | 1.4           | 3000            | 4220            | 1.2698                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 40    | 41.21  | 34.0           | 310           | 1.2           | 3000            | 4600            | 1.0662                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 45    | 43.18  | 32.4           | 310           | 1.1           | 3000            | 4450            | 1.2555                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 50    | 52.75  | 26.5           | 310           | 0.92          | 3000            | 4680            | 1.0559                                   | ⊙        | ⊙        |          |           |           |
|                                    | 56    | 54.78  | 25.6           | 310           | 0.88          | 3000            | 4720            | 1.2437                                   | ⊙        | ⊙        |          |           |           |
|                                    | 63    | 64.97  | 21.5           | 310           | 0.74          | 3000            | 4930            | 1.0496                                   | ⊙        | ⊙        |          |           |           |
|                                    | 71    | 73.98  | 18.9           | 285           | 0.60          | 3000            | 5510            | 0.9764                                   | ⊙        | ⊙        |          |           |           |
|                                    | 80    | 82.42  | 17.0           | 310           | 0.59          | 3000            | 5100            | 1.0444                                   | ⊙        | ⊙        |          |           |           |
|                                    | 90    | 91.12  | 15.4           | 310           | 0.53          | 3000            | 5100            | 0.9732                                   | ⊙        |          |          |           |           |
|                                    | 100   | 106.60 | 13.1           | 270           | 0.39          | 3000            | 6000            | 1.0405                                   | ⊙        |          |          |           |           |
|                                    | 112   | 115.60 | 12.1           | 310           | 0.42          | 3000            | 5100            | 0.9706                                   | ⊙        |          |          |           |           |
|                                    | 125   | 123.47 | 11.34          | 260           | 0.33          | 3000            | 6200            | 0.9721                                   | ⊙        |          |          |           |           |
|                                    | 140   | 149.51 | 9.36           | 270           | 0.28          | 3000            | 6000            | 0.9686                                   | ⊙        |          |          |           |           |
|                                    | 160   | 156.64 | 8.94           | 260           | 0.26          | 3000            | 6200            | 0.9699                                   | ⊙        |          |          |           |           |
|                                    | 180   | 170.11 | 8.23           | 260           | 0.24          | 3000            | 6200            | 1.0381                                   | (⊙)      |          |          |           |           |
|                                    | 200   | 202.59 | 6.91           | 260           | 0.20          | 3000            | 6200            | 0.9682                                   | (⊙)      |          |          |           |           |
|                                    | 224   | 238.58 | 5.87           | 260           | 0.17          | 3000            | 6200            | 0.9674                                   | (⊙)      |          |          |           |           |
|                                    | 250   | 261.07 | 5.363          | 260           | 0.16          | 3000            | 6200            | 0.9670                                   | (⊙)      |          |          |           |           |
|                                    | 315   | 319.55 | 4.381          | 260           | 0.13          | 3000            | 6200            | 0.9664                                   | (⊙)      |          |          |           |           |

**B\* = B5 & B14**
**3c** - Numero delle coppie di riduzione

(⊙) - Potenza max utilizzabile  $\leq P_1$ 
**B\* = B5 & B14**
**3c** - Number of reduction stages

(⊙) - Max. available power  $\leq P_1$ 
**B\* = B5 & B14**
**3c** - Anzahl der Getriebestufen

(⊙) - Max. Leistung  $\leq P_1$ 

|       | Olio [ litri ] - Oil [ litres ] - Öl [ Liter ] |     |      |     |      |      | Weight<br>[ kg ] |
|-------|------------------------------------------------|-----|------|-----|------|------|------------------|
|       | H1                                             | H2  | H3   | H4  | V1   | V2   |                  |
| FRO23 | 0.8                                            | 0.7 | 0.75 | 0.7 | 0.85 | 0.85 | 10.6             |
| FRV23 | 0.65                                           | 0.6 | 0.5  | 0.6 | 0.7  | 0.55 | 10.1             |

**RO3/RV3 - 580 Nm - 1400 rpm**

|                                    | $i_n$ | $i_r$  | $n_2$<br>[rpm] | $M_2$<br>[Nm] | $P_1$<br>[kW] | $F_{r1}$<br>[N] | $F_{r2}$<br>[N] | $J_1 (x 10^{-4})$<br>[kgm <sup>2</sup> ] | 71<br>B* | 80<br>B* | 90<br>B* | 100<br>B* | 112<br>B* |
|------------------------------------|-------|--------|----------------|---------------|---------------|-----------------|-----------------|------------------------------------------|----------|----------|----------|-----------|-----------|
| <b>FRO33</b><br><b>FRV33</b><br>3c | 6.3   | 6.43   | 217.6          | 420           | 10.2          | 4550            | 4990            | 7.8449                                   | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 8.0   | 8.25   | 169.7          | 450           | 8.5           | 5540            | 5430            | 7.0546                                   | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 9.0   | 9.09   | 154.0          | 380           | 6.5           | 5710            | 5680            | 7.1141                                   | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 10.0  | 10.17  | 137.7          | 500           | 7.7           | 5630            | 4980            | 6.5966                                   | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 11.2  | 11.65  | 120.2          | 380           | 5.1           | 5730            | 6180            | 6.6099                                   | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 12.5  | 12.72  | 110.0          | 540           | 6.6           | 5710            | 4640            | 6.2405                                   | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 14.0  | 13.52  | 103.5          | 460           | 5.3           | 5520            | 5970            | 2.2602                                   | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 16.0  | 16.30  | 85.9           | 540           | 5.2           | 5730            | 4800            | 5.9573                                   | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 18.0  | 17.33  | 80.8           | 510           | 4.6           | 5680            | 5460            | 2.0812                                   | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 20.0  | 19.10  | 73.3           | 390           | 3.2           | 5730            | 7310            | 2.0993                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 22.4  | 21.67  | 64.6           | 550           | 4.0           | 5740            | 4970            | 5.7302                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 25.0  | 26.73  | 52.4           | 560           | 3.3           | 5730            | 5130            | 1.8969                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 28.0  | 28.74  | 48.7           | 400           | 2.2           | 5740            | 7800            | 1.4638                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 31.5  | 33.27  | 42.1           | 550           | 2.6           | 5740            | 4800            | 5.5211                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 35.5  | 34.26  | 40.9           | 560           | 2.5           | 5740            | 5370            | 1.8327                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 40    | 40.23  | 34.8           | 570           | 2.2           | 5740            | 5500            | 1.3744                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 45    | 45.54  | 30.7           | 570           | 2.0           | 5740            | 5580            | 1.7813                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 50    | 51.55  | 27.2           | 580           | 1.8           | 5740            | 5600            | 1.3460                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 56    | 53.60  | 26.1           | 580           | 1.7           | 5740            | 5600            | 1.7597                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 63    | 64.33  | 21.8           | 410           | 1.0           | 5740            | 8950            | 1.7667                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 71    | 68.52  | 20.4           | 580           | 1.3           | 5740            | 5500            | 1.3233                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 80    | 80.65  | 17.4           | 580           | 1.1           | 5740            | 5500            | 1.3138                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 90    | 91.94  | 15.2           | 410           | 0.70          | 5740            | 9580            | 1.7158                                   | ⊙        | ⊙        |          |           |           |
|                                    | 100   | 105.20 | 13.3           | 580           | 0.86          | 5750            | 5500            | 1.3024                                   | ⊙        | ⊙        |          |           |           |
|                                    | 112   | 113.11 | 12.4           | 580           | 0.80          | 5740            | 5500            | 1.1546                                   | ⊙        | ⊙        |          |           |           |
|                                    | 125   | 125.46 | 11.16          | 480           | 0.60          | 5740            | 8500            | 1.2969                                   | ⊙        | ⊙        |          |           |           |
|                                    | 140   | 147.54 | 9.49           | 580           | 0.61          | 5740            | 5500            | 1.1488                                   | ⊙        | ⊙        |          |           |           |
|                                    | 160   | 162.17 | 8.63           | 430           | 0.41          | 5740            | 9400            | 1.7036                                   | ⊙        |          |          |           |           |
|                                    | 180   | 175.95 | 7.96           | 490           | 0.43          | 5740            | 8200            | 1.1460                                   | ⊙        |          |          |           |           |
|                                    | 200   | 208.42 | 6.72           | 430           | 0.32          | 5740            | 9400            | 1.1474                                   | ⊙        |          |          |           |           |
|                                    | 250   | 248.56 | 5.63           | 430           | 0.27          | 5740            | 9400            | 1.1450                                   | ⊙        |          |          |           |           |
|                                    | 280   | 274.11 | 5.107          | 430           | 0.25          | 5740            | 9400            | 1.1439                                   | ⊙        |          |          |           |           |
|                                    | 315   | 342.23 | 4.091          | 430           | 0.20          | 5740            | 9400            | 1.1420                                   | (⊙)      |          |          |           |           |

**B\*** = B5 & B14

**3c** - Numero delle coppie di riduzione

(⊙) - Potenza max utilizzabile  $\leq P_1$ 
**B\*** = B5 & B14

**3c** - Number of reduction stages

(⊙) - Max. available power  $\leq P_1$ 
**B\*** = B5 & B14

**3c** - Anzahl der Getriebestufen

(⊙) - Max. Leistung  $\leq P_1$ 

|       | Olio [ litri ] - Oil [ litres ] - Öl [ Liter ] |     |     |     |     |     | Weight |
|-------|------------------------------------------------|-----|-----|-----|-----|-----|--------|
|       | H1                                             | H2  | H3  | H4  | V1  | V2  | [ kg ] |
| FRO33 | 1.5                                            | 1.2 | 1.4 | 1.2 | 1.5 | 1.7 | 12.5   |
| FRV33 | 1.5                                            | 1.0 | 0.8 | 1.0 | 1.2 | 0.8 | 13.0   |

## RO4/RV4 - 1000 Nm - 1400 rpm

|                                    | $i_n$ | $i_r$   | $n_2$<br>[rpm] | $M_2$<br>[Nm] | $P_1$<br>[kW] | $F_{r1}$<br>[N] | $F_{r2}$<br>[N] | $J_1 (x 10^{-4})$<br>[kgm <sup>2</sup> ] | 71<br>B5 | 80<br>B5 | 90<br>B5 | 100<br>B* | 112<br>B* |
|------------------------------------|-------|---------|----------------|---------------|---------------|-----------------|-----------------|------------------------------------------|----------|----------|----------|-----------|-----------|
| <b>FRO43</b><br><b>FRV43</b><br>3c | 6.3   | 6.60    | 212.1          | 470           | 11.1          | 5670            | 5570            | 18.0401                                  | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 8.0   | 8.35    | 167.6          | 530           | 9.9           | 5740            | 6000            | 16.3029                                  | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 9.0   | 8.72    | 160.6          | 650           | 11.6          | 5560            | 5980            | 16.5334                                  | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 10.0  | 10.43   | 134.2          | 610           | 9.1           | 5770            | 6430            | 15.1392                                  | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 11.2  | 11.04   | 126.8          | 650           | 9.2           | 5740            | 6520            | 15.3615                                  | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 12.5  | 13.29   | 105.4          | 670           | 7.9           | 5780            | 6950            | 14.2633                                  | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 14.0  | 13.87   | 100.9          | 515           | 5.8           | 5630            | 7190            | 6.3637                                   | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 16.0  | 16.21   | 86.4           | 730           | 7.0           | 5780            | 7420            | 13.7425                                  | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 18.0  | 17.55   | 79.8           | 610           | 5.4           | 5700            | 7740            | 5.9704                                   | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 20.0  | 20.22   | 69.2           | 780           | 6.0           | 5780            | 7980            | 13.3129                                  | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 22.4  | 21.94   | 63.8           | 690           | 4.9           | 5740            | 8310            | 5.7069                                   | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 25.0  | 26.10   | 53.6           | 840           | 5.0           | 5780            | 8690            | 12.9609                                  | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 28.0  | 27.92   | 50.1           | 770           | 4.3           | 5780            | 8990            | 5.5085                                   | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 31.5  | 32.52   | 43.1           | 890           | 4.3           | 5790            | 9390            | 12.7520                                  | ⊙        | ⊙        | ⊙        | ⊙         | ⊙         |
|                                    | 35.5  | 34.06   | 41.1           | 840           | 3.9           | 5780            | 9580            | 5.3906                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 45    | 42.50   | 32.9           | 840           | 3.1           | 5780            | 10020           | 5.2933                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 50    | 51.25   | 27.3           | 980           | 3.0           | 5780            | 9720            | 4.3723                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 56    | 54.84   | 25.5           | 980           | 2.8           | 5790            | 9800            | 5.2136                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 63    | 63.95   | 21.9           | 990           | 2.4           | 5780            | 10090           | 4.3293                                   | ⊙        | ⊙        | ⊙        | ⊙         |           |
|                                    | 71    | 68.34   | 20.5           | 920           | 2.1           | 5790            | 10970           | 5.1663                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 80    | 82.52   | 17.0           | 1000          | 1.9           | 5790            | 10510           | 4.2941                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 90    | 89.69   | 15.6           | 890           | 1.6           | 5790            | 11880           | 3.9791                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 100   | 102.83  | 13.6           | 940           | 1.4           | 5790            | 11740           | 4.2732                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 112   | 115.73  | 12.1           | 1020          | 1.4           | 5790            | 11130           | 3.9612                                   | ⊙        | ⊙        | ⊙        |           |           |
|                                    | 125   | 121.80  | 11.5           | 780           | 1.0           | 5790            | 13730           | 5.1136                                   | ⊙        | ⊙        |          |           |           |
|                                    | 140   | 144.22  | 9.71           | 950           | 1.0           | 5790            | 12410           | 3.9506                                   | ⊙        | ⊙        |          |           |           |
|                                    | 160   | 164.63  | 8.50           | 750           | 0.71          | 5790            | 14400           | 4.2552                                   | ⊙        | ⊙        |          |           |           |
|                                    | 180   | 183.27  | 7.64           | 790           | 0.67          | 5790            | 14710           | 4.2500                                   | ⊙        | ⊙        |          |           |           |
|                                    | 200   | 190.66  | 7.34           | 750           | 0.61          | 5790            | 14830           | 3.9474                                   | ⊙        | ⊙        |          |           |           |
|                                    | 224   | 230.89  | 6.06           | 750           | 0.51          | 5790            | 15400           | 3.9414                                   | ⊙        |          |          |           |           |
|                                    | 250   | 257.04  | 5.45           | 750           | 0.46          | 5790            | 16500           | 3.9388                                   | ⊙        |          |          |           |           |
|                                    | 280   | 289.000 | 4.844          | 750           | 0.41          | 5790            | 16470           | 3.9363                                   | ⊙        |          |          |           |           |

**B\* = B5 & B14**
**3c** - Numero delle coppie di riduzione

**B\* = B5 & B14**
**3c** - Number of reduction stages

**B\* = B5 & B14**
**3c** - Anzahl der Getriebestufen

|       | Olio [ litri ] - Oil [ litres ] - Öl [ Liter ] |     |     |     |     |     | Weight<br>[ kg ] |
|-------|------------------------------------------------|-----|-----|-----|-----|-----|------------------|
|       | H1                                             | H2  | H3  | H4  | V1  | V2  |                  |
| FRO43 | 2.8                                            | 2.0 | 1.6 | 2.0 | 2.0 | 2.5 | 39.0             |
| FRV43 | 2.9                                            | 1.9 | 1.2 | 1.8 | 2.6 | 1.7 | 36.5             |

**RO5/RV5 - 1800 Nm - 1400 rpm**

|                                    | $i_n$ | $i_r$  | $n_2$<br>[rpm] | $M_2$<br>[Nm] | $P_1$<br>[kW] | $F_{r1}$<br>[N] | $F_{r2}$<br>[N] | $J_1 (x 10^{-4})$<br>[kgm <sup>2</sup> ] | 80<br>90<br>B5 | 100<br>112<br>B5 | 132<br>B* | 160<br>B5 | 180<br>B5 |
|------------------------------------|-------|--------|----------------|---------------|---------------|-----------------|-----------------|------------------------------------------|----------------|------------------|-----------|-----------|-----------|
| <b>FRO53</b><br><b>FRV53</b><br>3c | 6.3   | 6.48   | 215.9          | 930           | 22.4          | 8200            | 8020            | 57.2158                                  | ⊙              | ⊙                | ⊙         | ⊙         | ⊙         |
|                                    | 8.0   | 8.57   | 163.3          | 1100          | 20.0          | 8290            | 8770            | 52.4172                                  | ⊙              | ⊙                | ⊙         | ⊙         | ⊙         |
|                                    | 10.0  | 10.87  | 128.8          | 1230          | 17.6          | 8350            | 9470            | 49.6847                                  | ⊙              | ⊙                | ⊙         | ⊙         | ⊙         |
|                                    | 12.5  | 13.17  | 106.3          | 1400          | 16.6          | 8350            | 10050           | 48.0516                                  | ⊙              | ⊙                | ⊙         | ⊙         | ⊙         |
|                                    | 14.0  | 13.63  | 102.7          | 1050          | 12.0          | 8110            | 10340           | 20.5375                                  | ⊙              | ⊙                | ⊙         | ⊙         |           |
|                                    | 16.0  | 16.24  | 86.2           | 1470          | 14.1          | 8360            | 10150           | 46.6813                                  | ⊙              | ⊙                | ⊙         | ⊙         |           |
|                                    | 18.0  | 18.02  | 77.7           | 1250          | 10.8          | 8260            | 11300           | 19.4509                                  | ⊙              | ⊙                | ⊙         |           |           |
|                                    | 20.0  | 20.53  | 68.2           | 1600          | 12.2          | 8360            | 8650            | 45.5253                                  | ⊙              | ⊙                | ⊙         | ⊙         |           |
|                                    | 22.4  | 22.85  | 61.3           | 1420          | 9.7           | 8310            | 11180           | 18.8321                                  | ⊙              | ⊙                | ⊙         |           |           |
|                                    | 25.0  | 26.97  | 51.9           | 1670          | 9.7           | 8360            | 8140            | 44.5592                                  | ⊙              | ⊙                | ⊙         |           |           |
|                                    | 28.0  | 27.68  | 50.6           | 1560          | 8.8           | 8350            | 9800            | 18.4623                                  | ⊙              | ⊙                | ⊙         |           |           |
|                                    | 31.5  | 31.69  | 44.2           | 1680          | 8.3           | 8360            | 8230            | 44.1495                                  | ⊙              | ⊙                | ⊙         |           |           |
|                                    | 35.5  | 34.12  | 41.0           | 1690          | 7.7           | 8360            | 8340            | 18.1520                                  | ⊙              | ⊙                | ⊙         |           |           |
|                                    | 40    | 41.65  | 33.6           | 1700          | 6.4           | 8330            | 8510            | 14.8941                                  | ⊙              | ⊙                | ⊙         |           |           |
|                                    | 45    | 43.14  | 32.5           | 1700          | 6.2           | 8360            | 8540            | 17.8902                                  | ⊙              | ⊙                | ⊙         |           |           |
|                                    | 50    | 51.34  | 27.3           | 1720          | 5.2           | 8360            | 8720            | 14.7570                                  | ⊙              | ⊙                |           |           |           |
|                                    | 56    | 56.67  | 24.7           | 1730          | 4.8           | 8360            | 8820            | 17.6715                                  | ⊙              | ⊙                |           |           |           |
|                                    | 63    | 64.91  | 21.6           | 1740          | 4.2           | 8360            | 8950            | 14.6414                                  | ⊙              | ⊙                |           |           |           |
|                                    | 71    | 72.56  | 19.3           | 1660          | 3.6           | 8360            | 10800           | 17.5356                                  | ⊙              | ⊙                |           |           |           |
|                                    | 80    | 79.37  | 17.6           | 1280          | 2.5           | 8360            | 16160           | 13.5189                                  | ⊙              | ⊙                |           |           |           |
|                                    | 90    | 91.04  | 15.4           | 1770          | 3.0           | 8360            | 8400            | 13.4434                                  | ⊙              | ⊙                |           |           |           |
|                                    | 100   | 100.20 | 14.0           | 1780          | 2.8           | 8360            | 8000            | 14.5038                                  | ⊙              | ⊙                |           |           |           |
|                                    | 112   | 109.18 | 12.8           | 1700          | 2.4           | 8360            | 11200           | 14.4848                                  | ⊙              | ⊙                |           |           |           |
|                                    | 125   | 119.59 | 11.7           | 1790          | 2.3           | 8360            | 7200            | 13.3942                                  | ⊙              | ⊙                |           |           |           |
|                                    | 140   | 140.53 | 10.0           | 1790          | 2.0           | 8360            | 7200            | 13.3734                                  | ⊙              |                  |           |           |           |
|                                    | 160   | 153.12 | 9.14           | 1720          | 1.8           | 8360            | 10100           | 13.3637                                  | ⊙              |                  |           |           |           |
|                                    | 180   | 185.17 | 7.56           | 1420          | 1.2           | 8360            | 17640           | 13.3462                                  | ⊙              |                  |           |           |           |
|                                    | 200   | 208.05 | 6.73           | 1330          | 1.0           | 8360            | 19060           | 13.3560                                  | ⊙              |                  |           |           |           |
|                                    | 224   | 224.24 | 6.24           | 1330          | 0.92          | 8360            | 19100           | 14.4140                                  | ⊙              |                  |           |           |           |
|                                    | 250   | 251.60 | 5.56           | 1330          | 0.82          | 8360            | 19100           | 13.3409                                  | ⊙              |                  |           |           |           |
|                                    | 315   | 314.50 | 4.45           | 1330          | 0.66          | 8360            | 19100           | 13.3277                                  | ⊙              |                  |           |           |           |

**B\*** = B5 & B14

**3c** - Numero delle coppie di riduzione

**B\*** = B5 & B14

**3c** - Number of reduction stages

**B\*** = B5 & B14

**3c** - Anzahl der Getriebestufen

|       | Olio [ litri ] - Oil [ litres ] - Öl [ Liter ] |     |     |     |     |     | Weight<br>[ kg ] |
|-------|------------------------------------------------|-----|-----|-----|-----|-----|------------------|
|       | H1                                             | H2  | H3  | H4  | V1  | V2  |                  |
| FRO53 | 5.1                                            | 3.6 | 2.9 | 3.6 | 5.0 | 5.0 | 73               |
| FRV53 | 5.2                                            | 3.4 | 2.1 | 3.2 | 4.7 | 4.7 | 68               |

## RO6/RV6 - 3400 Nm - 1400 rpm

|                                    | $i_n$ | $i_r$  | $n_2$<br>[rpm] | $M_2$<br>[Nm] | $P_1$<br>[kW] | $F_{r1}$<br>[N] | $F_{r2}$<br>[N] | $J_1 (x 10^{-4})$<br>[kgm <sup>2</sup> ] | 80<br>90<br>B5 | 100<br>112<br>B5 | 132<br>B* | 160<br>B5 | 180<br>B5 |
|------------------------------------|-------|--------|----------------|---------------|---------------|-----------------|-----------------|------------------------------------------|----------------|------------------|-----------|-----------|-----------|
| <b>FRO63</b><br><b>FRV63</b><br>3c | 6.3   | 6.43   | 217.7          | 1660          | 40.3          | 6670            | 10740           | 102.1187                                 | ⊙              | ⊙                | ⊙         | ⊙         | ⊙         |
|                                    | 8.0   | 8.50   | 164.7          | 1740          | 31.9          | 7570            | 11850           | 89.9906                                  | ⊙              | ⊙                | ⊙         | ⊙         | ⊙         |
|                                    | 10.0  | 10.78  | 129.9          | 1970          | 28.5          | 7820            | 12750           | 81.543                                   | ⊙              | ⊙                | ⊙         | ⊙         | ⊙         |
|                                    | 12.5  | 13.06  | 107.2          | 2150          | 25.7          | 8010            | 13550           | 76.4873                                  | ⊙              | ⊙                | ⊙         | ⊙         | ⊙         |
|                                    | 14.0  | 13.51  | 103.6          | 1640          | 18.9          | 7530            | 14110           | 40.9607                                  | ⊙              | ⊙                | ⊙         | ⊙         | ⊙         |
|                                    | 16.0  | 16.10  | 87.0           | 2330          | 22.6          | 8190            | 14450           | 72.2401                                  | ⊙              | ⊙                | ⊙         | ⊙         | ⊙         |
|                                    | 18.0  | 17.87  | 78.4           | 1950          | 17.0          | 7880            | 15380           | 38.2144                                  | ⊙              | ⊙                | ⊙         | ⊙         | ⊙         |
|                                    | 20.0  | 20.36  | 68.8           | 2530          | 19.4          | 8310            | 14100           | 68.6529                                  | ⊙              | ⊙                | ⊙         | ⊙         | ⊙         |
|                                    | 22.4  | 22.66  | 61.8           | 2230          | 15.4          | 8090            | 16460           | 36.3014                                  | ⊙              | ⊙                | ⊙         | ⊙         | ⊙         |
|                                    | 25.0  | 25.48  | 55.0           | 2300          | 14.1          | 8230            | 16820           | 36.6126                                  | ⊙              | ⊙                | ⊙         | ⊙         |           |
|                                    | 28.0  | 27.45  | 51.0           | 2450          | 13.9          | 8240            | 15700           | 35.1566                                  | ⊙              | ⊙                | ⊙         | ⊙         |           |
|                                    | 31.5  | 31.85  | 44.0           | 2860          | 14.0          | 8360            | 11540           | 64.3060                                  | ⊙              | ⊙                | ⊙         | ⊙         |           |
|                                    | 35.5  | 33.83  | 41.4           | 2690          | 12.4          | 8310            | 13920           | 34.1949                                  | ⊙              | ⊙                | ⊙         | ⊙         |           |
|                                    | 40    | 42.78  | 32.7           | 2950          | 10.8          | 8360            | 11390           | 33.3825                                  | ⊙              | ⊙                | ⊙         |           |           |
|                                    | 45    | 42.95  | 32.6           | 2540          | 9.2           | 8360            | 16450           | 62.5533                                  | ⊙              | ⊙                | ⊙         |           |           |
|                                    | 50    | 50.91  | 27.5           | 3360          | 10.3          | 8120            | 9810            | 25.1536                                  | ⊙              | ⊙                | ⊙         |           |           |
|                                    | 56    | 56.19  | 24.9           | 3360          | 9.3           | 8360            | 9970            | 32.7029                                  | ⊙              | ⊙                | ⊙         |           |           |
|                                    | 63    | 64.36  | 21.8           | 3360          | 8.1           | 8330            | 10200           | 24.7949                                  | ⊙              | ⊙                | ⊙         |           |           |
|                                    | 71    | 73.41  | 19.1           | 3250          | 6.9           | 8360            | 11430           | 32.2564                                  | ⊙              | ⊙                | ⊙         |           |           |
|                                    | 80    | 84.55  | 16.6           | 3360          | 6.2           | 8360            | 11400           | 24.4947                                  | ⊙              | ⊙                | ⊙         |           |           |
|                                    | 90    | 90.27  | 15.5           | 3360          | 5.8           | 8340            | 11400           | 21.7196                                  | ⊙              | ⊙                | ⊙         |           |           |
|                                    | 100   | 100.70 | 13.9           | 3360          | 5.2           | 8360            | 9800            | 24.3601                                  | ⊙              | ⊙                |           |           |           |
|                                    | 112   | 118.58 | 11.8           | 3360          | 4.4           | 8360            | 9800            | 21.5670                                  | ⊙              | ⊙                |           |           |           |
|                                    | 125   | 128.72 | 10.9           | 2490          | 3.0           | 8360            | 22060           | 21.6569                                  | ⊙              | ⊙                |           |           |           |
|                                    | 140   | 141.23 | 9.9            | 3360          | 3.7           | 8360            | 9800            | 21.4986                                  | ⊙              | ⊙                |           |           |           |
|                                    | 160   | 154.91 | 9.04           | 3360          | 3.4           | 8360            | 9800            | 21.4668                                  | ⊙              | ⊙                |           |           |           |
|                                    | 180   | 190.49 | 7.35           | 2730          | 2.2           | 8360            | 19400           | 21.4095                                  | ⊙              | ⊙                |           |           |           |
|                                    | 224   | 220.89 | 6.34           | 2550          | 1.8           | 8360            | 22500           | 21.4455                                  | ⊙              |                  |           |           |           |
|                                    | 280   | 271.62 | 5.15           | 2550          | 1.5           | 8360            | 22500           | 21.3954                                  | ⊙              |                  |           |           |           |
|                                    | 315   | 305.43 | 4.58           | 2550          | 1.3           | 8360            | 22500           | 21.3730                                  | ⊙              |                  |           |           |           |

B\* = B5 &amp; B14

3c - Numero delle coppie di riduzione

B\* = B5 &amp; B14

3c - Number of reduction stages

B\* = B5 &amp; B14

3c - Anzahl der Getriebestufen

|       | Olio [ litri ] - Oil [ litres ] - Öl [ Liter ] |     |     |     |     |     | Weight<br>[ kg ] |
|-------|------------------------------------------------|-----|-----|-----|-----|-----|------------------|
|       | H1                                             | H2  | H3  | H4  | V1  | V2  |                  |
| FRO63 | 9.2                                            | 6.5 | 5.2 | 6.5 | 9.0 | 9.0 | 121              |
| FRV63 | 9.4                                            | 6.1 | 3.8 | 5.8 | 8.5 | 8.5 | 117              |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 0.06                   | 7.1            | 7.58           | 185                     | 2.9                    | > 3.5 | MRO-MRV 13          | 3310                   | 9.4           | 6.9           | 1.50                                 | 0.9150                               |
|                        | 9.0            | 9.14           | 153                     | 3.5                    | > 3.5 | MRO-MRV 13          | 3740                   | 9.4           | 6.9           | 1.50                                 | 0.8480                               |
|                        | 10.0           | 9.57           | 146                     | 3.7                    | > 3.5 | MRO-MRV 13          | 3600                   | 9.4           | 6.9           | 1.50                                 | 0.7740                               |
|                        | 11.2           | 11.63          | 120                     | 4.5                    | > 3.5 | MRO-MRV 13          | 3570                   | 9.4           | 6.9           | 1.50                                 | 0.6940                               |
|                        | 14.0           | 14.02          | 100                     | 5.2                    | > 3.5 | MRO-MRV 13          | 4040                   | 9.4           | 6.9           | 1.50                                 | 0.6660                               |
|                        | 16.0           | 15.14          | 92.5                    | 5.8                    | > 3.5 | MRO-MRV 13          | 3550                   | 9.4           | 6.9           | 1.50                                 | 0.6210                               |
|                        | 18.0           | 18.25          | 76.7                    | 6.8                    | > 3.5 | MRO-MRV 13          | 4240                   | 9.4           | 6.9           | 1.50                                 | 0.6040                               |
|                        | 20.0           | 19.15          | 73.1                    | 7.3                    | > 3.5 | MRO-MRV 13          | 3670                   | 9.4           | 6.9           | 1.50                                 | 0.5770                               |
|                        | 22.4           | 23.33          | 60                      | 9.3                    | > 3.5 | MRO-MRV 13          | 3820                   | 9.4           | 6.9           | 1.50                                 | 0.5510                               |
|                        | 25.0           | 24.44          | 57.3                    | 9.4                    | > 3.5 | MRO-MRV 13          | 4150                   | 9.4           | 6.9           | 1.50                                 | 0.4940                               |
|                        | 28.0           | 29.18          | 48                      | 11.2                   | > 3.5 | MRO-MRV 13          | 3960                   | 9.4           | 6.9           | 1.50                                 | 0.5290                               |
|                        | 31.5           | 31.82          | 44                      | 12.2                   | > 3.5 | MRO-MRV 13          | 4120                   | 9.4           | 6.9           | 1.50                                 | 0.4770                               |
|                        | 35.5           | 37.95          | 36.9                    | 14.5                   | > 3.5 | MRO-MRV 13          | 4430                   | 9.4           | 6.9           | 1.50                                 | 0.5120                               |
|                        | 40.0           | 40.25          | 34.8                    | 15.4                   | > 3.5 | MRO-MRV 13          | 4100                   | 9.4           | 6.9           | 1.50                                 | 0.4670                               |
|                        | 45.0           | 47.88          | 29.2                    | 18.5                   | > 3.5 | MRO-MRV 13          | 4300                   | 9.4           | 6.9           | 1.50                                 | 0.4540                               |
|                        | 50.0           | 49.02          | 28.6                    | 18.8                   | > 3.5 | MRO-MRV 13          | 4100                   | 9.4           | 6.9           | 1.50                                 | 0.4610                               |
|                        | 56.0           | 59.10          | 23.7                    | 22.7                   | > 3.5 | MRO-MRV 13          | 4820                   | 9.4           | 6.9           | 1.50                                 | 0.4600                               |
|                        | 63.0           | 61.31          | 22.8                    | 23.7                   | > 3.5 | MRO-MRV 13          | 4000                   | 9.4           | 6.9           | 1.50                                 | 0.4560                               |
|                        | 71.0           | 73.77          | 19                      | 28.3                   | > 3.5 | MRO-MRV 13          | 4000                   | 9.4           | 6.9           | 1.50                                 | 0.4470                               |
|                        | 80.0           | 84.93          | 16.5                    | 33.0                   | > 3.5 | MRO-MRV 13          | 4400                   | 9.4           | 6.9           | 1.50                                 | 0.4420                               |
|                        | 90.0           | 92.26          | 15.2                    | 36.0                   | > 3.5 | MRO-MRV 13          | 4000                   | 9.4           | 6.9           | 1.50                                 | 0.4450                               |
|                        | 100.0          | 103.46         | 13.5                    | 40.0                   | > 3.5 | MRO-MRV 13          | 4000                   | 9.4           | 6.9           | 1.50                                 | 0.4410                               |
|                        | 112.0          | 111.22         | 12.6                    | 42.9                   | 3.5   | MRO-MRV 13          | 4800                   | 9.4           | 6.9           | 1.50                                 | 0.4440                               |
|                        | 125.0          | 129.39         | 10.8                    | 49.1                   | > 3.5 | MRO-MRV 13          | 4000                   | 9.4           | 6.9           | 1.50                                 | 0.4400                               |
|                        | 140.0          | 132.61         | 10.6                    | 50.0                   | 3.0   | MRO-MRV 13          | 4700                   | 9.4           | 6.9           | 1.50                                 | 0.4420                               |
|                        | 160.0          | 168.30         | 8.32                    | 65.6                   | 2.7   | MRO-MRV 13          | 4100                   | 9.4           | 6.9           | 1.50                                 | 0.4390                               |
|                        | 180.0          | 185.98         | 7.53                    | 69.2                   | 2.2   | MRO-MRV 13          | 4700                   | 9.4           | 6.9           | 1.50                                 | 0.4390                               |
|                        | 200.0          | 202.90         | 6.9                     | 75.0                   | 2.0   | MRO-MRV 13          | 4800                   | 9.4           | 6.9           | 1.50                                 | 0.4390                               |
|                        | 224.0          | 224.22         | 6.24                    | 90.0                   | 1.7   | MRO-MRV 13          | 4800                   | 9.4           | 6.9           | 1.50                                 | 0.4390                               |
|                        | 250.0          | 249.80         | 5.6                     | 100.0                  | 1.5   | MRO-MRV 13          | 4800                   | 9.4           | 6.9           | 1.50                                 | 0.4380                               |
|                        | 315.0          | 320.51         | 4.37                    | 130.0                  | 1.0   | MRO-MRV 13          | 4800                   | 9.4           | 6.9           | 1.50                                 | 0.4380                               |
| 0.09                   | 7.1            | 7.58           | 185                     | 4.3                    | > 3.5 | MRO-MRV 13          | 3310                   | 9.5           | 6.9           | 2.00                                 | 0.9150                               |
|                        | 9.0            | 9.14           | 153                     | 5.3                    | > 3.5 | MRO-MRV 13          | 3740                   | 9.5           | 6.9           | 2.00                                 | 0.8480                               |
|                        | 10.0           | 9.57           | 146                     | 5.5                    | > 3.5 | MRO-MRV 13          | 3600                   | 9.5           | 6.9           | 2.00                                 | 0.7740                               |
|                        | 11.2           | 11.63          | 120                     | 6.8                    | > 3.5 | MRO-MRV 13          | 3570                   | 9.5           | 6.9           | 2.00                                 | 0.6940                               |
|                        | 14.0           | 14.02          | 100                     | 7.8                    | > 3.5 | MRO-MRV 13          | 4040                   | 9.5           | 6.9           | 2.00                                 | 0.6660                               |
|                        | 16.0           | 15.14          | 92.5                    | 8.7                    | > 3.5 | MRO-MRV 13          | 3550                   | 9.5           | 6.9           | 2.00                                 | 0.6210                               |
|                        | 18.0           | 18.25          | 76.7                    | 10.1                   | > 3.5 | MRO-MRV 13          | 4240                   | 9.5           | 6.9           | 2.00                                 | 0.6040                               |
|                        | 20.0           | 19.15          | 73.1                    | 10.9                   | > 3.5 | MRO-MRV 13          | 3670                   | 9.5           | 6.9           | 2.00                                 | 0.5770                               |
|                        | 22.4           | 23.33          | 60                      | 13.9                   | > 3.5 | MRO-MRV 13          | 3820                   | 9.5           | 6.9           | 2.00                                 | 0.5510                               |
|                        | 25.0           | 24.44          | 57.3                    | 14.1                   | > 3.5 | MRO-MRV 13          | 4150                   | 9.5           | 6.9           | 2.00                                 | 0.4940                               |
|                        | 28.0           | 29.18          | 48                      | 16.8                   | > 3.5 | MRO-MRV 13          | 3960                   | 9.5           | 6.9           | 2.00                                 | 0.5290                               |
|                        | 31.5           | 31.82          | 44                      | 18.3                   | > 3.5 | MRO-MRV 13          | 4120                   | 9.5           | 6.9           | 2.00                                 | 0.4770                               |
|                        | 35.5           | 37.95          | 36.9                    | 21.8                   | > 3.5 | MRO-MRV 13          | 4430                   | 9.5           | 6.9           | 2.00                                 | 0.5120                               |
|                        | 40.0           | 40.25          | 34.8                    | 23.2                   | > 3.5 | MRO-MRV 13          | 4100                   | 9.5           | 6.9           | 2.00                                 | 0.4670                               |
|                        | 45.0           | 47.88          | 29.2                    | 27.8                   | > 3.5 | MRO-MRV 13          | 4300                   | 9.5           | 6.9           | 2.00                                 | 0.4540                               |
|                        | 50.0           | 49.02          | 28.6                    | 28.1                   | > 3.5 | MRO-MRV 13          | 4100                   | 9.5           | 6.9           | 2.00                                 | 0.4610                               |
|                        | 56.0           | 59.10          | 23.7                    | 34.1                   | > 3.5 | MRO-MRV 13          | 4820                   | 9.5           | 6.9           | 2.00                                 | 0.4600                               |
|                        | 63.0           | 61.31          | 22.8                    | 35.6                   | > 3.5 | MRO-MRV 13          | 4000                   | 9.5           | 6.9           | 2.00                                 | 0.4560                               |
|                        | 71.0           | 73.77          | 19                      | 42.5                   | > 3.5 | MRO-MRV 13          | 4000                   | 9.5           | 6.9           | 2.00                                 | 0.4470                               |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 0.09                   | 80.0           | 84.93          | 16.5                    | 49.5                   | 3.3   | MRO-MRV 13          | 4400                   | 9.5           | 6.9           | 2.00                                 | 0.4420                               |
|                        | 90.0           | 92.26          | 15.2                    | 54.0                   | 3.3   | MRO-MRV 13          | 4000                   | 9.5           | 6.9           | 2.00                                 | 0.4450                               |
|                        | 100.0          | 103.46         | 13.5                    | 60.0                   | 3.0   | MRO-MRV 13          | 4000                   | 9.5           | 6.9           | 2.00                                 | 0.4410                               |
|                        | 112.0          | 111.22         | 12.6                    | 64.3                   | 2.3   | MRO-MRV 13          | 4800                   | 9.5           | 6.9           | 2.00                                 | 0.4440                               |
|                        | 125.0          | 129.39         | 10.8                    | 73.6                   | 2.4   | MRO-MRV 13          | 4000                   | 9.5           | 6.9           | 2.00                                 | 0.4400                               |
|                        | 140.0          | 132.61         | 10.6                    | 75.0                   | 2.0   | MRO-MRV 13          | 4700                   | 9.5           | 6.9           | 2.00                                 | 0.4420                               |
|                        | 160.0          | 168.30         | 8.32                    | 98.4                   | 1.8   | MRO-MRV 13          | 4100                   | 9.5           | 6.9           | 2.00                                 | 0.4390                               |
|                        | 180.0          | 185.98         | 7.53                    | 103.8                  | 1.4   | MRO-MRV 13          | 4700                   | 9.5           | 6.9           | 2.00                                 | 0.4390                               |
|                        | 200.0          | 202.90         | 6.9                     | 112.5                  | 1.3   | MRO-MRV 13          | 4800                   | 9.5           | 6.9           | 2.00                                 | 0.4390                               |
|                        | 224.0          | 224.22         | 6.24                    | 135.0                  | 1.1   | MRO-MRV 13          | 4800                   | 9.5           | 6.9           | 2.00                                 | 0.4390                               |
|                        | 250.0          | 249.80         | 5.6                     | 150.0                  | 1.0   | MRO-MRV 13          | 4800                   | 9.5           | 6.9           | 2.00                                 | 0.4380                               |
|                        | 315.0          | 320.51         | 4.37                    | 195.0                  | 0.7   | MRO-MRV 13          | 4800                   | 9.5           | 6.9           | 2.00                                 | 0.4380                               |
| 0.13                   | 7.1            | 7.58           | 185                     | 6.3                    | > 3.5 | MRO-MRV 13          | 3310                   | 10.6          | 6.9           | 2.80                                 | 0.9150                               |
|                        | 9.0            | 9.14           | 153                     | 7.7                    | > 3.5 | MRO-MRV 13          | 3740                   | 10.6          | 6.9           | 2.80                                 | 0.8480                               |
|                        | 10.0           | 9.57           | 146                     | 7.9                    | > 3.5 | MRO-MRV 13          | 3600                   | 10.6          | 6.9           | 2.80                                 | 0.7740                               |
|                        | 11.2           | 11.63          | 120                     | 9.8                    | > 3.5 | MRO-MRV 13          | 3570                   | 10.6          | 6.9           | 2.80                                 | 0.6940                               |
|                        | 14.0           | 14.02          | 100                     | 11.3                   | > 3.5 | MRO-MRV 13          | 4040                   | 10.6          | 6.9           | 2.80                                 | 0.6660                               |
|                        | 16.0           | 15.14          | 92.5                    | 12.6                   | > 3.5 | MRO-MRV 13          | 3550                   | 10.6          | 6.9           | 2.80                                 | 0.6210                               |
|                        | 18.0           | 18.25          | 76.7                    | 14.6                   | > 3.5 | MRO-MRV 13          | 4240                   | 10.6          | 6.9           | 2.80                                 | 0.6040                               |
|                        | 20.0           | 19.15          | 73.1                    | 15.8                   | > 3.5 | MRO-MRV 13          | 3670                   | 10.6          | 6.9           | 2.80                                 | 0.5770                               |
|                        | 22.4           | 23.33          | 60                      | 20.1                   | > 3.5 | MRO-MRV 13          | 3820                   | 10.6          | 6.9           | 2.80                                 | 0.5510                               |
|                        | 25.0           | 24.44          | 57.3                    | 20.3                   | > 3.5 | MRO-MRV 13          | 4150                   | 10.6          | 6.9           | 2.80                                 | 0.4940                               |
|                        | 28.0           | 29.18          | 48                      | 24.3                   | > 3.5 | MRO-MRV 13          | 3960                   | 10.6          | 6.9           | 2.80                                 | 0.5290                               |
|                        | 31.5           | 31.82          | 44                      | 26.5                   | > 3.5 | MRO-MRV 13          | 4120                   | 10.6          | 6.9           | 2.80                                 | 0.4770                               |
|                        | 35.5           | 37.95          | 36.9                    | 31.5                   | > 3.5 | MRO-MRV 13          | 4430                   | 10.6          | 6.9           | 2.80                                 | 0.5120                               |
|                        | 40.0           | 40.25          | 34.8                    | 33.5                   | > 3.5 | MRO-MRV 13          | 4100                   | 10.6          | 6.9           | 2.80                                 | 0.4670                               |
|                        | 45.0           | 47.88          | 29.2                    | 40.2                   | > 3.5 | MRO-MRV 13          | 4300                   | 10.6          | 6.9           | 2.80                                 | 0.4540                               |
|                        | 50.0           | 49.02          | 28.6                    | 40.6                   | > 3.5 | MRO-MRV 13          | 4100                   | 10.6          | 6.9           | 2.80                                 | 0.4610                               |
|                        | 56.0           | 59.10          | 23.7                    | 49.2                   | 2.8   | MRO-MRV 13          | 4820                   | 10.6          | 6.9           | 2.80                                 | 0.4600                               |
|                        | 63.0           | 61.31          | 22.8                    | 51.4                   | 3.3   | MRO-MRV 13          | 4000                   | 10.6          | 6.9           | 2.80                                 | 0.4560                               |
|                        | 71.0           | 73.77          | 19                      | 61.4                   | 2.8   | MRO-MRV 13          | 4000                   | 10.6          | 6.9           | 2.80                                 | 0.4470                               |
|                        | 80.0           | 84.93          | 16.5                    | 71.5                   | 2.3   | MRO-MRV 13          | 4400                   | 10.6          | 6.9           | 2.80                                 | 0.4420                               |
|                        | 90.0           | 92.26          | 15.2                    | 78.0                   | 2.3   | MRO-MRV 13          | 4000                   | 10.6          | 6.9           | 2.80                                 | 0.4450                               |
|                        | 100.0          | 103.46         | 13.5                    | 86.7                   | 2.1   | MRO-MRV 13          | 4000                   | 10.6          | 6.9           | 2.80                                 | 0.4410                               |
|                        | 112.0          | 111.22         | 12.6                    | 92.9                   | 1.6   | MRO-MRV 13          | 4800                   | 10.6          | 6.9           | 2.80                                 | 0.4440                               |
|                        | 125.0          | 129.39         | 10.8                    | 106.4                  | 1.7   | MRO-MRV 13          | 4000                   | 10.6          | 6.9           | 2.80                                 | 0.4400                               |
|                        | 140.0          | 132.61         | 10.6                    | 108.3                  | 1.4   | MRO-MRV 13          | 4700                   | 10.6          | 6.9           | 2.80                                 | 0.4420                               |
|                        | 160.0          | 168.30         | 8.32                    | 142.2                  | 1.2   | MRO-MRV 13          | 4100                   | 10.6          | 6.9           | 2.80                                 | 0.4390                               |
|                        | 180.0          | 185.98         | 7.53                    | 150.0                  | 1.0   | MRO-MRV 13          | 4700                   | 10.6          | 6.9           | 2.80                                 | 0.4390                               |
| 0.18                   | 7.1            | 7.58           | 185                     | 8.7                    | > 3.5 | MRO-MRV 13          | 3310                   | 11.2          | 6.9           | 4.00                                 | 0.9150                               |
|                        | 9.0            | 9.14           | 153                     | 10.6                   | > 3.5 | MRO-MRV 13          | 3740                   | 11.2          | 6.9           | 4.00                                 | 0.8480                               |
|                        | 10.0           | 9.57           | 146                     | 11.0                   | > 3.5 | MRO-MRV 13          | 3600                   | 11.2          | 6.9           | 4.00                                 | 0.7740                               |
|                        | 11.2           | 11.63          | 120                     | 13.5                   | > 3.5 | MRO-MRV 13          | 3570                   | 11.2          | 6.9           | 4.00                                 | 0.6940                               |
|                        | 14.0           | 14.02          | 100                     | 15.6                   | > 3.5 | MRO-MRV 13          | 4040                   | 11.2          | 6.9           | 4.00                                 | 0.6660                               |
|                        | 16.0           | 15.14          | 92.5                    | 17.5                   | > 3.5 | MRO-MRV 13          | 3550                   | 11.2          | 6.9           | 4.00                                 | 0.6210                               |
|                        | 18.0           | 18.25          | 76.7                    | 20.3                   | > 3.5 | MRO-MRV 13          | 4240                   | 11.2          | 6.9           | 4.00                                 | 0.6040                               |
|                        | 20.0           | 19.15          | 73.1                    | 21.9                   | > 3.5 | MRO-MRV 13          | 3670                   | 11.2          | 6.9           | 4.00                                 | 0.5770                               |
|                        | 22.4           | 23.33          | 60                      | 27.8                   | > 3.5 | MRO-MRV 13          | 3820                   | 11.2          | 6.9           | 4.00                                 | 0.5510                               |
|                        | 25.0           | 24.44          | 57.3                    | 28.1                   | > 3.5 | MRO-MRV 13          | 4150                   | 11.2          | 6.9           | 4.00                                 | 0.4940                               |
|                        | 28.0           | 29.18          | 48                      | 33.6                   | > 3.5 | MRO-MRV 13          | 3960                   | 11.2          | 6.9           | 4.00                                 | 0.5290                               |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 0.18                   | 31.5           | 31.82          | 44                      | 36.7                   | > 3.5 | MRO-MRV 13          | 4120                   | 11.2          | 6.9           | 4.00                                 | 0.4770                               |
|                        | 35.5           | 37.95          | 36.9                    | 43.6                   | > 3.5 | MRO-MRV 13          | 4430                   | 11.2          | 6.9           | 4.00                                 | 0.5120                               |
|                        | 40.0           | 40.25          | 34.8                    | 46.3                   | > 3.5 | MRO-MRV 13          | 4100                   | 11.2          | 6.9           | 4.00                                 | 0.4670                               |
|                        | 45.0           | 47.88          | 29.2                    | 55.6                   | 3.1   | MRO-MRV 13          | 4300                   | 11.2          | 6.9           | 4.00                                 | 0.4540                               |
|                        | 50.0           | 49.02          | 28.6                    | 56.3                   | 3.1   | MRO-MRV 13          | 4100                   | 11.2          | 6.9           | 4.00                                 | 0.4610                               |
|                        | 56.0           | 59.10          | 23.7                    | 68.1                   | 2.1   | MRO-MRV 13          | 4820                   | 11.2          | 6.9           | 4.00                                 | 0.4600                               |
|                        | 63.0           | 61.31          | 22.8                    | 71.2                   | 2.4   | MRO-MRV 13          | 4000                   | 11.2          | 6.9           | 4.00                                 | 0.4560                               |
|                        | 71.0           | 73.77          | 19                      | 85.0                   | 2.0   | MRO-MRV 13          | 4000                   | 11.2          | 6.9           | 4.00                                 | 0.4470                               |
|                        | 80.0           | 84.93          | 16.5                    | 99.0                   | 1.7   | MRO-MRV 13          | 4400                   | 11.2          | 6.9           | 4.00                                 | 0.4420                               |
|                        | 90.0           | 92.26          | 15.2                    | 108.0                  | 1.7   | MRO-MRV 13          | 4000                   | 11.2          | 6.9           | 4.00                                 | 0.4450                               |
|                        | 100.0          | 103.46         | 13.5                    | 120.0                  | 1.5   | MRO-MRV 13          | 4000                   | 11.2          | 6.9           | 4.00                                 | 0.4410                               |
|                        | 112.0          | 111.22         | 12.6                    | 128.6                  | 1.2   | MRO-MRV 13          | 4800                   | 11.2          | 6.9           | 4.00                                 | 0.4440                               |
|                        | 125.0          | 129.39         | 10.8                    | 147.3                  | 1.2   | MRO-MRV 13          | 4000                   | 11.2          | 6.9           | 4.00                                 | 0.4400                               |
|                        | 140.0          | 132.61         | 10.6                    | 150.0                  | 1.0   | MRO-MRV 13          | 4700                   | 11.2          | 6.9           | 4.00                                 | 0.4420                               |
|                        | 160.0          | 168.30         | 8.32                    | 196.9                  | 0.9   | MRO-MRV 13          | 4100                   | 11.2          | 6.9           | 4.00                                 | 0.4390                               |
|                        | 180.0          | 185.98         | 7.53                    | 207.7                  | 0.7   | MRO-MRV 13          | 4700                   | 11.2          | 6.9           | 4.00                                 | 0.4390                               |
| 0.25                   | 6.3            | 6.62           | 211.4                   | 10.6                   | > 3.5 | MRO-MRV 23          | 3350                   | 17.1          | 11.3          | 5.00                                 | 1.7940                               |
|                        |                | 6.43           | 217.6                   | 10.3                   | > 3.5 | MRO-MRV 33          | 4550                   | 22.0          | 16.2          | 5.00                                 | 5.3400                               |
|                        |                | 6.60           | 212.1                   | 10.6                   | > 3.5 | MRO-MRV 43          | 5570                   | 46.8          | 41.0          | 5.00                                 | 11.5009                              |
|                        | 7.1            | 7.58           | 185                     | 12.0                   | > 3.5 | MRO-MRV 13          | 3310                   | 12.7          | 6.9           | 5.00                                 | 0.9150                               |
|                        | 8.0            | 8.47           | 165.3                   | 13.4                   | > 3.5 | MRO-MRV 23          | 3620                   | 17.1          | 11.3          | 5.00                                 | 1.3930                               |
|                        |                | 8.25           | 169.7                   | 13.2                   | > 3.5 | MRO-MRV 33          | 5540                   | 22.0          | 16.2          | 5.00                                 | 4.2720                               |
|                        |                | 8.35           | 167.6                   | 13.4                   | > 3.5 | MRO-MRV 43          | 6000                   | 46.8          | 41.0          | 5.00                                 | 9.2271                               |
|                        | 9.0            | 9.14           | 153                     | 14.8                   | > 3.5 | MRO-MRV 13          | 3740                   | 12.7          | 6.9           | 5.00                                 | 0.8480                               |
|                        |                | 8.97           | 156                     | 14.4                   | > 3.5 | MRO-MRV 23          | 3710                   | 17.1          | 11.3          | 5.00                                 | 1.5320                               |
|                        |                | 9.09           | 154                     | 14.6                   | > 3.5 | MRO-MRV 33          | 5710                   | 22.0          | 16.2          | 5.00                                 | 4.6310                               |
|                        |                | 8.72           | 160.6                   | 14.0                   | > 3.5 | MRO-MRV 43          | 5980                   | 46.8          | 41.0          | 5.00                                 | 10.1119                              |
|                        | 10.0           | 9.57           | 146                     | 15.2                   | > 3.5 | MRO-MRV 13          | 3600                   | 12.7          | 6.9           | 5.00                                 | 0.7740                               |
|                        |                | 10.43          | 134.3                   | 16.6                   | > 3.5 | MRO-MRV 23          | 3870                   | 17.1          | 11.3          | 5.00                                 | 1.1640                               |
|                        |                | 10.17          | 137.7                   | 16.2                   | > 3.5 | MRO-MRV 33          | 5630                   | 22.0          | 16.2          | 5.00                                 | 3.6570                               |
|                        |                | 10.43          | 134.2                   | 16.8                   | > 3.5 | MRO-MRV 43          | 6430                   | 46.8          | 41.0          | 5.00                                 | 7.7706                               |
|                        | 11.2           | 11.63          | 120                     | 18.8                   | > 3.5 | MRO-MRV 13          | 3570                   | 12.7          | 6.9           | 5.00                                 | 0.6940                               |
|                        |                | 11.48          | 122                     | 18.5                   | > 3.5 | MRO-MRV 23          | 4040                   | 17.1          | 11.3          | 5.00                                 | 1.2320                               |
|                        |                | 11.65          | 120.2                   | 18.6                   | > 3.5 | MRO-MRV 33          | 5730                   | 22.0          | 16.2          | 5.00                                 | 3.8410                               |
|                        |                | 11.04          | 126.8                   | 17.7                   | > 3.5 | MRO-MRV 43          | 6520                   | 46.8          | 41.0          | 5.00                                 | 8.3593                               |
|                        | 12.5           | 13.03          | 107.4                   | 20.8                   | > 3.5 | MRO-MRV 23          | 3920                   | 17.1          | 11.3          | 5.00                                 | 0.9900                               |
|                        |                | 12.72          | 110                     | 20.5                   | > 3.5 | MRO-MRV 33          | 5710                   | 22.0          | 16.2          | 5.00                                 | 3.1860                               |
|                        |                | 13.29          | 105.4                   | 21.2                   | > 3.5 | MRO-MRV 43          | 6950                   | 46.8          | 41.0          | 5.00                                 | 6.6865                               |
|                        | 14.0           | 14.02          | 100                     | 21.7                   | > 3.5 | MRO-MRV 13          | 4040                   | 12.7          | 6.9           | 5.00                                 | 0.6660                               |
|                        |                | 14.13          | 99.1                    | 23.0                   | > 3.5 | MRO-MRV 23          | 4340                   | 17.1          | 11.3          | 5.00                                 | 1.0580                               |
|                        |                | 13.52          | 103.5                   | 21.7                   | > 3.5 | MRO-MRV 33          | 5520                   | 22.0          | 16.2          | 5.00                                 | 2.5250                               |
|                        |                | 13.87          | 100.9                   | 22.2                   | > 3.5 | MRO-MRV 43          | 7190                   | 46.8          | 41.0          | 5.00                                 | 5.5410                               |
|                        | 16.0           | 15.14          | 92.5                    | 24.3                   | > 3.5 | MRO-MRV 13          | 3550                   | 12.7          | 6.9           | 5.00                                 | 0.6210                               |
|                        |                | 16.68          | 83.9                    | 26.3                   | > 3.5 | MRO-MRV 23          | 3620                   | 17.1          | 11.3          | 5.00                                 | 0.8580                               |
|                        |                | 16.30          | 85.9                    | 26.0                   | > 3.5 | MRO-MRV 33          | 5730                   | 22.0          | 16.2          | 5.00                                 | 2.8190                               |
|                        |                | 16.21          | 86.4                    | 26.1                   | > 3.5 | MRO-MRV 43          | 7420                   | 46.8          | 41.0          | 5.00                                 | 6.0497                               |
|                        | 18.0           | 18.25          | 76.7                    | 28.1                   | > 3.5 | MRO-MRV 13          | 4240                   | 12.7          | 6.9           | 5.00                                 | 0.6040                               |
|                        |                | 17.80          | 78.6                    | 28.4                   | > 3.5 | MRO-MRV 23          | 4480                   | 17.1          | 11.3          | 5.00                                 | 0.6830                               |
|                        |                | 17.33          | 80.8                    | 27.7                   | > 3.5 | MRO-MRV 33          | 5680                   | 22.0          | 16.2          | 5.00                                 | 2.2830                               |
|                        |                | 17.55          | 79.8                    | 28.2                   | > 3.5 | MRO-MRV 43          | 7740                   | 46.8          | 41.0          | 5.00                                 | 5.0261                               |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 0.25                   | 20.0           | 19.15          | 73.1                    | 30.4                   | > 3.5 | MRO-MRV 13          | 3670                   | 12.7          | 6.9           | 5.00                                 | 0.5770                               |
|                        |                | 20.55          | 68.1                    | 32.3                   | > 3.5 | MRO-MRV 23          | 3720                   | 17.1          | 11.3          | 5.00                                 | 0.7790                               |
|                        |                | 19.10          | 73.3                    | 30.5                   | > 3.5 | MRO-MRV 33          | 5730                   | 22.0          | 16.2          | 5.00                                 | 2.3640                               |
|                        |                | 20.22          | 69.2                    | 32.5                   | > 3.5 | MRO-MRV 43          | 7980                   | 46.8          | 41.0          | 5.00                                 | 5.5318                               |
|                        | 22.4           | 23.33          | 60                      | 38.6                   | > 3.5 | MRO-MRV 13          | 3820                   | 12.7          | 6.9           | 5.00                                 | 0.5510                               |
|                        |                | 21.91          | 63.9                    | 35.5                   | > 3.5 | MRO-MRV 23          | 4420                   | 17.1          | 11.3          | 5.00                                 | 0.6310                               |
|                        |                | 21.67          | 64.6                    | 34.4                   | > 3.5 | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 2.5320                               |
|                        |                | 21.94          | 63.8                    | 35.2                   | > 3.5 | MRO-MRV 43          | 8310                   | 46.8          | 41.0          | 5.00                                 | 4.6963                               |
|                        | 25.0           | 24.44          | 57.3                    | 39.1                   | > 3.5 | MRO-MRV 13          | 4150                   | 12.7          | 6.9           | 5.00                                 | 0.4940                               |
|                        |                | 26.07          | 53.7                    | 40.8                   | > 3.5 | MRO-MRV 23          | 3930                   | 17.1          | 11.3          | 5.00                                 | 0.7150                               |
|                        |                | 26.73          | 52.4                    | 42.4                   | > 3.5 | MRO-MRV 33          | 5730                   | 22.0          | 16.2          | 5.00                                 | 2.0370                               |
|                        |                | 26.10          | 53.6                    | 42.0                   | > 3.5 | MRO-MRV 43          | 8690                   | 46.8          | 41.0          | 5.00                                 | 5.1123                               |
|                        | 28.0           | 29.18          | 48                      | 46.7                   | > 3.5 | MRO-MRV 13          | 3960                   | 12.7          | 6.9           | 5.00                                 | 0.5290                               |
|                        |                | 27.39          | 51.1                    | 43.1                   | > 3.5 | MRO-MRV 23          | 4180                   | 17.1          | 11.3          | 5.00                                 | 0.5920                               |
|                        |                | 28.74          | 48.7                    | 45.5                   | > 3.5 | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.9940                               |
|                        |                | 27.92          | 50.1                    | 44.8                   | > 3.5 | MRO-MRV 43          | 8990                   | 46.8          | 41.0          | 5.00                                 | 4.4508                               |
|                        | 31.5           | 31.82          | 44                      | 50.9                   | 3.2   | MRO-MRV 13          | 4120                   | 12.7          | 6.9           | 5.00                                 | 0.4770                               |
|                        |                | 32.97          | 42.5                    | 54.2                   | > 3.5 | MRO-MRV 23          | 4960                   | 17.1          | 11.3          | 5.00                                 | 0.5440                               |
|                        |                | 33.27          | 42.1                    | 52.9                   | > 3.5 | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 2.2750                               |
|                        |                | 32.52          | 43.1                    | 51.7                   | > 3.5 | MRO-MRV 43          | 9390                   | 46.8          | 41.0          | 5.00                                 | 4.8644                               |
|                        | 35.5           | 37.95          | 36.9                    | 60.6                   | 2.6   | MRO-MRV 13          | 4430                   | 12.7          | 6.9           | 5.00                                 | 0.5120                               |
|                        |                | 35.06          | 39.9                    | 55.4                   | > 3.5 | MRO-MRV 23          | 4220                   | 17.1          | 11.3          | 5.00                                 | 0.5620                               |
|                        |                | 34.26          | 40.9                    | 56.0                   | > 3.5 | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.9540                               |
|                        |                | 34.06          | 41.1                    | 53.8                   | > 3.5 | MRO-MRV 43          | 9580                   | 46.8          | 41.0          | 5.00                                 | 4.3066                               |
|                        | 40.0           | 40.25          | 34.8                    | 64.3                   | 2.7   | MRO-MRV 13          | 4100                   | 12.7          | 6.9           | 5.00                                 | 0.4670                               |
|                        |                | 41.21          | 34                      | 64.6                   | > 3.5 | MRO-MRV 23          | 4600                   | 17.1          | 11.3          | 5.00                                 | 0.5270                               |
|                        |                | 40.23          | 34.8                    | 64.8                   | > 3.5 | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.8490                               |
|                        | 45.0           | 47.88          | 29.2                    | 77.3                   | 2.2   | MRO-MRV 13          | 4300                   | 12.7          | 6.9           | 5.00                                 | 0.4540                               |
|                        |                | 43.18          | 32.4                    | 70.5                   | > 3.5 | MRO-MRV 23          | 4450                   | 17.1          | 11.3          | 5.00                                 | 0.5440                               |
|                        |                | 45.54          | 30.7                    | 71.3                   | > 3.5 | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.8890                               |
|                        |                | 42.50          | 32.9                    | 67.7                   | > 3.5 | MRO-MRV 43          | 10020                  | 46.8          | 41.0          | 5.00                                 | 4.1893                               |
|                        | 50.0           | 49.02          | 28.6                    | 78.1                   | 2.2   | MRO-MRV 13          | 4100                   | 12.7          | 6.9           | 5.00                                 | 0.4610                               |
|                        |                | 52.75          | 26.5                    | 84.2                   | > 3.5 | MRO-MRV 23          | 4680                   | 17.1          | 11.3          | 5.00                                 | 0.5130                               |
|                        |                | 51.55          | 27.2                    | 80.6                   | > 3.5 | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.8120                               |
|                        |                | 51.25          | 27.3                    | 81.7                   | > 3.5 | MRO-MRV 43          | 9720                   | 46.8          | 41.0          | 5.00                                 | 4.0217                               |
|                        | 56.0           | 59.10          | 23.7                    | 94.6                   | 1.5   | MRO-MRV 13          | 4820                   | 12.7          | 6.9           | 5.00                                 | 0.4600                               |
|                        |                | 54.78          | 25.6                    | 88.1                   | > 3.5 | MRO-MRV 23          | 4720                   | 17.1          | 11.3          | 5.00                                 | 0.5290                               |
|                        |                | 53.60          | 26.1                    | 85.3                   | > 3.5 | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.8620                               |
|                        |                | 54.84          | 25.5                    | 87.5                   | > 3.5 | MRO-MRV 43          | 9800                   | 46.8          | 41.0          | 5.00                                 | 4.0943                               |
|                        | 63.0           | 61.31          | 22.8                    | 98.8                   | 1.7   | MRO-MRV 13          | 4000                   | 12.7          | 6.9           | 5.00                                 | 0.4560                               |
|                        |                | 64.97          | 21.5                    | 104.7                  | 3.0   | MRO-MRV 23          | 4930                   | 17.1          | 11.3          | 5.00                                 | 0.5050                               |
|                        |                | 64.33          | 21.8                    | 102.5                  | > 3.5 | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.8750                               |
|                        |                | 63.95          | 21.9                    | 103.1                  | > 3.5 | MRO-MRV 43          | 10090                  | 46.8          | 41.0          | 5.00                                 | 3.9699                               |
|                        | 71.0           | 73.77          | 19                      | 118.1                  | 1.4   | MRO-MRV 13          | 4000                   | 12.7          | 6.9           | 5.00                                 | 0.4470                               |
|                        |                | 73.98          | 18.9                    | 118.8                  | 2.4   | MRO-MRV 23          | 5510                   | 17.1          | 11.3          | 5.00                                 | 0.4950                               |
|                        |                | 68.52          | 20.4                    | 111.5                  | > 3.5 | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.7840                               |
|                        |                | 68.34          | 20.5                    | 109.5                  | > 3.5 | MRO-MRV 43          | 10970                  | 46.8          | 41.0          | 5.00                                 | 4.0382                               |
|                        | 80.0           | 84.93          | 16.5                    | 137.5                  | 1.2   | MRO-MRV 13          | 4400                   | 12.7          | 6.9           | 5.00                                 | 0.4420                               |
|                        |                | 82.42          | 17                      | 131.4                  | 2.4   | MRO-MRV 23          | 5100                   | 17.1          | 11.3          | 5.00                                 | 0.4990                               |
|                        |                | 80.65          | 17.4                    | 131.8                  | > 3.5 | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.7720                               |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 0.25                   | 80.0           | 82.52          | 17                      | 131.6                  | > 3.5 | MRO-MRV 43          | 10510                  | 46.8          | 41.0          | 5.00                                 | 3.9279                               |
|                        | 90.0           | 92.26          | 15.2                    | 150.0                  | 1.2   | MRO-MRV 13          | 4000                   | 12.7          | 6.9           | 5.00                                 | 0.4450                               |
|                        |                | 91.12          | 15.4                    | 146.2                  | 2.1   | MRO-MRV 23          | 5100                   | 17.1          | 11.3          | 5.00                                 | 0.4900                               |
|                        |                | 91.94          | 15.2                    | 146.4                  | 2.8   | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.8090                               |
|                        |                | 89.69          | 15.6                    | 139.1                  | > 3.5 | MRO-MRV 43          | 11880                  | 46.8          | 41.0          | 5.00                                 | 3.8846                               |
|                        | 100.0          | 103.46         | 13.5                    | 166.7                  | 1.1   | MRO-MRV 13          | 4000                   | 12.7          | 6.9           | 5.00                                 | 0.4410                               |
|                        |                | 106.60         | 13.1                    | 173.1                  | 1.6   | MRO-MRV 23          | 6000                   | 17.1          | 11.3          | 5.00                                 | 0.4940                               |
|                        |                | 105.20         | 13.3                    | 168.6                  | 3.4   | MRO-MRV 33          | 5750                   | 22.0          | 16.2          | 5.00                                 | 1.7580                               |
|                        |                | 102.83         | 13.6                    | 167.9                  | > 3.5 | MRO-MRV 43          | 11740                  | 46.8          | 41.0          | 5.00                                 | 3.9031                               |
|                        | 112.0          | 115.60         | 12.1                    | 184.5                  | 1.7   | MRO-MRV 23          | 5100                   | 17.1          | 11.3          | 5.00                                 | 0.4870                               |
|                        |                | 113.11         | 12.4                    | 181.3                  | 3.2   | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.7370                               |
|                        |                | 115.73         | 12.1                    | 182.1                  | > 3.5 | MRO-MRV 43          | 11130                  | 46.8          | 41.0          | 5.00                                 | 3.8632                               |
|                        | 125.0          | 123.47         | 11.34                   | 197.0                  | 1.3   | MRO-MRV 23          | 6200                   | 17.1          | 11.3          | 5.00                                 | 0.4890                               |
|                        |                | 125.46         | 11.16                   | 200.0                  | 2.4   | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.7510                               |
|                        |                | 121.80         | 11.5                    | 195.0                  | > 3.5 | MRO-MRV 43          | 13730                  | 46.8          | 41.0          | 5.00                                 | 3.9785                               |
|                        | 140.0          | 149.51         | 9.36                    | 241.1                  | 1.1   | MRO-MRV 23          | 6000                   | 17.1          | 11.3          | 5.00                                 | 0.4850                               |
|                        |                | 147.54         | 9.49                    | 237.7                  | 2.4   | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.7300                               |
|                        |                | 144.22         | 9.71                    | 237.5                  | > 3.5 | MRO-MRV 43          | 12410                  | 46.8          | 41.0          | 5.00                                 | 3.8506                               |
|                        | 160.0          | 156.64         | 8.94                    | 250.0                  | 1.0   | MRO-MRV 23          | 6200                   | 17.1          | 11.3          | 5.00                                 | 0.4860                               |
|                        |                | 162.17         | 8.63                    | 262.2                  | 1.6   | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.7940                               |
|                        |                | 164.63         | 8.5                     | 264.1                  | 2.8   | MRO-MRV 43          | 14400                  | 46.8          | 41.0          | 5.00                                 | 3.8831                               |
|                        | 180.0          | 170.11         | 8.23                    | 270.8                  | 1.0   | MRO-MRV 23          | 6200                   | 17.1          | 11.3          | 5.00                                 | 0.4910                               |
|                        |                | 175.95         | 7.96                    | 284.9                  | 1.7   | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.7260                               |
|                        |                | 183.27         | 7.64                    | 294.8                  | 2.7   | MRO-MRV 43          | 14710                  | 46.8          | 41.0          | 5.00                                 | 3.8768                               |
|                        | 200.0          | 202.59         | 6.91                    | 325.0                  | 0.8   | MRO-MRV 23          | 6200                   | 17.1          | 11.3          | 5.00                                 | 0.4840                               |
|                        |                | 208.42         | 6.72                    | 335.9                  | 1.3   | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.7280                               |
|                        |                | 190.66         | 7.34                    | 307.4                  | 2.4   | MRO-MRV 43          | 14830                  | 46.8          | 41.0          | 5.00                                 | 3.8477                               |
|                        | 224.0          | 238.58         | 5.87                    | 382.4                  | 0.7   | MRO-MRV 23          | 6200                   | 17.1          | 11.3          | 5.00                                 | 0.4830                               |
|                        |                | 230.89         | 6.06                    | 367.6                  | 2.0   | MRO-MRV 43          | 15400                  | 46.8          | 41.0          | 5.00                                 | 3.8405                               |
|                        | 250.0          | 248.56         | 5.63                    | 398.1                  | 1.1   | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.7250                               |
|                        |                | 257.04         | 5.45                    | 407.6                  | 1.8   | MRO-MRV 43          | 16500                  | 46.8          | 41.0          | 5.00                                 | 3.8372                               |
|                        | 280.0          | 274.11         | 5.107                   | 430.0                  | 1.0   | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.7240                               |
|                        |                | 289.00         | 4.844                   | 457.3                  | 1.6   | MRO-MRV 43          | 16470                  | 46.8          | 41.0          | 5.00                                 | 3.8343                               |
|                        | 315.0          | 342.23         | 4.091                   | 537.5                  | 0.8   | MRO-MRV 33          | 5740                   | 22.0          | 16.2          | 5.00                                 | 1.7210                               |
| 0.37                   | 6.3            | 6.62           | 211.4                   | 15.7                   | > 3.5 | MRO-MRV 23          | 3350                   | 17.5          | 11.3          | 8.00                                 | 1.7940                               |
|                        |                | 6.43           | 217.6                   | 15.2                   | > 3.5 | MRO-MRV 33          | 4550                   | 22.4          | 16.2          | 8.00                                 | 5.3400                               |
|                        |                | 6.60           | 212.1                   | 15.7                   | > 3.5 | MRO-MRV 43          | 5570                   | 47.2          | 41.0          | 8.00                                 | 11.5009                              |
|                        | 7.1            | 7.58           | 185                     | 17.8                   | > 3.5 | MRO-MRV 13          | 3310                   | 13.1          | 6.9           | 8.00                                 | 0.9150                               |
|                        | 8.0            | 8.47           | 165.3                   | 19.9                   | > 3.5 | MRO-MRV 23          | 3620                   | 17.5          | 11.3          | 8.00                                 | 1.3930                               |
|                        |                | 8.25           | 169.7                   | 19.6                   | > 3.5 | MRO-MRV 33          | 5540                   | 22.4          | 16.2          | 8.00                                 | 4.2720                               |
|                        |                | 8.35           | 167.6                   | 19.8                   | > 3.5 | MRO-MRV 43          | 6000                   | 47.2          | 41.0          | 8.00                                 | 9.2271                               |
|                        | 9.0            | 9.14           | 153                     | 21.9                   | > 3.5 | MRO-MRV 13          | 3740                   | 13.1          | 6.9           | 8.00                                 | 0.8480                               |
|                        |                | 8.97           | 156                     | 21.3                   | > 3.5 | MRO-MRV 23          | 3710                   | 17.5          | 11.3          | 8.00                                 | 1.5320                               |
|                        |                | 9.09           | 154                     | 21.6                   | > 3.5 | MRO-MRV 33          | 5710                   | 22.4          | 16.2          | 8.00                                 | 4.6310                               |
|                        |                | 8.72           | 160.6                   | 20.7                   | > 3.5 | MRO-MRV 43          | 5980                   | 47.2          | 41.0          | 8.00                                 | 10.1119                              |
|                        | 10.0           | 9.57           | 146                     | 22.5                   | > 3.5 | MRO-MRV 13          | 3600                   | 13.1          | 6.9           | 8.00                                 | 0.7740                               |
|                        |                | 10.43          | 134.3                   | 24.5                   | > 3.5 | MRO-MRV 23          | 3870                   | 17.5          | 11.3          | 8.00                                 | 1.1640                               |
|                        |                | 10.17          | 137.7                   | 24.0                   | > 3.5 | MRO-MRV 33          | 5630                   | 22.4          | 16.2          | 8.00                                 | 3.6570                               |
|                        |                | 10.43          | 134.2                   | 24.8                   | > 3.5 | MRO-MRV 43          | 6430                   | 47.2          | 41.0          | 8.00                                 | 7.7706                               |
|                        | 11.2           | 11.63          | 120                     | 27.8                   | > 3.5 | MRO-MRV 13          | 3570                   | 13.1          | 6.9           | 8.00                                 | 0.6940                               |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 0.37                   | 11.2           | 11.48          | 122                     | 27.5                   | > 3.5 | MRO-MRV 23          | 4040                   | 17.5          | 11.3          | 8.00                                 | 1.2320                               |
|                        |                | 11.65          | 120.2                   | 27.6                   | > 3.5 | MRO-MRV 33          | 5730                   | 22.4          | 16.2          | 8.00                                 | 3.8410                               |
|                        |                | 11.04          | 126.8                   | 26.1                   | > 3.5 | MRO-MRV 43          | 6520                   | 47.2          | 41.0          | 8.00                                 | 8.3593                               |
|                        | 12.5           | 13.03          | 107.4                   | 30.8                   | > 3.5 | MRO-MRV 23          | 3920                   | 17.5          | 11.3          | 8.00                                 | 0.9900                               |
|                        |                | 12.72          | 110                     | 30.3                   | > 3.5 | MRO-MRV 33          | 5710                   | 22.4          | 16.2          | 8.00                                 | 3.1860                               |
|                        |                | 13.29          | 105.4                   | 31.4                   | > 3.5 | MRO-MRV 43          | 6950                   | 47.2          | 41.0          | 8.00                                 | 6.6865                               |
|                        | 14.0           | 14.02          | 100                     | 32.1                   | > 3.5 | MRO-MRV 13          | 4040                   | 13.1          | 6.9           | 8.00                                 | 0.6660                               |
|                        |                | 14.13          | 99.1                    | 34.0                   | > 3.5 | MRO-MRV 23          | 4340                   | 17.5          | 11.3          | 8.00                                 | 1.0580                               |
|                        |                | 13.52          | 103.5                   | 32.1                   | > 3.5 | MRO-MRV 33          | 5520                   | 22.4          | 16.2          | 8.00                                 | 2.5250                               |
|                        |                | 13.87          | 100.9                   | 32.9                   | > 3.5 | MRO-MRV 43          | 7190                   | 47.2          | 41.0          | 8.00                                 | 5.5410                               |
|                        | 16.0           | 15.14          | 92.5                    | 35.9                   | > 3.5 | MRO-MRV 13          | 3550                   | 13.1          | 6.9           | 8.00                                 | 0.6210                               |
|                        |                | 16.68          | 83.9                    | 38.9                   | > 3.5 | MRO-MRV 23          | 3620                   | 17.5          | 11.3          | 8.00                                 | 0.8580                               |
|                        |                | 16.30          | 85.9                    | 38.4                   | > 3.5 | MRO-MRV 33          | 5730                   | 22.4          | 16.2          | 8.00                                 | 2.8190                               |
|                        |                | 16.21          | 86.4                    | 38.6                   | > 3.5 | MRO-MRV 43          | 7420                   | 47.2          | 41.0          | 8.00                                 | 6.0497                               |
|                        | 18.0           | 18.25          | 76.7                    | 41.6                   | 3.2   | MRO-MRV 13          | 4240                   | 13.1          | 6.9           | 8.00                                 | 0.6040                               |
|                        |                | 17.80          | 78.6                    | 42.0                   | > 3.5 | MRO-MRV 23          | 4480                   | 17.5          | 11.3          | 8.00                                 | 0.6830                               |
|                        |                | 17.33          | 80.8                    | 41.0                   | > 3.5 | MRO-MRV 33          | 5680                   | 22.4          | 16.2          | 8.00                                 | 2.2830                               |
|                        |                | 17.55          | 79.8                    | 41.8                   | > 3.5 | MRO-MRV 43          | 7740                   | 47.2          | 41.0          | 8.00                                 | 5.0261                               |
|                        | 20.0           | 19.15          | 73.1                    | 44.9                   | > 3.5 | MRO-MRV 13          | 3670                   | 13.1          | 6.9           | 8.00                                 | 0.5770                               |
|                        |                | 20.55          | 68.1                    | 47.8                   | > 3.5 | MRO-MRV 23          | 3720                   | 17.5          | 11.3          | 8.00                                 | 0.7790                               |
|                        |                | 19.10          | 73.3                    | 45.1                   | > 3.5 | MRO-MRV 33          | 5730                   | 22.4          | 16.2          | 8.00                                 | 2.3640                               |
|                        |                | 20.22          | 69.2                    | 48.1                   | > 3.5 | MRO-MRV 43          | 7980                   | 47.2          | 41.0          | 8.00                                 | 5.5318                               |
|                        | 22.4           | 23.33          | 60                      | 57.2                   | 3.0   | MRO-MRV 13          | 3820                   | 13.1          | 6.9           | 8.00                                 | 0.5510                               |
|                        |                | 21.91          | 63.9                    | 52.6                   | > 3.5 | MRO-MRV 23          | 4420                   | 17.5          | 11.3          | 8.00                                 | 0.6310                               |
|                        |                | 21.67          | 64.6                    | 50.9                   | > 3.5 | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 2.5320                               |
|                        |                | 21.94          | 63.8                    | 52.1                   | > 3.5 | MRO-MRV 43          | 8310                   | 47.2          | 41.0          | 8.00                                 | 4.6963                               |
|                        | 25.0           | 24.44          | 57.3                    | 57.8                   | 2.6   | MRO-MRV 13          | 4150                   | 13.1          | 6.9           | 8.00                                 | 0.4940                               |
|                        |                | 26.07          | 53.7                    | 60.4                   | > 3.5 | MRO-MRV 23          | 3930                   | 17.5          | 11.3          | 8.00                                 | 0.7150                               |
|                        |                | 26.73          | 52.4                    | 62.8                   | > 3.5 | MRO-MRV 33          | 5730                   | 22.4          | 16.2          | 8.00                                 | 2.0370                               |
|                        |                | 26.10          | 53.6                    | 62.2                   | > 3.5 | MRO-MRV 43          | 8690                   | 47.2          | 41.0          | 8.00                                 | 5.1123                               |
|                        | 28.0           | 29.18          | 48                      | 69.1                   | 2.5   | MRO-MRV 13          | 3960                   | 13.1          | 6.9           | 8.00                                 | 0.5290                               |
|                        |                | 27.39          | 51.1                    | 63.7                   | > 3.5 | MRO-MRV 23          | 4180                   | 17.5          | 11.3          | 8.00                                 | 0.5920                               |
|                        |                | 28.74          | 48.7                    | 67.3                   | > 3.5 | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.9940                               |
|                        |                | 27.92          | 50.1                    | 66.3                   | > 3.5 | MRO-MRV 43          | 8990                   | 47.2          | 41.0          | 8.00                                 | 4.4508                               |
|                        | 31.5           | 31.82          | 44                      | 75.4                   | 2.2   | MRO-MRV 13          | 4120                   | 13.1          | 6.9           | 8.00                                 | 0.4770                               |
|                        |                | 32.97          | 42.5                    | 80.2                   | 3.2   | MRO-MRV 23          | 4960                   | 17.5          | 11.3          | 8.00                                 | 0.5440                               |
|                        |                | 33.27          | 42.1                    | 78.3                   | > 3.5 | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 2.2750                               |
|                        |                | 32.52          | 43.1                    | 76.6                   | > 3.5 | MRO-MRV 43          | 9390                   | 47.2          | 41.0          | 8.00                                 | 4.8644                               |
|                        | 35.5           | 37.95          | 36.9                    | 89.7                   | 1.8   | MRO-MRV 13          | 4430                   | 13.1          | 6.9           | 8.00                                 | 0.5120                               |
|                        |                | 35.06          | 39.9                    | 81.9                   | > 3.5 | MRO-MRV 23          | 4220                   | 17.5          | 11.3          | 8.00                                 | 0.5620                               |
|                        |                | 34.26          | 40.9                    | 82.9                   | > 3.5 | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.9540                               |
|                        |                | 34.06          | 41.1                    | 79.7                   | > 3.5 | MRO-MRV 43          | 9580                   | 47.2          | 41.0          | 8.00                                 | 4.3066                               |
|                        | 40.0           | 40.25          | 34.8                    | 95.2                   | 1.8   | MRO-MRV 13          | 4100                   | 13.1          | 6.9           | 8.00                                 | 0.4670                               |
|                        |                | 41.21          | 34                      | 95.6                   | 3.2   | MRO-MRV 23          | 4600                   | 17.5          | 11.3          | 8.00                                 | 0.5270                               |
|                        |                | 40.23          | 34.8                    | 95.9                   | > 3.5 | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.8490                               |
|                        | 45.0           | 47.88          | 29.2                    | 114.4                  | 1.5   | MRO-MRV 13          | 4300                   | 13.1          | 6.9           | 8.00                                 | 0.4540                               |
|                        |                | 43.18          | 32.4                    | 104.3                  | 3.0   | MRO-MRV 23          | 4450                   | 17.5          | 11.3          | 8.00                                 | 0.5440                               |
|                        |                | 45.54          | 30.7                    | 105.5                  | > 3.5 | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.8890                               |
|                        |                | 42.50          | 32.9                    | 100.3                  | > 3.5 | MRO-MRV 43          | 10020                  | 47.2          | 41.0          | 8.00                                 | 4.1893                               |
|                        | 50.0           | 49.02          | 28.6                    | 115.6                  | 1.5   | MRO-MRV 13          | 4100                   | 13.1          | 6.9           | 8.00                                 | 0.4610                               |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 0.37                   | 50.0           | 52.75          | 26.5                    | 124.7                  | 2.5   | MRO-MRV 23          | 4680                   | 17.5          | 11.3          | 8.00                                 | 0.5130                               |
|                        |                | 51.55          | 27.2                    | 119.2                  | > 3.5 | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.8120                               |
|                        |                | 51.25          | 27.3                    | 120.9                  | > 3.5 | MRO-MRV 43          | 9720                   | 47.2          | 41.0          | 8.00                                 | 4.0217                               |
|                        | 56.0           | 59.10          | 23.7                    | 140.0                  | 1.0   | MRO-MRV 13          | 4820                   | 13.1          | 6.9           | 8.00                                 | 0.4600                               |
|                        |                | 54.78          | 25.6                    | 130.3                  | 2.4   | MRO-MRV 23          | 4720                   | 17.5          | 11.3          | 8.00                                 | 0.5290                               |
|                        |                | 53.60          | 26.1                    | 126.2                  | > 3.5 | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.8620                               |
|                        | 63.0           | 54.84          | 25.5                    | 129.5                  | > 3.5 | MRO-MRV 43          | 9800                   | 47.2          | 41.0          | 8.00                                 | 4.0943                               |
|                        |                | 61.31          | 22.8                    | 146.3                  | 1.2   | MRO-MRV 13          | 4000                   | 13.1          | 6.9           | 8.00                                 | 0.4560                               |
|                        |                | 64.97          | 21.5                    | 155.0                  | 2.0   | MRO-MRV 23          | 4930                   | 17.5          | 11.3          | 8.00                                 | 0.5050                               |
|                        | 71.0           | 64.33          | 21.8                    | 151.7                  | 2.7   | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.8750                               |
|                        |                | 63.95          | 21.9                    | 152.6                  | > 3.5 | MRO-MRV 43          | 10090                  | 47.2          | 41.0          | 8.00                                 | 3.9699                               |
|                        |                | 73.77          | 19                      | 174.7                  | 1.0   | MRO-MRV 13          | 4000                   | 13.1          | 6.9           | 8.00                                 | 0.4470                               |
|                        | 80.0           | 73.98          | 18.9                    | 175.8                  | 1.6   | MRO-MRV 23          | 5510                   | 17.5          | 11.3          | 8.00                                 | 0.4950                               |
|                        |                | 68.52          | 20.4                    | 165.1                  | > 3.5 | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.7840                               |
|                        |                | 68.34          | 20.5                    | 162.1                  | > 3.5 | MRO-MRV 43          | 10970                  | 47.2          | 41.0          | 8.00                                 | 4.0382                               |
|                        | 90.0           | 84.93          | 16.5                    | 203.5                  | 0.8   | MRO-MRV 13          | 4400                   | 13.1          | 6.9           | 8.00                                 | 0.4420                               |
|                        |                | 82.42          | 17                      | 194.4                  | 1.6   | MRO-MRV 23          | 5100                   | 17.5          | 11.3          | 8.00                                 | 0.4990                               |
|                        |                | 80.65          | 17.4                    | 195.1                  | 3.0   | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.7720                               |
|                        | 100.0          | 82.52          | 17                      | 194.7                  | > 3.5 | MRO-MRV 43          | 10510                  | 47.2          | 41.0          | 8.00                                 | 3.9279                               |
|                        |                | 92.26          | 15.2                    | 222.0                  | 0.8   | MRO-MRV 13          | 4000                   | 13.1          | 6.9           | 8.00                                 | 0.4450                               |
|                        |                | 91.12          | 15.4                    | 216.4                  | 1.4   | MRO-MRV 23          | 5100                   | 17.5          | 11.3          | 8.00                                 | 0.4900                               |
|                        | 112.0          | 91.94          | 15.2                    | 216.7                  | 1.9   | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.8090                               |
|                        |                | 89.69          | 15.6                    | 205.8                  | > 3.5 | MRO-MRV 43          | 11880                  | 47.2          | 41.0          | 8.00                                 | 3.8846                               |
|                        |                | 103.46         | 13.5                    | 246.7                  | 0.7   | MRO-MRV 13          | 4000                   | 13.1          | 6.9           | 8.00                                 | 0.4410                               |
|                        | 125.0          | 106.60         | 13.1                    | 256.2                  | 1.1   | MRO-MRV 23          | 6000                   | 17.5          | 11.3          | 8.00                                 | 0.4940                               |
|                        |                | 105.20         | 13.3                    | 249.5                  | 2.3   | MRO-MRV 33          | 5750                   | 22.4          | 16.2          | 8.00                                 | 1.7580                               |
|                        |                | 102.83         | 13.6                    | 248.4                  | > 3.5 | MRO-MRV 43          | 11740                  | 47.2          | 41.0          | 8.00                                 | 3.9031                               |
|                        | 140.0          | 115.60         | 12.1                    | 273.1                  | 1.1   | MRO-MRV 23          | 5100                   | 17.5          | 11.3          | 8.00                                 | 0.4870                               |
|                        |                | 113.11         | 12.4                    | 268.3                  | 2.2   | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.7370                               |
|                        |                | 115.73         | 12.1                    | 269.6                  | > 3.5 | MRO-MRV 43          | 11130                  | 47.2          | 41.0          | 8.00                                 | 3.8632                               |
|                        | 160.0          | 123.47         | 11.34                   | 291.5                  | 0.9   | MRO-MRV 23          | 6200                   | 17.5          | 11.3          | 8.00                                 | 0.4890                               |
|                        |                | 125.46         | 11.16                   | 296.0                  | 1.6   | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.7510                               |
|                        |                | 121.80         | 11.5                    | 288.6                  | 2.7   | MRO-MRV 43          | 13730                  | 47.2          | 41.0          | 8.00                                 | 3.9785                               |
|                        | 180.0          | 149.51         | 9.36                    | 356.8                  | 0.8   | MRO-MRV 23          | 6000                   | 17.5          | 11.3          | 8.00                                 | 0.4850                               |
|                        |                | 147.54         | 9.49                    | 351.8                  | 1.6   | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.7300                               |
|                        |                | 144.22         | 9.71                    | 351.5                  | 2.7   | MRO-MRV 43          | 12410                  | 47.2          | 41.0          | 8.00                                 | 3.8506                               |
|                        | 200.0          | 156.64         | 8.94                    | 370.0                  | 0.7   | MRO-MRV 23          | 6200                   | 17.5          | 11.3          | 8.00                                 | 0.4860                               |
|                        |                | 162.17         | 8.63                    | 388.0                  | 1.1   | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.7940                               |
|                        |                | 164.63         | 8.5                     | 390.8                  | 1.9   | MRO-MRV 43          | 14400                  | 47.2          | 41.0          | 8.00                                 | 3.8831                               |
|                        | 224.0          | 175.95         | 7.96                    | 421.6                  | 1.2   | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.7260                               |
|                        |                | 183.27         | 7.64                    | 436.3                  | 1.8   | MRO-MRV 43          | 14710                  | 47.2          | 41.0          | 8.00                                 | 3.8768                               |
|                        |                | 208.42         | 6.72                    | 497.2                  | 0.9   | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.7280                               |
|                        | 250.0          | 190.66         | 7.34                    | 454.9                  | 1.6   | MRO-MRV 43          | 14830                  | 47.2          | 41.0          | 8.00                                 | 3.8477                               |
|                        |                | 230.89         | 6.06                    | 544.1                  | 1.4   | MRO-MRV 43          | 15400                  | 47.2          | 41.0          | 8.00                                 | 3.8405                               |
|                        |                | 248.56         | 5.63                    | 589.3                  | 0.7   | MRO-MRV 33          | 5740                   | 22.4          | 16.2          | 8.00                                 | 1.7250                               |
|                        | 280.0          | 257.04         | 5.45                    | 603.3                  | 1.2   | MRO-MRV 43          | 16500                  | 47.2          | 41.0          | 8.00                                 | 3.8372                               |
|                        |                | 289.00         | 4.844                   | 676.8                  | 1.1   | MRO-MRV 43          | 16470                  | 47.2          | 41.0          | 8.00                                 | 3.8343                               |
| 0.55                   | 6.3            | 6.62           | 211.4                   | 23.4                   | > 3.5 | MRO-MRV 23          | 3350                   | 19.8          | 11.3          | 14.00                                | 1.7940                               |
|                        |                | 6.43           | 217.6                   | 22.6                   | > 3.5 | MRO-MRV 33          | 4550                   | 24.7          | 16.2          | 14.00                                | 5.3400                               |
|                        |                | 6.60           | 212.1                   | 23.3                   | > 3.5 | MRO-MRV 43          | 5570                   | 49.5          | 41.0          | 14.00                                | 11.5009                              |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 0.55                   | 6.3            | 6.48           | 215.9                   | 22.8                   | > 3.5 | MRO-MRV 53          | 8020                   | 85.1          | 76.6          | 14.00                                | 46.0154                              |
|                        |                | 6.43           | 217.7                   | 22.7                   | > 3.5 | MRO-MRV 63          | 10740                  | 136.0         | 127.5         | 14.00                                | 78.1860                              |
|                        | 7.1            | 7.58           | 185                     | 26.5                   | > 3.5 | MRO-MRV 13          | 3310                   | 15.4          | 6.9           | 14.00                                | 0.9150                               |
|                        | 8.0            | 8.47           | 165.3                   | 29.5                   | > 3.5 | MRO-MRV 23          | 3620                   | 19.8          | 11.3          | 14.00                                | 1.3930                               |
|                        |                | 8.25           | 169.7                   | 29.1                   | > 3.5 | MRO-MRV 33          | 5540                   | 24.7          | 16.2          | 14.00                                | 4.2720                               |
|                        |                | 8.35           | 167.6                   | 29.4                   | > 3.5 | MRO-MRV 43          | 6000                   | 49.5          | 41.0          | 14.00                                | 9.2271                               |
|                        |                | 8.57           | 163.3                   | 30.3                   | > 3.5 | MRO-MRV 53          | 8770                   | 85.1          | 76.6          | 14.00                                | 38.9230                              |
|                        |                | 8.50           | 164.7                   | 30.0                   | > 3.5 | MRO-MRV 63          | 11850                  | 136.0         | 127.5         | 14.00                                | 60.6320                              |
|                        |                | 9.0            | 153                     | 32.5                   | > 3.5 | MRO-MRV 13          | 3740                   | 15.4          | 6.9           | 14.00                                | 0.8480                               |
|                        |                | 8.97           | 156                     | 31.7                   | > 3.5 | MRO-MRV 23          | 3710                   | 19.8          | 11.3          | 14.00                                | 1.5320                               |
|                        |                | 9.09           | 154                     | 32.2                   | > 3.5 | MRO-MRV 33          | 5710                   | 24.7          | 16.2          | 14.00                                | 4.6310                               |
|                        |                | 8.72           | 160.6                   | 30.8                   | > 3.5 | MRO-MRV 43          | 5980                   | 49.5          | 41.0          | 14.00                                | 10.1119                              |
|                        |                | 10.0           | 146                     | 33.5                   | > 3.5 | MRO-MRV 13          | 3600                   | 15.4          | 6.9           | 14.00                                | 0.7740                               |
|                        |                | 10.43          | 134.3                   | 36.4                   | > 3.5 | MRO-MRV 23          | 3870                   | 19.8          | 11.3          | 14.00                                | 1.1640                               |
|                        |                | 10.17          | 137.7                   | 35.7                   | > 3.5 | MRO-MRV 33          | 5630                   | 24.7          | 16.2          | 14.00                                | 3.6570                               |
|                        |                | 10.43          | 134.2                   | 36.9                   | > 3.5 | MRO-MRV 43          | 6430                   | 49.5          | 41.0          | 14.00                                | 7.7706                               |
|                        |                | 10.87          | 128.8                   | 38.4                   | > 3.5 | MRO-MRV 53          | 9470                   | 85.1          | 76.6          | 14.00                                | 34.9392                              |
|                        |                | 10.78          | 129.9                   | 38.0                   | > 3.5 | MRO-MRV 63          | 12750                  | 136.0         | 127.5         | 14.00                                | 48.5070                              |
|                        |                | 11.2           | 120                     | 41.3                   | > 3.5 | MRO-MRV 13          | 3570                   | 15.4          | 6.9           | 14.00                                | 0.6940                               |
|                        |                | 11.48          | 122                     | 40.8                   | > 3.5 | MRO-MRV 23          | 4040                   | 19.8          | 11.3          | 14.00                                | 1.2320                               |
|                        |                | 11.65          | 120.2                   | 41.0                   | > 3.5 | MRO-MRV 33          | 5730                   | 24.7          | 16.2          | 14.00                                | 3.8410                               |
|                        |                | 11.04          | 126.8                   | 38.9                   | > 3.5 | MRO-MRV 43          | 6520                   | 49.5          | 41.0          | 14.00                                | 8.3593                               |
|                        |                | 12.5           | 107.4                   | 45.8                   | > 3.5 | MRO-MRV 23          | 3920                   | 19.8          | 11.3          | 14.00                                | 0.9900                               |
|                        |                | 12.72          | 110                     | 45.0                   | > 3.5 | MRO-MRV 33          | 5710                   | 24.7          | 16.2          | 14.00                                | 3.1860                               |
|                        |                | 13.29          | 105.4                   | 46.6                   | > 3.5 | MRO-MRV 43          | 6950                   | 49.5          | 41.0          | 14.00                                | 6.6865                               |
|                        |                | 13.17          | 106.3                   | 46.4                   | > 3.5 | MRO-MRV 53          | 10050                  | 85.1          | 76.6          | 14.00                                | 32.6124                              |
|                        |                | 13.06          | 107.2                   | 46.0                   | > 3.5 | MRO-MRV 63          | 13550                  | 136.0         | 127.5         | 14.00                                | 41.5040                              |
|                        |                | 14.0           | 100                     | 47.7                   | 2.7   | MRO-MRV 13          | 4040                   | 15.4          | 6.9           | 14.00                                | 0.6660                               |
|                        |                | 14.13          | 99.1                    | 50.6                   | > 3.5 | MRO-MRV 23          | 4340                   | 19.8          | 11.3          | 14.00                                | 1.0580                               |
|                        |                | 13.52          | 103.5                   | 47.7                   | > 3.5 | MRO-MRV 33          | 5520                   | 24.7          | 16.2          | 14.00                                | 2.5250                               |
|                        |                | 13.87          | 100.9                   | 48.8                   | > 3.5 | MRO-MRV 43          | 7190                   | 49.5          | 41.0          | 14.00                                | 5.5410                               |
|                        |                | 13.63          | 102.7                   | 48.1                   | > 3.5 | MRO-MRV 53          | 10340                  | 85.1          | 76.6          | 14.00                                | 29.4533                              |
|                        |                | 13.51          | 103.6                   | 47.7                   | > 3.5 | MRO-MRV 63          | 14110                  | 136.0         | 127.5         | 14.00                                | 30.9420                              |
|                        |                | 16.0           | 92.5                    | 53.4                   | 3.1   | MRO-MRV 13          | 3550                   | 15.4          | 6.9           | 14.00                                | 0.6210                               |
|                        |                | 16.68          | 83.9                    | 57.8                   | > 3.5 | MRO-MRV 23          | 3620                   | 19.8          | 11.3          | 14.00                                | 0.8580                               |
|                        |                | 16.30          | 85.9                    | 57.1                   | > 3.5 | MRO-MRV 33          | 5730                   | 24.7          | 16.2          | 14.00                                | 2.8190                               |
|                        |                | 16.21          | 86.4                    | 57.4                   | > 3.5 | MRO-MRV 43          | 7420                   | 49.5          | 41.0          | 14.00                                | 6.0497                               |
|                        |                | 16.24          | 86.2                    | 57.3                   | > 3.5 | MRO-MRV 53          | 10150                  | 85.1          | 76.6          | 14.00                                | 30.7169                              |
|                        |                | 16.10          | 87                      | 56.7                   | > 3.5 | MRO-MRV 63          | 14450                  | 136.0         | 127.5         | 14.00                                | 35.7680                              |
|                        |                | 18.0           | 76.7                    | 61.9                   | 2.2   | MRO-MRV 13          | 4240                   | 15.4          | 6.9           | 14.00                                | 0.6040                               |
|                        |                | 17.80          | 78.6                    | 62.5                   | > 3.5 | MRO-MRV 23          | 4480                   | 19.8          | 11.3          | 14.00                                | 0.6830                               |
|                        |                | 17.33          | 80.8                    | 61.0                   | > 3.5 | MRO-MRV 33          | 5680                   | 24.7          | 16.2          | 14.00                                | 2.2830                               |
|                        |                | 17.55          | 79.8                    | 62.1                   | > 3.5 | MRO-MRV 43          | 7740                   | 49.5          | 41.0          | 14.00                                | 5.0261                               |
|                        |                | 18.02          | 77.7                    | 63.7                   | > 3.5 | MRO-MRV 53          | 11300                  | 85.1          | 76.6          | 14.00                                | 27.8473                              |
|                        |                | 17.87          | 78.4                    | 63.1                   | > 3.5 | MRO-MRV 63          | 15380                  | 136.0         | 127.5         | 14.00                                | 26.9670                              |
|                        |                | 20.0           | 73.1                    | 66.8                   | 2.5   | MRO-MRV 13          | 3670                   | 15.4          | 6.9           | 14.00                                | 0.5770                               |
|                        |                | 20.55          | 68.1                    | 71.0                   | > 3.5 | MRO-MRV 23          | 3720                   | 19.8          | 11.3          | 14.00                                | 0.7790                               |
|                        |                | 19.10          | 73.3                    | 67.0                   | > 3.5 | MRO-MRV 33          | 5730                   | 24.7          | 16.2          | 14.00                                | 2.3640                               |
|                        |                | 20.22          | 69.2                    | 71.5                   | > 3.5 | MRO-MRV 43          | 7980                   | 49.5          | 41.0          | 14.00                                | 5.5318                               |
|                        |                | 20.53          | 68.2                    | 72.1                   | > 3.5 | MRO-MRV 53          | 8650                   | 85.1          | 76.6          | 14.00                                | 29.1621                              |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 0.55                   | 20.0           | 20.36          | 68.8                    | 71.7                   | > 3.5 | MRO-MRV 63          | 14100                  | 136.0         | 127.5         | 14.00                                | 31.0610                              |
|                        | 22.4           | 23.33          | 60                      | 85.0                   | 2.0   | MRO-MRV 13          | 3820                   | 15.4          | 6.9           | 14.00                                | 0.5510                               |
|                        |                | 21.91          | 63.9                    | 78.2                   | 3.5   | MRO-MRV 23          | 4420                   | 19.8          | 11.3          | 14.00                                | 0.6310                               |
|                        |                | 21.67          | 64.6                    | 75.6                   | > 3.5 | MRO-MRV 33          | 5740                   | 24.7          | 16.2          | 14.00                                | 2.5320                               |
|                        |                | 21.94          | 63.8                    | 77.4                   | > 3.5 | MRO-MRV 43          | 8310                   | 49.5          | 41.0          | 14.00                                | 4.6963                               |
|                        |                | 22.85          | 61.3                    | 80.5                   | > 3.5 | MRO-MRV 53          | 11180                  | 85.1          | 76.6          | 14.00                                | 26.9452                              |
|                        |                | 22.66          | 61.8                    | 79.6                   | > 3.5 | MRO-MRV 63          | 16460                  | 136.0         | 127.5         | 14.00                                | 24.2220                              |
|                        | 25.0           | 24.44          | 57.3                    | 85.9                   | 1.7   | MRO-MRV 13          | 4150                   | 15.4          | 6.9           | 14.00                                | 0.4940                               |
|                        |                | 26.07          | 53.7                    | 89.7                   | 3.5   | MRO-MRV 23          | 3930                   | 19.8          | 11.3          | 14.00                                | 0.7150                               |
|                        |                | 26.73          | 52.4                    | 93.3                   | > 3.5 | MRO-MRV 33          | 5730                   | 24.7          | 16.2          | 14.00                                | 2.0370                               |
|                        |                | 26.10          | 53.6                    | 92.4                   | > 3.5 | MRO-MRV 43          | 8690                   | 49.5          | 41.0          | 14.00                                | 5.1123                               |
|                        |                | 26.97          | 51.9                    | 94.7                   | > 3.5 | MRO-MRV 53          | 8140                   | 85.1          | 76.6          | 14.00                                | 27.9078                              |
|                        |                | 25.48          | 55                      | 89.7                   | > 3.5 | MRO-MRV 63          | 16820                  | 136.0         | 127.5         | 14.00                                | 25.3770                              |
|                        | 28.0           | 29.18          | 48                      | 102.7                  | 1.7   | MRO-MRV 13          | 3960                   | 15.4          | 6.9           | 14.00                                | 0.5290                               |
|                        |                | 27.39          | 51.1                    | 94.7                   | 3.3   | MRO-MRV 23          | 4180                   | 19.8          | 11.3          | 14.00                                | 0.5920                               |
|                        |                | 28.74          | 48.7                    | 100.0                  | > 3.5 | MRO-MRV 33          | 5740                   | 24.7          | 16.2          | 14.00                                | 1.9940                               |
|                        |                | 27.92          | 50.1                    | 98.5                   | > 3.5 | MRO-MRV 43          | 8990                   | 49.5          | 41.0          | 14.00                                | 4.4508                               |
|                        |                | 27.68          | 50.6                    | 97.5                   | > 3.5 | MRO-MRV 53          | 9800                   | 85.1          | 76.6          | 14.00                                | 26.4183                              |
|                        |                | 27.45          | 51                      | 96.9                   | > 3.5 | MRO-MRV 63          | 15700                  | 136.0         | 127.5         | 14.00                                | 22.6360                              |
|                        | 31.5           | 31.82          | 44                      | 112.0                  | 1.5   | MRO-MRV 13          | 4120                   | 15.4          | 6.9           | 14.00                                | 0.4770                               |
|                        |                | 32.97          | 42.5                    | 119.2                  | 2.2   | MRO-MRV 23          | 4960                   | 19.8          | 11.3          | 14.00                                | 0.5440                               |
|                        |                | 33.27          | 42.1                    | 116.3                  | > 3.5 | MRO-MRV 33          | 5740                   | 24.7          | 16.2          | 14.00                                | 2.2750                               |
|                        |                | 32.52          | 43.1                    | 113.8                  | > 3.5 | MRO-MRV 43          | 9390                   | 49.5          | 41.0          | 14.00                                | 4.8644                               |
|                        |                | 31.69          | 44.2                    | 111.3                  | > 3.5 | MRO-MRV 53          | 8230                   | 85.1          | 76.6          | 14.00                                | 27.3913                              |
|                        |                | 31.85          | 44                      | 112.4                  | > 3.5 | MRO-MRV 63          | 11540                  | 136.0         | 127.5         | 14.00                                | 25.5240                              |
|                        | 35.5           | 37.95          | 36.9                    | 133.3                  | 1.2   | MRO-MRV 13          | 4430                   | 15.4          | 6.9           | 14.00                                | 0.5120                               |
|                        |                | 35.06          | 39.9                    | 121.8                  | 2.5   | MRO-MRV 23          | 4220                   | 19.8          | 11.3          | 14.00                                | 0.5620                               |
|                        |                | 34.26          | 40.9                    | 123.2                  | > 3.5 | MRO-MRV 33          | 5740                   | 24.7          | 16.2          | 14.00                                | 1.9540                               |
|                        |                | 34.06          | 41.1                    | 118.5                  | > 3.5 | MRO-MRV 43          | 9580                   | 49.5          | 41.0          | 14.00                                | 4.3066                               |
|                        |                | 34.12          | 41                      | 120.7                  | > 3.5 | MRO-MRV 53          | 8340                   | 85.1          | 76.6          | 14.00                                | 25.9891                              |
|                        |                | 33.83          | 41.4                    | 119.3                  | > 3.5 | MRO-MRV 63          | 13920                  | 136.0         | 127.5         | 14.00                                | 21.3370                              |
|                        | 40.0           | 40.25          | 34.8                    | 141.5                  | 1.2   | MRO-MRV 13          | 4100                   | 15.4          | 6.9           | 14.00                                | 0.4670                               |
|                        |                | 41.21          | 34                      | 142.1                  | 2.2   | MRO-MRV 23          | 4600                   | 19.8          | 11.3          | 14.00                                | 0.5270                               |
|                        |                | 40.23          | 34.8                    | 142.5                  | > 3.5 | MRO-MRV 33          | 5740                   | 24.7          | 16.2          | 14.00                                | 1.8490                               |
|                        |                | 41.65          | 33.6                    | 146.1                  | > 3.5 | MRO-MRV 53          | 8510                   | 85.1          | 76.6          | 14.00                                | 25.4059                              |
|                        |                | 42.78          | 32.7                    | 150.2                  | > 3.5 | MRO-MRV 63          | 11390                  | 136.0         | 127.5         | 14.00                                | 20.2710                              |
|                        | 45.0           | 47.88          | 29.2                    | 170.0                  | 1.0   | MRO-MRV 13          | 4300                   | 15.4          | 6.9           | 14.00                                | 0.4540                               |
|                        |                | 43.18          | 32.4                    | 155.0                  | 2.0   | MRO-MRV 23          | 4450                   | 19.8          | 11.3          | 14.00                                | 0.5440                               |
|                        |                | 45.54          | 30.7                    | 156.8                  | > 3.5 | MRO-MRV 33          | 5740                   | 24.7          | 16.2          | 14.00                                | 1.8890                               |
|                        |                | 42.50          | 32.9                    | 149.0                  | > 3.5 | MRO-MRV 43          | 10020                  | 49.5          | 41.0          | 14.00                                | 4.1893                               |
|                        |                | 43.14          | 32.5                    | 150.8                  | > 3.5 | MRO-MRV 53          | 8540                   | 85.1          | 76.6          | 14.00                                | 25.6370                              |
|                        |                | 42.95          | 32.6                    | 151.8                  | > 3.5 | MRO-MRV 63          | 16450                  | 136.0         | 127.5         | 14.00                                | 23.3660                              |
|                        | 50.0           | 49.02          | 28.6                    | 171.9                  | 1.0   | MRO-MRV 13          | 4100                   | 15.4          | 6.9           | 14.00                                | 0.4610                               |
|                        |                | 52.75          | 26.5                    | 185.3                  | 1.7   | MRO-MRV 23          | 4680                   | 19.8          | 11.3          | 14.00                                | 0.5130                               |
|                        |                | 51.55          | 27.2                    | 177.2                  | 3.3   | MRO-MRV 33          | 5740                   | 24.7          | 16.2          | 14.00                                | 1.8120                               |
|                        |                | 51.25          | 27.3                    | 179.7                  | > 3.5 | MRO-MRV 43          | 9720                   | 49.5          | 41.0          | 14.00                                | 4.0217                               |
|                        |                | 51.34          | 27.3                    | 181.9                  | > 3.5 | MRO-MRV 53          | 8720                   | 85.1          | 76.6          | 14.00                                | 25.2163                              |
|                        |                | 50.91          | 27.5                    | 179.4                  | > 3.5 | MRO-MRV 63          | 9810                   | 136.0         | 127.5         | 14.00                                | 18.9780                              |
|                        | 56.0           | 54.78          | 25.6                    | 193.8                  | 1.6   | MRO-MRV 23          | 4720                   | 19.8          | 11.3          | 14.00                                | 0.5290                               |
|                        |                | 53.60          | 26.1                    | 187.6                  | 3.1   | MRO-MRV 33          | 5740                   | 24.7          | 16.2          | 14.00                                | 1.8620                               |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 0.55                   | 56.0           | 54.84          | 25.5                    | 192.5                  | > 3.5 | MRO-MRV 43          | 9800                   | 49.5          | 41.0          | 14.00                                | 4.0943                               |
|                        |                | 56.67          | 24.7                    | 198.2                  | > 3.5 | MRO-MRV 53          | 8820                   | 85.1          | 76.6          | 14.00                                | 25.3529                              |
|                        |                | 56.19          | 24.9                    | 198.7                  | > 3.5 | MRO-MRV 63          | 9970                   | 136.0         | 127.5         | 14.00                                | 19.4030                              |
|                        | 63.0           | 64.97          | 21.5                    | 230.4                  | 1.3   | MRO-MRV 23          | 4930                   | 19.8          | 11.3          | 14.00                                | 0.5050                               |
|                        |                | 64.33          | 21.8                    | 225.5                  | 1.8   | MRO-MRV 33          | 5740                   | 24.7          | 16.2          | 14.00                                | 1.8750                               |
|                        |                | 63.95          | 21.9                    | 226.9                  | > 3.5 | MRO-MRV 43          | 10090                  | 49.5          | 41.0          | 14.00                                | 3.9699                               |
|                        | 71.0           | 64.91          | 21.6                    | 227.9                  | > 3.5 | MRO-MRV 53          | 8950                   | 85.1          | 76.6          | 14.00                                | 25.0608                              |
|                        |                | 64.36          | 21.8                    | 228.1                  | > 3.5 | MRO-MRV 63          | 10200                  | 136.0         | 127.5         | 14.00                                | 18.5080                              |
|                        |                | 73.98          | 18.9                    | 261.3                  | 1.1   | MRO-MRV 23          | 5510                   | 19.8          | 11.3          | 14.00                                | 0.4950                               |
|                        | 80.0           | 68.52          | 20.4                    | 245.4                  | 2.4   | MRO-MRV 33          | 5740                   | 24.7          | 16.2          | 14.00                                | 1.7840                               |
|                        |                | 68.34          | 20.5                    | 241.0                  | > 3.5 | MRO-MRV 43          | 10970                  | 49.5          | 41.0          | 14.00                                | 4.0382                               |
|                        |                | 72.56          | 19.3                    | 253.6                  | > 3.5 | MRO-MRV 53          | 10800                  | 85.1          | 76.6          | 14.00                                | 25.1812                              |
|                        | 90.0           | 73.41          | 19.1                    | 259.1                  | > 3.5 | MRO-MRV 63          | 11430                  | 136.0         | 127.5         | 14.00                                | 18.8420                              |
|                        |                | 82.42          | 17                      | 289.0                  | 1.1   | MRO-MRV 23          | 5100                   | 19.8          | 11.3          | 14.00                                | 0.4990                               |
|                        |                | 80.65          | 17.4                    | 290.0                  | 2.0   | MRO-MRV 33          | 5740                   | 24.7          | 16.2          | 14.00                                | 1.7720                               |
|                        | 100.0          | 82.52          | 17                      | 289.5                  | 3.5   | MRO-MRV 43          | 10510                  | 49.5          | 41.0          | 14.00                                | 3.9279                               |
|                        |                | 79.37          | 17.6                    | 281.6                  | > 3.5 | MRO-MRV 53          | 16160                  | 85.1          | 76.6          | 14.00                                | 25.0122                              |
|                        |                | 84.55          | 16.6                    | 298.1                  | > 3.5 | MRO-MRV 63          | 11400                  | 136.0         | 127.5         | 14.00                                | 18.1240                              |
|                        | 112.0          | 91.94          | 15.2                    | 322.1                  | 1.3   | MRO-MRV 33          | 5740                   | 24.7          | 16.2          | 14.00                                | 1.8090                               |
|                        |                | 89.69          | 15.6                    | 305.9                  | 2.9   | MRO-MRV 43          | 11880                  | 49.5          | 41.0          | 14.00                                | 3.8846                               |
|                        |                | 91.04          | 15.4                    | 324.5                  | > 3.5 | MRO-MRV 53          | 8400                   | 85.1          | 76.6          | 14.00                                | 24.8176                              |
|                        | 125.0          | 90.27          | 15.5                    | 318.6                  | > 3.5 | MRO-MRV 63          | 11400                  | 136.0         | 127.5         | 14.00                                | 17.8220                              |
|                        |                | 105.20         | 13.3                    | 370.9                  | 1.6   | MRO-MRV 33          | 5750                   | 24.7          | 16.2          | 14.00                                | 1.7580                               |
|                        |                | 102.83         | 13.6                    | 369.3                  | 2.5   | MRO-MRV 43          | 11740                  | 49.5          | 41.0          | 14.00                                | 3.9031                               |
|                        | 140.0          | 100.20         | 14                      | 349.6                  | > 3.5 | MRO-MRV 53          | 8000                   | 85.1          | 76.6          | 14.00                                | 24.8837                              |
|                        |                | 100.70         | 13.9                    | 355.4                  | > 3.5 | MRO-MRV 63          | 9800                   | 136.0         | 127.5         | 14.00                                | 17.9540                              |
|                        |                | 113.11         | 12.4                    | 398.8                  | 1.5   | MRO-MRV 33          | 5740                   | 24.7          | 16.2          | 14.00                                | 1.7370                               |
|                        | 160.0          | 115.73         | 12.1                    | 400.7                  | 2.5   | MRO-MRV 43          | 11130                  | 49.5          | 41.0          | 14.00                                | 3.8632                               |
|                        |                | 109.18         | 12.8                    | 389.6                  | > 3.5 | MRO-MRV 53          | 11200                  | 85.1          | 76.6          | 14.00                                | 24.8595                              |
|                        |                | 118.58         | 11.8                    | 420.0                  | > 3.5 | MRO-MRV 63          | 9800                   | 136.0         | 127.5         | 14.00                                | 17.6270                              |
|                        | 180.0          | 125.46         | 11.16                   | 440.0                  | 1.1   | MRO-MRV 33          | 5740                   | 24.7          | 16.2          | 14.00                                | 1.7510                               |
|                        |                | 121.80         | 11.5                    | 429.0                  | 1.8   | MRO-MRV 43          | 13730                  | 49.5          | 41.0          | 14.00                                | 3.9785                               |
|                        |                | 119.59         | 11.7                    | 428.0                  | > 3.5 | MRO-MRV 53          | 7200                   | 85.1          | 76.6          | 14.00                                | 24.7730                              |
|                        | 200.0          | 128.72         | 10.9                    | 456.5                  | > 3.5 | MRO-MRV 63          | 22060                  | 136.0         | 127.5         | 14.00                                | 17.7600                              |
|                        |                | 147.54         | 9.49                    | 523.0                  | 1.1   | MRO-MRV 33          | 5740                   | 24.7          | 16.2          | 14.00                                | 1.7300                               |
|                        |                | 144.22         | 9.71                    | 522.5                  | 1.8   | MRO-MRV 43          | 12410                  | 49.5          | 41.0          | 14.00                                | 3.8506                               |
|                        | 224.0          | 140.53         | 10                      | 492.3                  | > 3.5 | MRO-MRV 53          | 7200                   | 85.1          | 76.6          | 14.00                                | 24.7467                              |
|                        |                | 141.23         | 9.9                     | 499.5                  | > 3.5 | MRO-MRV 63          | 9800                   | 136.0         | 127.5         | 14.00                                | 17.5400                              |
|                        |                | 164.63         | 8.5                     | 581.0                  | 1.3   | MRO-MRV 43          | 14400                  | 49.5          | 41.0          | 14.00                                | 3.8831                               |
|                        | 250.0          | 153.12         | 9.14                    | 525.6                  | 3.3   | MRO-MRV 53          | 10100                  | 85.1          | 76.6          | 14.00                                | 24.7344                              |
|                        |                | 154.91         | 9.04                    | 543.5                  | > 3.5 | MRO-MRV 63          | 9800                   | 136.0         | 127.5         | 14.00                                | 17.5010                              |
|                        |                | 183.27         | 7.64                    | 648.5                  | 1.2   | MRO-MRV 43          | 14710                  | 49.5          | 41.0          | 14.00                                | 3.8768                               |
|                        | 280.0          | 185.17         | 7.56                    | 650.8                  | 2.2   | MRO-MRV 53          | 17640                  | 85.1          | 76.6          | 14.00                                | 24.7124                              |
|                        |                | 190.49         | 7.35                    | 682.5                  | > 3.5 | MRO-MRV 63          | 19400                  | 136.0         | 127.5         | 14.00                                | 17.4310                              |
|                        |                | 190.66         | 7.34                    | 676.2                  | 1.1   | MRO-MRV 43          | 14830                  | 49.5          | 41.0          | 14.00                                | 3.8477                               |
|                        | 280.0          | 208.05         | 6.73                    | 731.5                  | 1.8   | MRO-MRV 53          | 19060                  | 85.1          | 76.6          | 14.00                                | 24.7277                              |
|                        |                | 224.24         | 6.24                    | 795.1                  | 1.7   | MRO-MRV 53          | 19100                  | 85.1          | 76.6          | 14.00                                | 24.7733                              |
|                        |                | 220.89         | 6.34                    | 779.2                  | 3.3   | MRO-MRV 63          | 22500                  | 136.0         | 127.5         | 14.00                                | 17.4800                              |
|                        | 280.0          | 251.60         | 5.56                    | 892.1                  | 1.5   | MRO-MRV 53          | 19100                  | 85.1          | 76.6          | 14.00                                | 24.7078                              |
|                        |                | 271.62         | 5.15                    | 935.0                  | 2.7   | MRO-MRV 63          | 22500                  | 136.0         | 127.5         | 14.00                                | 17.4170                              |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 0.55                   | 315.0          | 314.50         | 4.45                    | 1108.3                 | 1.2   | MRO-MRV 53          | 19100                  | 85.1          | 76.6          | 14.00                                | 24.6906                              |
|                        |                | 305.43         | 4.58                    | 1078.8                 | 2.4   | MRO-MRV 63          | 22500                  | 136.0         | 127.5         | 14.00                                | 17.3880                              |
| 0.75                   | 6.3            | 6.62           | 211.4                   | 31.9                   | > 3.5 | MRO-MRV 23          | 3350                   | 21.1          | 11.3          | 17.00                                | 1.7940                               |
|                        |                | 6.43           | 217.6                   | 30.9                   | > 3.5 | MRO-MRV 33          | 4550                   | 26.0          | 16.2          | 17.00                                | 5.3400                               |
|                        |                | 6.60           | 212.1                   | 31.8                   | > 3.5 | MRO-MRV 43          | 5570                   | 50.8          | 41.0          | 17.00                                | 11.5009                              |
|                        |                | 6.48           | 215.9                   | 31.1                   | > 3.5 | MRO-MRV 53          | 8020                   | 86.4          | 76.6          | 17.00                                | 46.0154                              |
|                        |                | 6.43           | 217.7                   | 30.9                   | > 3.5 | MRO-MRV 63          | 10740                  | 137.3         | 127.5         | 17.00                                | 78.1860                              |
|                        | 7.1            | 7.58           | 185                     | 36.1                   | > 3.5 | MRO-MRV 13          | 3310                   | 16.7          | 6.9           | 17.00                                | 0.9150                               |
|                        |                | 8.47           | 165.3                   | 40.2                   | > 3.5 | MRO-MRV 23          | 3620                   | 21.1          | 11.3          | 17.00                                | 1.3930                               |
|                        | 8.0            | 8.25           | 169.7                   | 39.7                   | > 3.5 | MRO-MRV 33          | 5540                   | 26.0          | 16.2          | 17.00                                | 4.2720                               |
|                        |                | 8.35           | 167.6                   | 40.2                   | > 3.5 | MRO-MRV 43          | 6000                   | 50.8          | 41.0          | 17.00                                | 9.2271                               |
|                        |                | 8.57           | 163.3                   | 41.3                   | > 3.5 | MRO-MRV 53          | 8770                   | 86.4          | 76.6          | 17.00                                | 38.9230                              |
|                        |                | 8.50           | 164.7                   | 40.9                   | > 3.5 | MRO-MRV 63          | 11850                  | 137.3         | 127.5         | 17.00                                | 60.6320                              |
|                        |                | 9.14           | 153                     | 44.3                   | 2.9   | MRO-MRV 13          | 3740                   | 16.7          | 6.9           | 17.00                                | 0.8480                               |
|                        | 9.0            | 8.97           | 156                     | 43.3                   | > 3.5 | MRO-MRV 23          | 3710                   | 21.1          | 11.3          | 17.00                                | 1.5320                               |
|                        |                | 9.09           | 154                     | 43.8                   | > 3.5 | MRO-MRV 33          | 5710                   | 26.0          | 16.2          | 17.00                                | 4.6310                               |
|                        |                | 8.72           | 160.6                   | 42.0                   | > 3.5 | MRO-MRV 43          | 5980                   | 50.8          | 41.0          | 17.00                                | 10.1119                              |
|                        |                | 9.57           | 146                     | 45.7                   | 3.1   | MRO-MRV 13          | 3600                   | 16.7          | 6.9           | 17.00                                | 0.7740                               |
|                        |                | 10.43          | 134.3                   | 49.7                   | > 3.5 | MRO-MRV 23          | 3870                   | 21.1          | 11.3          | 17.00                                | 1.1640                               |
|                        | 10.0           | 10.17          | 137.7                   | 48.7                   | > 3.5 | MRO-MRV 33          | 5630                   | 26.0          | 16.2          | 17.00                                | 3.6570                               |
|                        |                | 10.43          | 134.2                   | 50.3                   | > 3.5 | MRO-MRV 43          | 6430                   | 50.8          | 41.0          | 17.00                                | 7.7706                               |
|                        |                | 10.87          | 128.8                   | 52.4                   | > 3.5 | MRO-MRV 53          | 9470                   | 86.4          | 76.6          | 17.00                                | 34.9392                              |
|                        |                | 10.78          | 129.9                   | 51.8                   | > 3.5 | MRO-MRV 63          | 12750                  | 137.3         | 127.5         | 17.00                                | 48.5070                              |
|                        |                | 11.63          | 120                     | 56.3                   | 2.7   | MRO-MRV 13          | 3570                   | 16.7          | 6.9           | 17.00                                | 0.6940                               |
|                        | 11.2           | 11.48          | 122                     | 55.6                   | > 3.5 | MRO-MRV 23          | 4040                   | 21.1          | 11.3          | 17.00                                | 1.2320                               |
|                        |                | 11.65          | 120.2                   | 55.9                   | > 3.5 | MRO-MRV 33          | 5730                   | 26.0          | 16.2          | 17.00                                | 3.8410                               |
|                        |                | 11.04          | 126.8                   | 53.0                   | > 3.5 | MRO-MRV 43          | 6520                   | 50.8          | 41.0          | 17.00                                | 8.3593                               |
|                        |                | 13.03          | 107.4                   | 62.5                   | > 3.5 | MRO-MRV 23          | 3920                   | 21.1          | 11.3          | 17.00                                | 0.9900                               |
|                        |                | 12.72          | 110                     | 61.4                   | > 3.5 | MRO-MRV 33          | 5710                   | 26.0          | 16.2          | 17.00                                | 3.1860                               |
|                        | 12.5           | 13.29          | 105.4                   | 63.6                   | > 3.5 | MRO-MRV 43          | 6950                   | 50.8          | 41.0          | 17.00                                | 6.6865                               |
|                        |                | 13.17          | 106.3                   | 63.3                   | > 3.5 | MRO-MRV 53          | 10050                  | 86.4          | 76.6          | 17.00                                | 32.6124                              |
|                        |                | 13.06          | 107.2                   | 62.7                   | > 3.5 | MRO-MRV 63          | 13550                  | 137.3         | 127.5         | 17.00                                | 41.5040                              |
|                        |                | 14.02          | 100                     | 65.0                   | 2.0   | MRO-MRV 13          | 4040                   | 16.7          | 6.9           | 17.00                                | 0.6660                               |
|                        |                | 14.13          | 99.1                    | 69.0                   | 3.3   | MRO-MRV 23          | 4340                   | 21.1          | 11.3          | 17.00                                | 1.0580                               |
|                        | 14.0           | 13.52          | 103.5                   | 65.1                   | > 3.5 | MRO-MRV 33          | 5520                   | 26.0          | 16.2          | 17.00                                | 2.5250                               |
|                        |                | 13.87          | 100.9                   | 66.6                   | > 3.5 | MRO-MRV 43          | 7190                   | 50.8          | 41.0          | 17.00                                | 5.5410                               |
|                        |                | 13.63          | 102.7                   | 65.6                   | > 3.5 | MRO-MRV 53          | 10340                  | 86.4          | 76.6          | 17.00                                | 29.4533                              |
|                        |                | 13.51          | 103.6                   | 65.1                   | > 3.5 | MRO-MRV 63          | 14110                  | 137.3         | 127.5         | 17.00                                | 30.9420                              |
|                        |                | 15.14          | 92.5                    | 72.8                   | 2.3   | MRO-MRV 13          | 3550                   | 16.7          | 6.9           | 17.00                                | 0.6210                               |
|                        | 16.0           | 16.68          | 83.9                    | 78.9                   | > 3.5 | MRO-MRV 23          | 3620                   | 21.1          | 11.3          | 17.00                                | 0.8580                               |
|                        |                | 16.30          | 85.9                    | 77.9                   | > 3.5 | MRO-MRV 33          | 5730                   | 26.0          | 16.2          | 17.00                                | 2.8190                               |
|                        |                | 16.21          | 86.4                    | 78.2                   | > 3.5 | MRO-MRV 43          | 7420                   | 50.8          | 41.0          | 17.00                                | 6.0497                               |
|                        |                | 16.24          | 86.2                    | 78.2                   | > 3.5 | MRO-MRV 53          | 10150                  | 86.4          | 76.6          | 17.00                                | 30.7169                              |
|                        |                | 16.10          | 87                      | 77.3                   | > 3.5 | MRO-MRV 63          | 14450                  | 137.3         | 127.5         | 17.00                                | 35.7680                              |
|                        | 18.0           | 18.25          | 76.7                    | 84.4                   | 1.6   | MRO-MRV 13          | 4240                   | 16.7          | 6.9           | 17.00                                | 0.6040                               |
|                        |                | 17.80          | 78.6                    | 85.2                   | 2.9   | MRO-MRV 23          | 4480                   | 21.1          | 11.3          | 17.00                                | 0.6830                               |
|                        |                | 17.33          | 80.8                    | 83.2                   | > 3.5 | MRO-MRV 33          | 5680                   | 26.0          | 16.2          | 17.00                                | 2.2830                               |
|                        |                | 17.55          | 79.8                    | 84.7                   | > 3.5 | MRO-MRV 43          | 7740                   | 50.8          | 41.0          | 17.00                                | 5.0261                               |
|                        |                | 18.02          | 77.7                    | 86.8                   | > 3.5 | MRO-MRV 53          | 11300                  | 86.4          | 76.6          | 17.00                                | 27.8473                              |
|                        |                | 17.87          | 78.4                    | 86.0                   | > 3.5 | MRO-MRV 63          | 15380                  | 137.3         | 127.5         | 17.00                                | 26.9670                              |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 0.75                   | 20.0           | 19.15          | 73.1                    | 91.1                   | 1.9   | MRO-MRV 13          | 3670                   | 16.7          | 6.9           | 17.00                                | 0.5770                               |
|                        |                | 20.55          | 68.1                    | 96.9                   | 3.2   | MRO-MRV 23          | 3720                   | 21.1          | 11.3          | 17.00                                | 0.7790                               |
|                        |                | 19.10          | 73.3                    | 91.4                   | > 3.5 | MRO-MRV 33          | 5730                   | 26.0          | 16.2          | 17.00                                | 2.3640                               |
|                        |                | 20.22          | 69.2                    | 97.5                   | > 3.5 | MRO-MRV 43          | 7980                   | 50.8          | 41.0          | 17.00                                | 5.5318                               |
|                        |                | 20.53          | 68.2                    | 98.4                   | > 3.5 | MRO-MRV 53          | 8650                   | 86.4          | 76.6          | 17.00                                | 29.1621                              |
|                        | 22.4           | 20.36          | 68.8                    | 97.8                   | > 3.5 | MRO-MRV 63          | 14100                  | 137.3         | 127.5         | 17.00                                | 31.0610                              |
|                        |                | 23.33          | 60                      | 115.9                  | 1.5   | MRO-MRV 13          | 3820                   | 16.7          | 6.9           | 17.00                                | 0.5510                               |
|                        |                | 21.91          | 63.9                    | 106.6                  | 2.5   | MRO-MRV 23          | 4420                   | 21.1          | 11.3          | 17.00                                | 0.6310                               |
|                        |                | 21.67          | 64.6                    | 103.1                  | > 3.5 | MRO-MRV 33          | 5740                   | 26.0          | 16.2          | 17.00                                | 2.5320                               |
|                        |                | 21.94          | 63.8                    | 105.6                  | > 3.5 | MRO-MRV 43          | 8310                   | 50.8          | 41.0          | 17.00                                | 4.6963                               |
|                        | 25.0           | 22.85          | 61.3                    | 109.8                  | > 3.5 | MRO-MRV 53          | 11180                  | 86.4          | 76.6          | 17.00                                | 26.9452                              |
|                        |                | 22.66          | 61.8                    | 108.6                  | > 3.5 | MRO-MRV 63          | 16460                  | 137.3         | 127.5         | 17.00                                | 24.2220                              |
|                        |                | 24.44          | 57.3                    | 117.2                  | 1.3   | MRO-MRV 13          | 4150                   | 16.7          | 6.9           | 17.00                                | 0.4940                               |
|                        |                | 26.07          | 53.7                    | 122.4                  | 2.5   | MRO-MRV 23          | 3930                   | 21.1          | 11.3          | 17.00                                | 0.7150                               |
|                        |                | 26.73          | 52.4                    | 127.3                  | > 3.5 | MRO-MRV 33          | 5730                   | 26.0          | 16.2          | 17.00                                | 2.0370                               |
|                        | 28.0           | 26.10          | 53.6                    | 126.0                  | > 3.5 | MRO-MRV 43          | 8690                   | 50.8          | 41.0          | 17.00                                | 5.1123                               |
|                        |                | 26.97          | 51.9                    | 129.1                  | > 3.5 | MRO-MRV 53          | 8140                   | 86.4          | 76.6          | 17.00                                | 27.9078                              |
|                        |                | 25.48          | 55                      | 122.3                  | > 3.5 | MRO-MRV 63          | 16820                  | 137.3         | 127.5         | 17.00                                | 25.3770                              |
|                        |                | 29.18          | 48                      | 140.1                  | 1.2   | MRO-MRV 13          | 3960                   | 16.7          | 6.9           | 17.00                                | 0.5290                               |
|                        |                | 27.39          | 51.1                    | 129.2                  | 2.4   | MRO-MRV 23          | 4180                   | 21.1          | 11.3          | 17.00                                | 0.5920                               |
|                        | 31.5           | 28.74          | 48.7                    | 136.4                  | 2.9   | MRO-MRV 33          | 5740                   | 26.0          | 16.2          | 17.00                                | 1.9940                               |
|                        |                | 27.92          | 50.1                    | 134.3                  | > 3.5 | MRO-MRV 43          | 8990                   | 50.8          | 41.0          | 17.00                                | 4.4508                               |
|                        |                | 27.68          | 50.6                    | 133.0                  | > 3.5 | MRO-MRV 53          | 9800                   | 86.4          | 76.6          | 17.00                                | 26.4183                              |
|                        |                | 27.45          | 51                      | 132.2                  | > 3.5 | MRO-MRV 63          | 15700                  | 137.3         | 127.5         | 17.00                                | 22.6360                              |
|                        |                | 31.82          | 44                      | 152.8                  | 1.1   | MRO-MRV 13          | 4120                   | 16.7          | 6.9           | 17.00                                | 0.4770                               |
|                        | 35.5           | 32.97          | 42.5                    | 162.5                  | 1.6   | MRO-MRV 23          | 4960                   | 21.1          | 11.3          | 17.00                                | 0.5440                               |
|                        |                | 33.27          | 42.1                    | 158.7                  | 3.5   | MRO-MRV 33          | 5740                   | 26.0          | 16.2          | 17.00                                | 2.2750                               |
|                        |                | 32.52          | 43.1                    | 155.2                  | > 3.5 | MRO-MRV 43          | 9390                   | 50.8          | 41.0          | 17.00                                | 4.8644                               |
|                        |                | 31.69          | 44.2                    | 151.8                  | > 3.5 | MRO-MRV 53          | 8230                   | 86.4          | 76.6          | 17.00                                | 27.3913                              |
|                        |                | 31.85          | 44                      | 153.2                  | > 3.5 | MRO-MRV 63          | 11540                  | 137.3         | 127.5         | 17.00                                | 25.5240                              |
|                        | 40.0           | 37.95          | 36.9                    | 181.8                  | 0.9   | MRO-MRV 13          | 4430                   | 16.7          | 6.9           | 17.00                                | 0.5120                               |
|                        |                | 35.06          | 39.9                    | 166.1                  | 1.9   | MRO-MRV 23          | 4220                   | 21.1          | 11.3          | 17.00                                | 0.5620                               |
|                        |                | 34.26          | 40.9                    | 168.0                  | 3.3   | MRO-MRV 33          | 5740                   | 26.0          | 16.2          | 17.00                                | 1.9540                               |
|                        |                | 34.06          | 41.1                    | 161.5                  | > 3.5 | MRO-MRV 43          | 9580                   | 50.8          | 41.0          | 17.00                                | 4.3066                               |
|                        |                | 34.12          | 41                      | 164.6                  | > 3.5 | MRO-MRV 53          | 8340                   | 86.4          | 76.6          | 17.00                                | 25.9891                              |
|                        | 45.0           | 33.83          | 41.4                    | 162.7                  | > 3.5 | MRO-MRV 63          | 13920                  | 137.3         | 127.5         | 17.00                                | 21.3370                              |
|                        |                | 40.25          | 34.8                    | 193.0                  | 0.9   | MRO-MRV 13          | 4100                   | 16.7          | 6.9           | 17.00                                | 0.4670                               |
|                        |                | 41.21          | 34                      | 193.8                  | 1.6   | MRO-MRV 23          | 4600                   | 21.1          | 11.3          | 17.00                                | 0.5270                               |
|                        |                | 40.23          | 34.8                    | 194.3                  | 2.9   | MRO-MRV 33          | 5740                   | 26.0          | 16.2          | 17.00                                | 1.8490                               |
|                        |                | 41.65          | 33.6                    | 199.2                  | > 3.5 | MRO-MRV 53          | 8510                   | 86.4          | 76.6          | 17.00                                | 25.4059                              |
|                        | 50.0           | 42.78          | 32.7                    | 204.9                  | > 3.5 | MRO-MRV 63          | 11390                  | 137.3         | 127.5         | 17.00                                | 20.2710                              |
|                        |                | 47.88          | 29.2                    | 231.8                  | 0.7   | MRO-MRV 13          | 4300                   | 16.7          | 6.9           | 17.00                                | 0.4540                               |
|                        |                | 43.18          | 32.4                    | 211.4                  | 1.5   | MRO-MRV 23          | 4450                   | 21.1          | 11.3          | 17.00                                | 0.5440                               |
|                        |                | 45.54          | 30.7                    | 213.8                  | 2.7   | MRO-MRV 33          | 5740                   | 26.0          | 16.2          | 17.00                                | 1.8890                               |
|                        |                | 42.50          | 32.9                    | 203.2                  | > 3.5 | MRO-MRV 43          | 10020                  | 50.8          | 41.0          | 17.00                                | 4.1893                               |
|                        |                | 43.14          | 32.5                    | 205.6                  | > 3.5 | MRO-MRV 53          | 8540                   | 86.4          | 76.6          | 17.00                                | 25.6370                              |
|                        |                | 42.95          | 32.6                    | 207.1                  | > 3.5 | MRO-MRV 63          | 16450                  | 137.3         | 127.5         | 17.00                                | 23.3660                              |
|                        |                | 49.02          | 28.6                    | 234.4                  | 0.7   | MRO-MRV 13          | 4100                   | 16.7          | 6.9           | 17.00                                | 0.4610                               |
|                        |                | 52.75          | 26.5                    | 252.7                  | 1.2   | MRO-MRV 23          | 4680                   | 21.1          | 11.3          | 17.00                                | 0.5130                               |
|                        |                | 51.55          | 27.2                    | 241.7                  | 2.4   | MRO-MRV 33          | 5740                   | 26.0          | 16.2          | 17.00                                | 1.8120                               |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 0.75                   | 50.0           | 51.25          | 27.3                    | 245.0                  | > 3.5 | MRO-MRV 43          | 9720                   | 50.8          | 41.0          | 17.00                                | 4.0217                               |
|                        |                | 51.34          | 27.3                    | 248.1                  | > 3.5 | MRO-MRV 53          | 8720                   | 86.4          | 76.6          | 17.00                                | 25.2163                              |
|                        |                | 50.91          | 27.5                    | 244.7                  | > 3.5 | MRO-MRV 63          | 9810                   | 137.3         | 127.5         | 17.00                                | 18.9780                              |
|                        | 56.0           | 54.78          | 25.6                    | 264.2                  | 1.2   | MRO-MRV 23          | 4720                   | 21.1          | 11.3          | 17.00                                | 0.5290                               |
|                        |                | 53.60          | 26.1                    | 255.9                  | 2.3   | MRO-MRV 33          | 5740                   | 26.0          | 16.2          | 17.00                                | 1.8620                               |
|                        |                | 54.84          | 25.5                    | 262.5                  | > 3.5 | MRO-MRV 43          | 9800                   | 50.8          | 41.0          | 17.00                                | 4.0943                               |
|                        | 63.0           | 56.67          | 24.7                    | 270.3                  | > 3.5 | MRO-MRV 53          | 8820                   | 86.4          | 76.6          | 17.00                                | 25.3529                              |
|                        |                | 56.19          | 24.9                    | 271.0                  | > 3.5 | MRO-MRV 63          | 9970                   | 137.3         | 127.5         | 17.00                                | 19.4030                              |
|                        |                | 64.97          | 21.5                    | 314.2                  | 1.0   | MRO-MRV 23          | 4930                   | 21.1          | 11.3          | 17.00                                | 0.5050                               |
|                        | 63.0           | 64.33          | 21.8                    | 307.5                  | 1.3   | MRO-MRV 33          | 5740                   | 26.0          | 16.2          | 17.00                                | 1.8750                               |
|                        |                | 63.95          | 21.9                    | 309.4                  | 3.2   | MRO-MRV 43          | 10090                  | 50.8          | 41.0          | 17.00                                | 3.9699                               |
|                        |                | 64.91          | 21.6                    | 310.7                  | > 3.5 | MRO-MRV 53          | 8950                   | 86.4          | 76.6          | 17.00                                | 25.0608                              |
|                        | 71.0           | 64.36          | 21.8                    | 311.1                  | > 3.5 | MRO-MRV 63          | 10200                  | 137.3         | 127.5         | 17.00                                | 18.5080                              |
|                        |                | 73.98          | 18.9                    | 356.3                  | 0.8   | MRO-MRV 23          | 5510                   | 21.1          | 11.3          | 17.00                                | 0.4950                               |
|                        |                | 68.52          | 20.4                    | 334.6                  | 1.7   | MRO-MRV 33          | 5740                   | 26.0          | 16.2          | 17.00                                | 1.7840                               |
|                        | 80.0           | 68.34          | 20.5                    | 328.6                  | 2.8   | MRO-MRV 43          | 10970                  | 50.8          | 41.0          | 17.00                                | 4.0382                               |
|                        |                | 72.56          | 19.3                    | 345.8                  | > 3.5 | MRO-MRV 53          | 10800                  | 86.4          | 76.6          | 17.00                                | 25.1812                              |
|                        |                | 73.41          | 19.1                    | 353.3                  | > 3.5 | MRO-MRV 63          | 11430                  | 137.3         | 127.5         | 17.00                                | 18.8420                              |
|                        | 80.0           | 82.42          | 17                      | 394.1                  | 0.8   | MRO-MRV 23          | 5100                   | 21.1          | 11.3          | 17.00                                | 0.4990                               |
|                        |                | 80.65          | 17.4                    | 395.5                  | 1.5   | MRO-MRV 33          | 5740                   | 26.0          | 16.2          | 17.00                                | 1.7720                               |
|                        |                | 82.52          | 17                      | 394.7                  | 2.5   | MRO-MRV 43          | 10510                  | 50.8          | 41.0          | 17.00                                | 3.9279                               |
|                        | 90.0           | 79.37          | 17.6                    | 384.0                  | 3.3   | MRO-MRV 53          | 16160                  | 86.4          | 76.6          | 17.00                                | 25.0122                              |
|                        |                | 84.55          | 16.6                    | 406.5                  | > 3.5 | MRO-MRV 63          | 11400                  | 137.3         | 127.5         | 17.00                                | 18.1240                              |
|                        |                | 91.94          | 15.2                    | 439.3                  | 0.9   | MRO-MRV 33          | 5740                   | 26.0          | 16.2          | 17.00                                | 1.8090                               |
|                        | 90.0           | 89.69          | 15.6                    | 417.2                  | 2.1   | MRO-MRV 43          | 11880                  | 50.8          | 41.0          | 17.00                                | 3.8846                               |
|                        |                | 91.04          | 15.4                    | 442.5                  | > 3.5 | MRO-MRV 53          | 8400                   | 86.4          | 76.6          | 17.00                                | 24.8176                              |
|                        |                | 90.27          | 15.5                    | 434.5                  | > 3.5 | MRO-MRV 63          | 11400                  | 137.3         | 127.5         | 17.00                                | 17.8220                              |
|                        | 100.0          | 105.20         | 13.3                    | 505.8                  | 1.1   | MRO-MRV 33          | 5750                   | 26.0          | 16.2          | 17.00                                | 1.7580                               |
|                        |                | 102.83         | 13.6                    | 503.6                  | 1.9   | MRO-MRV 43          | 11740                  | 50.8          | 41.0          | 17.00                                | 3.9031                               |
|                        |                | 100.20         | 14                      | 476.8                  | > 3.5 | MRO-MRV 53          | 8000                   | 86.4          | 76.6          | 17.00                                | 24.8837                              |
|                        | 112.0          | 100.70         | 13.9                    | 484.6                  | > 3.5 | MRO-MRV 63          | 9800                   | 137.3         | 127.5         | 17.00                                | 17.9540                              |
|                        |                | 113.11         | 12.4                    | 543.8                  | 1.1   | MRO-MRV 33          | 5740                   | 26.0          | 16.2          | 17.00                                | 1.7370                               |
|                        |                | 115.73         | 12.1                    | 546.4                  | 1.9   | MRO-MRV 43          | 11130                  | 50.8          | 41.0          | 17.00                                | 3.8632                               |
|                        | 125.0          | 109.18         | 12.8                    | 531.3                  | 3.2   | MRO-MRV 53          | 11200                  | 86.4          | 76.6          | 17.00                                | 24.8595                              |
|                        |                | 118.58         | 11.8                    | 572.7                  | > 3.5 | MRO-MRV 63          | 9800                   | 137.3         | 127.5         | 17.00                                | 17.6270                              |
|                        |                | 125.46         | 11.16                   | 600.0                  | 0.8   | MRO-MRV 33          | 5740                   | 26.0          | 16.2          | 17.00                                | 1.7510                               |
|                        | 140.0          | 121.80         | 11.5                    | 585.0                  | 1.3   | MRO-MRV 43          | 13730                  | 50.8          | 41.0          | 17.00                                | 3.9785                               |
|                        |                | 119.59         | 11.7                    | 583.7                  | 3.1   | MRO-MRV 53          | 7200                   | 86.4          | 76.6          | 17.00                                | 24.7730                              |
|                        |                | 128.72         | 10.9                    | 622.5                  | > 3.5 | MRO-MRV 63          | 22060                  | 137.3         | 127.5         | 17.00                                | 17.7600                              |
|                        | 160.0          | 147.54         | 9.49                    | 713.1                  | 0.8   | MRO-MRV 33          | 5740                   | 26.0          | 16.2          | 17.00                                | 1.7300                               |
|                        |                | 144.22         | 9.71                    | 712.5                  | 1.3   | MRO-MRV 43          | 12410                  | 50.8          | 41.0          | 17.00                                | 3.8506                               |
|                        |                | 140.53         | 10                      | 671.3                  | 2.7   | MRO-MRV 53          | 7200                   | 86.4          | 76.6          | 17.00                                | 24.7467                              |
|                        | 180.0          | 141.23         | 9.9                     | 681.1                  | > 3.5 | MRO-MRV 63          | 9800                   | 137.3         | 127.5         | 17.00                                | 17.5400                              |
|                        |                | 164.63         | 8.5                     | 792.3                  | 0.9   | MRO-MRV 43          | 14400                  | 50.8          | 41.0          | 17.00                                | 3.8831                               |
|                        |                | 153.12         | 9.14                    | 716.7                  | 2.4   | MRO-MRV 53          | 10100                  | 86.4          | 76.6          | 17.00                                | 24.7344                              |
|                        | 200.0          | 154.91         | 9.04                    | 741.2                  | > 3.5 | MRO-MRV 63          | 9800                   | 137.3         | 127.5         | 17.00                                | 17.5010                              |
|                        |                | 183.27         | 7.64                    | 884.3                  | 0.9   | MRO-MRV 43          | 14710                  | 50.8          | 41.0          | 17.00                                | 3.8768                               |
|                        |                | 185.17         | 7.56                    | 887.5                  | 1.6   | MRO-MRV 53          | 17640                  | 86.4          | 76.6          | 17.00                                | 24.7124                              |
|                        | 200.0          | 190.49         | 7.35                    | 930.7                  | 2.9   | MRO-MRV 63          | 19400                  | 137.3         | 127.5         | 17.00                                | 17.4310                              |
|                        |                | 190.66         | 7.34                    | 922.1                  | 0.8   | MRO-MRV 43          | 14830                  | 50.8          | 41.0          | 17.00                                | 3.8477                               |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 0.75                   | 200.0          | 208.05         | 6.73                    | 997.5                  | 1.3   | MRO-MRV 53          | 19060                  | 86.4          | 76.6          | 17.00                                | 24.7277                              |
|                        | 224.0          | 224.24         | 6.24                    | 1084.2                 | 1.2   | MRO-MRV 53          | 19100                  | 86.4          | 76.6          | 17.00                                | 24.7733                              |
|                        |                | 220.89         | 6.34                    | 1062.5                 | 2.4   | MRO-MRV 63          | 22500                  | 137.3         | 127.5         | 17.00                                | 17.4800                              |
|                        | 250.0          | 251.60         | 5.56                    | 1216.5                 | 1.1   | MRO-MRV 53          | 19100                  | 86.4          | 76.6          | 17.00                                | 24.7078                              |
|                        | 280.0          | 271.62         | 5.15                    | 1275.0                 | 2.0   | MRO-MRV 63          | 22500                  | 137.3         | 127.5         | 17.00                                | 17.4170                              |
|                        | 315.0          | 314.50         | 4.45                    | 1511.4                 | 0.9   | MRO-MRV 53          | 19100                  | 86.4          | 76.6          | 17.00                                | 24.6906                              |
|                        | 315.0          | 305.43         | 4.58                    | 1471.2                 | 1.7   | MRO-MRV 63          | 22500                  | 137.3         | 127.5         | 17.00                                | 17.3880                              |
| 1.1                    | 6.3            | 6.62           | 211.4                   | 46.8                   | > 3.5 | MRO-MRV 23          | 3350                   | 23.3          | 11.3          | 33.00                                | 1.7940                               |
|                        |                | 6.43           | 217.6                   | 45.3                   | > 3.5 | MRO-MRV 33          | 4550                   | 28.2          | 16.2          | 33.00                                | 5.3400                               |
|                        |                | 6.60           | 212.1                   | 46.6                   | > 3.5 | MRO-MRV 43          | 5570                   | 53.0          | 41.0          | 33.00                                | 11.5009                              |
|                        |                | 6.48           | 215.9                   | 45.7                   | > 3.5 | MRO-MRV 53          | 8020                   | 88.6          | 76.6          | 33.00                                | 46.0154                              |
|                        |                | 6.43           | 217.7                   | 45.3                   | > 3.5 | MRO-MRV 63          | 10740                  | 139.5         | 127.5         | 33.00                                | 78.1860                              |
|                        | 7.1            | 7.58           | 185                     | 53.0                   | 2.5   | MRO-MRV 13          | 3310                   | 18.9          | 6.9           | 33.00                                | 0.9150                               |
|                        | 8.0            | 8.47           | 165.3                   | 59.0                   | > 3.5 | MRO-MRV 23          | 3620                   | 23.3          | 11.3          | 33.00                                | 1.3930                               |
|                        |                | 8.25           | 169.7                   | 58.2                   | > 3.5 | MRO-MRV 33          | 5540                   | 28.2          | 16.2          | 33.00                                | 4.2720                               |
|                        |                | 8.35           | 167.6                   | 58.9                   | > 3.5 | MRO-MRV 43          | 6000                   | 53.0          | 41.0          | 33.00                                | 9.2271                               |
|                        |                | 8.57           | 163.3                   | 60.5                   | > 3.5 | MRO-MRV 53          | 8770                   | 88.6          | 76.6          | 33.00                                | 38.9230                              |
|                        |                | 8.50           | 164.7                   | 60.0                   | > 3.5 | MRO-MRV 63          | 11850                  | 139.5         | 127.5         | 33.00                                | 60.6320                              |
|                        | 9.0            | 9.14           | 153                     | 65.0                   | 2.0   | MRO-MRV 13          | 3740                   | 18.9          | 6.9           | 33.00                                | 0.8480                               |
|                        |                | 8.97           | 156                     | 63.5                   | > 3.5 | MRO-MRV 23          | 3710                   | 23.3          | 11.3          | 33.00                                | 1.5320                               |
|                        |                | 9.09           | 154                     | 64.3                   | > 3.5 | MRO-MRV 33          | 5710                   | 28.2          | 16.2          | 33.00                                | 4.6310                               |
|                        |                | 8.72           | 160.6                   | 61.6                   | > 3.5 | MRO-MRV 43          | 5980                   | 53.0          | 41.0          | 33.00                                | 10.1119                              |
|                        | 10.0           | 9.57           | 146                     | 67.0                   | 2.1   | MRO-MRV 13          | 3600                   | 18.9          | 6.9           | 33.00                                | 0.7740                               |
|                        |                | 10.43          | 134.3                   | 72.8                   | 3.4   | MRO-MRV 23          | 3870                   | 23.3          | 11.3          | 33.00                                | 1.1640                               |
|                        |                | 10.17          | 137.7                   | 71.4                   | > 3.5 | MRO-MRV 33          | 5630                   | 28.2          | 16.2          | 33.00                                | 3.6570                               |
|                        |                | 10.43          | 134.2                   | 73.7                   | > 3.5 | MRO-MRV 43          | 6430                   | 53.0          | 41.0          | 33.00                                | 7.7706                               |
|                        |                | 10.87          | 128.8                   | 76.9                   | > 3.5 | MRO-MRV 53          | 9470                   | 88.6          | 76.6          | 33.00                                | 34.9392                              |
|                        |                | 10.78          | 129.9                   | 76.0                   | > 3.5 | MRO-MRV 63          | 12750                  | 139.5         | 127.5         | 33.00                                | 48.5070                              |
|                        | 11.2           | 11.63          | 120                     | 82.5                   | 1.8   | MRO-MRV 13          | 3570                   | 18.9          | 6.9           | 33.00                                | 0.6940                               |
|                        |                | 11.48          | 122                     | 81.6                   | 2.8   | MRO-MRV 23          | 4040                   | 23.3          | 11.3          | 33.00                                | 1.2320                               |
|                        |                | 11.65          | 120.2                   | 82.0                   | > 3.5 | MRO-MRV 33          | 5730                   | 28.2          | 16.2          | 33.00                                | 3.8410                               |
|                        |                | 11.04          | 126.8                   | 77.7                   | > 3.5 | MRO-MRV 43          | 6520                   | 53.0          | 41.0          | 33.00                                | 8.3593                               |
|                        | 12.5           | 13.03          | 107.4                   | 91.7                   | 3.0   | MRO-MRV 23          | 3920                   | 23.3          | 11.3          | 33.00                                | 0.9900                               |
|                        |                | 12.72          | 110                     | 90.0                   | > 3.5 | MRO-MRV 33          | 5710                   | 28.2          | 16.2          | 33.00                                | 3.1860                               |
|                        |                | 13.29          | 105.4                   | 93.3                   | > 3.5 | MRO-MRV 43          | 6950                   | 53.0          | 41.0          | 33.00                                | 6.6865                               |
|                        |                | 13.17          | 106.3                   | 92.8                   | > 3.5 | MRO-MRV 53          | 10050                  | 88.6          | 76.6          | 33.00                                | 32.6124                              |
|                        |                | 13.06          | 107.2                   | 92.0                   | > 3.5 | MRO-MRV 63          | 13550                  | 139.5         | 127.5         | 33.00                                | 41.5040                              |
|                        | 14.0           | 14.02          | 100                     | 95.3                   | 1.4   | MRO-MRV 13          | 4040                   | 18.9          | 6.9           | 33.00                                | 0.6660                               |
|                        |                | 14.13          | 99.1                    | 101.2                  | 2.3   | MRO-MRV 23          | 4340                   | 23.3          | 11.3          | 33.00                                | 1.0580                               |
|                        |                | 13.52          | 103.5                   | 95.5                   | > 3.5 | MRO-MRV 33          | 5520                   | 28.2          | 16.2          | 33.00                                | 2.5250                               |
|                        |                | 13.87          | 100.9                   | 97.7                   | > 3.5 | MRO-MRV 43          | 7190                   | 53.0          | 41.0          | 33.00                                | 5.5410                               |
|                        |                | 13.63          | 102.7                   | 96.3                   | > 3.5 | MRO-MRV 53          | 10340                  | 88.6          | 76.6          | 33.00                                | 29.4533                              |
|                        |                | 13.51          | 103.6                   | 95.4                   | > 3.5 | MRO-MRV 63          | 14110                  | 139.5         | 127.5         | 33.00                                | 30.9420                              |
|                        | 16.0           | 15.14          | 92.5                    | 106.8                  | 1.5   | MRO-MRV 13          | 3550                   | 18.9          | 6.9           | 33.00                                | 0.6210                               |
|                        |                | 16.68          | 83.9                    | 115.7                  | 2.6   | MRO-MRV 23          | 3620                   | 23.3          | 11.3          | 33.00                                | 0.8580                               |
|                        |                | 16.30          | 85.9                    | 114.2                  | > 3.5 | MRO-MRV 33          | 5730                   | 28.2          | 16.2          | 33.00                                | 2.8190                               |
|                        |                | 16.21          | 86.4                    | 114.7                  | > 3.5 | MRO-MRV 43          | 7420                   | 53.0          | 41.0          | 33.00                                | 6.0497                               |
|                        |                | 16.24          | 86.2                    | 114.7                  | > 3.5 | MRO-MRV 53          | 10150                  | 88.6          | 76.6          | 33.00                                | 30.7169                              |
|                        |                | 16.10          | 87                      | 113.4                  | > 3.5 | MRO-MRV 63          | 14450                  | 139.5         | 127.5         | 33.00                                | 35.7680                              |
|                        | 18.0           | 18.25          | 76.7                    | 123.8                  | 1.1   | MRO-MRV 13          | 4240                   | 18.9          | 6.9           | 33.00                                | 0.6040                               |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 1.1                    | 18.0           | 17.80          | 78.6                    | 125.0                  | 2.0   | MRO-MRV 23          | 4480                   | 23.3          | 11.3          | 33.00                                | 0.6830                               |
|                        |                | 17.33          | 80.8                    | 122.0                  | > 3.5 | MRO-MRV 33          | 5680                   | 28.2          | 16.2          | 33.00                                | 2.2830                               |
|                        |                | 17.55          | 79.8                    | 124.3                  | > 3.5 | MRO-MRV 43          | 7740                   | 53.0          | 41.0          | 33.00                                | 5.0261                               |
|                        |                | 18.02          | 77.7                    | 127.3                  | > 3.5 | MRO-MRV 53          | 11300                  | 88.6          | 76.6          | 33.00                                | 27.8473                              |
|                        |                | 17.87          | 78.4                    | 126.2                  | > 3.5 | MRO-MRV 63          | 15380                  | 139.5         | 127.5         | 33.00                                | 26.9670                              |
|                        | 20.0           | 19.15          | 73.1                    | 133.6                  | 1.3   | MRO-MRV 13          | 3670                   | 18.9          | 6.9           | 33.00                                | 0.5770                               |
|                        |                | 20.55          | 68.1                    | 142.1                  | 2.2   | MRO-MRV 23          | 3720                   | 23.3          | 11.3          | 33.00                                | 0.7790                               |
|                        |                | 19.10          | 73.3                    | 134.1                  | 2.9   | MRO-MRV 33          | 5730                   | 28.2          | 16.2          | 33.00                                | 2.3640                               |
|                        |                | 20.22          | 69.2                    | 143.0                  | > 3.5 | MRO-MRV 43          | 7980                   | 53.0          | 41.0          | 33.00                                | 5.5318                               |
|                        |                | 20.53          | 68.2                    | 144.3                  | > 3.5 | MRO-MRV 53          | 8650                   | 88.6          | 76.6          | 33.00                                | 29.1621                              |
|                        | 22.4           | 20.36          | 68.8                    | 143.5                  | > 3.5 | MRO-MRV 63          | 14100                  | 139.5         | 127.5         | 33.00                                | 31.0610                              |
|                        |                | 23.33          | 60                      | 170.0                  | 1.0   | MRO-MRV 13          | 3820                   | 18.9          | 6.9           | 33.00                                | 0.5510                               |
|                        |                | 21.91          | 63.9                    | 156.3                  | 1.7   | MRO-MRV 23          | 4420                   | 23.3          | 11.3          | 33.00                                | 0.6310                               |
|                        |                | 21.67          | 64.6                    | 151.3                  | > 3.5 | MRO-MRV 33          | 5740                   | 28.2          | 16.2          | 33.00                                | 2.5320                               |
|                        |                | 21.94          | 63.8                    | 154.9                  | > 3.5 | MRO-MRV 43          | 8310                   | 53.0          | 41.0          | 33.00                                | 4.6963                               |
|                        | 25.0           | 22.85          | 61.3                    | 161.0                  | > 3.5 | MRO-MRV 53          | 11180                  | 88.6          | 76.6          | 33.00                                | 26.9452                              |
|                        |                | 22.66          | 61.8                    | 159.3                  | > 3.5 | MRO-MRV 63          | 16460                  | 139.5         | 127.5         | 33.00                                | 24.2220                              |
|                        |                | 26.07          | 53.7                    | 179.5                  | 1.7   | MRO-MRV 23          | 3930                   | 23.3          | 11.3          | 33.00                                | 0.7150                               |
|                        |                | 26.73          | 52.4                    | 186.7                  | 3.0   | MRO-MRV 33          | 5730                   | 28.2          | 16.2          | 33.00                                | 2.0370                               |
|                        |                | 26.10          | 53.6                    | 184.8                  | > 3.5 | MRO-MRV 43          | 8690                   | 53.0          | 41.0          | 33.00                                | 5.1123                               |
|                        | 28.0           | 26.97          | 51.9                    | 189.4                  | > 3.5 | MRO-MRV 53          | 8140                   | 88.6          | 76.6          | 33.00                                | 27.9078                              |
|                        |                | 25.48          | 55                      | 179.4                  | > 3.5 | MRO-MRV 63          | 16820                  | 139.5         | 127.5         | 33.00                                | 25.3770                              |
|                        |                | 27.39          | 51.1                    | 189.4                  | 1.6   | MRO-MRV 23          | 4180                   | 23.3          | 11.3          | 33.00                                | 0.5920                               |
|                        |                | 28.74          | 48.7                    | 200.0                  | 2.0   | MRO-MRV 33          | 5740                   | 28.2          | 16.2          | 33.00                                | 1.9940                               |
|                        |                | 27.92          | 50.1                    | 197.0                  | > 3.5 | MRO-MRV 43          | 8990                   | 53.0          | 41.0          | 33.00                                | 4.4508                               |
|                        | 31.5           | 27.68          | 50.6                    | 195.0                  | > 3.5 | MRO-MRV 53          | 9800                   | 88.6          | 76.6          | 33.00                                | 26.4183                              |
|                        |                | 27.45          | 51                      | 193.9                  | > 3.5 | MRO-MRV 63          | 15700                  | 139.5         | 127.5         | 33.00                                | 22.6360                              |
|                        |                | 32.97          | 42.5                    | 238.3                  | 1.1   | MRO-MRV 23          | 4960                   | 23.3          | 11.3          | 33.00                                | 0.5440                               |
|                        |                | 33.27          | 42.1                    | 232.7                  | 2.4   | MRO-MRV 33          | 5740                   | 28.2          | 16.2          | 33.00                                | 2.2750                               |
|                        |                | 32.52          | 43.1                    | 227.7                  | > 3.5 | MRO-MRV 43          | 9390                   | 53.0          | 41.0          | 33.00                                | 4.8644                               |
|                        | 35.5           | 31.69          | 44.2                    | 222.7                  | > 3.5 | MRO-MRV 53          | 8230                   | 88.6          | 76.6          | 33.00                                | 27.3913                              |
|                        |                | 31.85          | 44                      | 224.7                  | > 3.5 | MRO-MRV 63          | 11540                  | 139.5         | 127.5         | 33.00                                | 25.5240                              |
|                        |                | 35.06          | 39.9                    | 243.6                  | 1.3   | MRO-MRV 23          | 4220                   | 23.3          | 11.3          | 33.00                                | 0.5620                               |
|                        |                | 34.26          | 40.9                    | 246.4                  | 2.3   | MRO-MRV 33          | 5740                   | 28.2          | 16.2          | 33.00                                | 1.9540                               |
|                        |                | 34.06          | 41.1                    | 236.9                  | > 3.5 | MRO-MRV 43          | 9580                   | 53.0          | 41.0          | 33.00                                | 4.3066                               |
|                        | 40.0           | 34.12          | 41                      | 241.4                  | > 3.5 | MRO-MRV 53          | 8340                   | 88.6          | 76.6          | 33.00                                | 25.9891                              |
|                        |                | 33.83          | 41.4                    | 238.6                  | > 3.5 | MRO-MRV 63          | 13920                  | 139.5         | 127.5         | 33.00                                | 21.3370                              |
|                        |                | 41.21          | 34                      | 284.2                  | 1.1   | MRO-MRV 23          | 4600                   | 23.3          | 11.3          | 33.00                                | 0.5270                               |
|                        |                | 40.23          | 34.8                    | 285.0                  | 2.0   | MRO-MRV 33          | 5740                   | 28.2          | 16.2          | 33.00                                | 1.8490                               |
|                        |                | 41.65          | 33.6                    | 292.2                  | > 3.5 | MRO-MRV 53          | 8510                   | 88.6          | 76.6          | 33.00                                | 25.4059                              |
|                        | 45.0           | 42.78          | 32.7                    | 300.5                  | > 3.5 | MRO-MRV 63          | 11390                  | 139.5         | 127.5         | 33.00                                | 20.2710                              |
|                        |                | 43.18          | 32.4                    | 310.0                  | 1.0   | MRO-MRV 23          | 4450                   | 23.3          | 11.3          | 33.00                                | 0.5440                               |
|                        |                | 45.54          | 30.7                    | 313.5                  | 1.8   | MRO-MRV 33          | 5740                   | 28.2          | 16.2          | 33.00                                | 1.8890                               |
|                        |                | 42.50          | 32.9                    | 298.1                  | 2.8   | MRO-MRV 43          | 10020                  | 53.0          | 41.0          | 33.00                                | 4.1893                               |
|                        |                | 43.14          | 32.5                    | 301.6                  | > 3.5 | MRO-MRV 53          | 8540                   | 88.6          | 76.6          | 33.00                                | 25.6370                              |
|                        | 50.0           | 42.95          | 32.6                    | 303.7                  | > 3.5 | MRO-MRV 63          | 16450                  | 139.5         | 127.5         | 33.00                                | 23.3660                              |
|                        |                | 51.55          | 27.2                    | 354.4                  | 1.6   | MRO-MRV 33          | 5740                   | 28.2          | 16.2          | 33.00                                | 1.8120                               |
|                        |                | 51.25          | 27.3                    | 359.3                  | 2.7   | MRO-MRV 43          | 9720                   | 53.0          | 41.0          | 33.00                                | 4.0217                               |
|                        |                | 51.34          | 27.3                    | 363.8                  | > 3.5 | MRO-MRV 53          | 8720                   | 88.6          | 76.6          | 33.00                                | 25.2163                              |
|                        |                | 50.91          | 27.5                    | 358.8                  | > 3.5 | MRO-MRV 63          | 9810                   | 139.5         | 127.5         | 33.00                                | 18.9780                              |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 1.1                    | 56.0           | 53.60          | 26.1                    | 375.3                  | 1.5   | MRO-MRV 33          | 5740                   | 28.2          | 16.2          | 33.00                                | 1.8620                               |
|                        |                | 54.84          | 25.5                    | 385.0                  | 2.5   | MRO-MRV 43          | 9800                   | 53.0          | 41.0          | 33.00                                | 4.0943                               |
|                        |                | 56.67          | 24.7                    | 396.5                  | > 3.5 | MRO-MRV 53          | 8820                   | 88.6          | 76.6          | 33.00                                | 25.3529                              |
|                        | 63.0           | 56.19          | 24.9                    | 397.4                  | > 3.5 | MRO-MRV 63          | 9970                   | 139.5         | 127.5         | 33.00                                | 19.4030                              |
|                        |                | 64.33          | 21.8                    | 451.0                  | 0.9   | MRO-MRV 33          | 5740                   | 28.2          | 16.2          | 33.00                                | 1.8750                               |
|                        |                | 63.95          | 21.9                    | 453.8                  | 2.2   | MRO-MRV 43          | 10090                  | 53.0          | 41.0          | 33.00                                | 3.9699                               |
|                        | 71.0           | 64.91          | 21.6                    | 455.7                  | > 3.5 | MRO-MRV 53          | 8950                   | 88.6          | 76.6          | 33.00                                | 25.0608                              |
|                        |                | 64.36          | 21.8                    | 456.3                  | > 3.5 | MRO-MRV 63          | 10200                  | 139.5         | 127.5         | 33.00                                | 18.5080                              |
|                        |                | 68.52          | 20.4                    | 490.8                  | 1.2   | MRO-MRV 33          | 5740                   | 28.2          | 16.2          | 33.00                                | 1.7840                               |
|                        | 80.0           | 68.34          | 20.5                    | 481.9                  | 1.9   | MRO-MRV 43          | 10970                  | 53.0          | 41.0          | 33.00                                | 4.0382                               |
|                        |                | 72.56          | 19.3                    | 507.2                  | 3.3   | MRO-MRV 53          | 10800                  | 88.6          | 76.6          | 33.00                                | 25.1812                              |
|                        |                | 73.41          | 19.1                    | 518.1                  | > 3.5 | MRO-MRV 63          | 11430                  | 139.5         | 127.5         | 33.00                                | 18.8420                              |
|                        | 90.0           | 80.65          | 17.4                    | 580.0                  | 1.0   | MRO-MRV 33          | 5740                   | 28.2          | 16.2          | 33.00                                | 1.7720                               |
|                        |                | 82.52          | 17                      | 578.9                  | 1.7   | MRO-MRV 43          | 10510                  | 53.0          | 41.0          | 33.00                                | 3.9279                               |
|                        |                | 79.37          | 17.6                    | 563.2                  | 2.3   | MRO-MRV 53          | 16160                  | 88.6          | 76.6          | 33.00                                | 25.0122                              |
|                        | 100.0          | 84.55          | 16.6                    | 596.1                  | > 3.5 | MRO-MRV 63          | 11400                  | 139.5         | 127.5         | 33.00                                | 18.1240                              |
|                        |                | 89.69          | 15.6                    | 611.9                  | 1.5   | MRO-MRV 43          | 11880                  | 53.0          | 41.0          | 33.00                                | 3.8846                               |
|                        |                | 91.04          | 15.4                    | 649.0                  | 2.7   | MRO-MRV 53          | 8400                   | 88.6          | 76.6          | 33.00                                | 24.8176                              |
|                        | 112.0          | 90.27          | 15.5                    | 637.2                  | > 3.5 | MRO-MRV 63          | 11400                  | 139.5         | 127.5         | 33.00                                | 17.8220                              |
|                        |                | 102.83         | 13.6                    | 738.6                  | 1.3   | MRO-MRV 43          | 11740                  | 53.0          | 41.0          | 33.00                                | 3.9031                               |
|                        |                | 100.20         | 14                      | 699.3                  | 2.5   | MRO-MRV 53          | 8000                   | 88.6          | 76.6          | 33.00                                | 24.8837                              |
|                        | 125.0          | 100.70         | 13.9                    | 710.8                  | > 3.5 | MRO-MRV 63          | 9800                   | 139.5         | 127.5         | 33.00                                | 17.9540                              |
|                        |                | 115.73         | 12.1                    | 801.4                  | 1.3   | MRO-MRV 43          | 11130                  | 53.0          | 41.0          | 33.00                                | 3.8632                               |
|                        |                | 109.18         | 12.8                    | 779.2                  | 2.2   | MRO-MRV 53          | 11200                  | 88.6          | 76.6          | 33.00                                | 24.8595                              |
|                        | 140.0          | 118.58         | 11.8                    | 840.0                  | > 3.5 | MRO-MRV 63          | 9800                   | 139.5         | 127.5         | 33.00                                | 17.6270                              |
|                        |                | 119.59         | 11.7                    | 856.1                  | 2.1   | MRO-MRV 53          | 7200                   | 88.6          | 76.6          | 33.00                                | 24.7730                              |
|                        |                | 128.72         | 10.9                    | 913.0                  | 2.7   | MRO-MRV 63          | 22060                  | 139.5         | 127.5         | 33.00                                | 17.7600                              |
|                        | 160.0          | 140.53         | 10                      | 984.5                  | 1.8   | MRO-MRV 53          | 7200                   | 88.6          | 76.6          | 33.00                                | 24.7467                              |
|                        |                | 141.23         | 9.9                     | 998.9                  | 3.4   | MRO-MRV 63          | 9800                   | 139.5         | 127.5         | 33.00                                | 17.5400                              |
|                        |                | 153.12         | 9.14                    | 1051.1                 | 1.6   | MRO-MRV 53          | 10100                  | 88.6          | 76.6          | 33.00                                | 24.7344                              |
|                        | 180.0          | 154.91         | 9.04                    | 1087.1                 | 3.1   | MRO-MRV 63          | 9800                   | 139.5         | 127.5         | 33.00                                | 17.5010                              |
|                        |                | 185.17         | 7.56                    | 1301.7                 | 1.1   | MRO-MRV 53          | 17640                  | 88.6          | 76.6          | 33.00                                | 24.7124                              |
|                        |                | 190.49         | 7.35                    | 1365.0                 | 2.0   | MRO-MRV 63          | 19400                  | 139.5         | 127.5         | 33.00                                | 17.4310                              |
|                        | 200.0          | 208.05         | 6.73                    | 1463.0                 | 0.9   | MRO-MRV 53          | 19060                  | 88.6          | 76.6          | 33.00                                | 24.7277                              |
|                        |                | 224.0          | 6.24                    | 1590.2                 | 0.8   | MRO-MRV 53          | 19100                  | 88.6          | 76.6          | 33.00                                | 24.7733                              |
|                        |                | 220.89         | 6.34                    | 1558.3                 | 1.6   | MRO-MRV 63          | 22500                  | 139.5         | 127.5         | 33.00                                | 17.4800                              |
|                        | 250.0          | 251.60         | 5.56                    | 1784.1                 | 0.7   | MRO-MRV 53          | 19100                  | 88.6          | 76.6          | 33.00                                | 24.7078                              |
|                        |                | 271.62         | 5.15                    | 1870.0                 | 1.4   | MRO-MRV 63          | 22500                  | 139.5         | 127.5         | 33.00                                | 17.4170                              |
|                        |                | 315.0          | 4.58                    | 2157.7                 | 1.2   | MRO-MRV 63          | 22500                  | 139.5         | 127.5         | 33.00                                | 17.3880                              |
| 1.5                    | 6.3            | 6.62           | 211.4                   | 63.8                   | 3.1   | MRO-MRV 23          | 3350                   | 24.8          | 11.3          | 40.00                                | 1.7940                               |
|                        |                | 6.43           | 217.6                   | 61.8                   | > 3.5 | MRO-MRV 33          | 4550                   | 29.7          | 16.2          | 40.00                                | 5.3400                               |
|                        |                | 6.60           | 212.1                   | 63.5                   | > 3.5 | MRO-MRV 43          | 5570                   | 54.5          | 41.0          | 40.00                                | 11.5009                              |
|                        | 7.1            | 6.48           | 215.9                   | 62.3                   | > 3.5 | MRO-MRV 53          | 8020                   | 90.1          | 76.6          | 40.00                                | 46.0154                              |
|                        |                | 6.43           | 217.7                   | 61.8                   | > 3.5 | MRO-MRV 63          | 10740                  | 141.0         | 127.5         | 40.00                                | 78.1860                              |
|                        |                | 7.58           | 185                     | 72.2                   | 1.8   | MRO-MRV 13          | 3310                   | 20.4          | 6.9           | 40.00                                | 0.9150                               |
|                        | 8.0            | 8.47           | 165.3                   | 80.5                   | 2.7   | MRO-MRV 23          | 3620                   | 24.8          | 11.3          | 40.00                                | 1.3930                               |
|                        |                | 8.25           | 169.7                   | 79.4                   | > 3.5 | MRO-MRV 33          | 5540                   | 29.7          | 16.2          | 40.00                                | 4.2720                               |
|                        |                | 8.35           | 167.6                   | 80.3                   | > 3.5 | MRO-MRV 43          | 6000                   | 54.5          | 41.0          | 40.00                                | 9.2271                               |
|                        | 8.50           | 8.57           | 163.3                   | 82.5                   | > 3.5 | MRO-MRV 53          | 8770                   | 90.1          | 76.6          | 40.00                                | 38.9230                              |
|                        |                | 8.50           | 164.7                   | 81.8                   | > 3.5 | MRO-MRV 63          | 11850                  | 141.0         | 127.5         | 40.00                                | 60.6320                              |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |        |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|--------|
| 1.5                    | 9.0            | 9.14           | 153                     | 88.6                   | 1.5   | MRO-MRV 13          | 3740                   | 20.4          | 6.9           | 40.00                                | 0.8480                               |        |
|                        |                | 8.97           | 156                     | 86.5                   | 2.6   | MRO-MRV 23          | 3710                   | 24.8          | 11.3          | 40.00                                | 1.5320                               |        |
|                        |                | 9.09           | 154                     | 87.7                   | > 3.5 | MRO-MRV 33          | 5710                   | 29.7          | 16.2          | 40.00                                | 4.6310                               |        |
|                        |                | 8.72           | 160.6                   | 84.1                   | > 3.5 | MRO-MRV 43          | 5980                   | 54.5          | 41.0          | 40.00                                | 10.1119                              |        |
|                        | 10.0           | 9.57           | 146                     | 91.3                   | 1.5   | MRO-MRV 13          | 3600                   | 20.4          | 6.9           | 40.00                                | 0.7740                               |        |
|                        |                | 10.43          | 134.3                   | 99.3                   | 2.5   | MRO-MRV 23          | 3870                   | 24.8          | 11.3          | 40.00                                | 1.1640                               |        |
|                        |                | 10.17          | 137.7                   | 97.4                   | > 3.5 | MRO-MRV 33          | 5630                   | 29.7          | 16.2          | 40.00                                | 3.6570                               |        |
|                        |                | 10.43          | 134.2                   | 100.5                  | > 3.5 | MRO-MRV 43          | 6430                   | 54.5          | 41.0          | 40.00                                | 7.7706                               |        |
|                        |                | 10.87          | 128.8                   | 104.8                  | > 3.5 | MRO-MRV 53          | 9470                   | 90.1          | 76.6          | 40.00                                | 34.9392                              |        |
|                        |                | 10.78          | 129.9                   | 103.7                  | > 3.5 | MRO-MRV 63          | 12750                  | 141.0         | 127.5         | 40.00                                | 48.5070                              |        |
|                        |                | 11.2           | 11.63                   | 120                    | 112.5 | 1.3                 | MRO-MRV 13             | 3570          | 20.4          | 6.9                                  | 40.00                                | 0.6940 |
|                        |                |                | 11.48                   | 122                    | 111.3 | 2.1                 | MRO-MRV 23             | 4040          | 24.8          | 11.3                                 | 40.00                                | 1.2320 |
|                        | 11.65          |                | 120.2                   | 111.8                  | 3.4   | MRO-MRV 33          | 5730                   | 29.7          | 16.2          | 40.00                                | 3.8410                               |        |
|                        | 11.04          |                | 126.8                   | 106.0                  | > 3.5 | MRO-MRV 43          | 6520                   | 54.5          | 41.0          | 40.00                                | 8.3593                               |        |
|                        | 12.5           | 13.03          | 107.4                   | 125.0                  | 2.2   | MRO-MRV 23          | 3920                   | 24.8          | 11.3          | 40.00                                | 0.9900                               |        |
|                        |                | 12.72          | 110                     | 122.7                  | > 3.5 | MRO-MRV 33          | 5710                   | 29.7          | 16.2          | 40.00                                | 3.1860                               |        |
|                        |                | 13.29          | 105.4                   | 127.2                  | > 3.5 | MRO-MRV 43          | 6950                   | 54.5          | 41.0          | 40.00                                | 6.6865                               |        |
|                        |                | 13.17          | 106.3                   | 126.5                  | > 3.5 | MRO-MRV 53          | 10050                  | 90.1          | 76.6          | 40.00                                | 32.6124                              |        |
|                        |                | 13.06          | 107.2                   | 125.5                  | > 3.5 | MRO-MRV 63          | 13550                  | 141.0         | 127.5         | 40.00                                | 41.5040                              |        |
|                        |                | 14.0           | 14.02                   | 100                    | 130.0 | 1.0                 | MRO-MRV 13             | 4040          | 20.4          | 6.9                                  | 40.00                                | 0.6660 |
|                        |                |                | 14.13                   | 99.1                   | 138.0 | 1.7                 | MRO-MRV 23             | 4340          | 24.8          | 11.3                                 | 40.00                                | 1.0580 |
|                        |                |                | 13.52                   | 103.5                  | 130.2 | > 3.5               | MRO-MRV 33             | 5520          | 29.7          | 16.2                                 | 40.00                                | 2.5250 |
|                        | 13.87          |                | 100.9                   | 133.2                  | > 3.5 | MRO-MRV 43          | 7190                   | 54.5          | 41.0          | 40.00                                | 5.5410                               |        |
|                        |                | 13.63          | 102.7                   | 131.3                  | > 3.5 | MRO-MRV 53          | 10340                  | 90.1          | 76.6          | 40.00                                | 29.4533                              |        |
|                        |                | 13.51          | 103.6                   | 130.2                  | > 3.5 | MRO-MRV 63          | 14110                  | 141.0         | 127.5         | 40.00                                | 30.9420                              |        |
|                        |                | 16.0           | 15.14                   | 92.5                   | 145.6 | 1.1                 | MRO-MRV 13             | 3550          | 20.4          | 6.9                                  | 40.00                                | 0.6210 |
|                        |                |                | 16.68                   | 83.9                   | 157.8 | 1.9                 | MRO-MRV 23             | 3620          | 24.8          | 11.3                                 | 40.00                                | 0.8580 |
|                        | 16.30          |                | 85.9                    | 155.8                  | 3.5   | MRO-MRV 33          | 5730                   | 29.7          | 16.2          | 40.00                                | 2.8190                               |        |
|                        | 16.21          |                | 86.4                    | 156.4                  | > 3.5 | MRO-MRV 43          | 7420                   | 54.5          | 41.0          | 40.00                                | 6.0497                               |        |
|                        |                | 16.24          | 86.2                    | 156.4                  | > 3.5 | MRO-MRV 53          | 10150                  | 90.1          | 76.6          | 40.00                                | 30.7169                              |        |
|                        |                | 16.10          | 87                      | 154.6                  | > 3.5 | MRO-MRV 63          | 14450                  | 141.0         | 127.5         | 40.00                                | 35.7680                              |        |
|                        |                | 18.0           | 18.25                   | 76.7                   | 168.8 | 0.8                 | MRO-MRV 13             | 4240          | 20.4          | 6.9                                  | 40.00                                | 0.6040 |
|                        |                |                | 17.80                   | 78.6                   | 170.5 | 1.5                 | MRO-MRV 23             | 4480          | 24.8          | 11.3                                 | 40.00                                | 0.6830 |
|                        | 17.33          |                | 80.8                    | 166.3                  | 3.1   | MRO-MRV 33          | 5680                   | 29.7          | 16.2          | 40.00                                | 2.2830                               |        |
|                        | 17.55          |                | 79.8                    | 169.4                  | > 3.5 | MRO-MRV 43          | 7740                   | 54.5          | 41.0          | 40.00                                | 5.0261                               |        |
|                        |                | 18.02          | 77.7                    | 173.6                  | > 3.5 | MRO-MRV 53          | 11300                  | 90.1          | 76.6          | 40.00                                | 27.8473                              |        |
|                        |                | 17.87          | 78.4                    | 172.1                  | > 3.5 | MRO-MRV 63          | 15380                  | 141.0         | 127.5         | 40.00                                | 26.9670                              |        |
|                        |                | 20.0           | 19.15                   | 73.1                   | 182.1 | 0.9                 | MRO-MRV 13             | 3670          | 20.4          | 6.9                                  | 40.00                                | 0.5770 |
|                        |                |                | 20.55                   | 68.1                   | 193.8 | 1.6                 | MRO-MRV 23             | 3720          | 24.8          | 11.3                                 | 40.00                                | 0.7790 |
|                        | 19.10          |                | 73.3                    | 182.8                  | 2.1   | MRO-MRV 33          | 5730                   | 29.7          | 16.2          | 40.00                                | 2.3640                               |        |
|                        | 20.22          |                | 69.2                    | 195.0                  | > 3.5 | MRO-MRV 43          | 7980                   | 54.5          | 41.0          | 40.00                                | 5.5318                               |        |
|                        |                | 20.53          | 68.2                    | 196.7                  | > 3.5 | MRO-MRV 53          | 8650                   | 90.1          | 76.6          | 40.00                                | 29.1621                              |        |
|                        |                | 20.36          | 68.8                    | 195.6                  | > 3.5 | MRO-MRV 63          | 14100                  | 141.0         | 127.5         | 40.00                                | 31.0610                              |        |
|                        |                | 22.4           | 23.33                   | 60                     | 231.8 | 0.7                 | MRO-MRV 13             | 3820          | 20.4          | 6.9                                  | 40.00                                | 0.5510 |
|                        |                |                | 21.91                   | 63.9                   | 213.2 | 1.3                 | MRO-MRV 23             | 4420          | 24.8          | 11.3                                 | 40.00                                | 0.6310 |
|                        | 21.67          |                | 64.6                    | 206.3                  | 2.7   | MRO-MRV 33          | 5740                   | 29.7          | 16.2          | 40.00                                | 2.5320                               |        |
|                        | 21.94          |                | 63.8                    | 211.2                  | 3.3   | MRO-MRV 43          | 8310                   | 54.5          | 41.0          | 40.00                                | 4.6963                               |        |
|                        |                | 22.85          | 61.3                    | 219.6                  | > 3.5 | MRO-MRV 53          | 11180                  | 90.1          | 76.6          | 40.00                                | 26.9452                              |        |
|                        |                | 22.66          | 61.8                    | 217.2                  | > 3.5 | MRO-MRV 63          | 16460                  | 141.0         | 127.5         | 40.00                                | 24.2220                              |        |
|                        |                | 25.0           | 26.07                   | 53.7                   | 244.7 | 1.3                 | MRO-MRV 23             | 3930          | 24.8          | 11.3                                 | 40.00                                | 0.7150 |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 1.5                    | 25.0           | 26.73          | 52.4                    | 254.5                  | 2.2   | MRO-MRV 33          | 5730                   | 29.7          | 16.2          | 40.00                                | 2.0370                               |
|                        |                | 26.10          | 53.6                    | 252.0                  | 3.3   | MRO-MRV 43          | 8690                   | 54.5          | 41.0          | 40.00                                | 5.1123                               |
|                        |                | 26.97          | 51.9                    | 258.2                  | > 3.5 | MRO-MRV 53          | 8140                   | 90.1          | 76.6          | 40.00                                | 27.9078                              |
|                        |                | 25.48          | 55                      | 244.7                  | > 3.5 | MRO-MRV 63          | 16820                  | 141.0         | 127.5         | 40.00                                | 25.3770                              |
|                        | 28.0           | 27.39          | 51.1                    | 258.3                  | 1.2   | MRO-MRV 23          | 4180                   | 24.8          | 11.3          | 40.00                                | 0.5920                               |
|                        |                | 28.74          | 48.7                    | 272.7                  | 1.5   | MRO-MRV 33          | 5740                   | 29.7          | 16.2          | 40.00                                | 1.9940                               |
|                        |                | 27.92          | 50.1                    | 268.6                  | 2.9   | MRO-MRV 43          | 8990                   | 54.5          | 41.0          | 40.00                                | 4.4508                               |
|                        |                | 27.68          | 50.6                    | 265.9                  | > 3.5 | MRO-MRV 53          | 9800                   | 90.1          | 76.6          | 40.00                                | 26.4183                              |
|                        | 31.5           | 27.45          | 51                      | 264.4                  | > 3.5 | MRO-MRV 63          | 15700                  | 141.0         | 127.5         | 40.00                                | 22.6360                              |
|                        |                | 32.97          | 42.5                    | 325.0                  | 0.8   | MRO-MRV 23          | 4960                   | 24.8          | 11.3          | 40.00                                | 0.5440                               |
|                        |                | 33.27          | 42.1                    | 317.3                  | 1.7   | MRO-MRV 33          | 5740                   | 29.7          | 16.2          | 40.00                                | 2.2750                               |
|                        |                | 32.52          | 43.1                    | 310.5                  | 2.9   | MRO-MRV 43          | 9390                   | 54.5          | 41.0          | 40.00                                | 4.8644                               |
|                        | 35.5           | 31.69          | 44.2                    | 303.6                  | > 3.5 | MRO-MRV 53          | 8230                   | 90.1          | 76.6          | 40.00                                | 27.3913                              |
|                        |                | 31.85          | 44                      | 306.4                  | > 3.5 | MRO-MRV 63          | 11540                  | 141.0         | 127.5         | 40.00                                | 25.5240                              |
|                        |                | 35.06          | 39.9                    | 332.1                  | 0.9   | MRO-MRV 23          | 4220                   | 24.8          | 11.3          | 40.00                                | 0.5620                               |
|                        |                | 34.26          | 40.9                    | 336.0                  | 1.7   | MRO-MRV 33          | 5740                   | 29.7          | 16.2          | 40.00                                | 1.9540                               |
|                        | 40.0           | 34.06          | 41.1                    | 323.1                  | 2.6   | MRO-MRV 43          | 9580                   | 54.5          | 41.0          | 40.00                                | 4.3066                               |
|                        |                | 34.12          | 41                      | 329.2                  | > 3.5 | MRO-MRV 53          | 8340                   | 90.1          | 76.6          | 40.00                                | 25.9891                              |
|                        |                | 33.83          | 41.4                    | 325.4                  | > 3.5 | MRO-MRV 63          | 13920                  | 141.0         | 127.5         | 40.00                                | 21.3370                              |
|                        |                | 41.21          | 34                      | 387.5                  | 0.8   | MRO-MRV 23          | 4600                   | 24.8          | 11.3          | 40.00                                | 0.5270                               |
|                        | 45.0           | 40.23          | 34.8                    | 388.6                  | 1.5   | MRO-MRV 33          | 5740                   | 29.7          | 16.2          | 40.00                                | 1.8490                               |
|                        |                | 41.65          | 33.6                    | 398.4                  | > 3.5 | MRO-MRV 53          | 8510                   | 90.1          | 76.6          | 40.00                                | 25.4059                              |
|                        |                | 42.78          | 32.7                    | 409.7                  | > 3.5 | MRO-MRV 63          | 11390                  | 141.0         | 127.5         | 40.00                                | 20.2710                              |
|                        |                | 43.18          | 32.4                    | 422.7                  | 0.7   | MRO-MRV 23          | 4450                   | 24.8          | 11.3          | 40.00                                | 0.5440                               |
|                        | 50.0           | 45.54          | 30.7                    | 427.5                  | 1.3   | MRO-MRV 33          | 5740                   | 29.7          | 16.2          | 40.00                                | 1.8890                               |
|                        |                | 42.50          | 32.9                    | 406.5                  | 2.1   | MRO-MRV 43          | 10020                  | 54.5          | 41.0          | 40.00                                | 4.1893                               |
|                        |                | 43.14          | 32.5                    | 411.3                  | > 3.5 | MRO-MRV 53          | 8540                   | 90.1          | 76.6          | 40.00                                | 25.6370                              |
|                        |                | 42.95          | 32.6                    | 414.1                  | > 3.5 | MRO-MRV 63          | 16450                  | 141.0         | 127.5         | 40.00                                | 23.3660                              |
|                        | 56.0           | 51.55          | 27.2                    | 483.3                  | 1.2   | MRO-MRV 33          | 5740                   | 29.7          | 16.2          | 40.00                                | 1.8120                               |
|                        |                | 51.25          | 27.3                    | 490.0                  | 2.0   | MRO-MRV 43          | 9720                   | 54.5          | 41.0          | 40.00                                | 4.0217                               |
|                        |                | 51.34          | 27.3                    | 496.2                  | 3.5   | MRO-MRV 53          | 8720                   | 90.1          | 76.6          | 40.00                                | 25.2163                              |
|                        |                | 50.91          | 27.5                    | 489.3                  | > 3.5 | MRO-MRV 63          | 9810                   | 141.0         | 127.5         | 40.00                                | 18.9780                              |
|                        | 63.0           | 53.60          | 26.1                    | 511.8                  | 1.1   | MRO-MRV 33          | 5740                   | 29.7          | 16.2          | 40.00                                | 1.8620                               |
|                        |                | 54.84          | 25.5                    | 525.0                  | 1.9   | MRO-MRV 43          | 9800                   | 54.5          | 41.0          | 40.00                                | 4.0943                               |
|                        |                | 56.67          | 24.7                    | 540.6                  | 3.2   | MRO-MRV 53          | 8820                   | 90.1          | 76.6          | 40.00                                | 25.3529                              |
|                        |                | 56.19          | 24.9                    | 541.9                  | > 3.5 | MRO-MRV 63          | 9970                   | 141.0         | 127.5         | 40.00                                | 19.4030                              |
|                        | 71.0           | 64.33          | 21.8                    | 615.0                  | 0.7   | MRO-MRV 33          | 5740                   | 29.7          | 16.2          | 40.00                                | 1.8750                               |
|                        |                | 63.95          | 21.9                    | 618.8                  | 1.6   | MRO-MRV 43          | 10090                  | 54.5          | 41.0          | 40.00                                | 3.9699                               |
|                        |                | 64.91          | 21.6                    | 621.4                  | 2.8   | MRO-MRV 53          | 8950                   | 90.1          | 76.6          | 40.00                                | 25.0608                              |
|                        |                | 64.36          | 21.8                    | 622.2                  | > 3.5 | MRO-MRV 63          | 10200                  | 141.0         | 127.5         | 40.00                                | 18.5080                              |
|                        | 80.0           | 68.52          | 20.4                    | 669.2                  | 0.9   | MRO-MRV 33          | 5740                   | 29.7          | 16.2          | 40.00                                | 1.7840                               |
|                        |                | 68.34          | 20.5                    | 657.1                  | 1.4   | MRO-MRV 43          | 10970                  | 54.5          | 41.0          | 40.00                                | 4.0382                               |
|                        |                | 72.56          | 19.3                    | 691.7                  | 2.4   | MRO-MRV 53          | 10800                  | 90.1          | 76.6          | 40.00                                | 25.1812                              |
|                        |                | 73.41          | 19.1                    | 706.5                  | > 3.5 | MRO-MRV 63          | 11430                  | 141.0         | 127.5         | 40.00                                | 18.8420                              |
|                        | 90.0           | 80.65          | 17.4                    | 790.9                  | 0.7   | MRO-MRV 33          | 5740                   | 29.7          | 16.2          | 40.00                                | 1.7720                               |
|                        |                | 82.52          | 17                      | 789.5                  | 1.3   | MRO-MRV 43          | 10510                  | 54.5          | 41.0          | 40.00                                | 3.9279                               |
|                        |                | 79.37          | 17.6                    | 768.0                  | 1.7   | MRO-MRV 53          | 16160                  | 90.1          | 76.6          | 40.00                                | 25.0122                              |
|                        |                | 84.55          | 16.6                    | 812.9                  | > 3.5 | MRO-MRV 63          | 11400                  | 141.0         | 127.5         | 40.00                                | 18.1240                              |
|                        | 91.04          | 89.69          | 15.6                    | 834.4                  | 1.1   | MRO-MRV 43          | 11880                  | 54.5          | 41.0          | 40.00                                | 3.8846                               |
|                        |                | 91.04          | 15.4                    | 885.0                  | 2.0   | MRO-MRV 53          | 8400                   | 90.1          | 76.6          | 40.00                                | 24.8176                              |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 1.5                    | 90.0           | 90.27          | 15.5                    | 869.0                  | > 3.5 | MRO-MRV 63          | 11400                  | 141.0         | 127.5         | 40.00                                | 17.8220                              |
|                        | 100.0          | 102.83         | 13.6                    | 1007.1                 | 0.9   | MRO-MRV 43          | 11740                  | 54.5          | 41.0          | 40.00                                | 3.9031                               |
|                        |                | 100.20         | 14                      | 953.6                  | 1.9   | MRO-MRV 53          | 8000                   | 90.1          | 76.6          | 40.00                                | 24.8837                              |
|                        |                | 100.70         | 13.9                    | 969.2                  | 3.5   | MRO-MRV 63          | 9800                   | 141.0         | 127.5         | 40.00                                | 17.9540                              |
|                        | 112.0          | 115.73         | 12.1                    | 1092.9                 | 0.9   | MRO-MRV 43          | 11130                  | 54.5          | 41.0          | 40.00                                | 3.8632                               |
|                        |                | 109.18         | 12.8                    | 1062.5                 | 1.6   | MRO-MRV 53          | 11200                  | 90.1          | 76.6          | 40.00                                | 24.8595                              |
|                        |                | 118.58         | 11.8                    | 1145.5                 | 2.9   | MRO-MRV 63          | 9800                   | 141.0         | 127.5         | 40.00                                | 17.6270                              |
|                        | 125.0          | 119.59         | 11.7                    | 1167.4                 | 1.5   | MRO-MRV 53          | 7200                   | 90.1          | 76.6          | 40.00                                | 24.7730                              |
|                        |                | 128.72         | 10.9                    | 1245.0                 | 2.0   | MRO-MRV 63          | 22060                  | 141.0         | 127.5         | 40.00                                | 17.7600                              |
|                        | 140.0          | 140.53         | 10                      | 1342.5                 | 1.3   | MRO-MRV 53          | 7200                   | 90.1          | 76.6          | 40.00                                | 24.7467                              |
|                        |                | 141.23         | 9.9                     | 1362.2                 | 2.5   | MRO-MRV 63          | 9800                   | 141.0         | 127.5         | 40.00                                | 17.5400                              |
|                        | 160.0          | 153.12         | 9.14                    | 1433.3                 | 1.2   | MRO-MRV 53          | 10100                  | 90.1          | 76.6          | 40.00                                | 24.7344                              |
|                        |                | 154.91         | 9.04                    | 1482.4                 | 2.3   | MRO-MRV 63          | 9800                   | 141.0         | 127.5         | 40.00                                | 17.5010                              |
|                        | 180.0          | 185.17         | 7.56                    | 1775.0                 | 0.8   | MRO-MRV 53          | 17640                  | 90.1          | 76.6          | 40.00                                | 24.7124                              |
|                        |                | 190.49         | 7.35                    | 1861.4                 | 1.5   | MRO-MRV 63          | 19400                  | 141.0         | 127.5         | 40.00                                | 17.4310                              |
|                        | 200.0          | 208.05         | 6.73                    | 1995.0                 | 0.7   | MRO-MRV 53          | 19060                  | 90.1          | 76.6          | 40.00                                | 24.7277                              |
|                        | 224.0          | 220.89         | 6.34                    | 2125.0                 | 1.2   | MRO-MRV 63          | 22500                  | 141.0         | 127.5         | 40.00                                | 17.4800                              |
|                        | 280.0          | 271.62         | 5.15                    | 2550.0                 | 1.0   | MRO-MRV 63          | 22500                  | 141.0         | 127.5         | 40.00                                | 17.4170                              |
|                        | 315.0          | 305.43         | 4.58                    | 2942.3                 | 0.9   | MRO-MRV 63          | 22500                  | 141.0         | 127.5         | 40.00                                | 17.3880                              |
| 2.2                    | 6.3            | 6.62           | 211.4                   | 93.6                   | 2.1   | MRO-MRV 23          | 3350                   | 30.3          | 11.3          | 75.00                                | 1.7940                               |
|                        |                | 6.43           | 217.6                   | 90.6                   | > 3.5 | MRO-MRV 33          | 4550                   | 35.2          | 16.2          | 75.00                                | 5.3400                               |
|                        |                | 6.60           | 212.1                   | 93.2                   | > 3.5 | MRO-MRV 43          | 5570                   | 60.0          | 41.0          | 75.00                                | 11.5009                              |
|                        |                | 6.48           | 215.9                   | 91.3                   | > 3.5 | MRO-MRV 53          | 8020                   | 95.6          | 76.6          | 75.00                                | 46.0154                              |
|                        |                | 6.43           | 217.7                   | 90.6                   | > 3.5 | MRO-MRV 63          | 10740                  | 146.5         | 127.5         | 75.00                                | 78.1860                              |
|                        | 8.0            | 8.47           | 165.3                   | 118.0                  | 1.9   | MRO-MRV 23          | 3620                   | 30.3          | 11.3          | 75.00                                | 1.3930                               |
|                        |                | 8.25           | 169.7                   | 116.5                  | > 3.5 | MRO-MRV 33          | 5540                   | 35.2          | 16.2          | 75.00                                | 4.2720                               |
|                        |                | 8.35           | 167.6                   | 117.8                  | > 3.5 | MRO-MRV 43          | 6000                   | 60.0          | 41.0          | 75.00                                | 9.2271                               |
|                        |                | 8.57           | 163.3                   | 121.0                  | > 3.5 | MRO-MRV 53          | 8770                   | 95.6          | 76.6          | 75.00                                | 38.9230                              |
|                        |                | 8.50           | 164.7                   | 120.0                  | > 3.5 | MRO-MRV 63          | 11850                  | 146.5         | 127.5         | 75.00                                | 60.6320                              |
|                        | 9.0            | 8.97           | 156                     | 126.9                  | 1.8   | MRO-MRV 23          | 3710                   | 30.3          | 11.3          | 75.00                                | 1.5320                               |
|                        |                | 9.09           | 154                     | 128.6                  | 3.0   | MRO-MRV 33          | 5710                   | 35.2          | 16.2          | 75.00                                | 4.6310                               |
|                        |                | 8.72           | 160.6                   | 123.3                  | > 3.5 | MRO-MRV 43          | 5980                   | 60.0          | 41.0          | 75.00                                | 10.1119                              |
|                        | 10.0           | 10.43          | 134.3                   | 145.7                  | 1.7   | MRO-MRV 23          | 3870                   | 30.3          | 11.3          | 75.00                                | 1.1640                               |
|                        |                | 10.17          | 137.7                   | 142.9                  | 3.5   | MRO-MRV 33          | 5630                   | 35.2          | 16.2          | 75.00                                | 3.6570                               |
|                        |                | 10.43          | 134.2                   | 147.5                  | > 3.5 | MRO-MRV 43          | 6430                   | 60.0          | 41.0          | 75.00                                | 7.7706                               |
|                        |                | 10.87          | 128.8                   | 153.8                  | > 3.5 | MRO-MRV 53          | 9470                   | 95.6          | 76.6          | 75.00                                | 34.9392                              |
|                        |                | 10.78          | 129.9                   | 152.1                  | > 3.5 | MRO-MRV 63          | 12750                  | 146.5         | 127.5         | 75.00                                | 48.5070                              |
|                        | 11.2           | 11.48          | 122                     | 163.2                  | 1.4   | MRO-MRV 23          | 4040                   | 30.3          | 11.3          | 75.00                                | 1.2320                               |
|                        |                | 11.65          | 120.2                   | 163.9                  | 2.3   | MRO-MRV 33          | 5730                   | 35.2          | 16.2          | 75.00                                | 3.8410                               |
|                        |                | 11.04          | 126.8                   | 155.4                  | > 3.5 | MRO-MRV 43          | 6520                   | 60.0          | 41.0          | 75.00                                | 8.3593                               |
|                        | 12.5           | 13.03          | 107.4                   | 183.3                  | 1.5   | MRO-MRV 23          | 3920                   | 30.3          | 11.3          | 75.00                                | 0.9900                               |
|                        |                | 12.72          | 110                     | 180.0                  | 3.0   | MRO-MRV 33          | 5710                   | 35.2          | 16.2          | 75.00                                | 3.1860                               |
|                        |                | 13.29          | 105.4                   | 186.6                  | > 3.5 | MRO-MRV 43          | 6950                   | 60.0          | 41.0          | 75.00                                | 6.6865                               |
|                        |                | 13.17          | 106.3                   | 185.5                  | > 3.5 | MRO-MRV 53          | 10050                  | 95.6          | 76.6          | 75.00                                | 32.6124                              |
|                        |                | 13.06          | 107.2                   | 184.0                  | > 3.5 | MRO-MRV 63          | 13550                  | 146.5         | 127.5         | 75.00                                | 41.5040                              |
|                        | 14.0           | 14.13          | 99.1                    | 202.4                  | 1.1   | MRO-MRV 23          | 4340                   | 30.3          | 11.3          | 75.00                                | 1.0580                               |
|                        |                | 13.52          | 103.5                   | 190.9                  | 2.4   | MRO-MRV 33          | 5520                   | 35.2          | 16.2          | 75.00                                | 2.5250                               |
|                        |                | 13.87          | 100.9                   | 195.3                  | 2.6   | MRO-MRV 43          | 7190                   | 60.0          | 41.0          | 75.00                                | 5.5410                               |
|                        |                | 13.63          | 102.7                   | 192.5                  | > 3.5 | MRO-MRV 53          | 10340                  | 95.6          | 76.6          | 75.00                                | 29.4533                              |
|                        |                | 13.51          | 103.6                   | 190.9                  | > 3.5 | MRO-MRV 63          | 14110                  | 146.5         | 127.5         | 75.00                                | 30.9420                              |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 2.2                    | 16.0           | 16.68          | 83.9                    | 231.4                  | 1.3   | MRO-MRV 23          | 3620                   | 30.3          | 11.3          | 75.00                                | 0.8580                               |
|                        |                | 16.30          | 85.9                    | 228.5                  | 2.4   | MRO-MRV 33          | 5730                   | 35.2          | 16.2          | 75.00                                | 2.8190                               |
|                        |                | 16.21          | 86.4                    | 229.4                  | 3.2   | MRO-MRV 43          | 7420                   | 60.0          | 41.0          | 75.00                                | 6.0497                               |
|                        |                | 16.24          | 86.2                    | 229.4                  | > 3.5 | MRO-MRV 53          | 10150                  | 95.6          | 76.6          | 75.00                                | 30.7169                              |
|                        |                | 16.10          | 87                      | 226.8                  | > 3.5 | MRO-MRV 63          | 14450                  | 146.5         | 127.5         | 75.00                                | 35.7680                              |
|                        | 18.0           | 17.80          | 78.6                    | 250.0                  | 1.0   | MRO-MRV 23          | 4480                   | 30.3          | 11.3          | 75.00                                | 0.6830                               |
|                        |                | 17.33          | 80.8                    | 243.9                  | 2.1   | MRO-MRV 33          | 5680                   | 35.2          | 16.2          | 75.00                                | 2.2830                               |
|                        |                | 17.55          | 79.8                    | 248.5                  | 2.5   | MRO-MRV 43          | 7740                   | 60.0          | 41.0          | 75.00                                | 5.0261                               |
|                        |                | 18.02          | 77.7                    | 254.6                  | > 3.5 | MRO-MRV 53          | 11300                  | 95.6          | 76.6          | 75.00                                | 27.8473                              |
|                        |                | 17.87          | 78.4                    | 252.4                  | > 3.5 | MRO-MRV 63          | 15380                  | 146.5         | 127.5         | 75.00                                | 26.9670                              |
|                        | 20.0           | 20.55          | 68.1                    | 284.2                  | 1.1   | MRO-MRV 23          | 3720                   | 30.3          | 11.3          | 75.00                                | 0.7790                               |
|                        |                | 19.10          | 73.3                    | 268.1                  | 1.5   | MRO-MRV 33          | 5730                   | 35.2          | 16.2          | 75.00                                | 2.3640                               |
|                        |                | 20.22          | 69.2                    | 286.0                  | 2.7   | MRO-MRV 43          | 7980                   | 60.0          | 41.0          | 75.00                                | 5.5318                               |
|                        |                | 20.53          | 68.2                    | 288.5                  | > 3.5 | MRO-MRV 53          | 8650                   | 95.6          | 76.6          | 75.00                                | 29.1621                              |
|                        |                | 20.36          | 68.8                    | 286.9                  | > 3.5 | MRO-MRV 63          | 14100                  | 146.5         | 127.5         | 75.00                                | 31.0610                              |
|                        | 22.4           | 21.67          | 64.6                    | 302.5                  | 1.8   | MRO-MRV 33          | 5740                   | 35.2          | 16.2          | 75.00                                | 2.5320                               |
|                        |                | 21.94          | 63.8                    | 309.8                  | 2.2   | MRO-MRV 43          | 8310                   | 60.0          | 41.0          | 75.00                                | 4.6963                               |
|                        |                | 22.85          | 61.3                    | 322.1                  | > 3.5 | MRO-MRV 53          | 11180                  | 95.6          | 76.6          | 75.00                                | 26.9452                              |
|                        |                | 22.66          | 61.8                    | 318.6                  | > 3.5 | MRO-MRV 63          | 16460                  | 146.5         | 127.5         | 75.00                                | 24.2220                              |
|                        | 25.0           | 26.73          | 52.4                    | 373.3                  | 1.5   | MRO-MRV 33          | 5730                   | 35.2          | 16.2          | 75.00                                | 2.0370                               |
|                        |                | 26.10          | 53.6                    | 369.6                  | 2.3   | MRO-MRV 43          | 8690                   | 60.0          | 41.0          | 75.00                                | 5.1123                               |
|                        |                | 26.97          | 51.9                    | 378.8                  | > 3.5 | MRO-MRV 53          | 8140                   | 95.6          | 76.6          | 75.00                                | 27.9078                              |
|                        |                | 25.48          | 55                      | 358.9                  | > 3.5 | MRO-MRV 63          | 16820                  | 146.5         | 127.5         | 75.00                                | 25.3770                              |
|                        | 28.0           | 28.74          | 48.7                    | 400.0                  | 1.0   | MRO-MRV 33          | 5740                   | 35.2          | 16.2          | 75.00                                | 1.9940                               |
|                        |                | 27.92          | 50.1                    | 394.0                  | 2.0   | MRO-MRV 43          | 8990                   | 60.0          | 41.0          | 75.00                                | 4.4508                               |
|                        |                | 27.68          | 50.6                    | 390.0                  | > 3.5 | MRO-MRV 53          | 9800                   | 95.6          | 76.6          | 75.00                                | 26.4183                              |
|                        |                | 27.45          | 51                      | 387.8                  | > 3.5 | MRO-MRV 63          | 15700                  | 146.5         | 127.5         | 75.00                                | 22.6360                              |
|                        | 31.5           | 33.27          | 42.1                    | 465.4                  | 1.2   | MRO-MRV 33          | 5740                   | 35.2          | 16.2          | 75.00                                | 2.2750                               |
|                        |                | 32.52          | 43.1                    | 455.3                  | 2.0   | MRO-MRV 43          | 9390                   | 60.0          | 41.0          | 75.00                                | 4.8644                               |
|                        |                | 31.69          | 44.2                    | 445.3                  | > 3.5 | MRO-MRV 53          | 8230                   | 95.6          | 76.6          | 75.00                                | 27.3913                              |
|                        |                | 31.85          | 44                      | 449.4                  | > 3.5 | MRO-MRV 63          | 11540                  | 146.5         | 127.5         | 75.00                                | 25.5240                              |
|                        | 35.5           | 34.26          | 40.9                    | 492.8                  | 1.1   | MRO-MRV 33          | 5740                   | 35.2          | 16.2          | 75.00                                | 1.9540                               |
|                        |                | 34.06          | 41.1                    | 473.8                  | 1.8   | MRO-MRV 43          | 9580                   | 60.0          | 41.0          | 75.00                                | 4.3066                               |
|                        |                | 34.12          | 41                      | 482.9                  | 3.5   | MRO-MRV 53          | 8340                   | 95.6          | 76.6          | 75.00                                | 25.9891                              |
|                        |                | 33.83          | 41.4                    | 477.3                  | > 3.5 | MRO-MRV 63          | 13920                  | 146.5         | 127.5         | 75.00                                | 21.3370                              |
|                        | 40.0           | 40.23          | 34.8                    | 570.0                  | 1.0   | MRO-MRV 33          | 5740                   | 35.2          | 16.2          | 75.00                                | 1.8490                               |
|                        |                | 41.65          | 33.6                    | 584.4                  | 2.9   | MRO-MRV 53          | 8510                   | 95.6          | 76.6          | 75.00                                | 25.4059                              |
|                        |                | 42.78          | 32.7                    | 600.9                  | > 3.5 | MRO-MRV 63          | 11390                  | 146.5         | 127.5         | 75.00                                | 20.2710                              |
|                        | 45.0           | 42.50          | 32.9                    | 596.1                  | 1.4   | MRO-MRV 43          | 10020                  | 60.0          | 41.0          | 75.00                                | 4.1893                               |
|                        |                | 43.14          | 32.5                    | 603.2                  | 2.8   | MRO-MRV 53          | 8540                   | 95.6          | 76.6          | 75.00                                | 25.6370                              |
|                        |                | 42.95          | 32.6                    | 607.4                  | > 3.5 | MRO-MRV 63          | 16450                  | 146.5         | 127.5         | 75.00                                | 23.3660                              |
|                        | 50.0           | 51.25          | 27.3                    | 718.7                  | 1.4   | MRO-MRV 43          | 9720                   | 60.0          | 41.0          | 75.00                                | 4.0217                               |
|                        |                | 51.34          | 27.3                    | 727.7                  | 2.4   | MRO-MRV 53          | 8720                   | 95.6          | 76.6          | 75.00                                | 25.2163                              |
|                        |                | 50.91          | 27.5                    | 717.7                  | > 3.5 | MRO-MRV 63          | 9810                   | 146.5         | 127.5         | 75.00                                | 18.9780                              |
|                        | 56.0           | 54.84          | 25.5                    | 770.0                  | 1.3   | MRO-MRV 43          | 9800                   | 60.0          | 41.0          | 75.00                                | 4.0943                               |
|                        |                | 56.67          | 24.7                    | 792.9                  | 2.2   | MRO-MRV 53          | 8820                   | 95.6          | 76.6          | 75.00                                | 25.3529                              |
|                        |                | 56.19          | 24.9                    | 794.8                  | > 3.5 | MRO-MRV 63          | 9970                   | 146.5         | 127.5         | 75.00                                | 19.4030                              |
|                        | 63.0           | 63.95          | 21.9                    | 907.5                  | 1.1   | MRO-MRV 43          | 10090                  | 60.0          | 41.0          | 75.00                                | 3.9699                               |
|                        |                | 64.91          | 21.6                    | 911.4                  | 1.9   | MRO-MRV 53          | 8950                   | 95.6          | 76.6          | 75.00                                | 25.0608                              |
|                        |                | 64.36          | 21.8                    | 912.6                  | > 3.5 | MRO-MRV 63          | 10200                  | 146.5         | 127.5         | 75.00                                | 18.5080                              |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |        |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|--------|
| 2.2                    | 71.0           | 72.56          | 19.3                    | 1014.4                 | 1.6   | MRO-MRV 53          | 10800                  | 95.6          | 76.6          | 75.00                                | 25.1812                              |        |
|                        |                | 73.41          | 19.1                    | 1036.2                 | 3.1   | MRO-MRV 63          | 11430                  | 146.5         | 127.5         | 75.00                                | 18.8420                              |        |
|                        | 80.0           | 79.37          | 17.6                    | 1126.4                 | 1.1   | MRO-MRV 53          | 16160                  | 95.6          | 76.6          | 75.00                                | 25.0122                              |        |
|                        |                | 84.55          | 16.6                    | 1192.3                 | 2.8   | MRO-MRV 63          | 11400                  | 146.5         | 127.5         | 75.00                                | 18.1240                              |        |
|                        | 90.0           | 91.04          | 15.4                    | 1298.0                 | 1.4   | MRO-MRV 53          | 8400                   | 95.6          | 76.6          | 75.00                                | 24.8176                              |        |
|                        |                | 90.27          | 15.5                    | 1274.5                 | 2.6   | MRO-MRV 63          | 11400                  | 146.5         | 127.5         | 75.00                                | 17.8220                              |        |
|                        | 100.0          | 100.20         | 14                      | 1398.6                 | 1.3   | MRO-MRV 53          | 8000                   | 95.6          | 76.6          | 75.00                                | 24.8837                              |        |
|                        |                | 100.70         | 13.9                    | 1421.5                 | 2.4   | MRO-MRV 63          | 9800                   | 146.5         | 127.5         | 75.00                                | 17.9540                              |        |
|                        | 112.0          | 109.18         | 12.8                    | 1558.3                 | 1.1   | MRO-MRV 53          | 11200                  | 95.6          | 76.6          | 75.00                                | 24.8595                              |        |
|                        |                | 118.58         | 11.8                    | 1680.0                 | 2.0   | MRO-MRV 63          | 9800                   | 146.5         | 127.5         | 75.00                                | 17.6270                              |        |
|                        | 125.0          | 119.59         | 11.7                    | 1712.2                 | 1.0   | MRO-MRV 53          | 7200                   | 95.6          | 76.6          | 75.00                                | 24.7730                              |        |
|                        |                | 128.72         | 10.9                    | 1826.0                 | 1.4   | MRO-MRV 63          | 22060                  | 146.5         | 127.5         | 75.00                                | 17.7600                              |        |
|                        | 140.0          | 141.23         | 9.9                     | 1997.8                 | 1.7   | MRO-MRV 63          | 9800                   | 146.5         | 127.5         | 75.00                                | 17.5400                              |        |
|                        | 160.0          | 154.91         | 9.04                    | 2174.1                 | 1.5   | MRO-MRV 63          | 9800                   | 146.5         | 127.5         | 75.00                                | 17.5010                              |        |
|                        | 180.0          | 190.49         | 7.35                    | 2730.0                 | 1.0   | MRO-MRV 63          | 19400                  | 146.5         | 127.5         | 75.00                                | 17.4310                              |        |
| 3                      | 6.3            | 6.62           | 211.4                   | 127.7                  | 1.6   | MRO-MRV 23          | 3350                   | 32.3          | 11.3          | 85.00                                | 1.7940                               |        |
|                        |                | 6.43           | 217.6                   | 123.5                  | 3.4   | MRO-MRV 33          | 4550                   | 37.2          | 16.2          | 85.00                                | 5.3400                               |        |
|                        |                | 6.60           | 212.1                   | 127.0                  | > 3.5 | MRO-MRV 43          | 5570                   | 62.0          | 41.0          | 85.00                                | 11.5009                              |        |
|                        |                | 6.48           | 215.9                   | 124.6                  | > 3.5 | MRO-MRV 53          | 8020                   | 97.6          | 76.6          | 85.00                                | 46.0154                              |        |
|                        |                | 6.43           | 217.7                   | 123.6                  | > 3.5 | MRO-MRV 63          | 10740                  | 148.5         | 127.5         | 85.00                                | 78.1860                              |        |
|                        | 8.0            | 8.47           | 165.3                   | 161.0                  | 1.4   | MRO-MRV 23          | 3620                   | 32.3          | 11.3          | 85.00                                | 1.3930                               |        |
|                        |                | 8.25           | 169.7                   | 158.8                  | 2.8   | MRO-MRV 33          | 5540                   | 37.2          | 16.2          | 85.00                                | 4.2720                               |        |
|                        |                | 8.35           | 167.6                   | 160.6                  | 3.3   | MRO-MRV 43          | 6000                   | 62.0          | 41.0          | 85.00                                | 9.2271                               |        |
|                        |                | 8.57           | 163.3                   | 165.0                  | > 3.5 | MRO-MRV 53          | 8770                   | 97.6          | 76.6          | 85.00                                | 38.9230                              |        |
|                        |                | 8.50           | 164.7                   | 163.6                  | > 3.5 | MRO-MRV 63          | 11850                  | 148.5         | 127.5         | 85.00                                | 60.6320                              |        |
|                        | 9.0            | 8.97           | 156                     | 173.1                  | 1.3   | MRO-MRV 23          | 3710                   | 32.3          | 11.3          | 85.00                                | 1.5320                               |        |
|                        |                | 9.09           | 154                     | 175.4                  | 2.2   | MRO-MRV 33          | 5710                   | 37.2          | 16.2          | 85.00                                | 4.6310                               |        |
|                        |                | 8.72           | 160.6                   | 168.1                  | > 3.5 | MRO-MRV 43          | 5980                   | 62.0          | 41.0          | 85.00                                | 10.1119                              |        |
|                        |                | 10.0           | 10.43                   | 134.3                  | 198.6 | 1.2                 | MRO-MRV 23             | 3870          | 32.3          | 11.3                                 | 85.00                                | 1.1640 |
|                        |                |                | 10.17                   | 137.7                  | 194.8 | 2.6                 | MRO-MRV 33             | 5630          | 37.2          | 16.2                                 | 85.00                                | 3.6570 |
|                        | 10.43          |                | 134.2                   | 201.1                  | 3.0   | MRO-MRV 43          | 6430                   | 62.0          | 41.0          | 85.00                                | 7.7706                               |        |
|                        | 10.87          |                | 128.8                   | 209.7                  | > 3.5 | MRO-MRV 53          | 9470                   | 97.6          | 76.6          | 85.00                                | 34.9392                              |        |
|                        | 10.78          |                | 129.9                   | 207.4                  | > 3.5 | MRO-MRV 63          | 12750                  | 148.5         | 127.5         | 85.00                                | 48.5070                              |        |
|                        | 11.2           | 11.48          | 122                     | 222.6                  | 1.0   | MRO-MRV 23          | 4040                   | 32.3          | 11.3          | 85.00                                | 1.2320                               |        |
|                        |                | 11.65          | 120.2                   | 223.5                  | 1.7   | MRO-MRV 33          | 5730                   | 37.2          | 16.2          | 85.00                                | 3.8410                               |        |
|                        |                | 11.04          | 126.8                   | 212.0                  | 3.1   | MRO-MRV 43          | 6520                   | 62.0          | 41.0          | 85.00                                | 8.3593                               |        |
|                        |                | 12.5           | 13.03                   | 107.4                  | 250.0 | 1.1                 | MRO-MRV 23             | 3920          | 32.3          | 11.3                                 | 85.00                                | 0.9900 |
|                        |                |                | 12.72                   | 110                    | 245.5 | 2.2                 | MRO-MRV 33             | 5710          | 37.2          | 16.2                                 | 85.00                                | 3.1860 |
|                        | 13.29          |                | 105.4                   | 254.4                  | 2.6   | MRO-MRV 43          | 6950                   | 62.0          | 41.0          | 85.00                                | 6.6865                               |        |
|                        | 13.17          |                | 106.3                   | 253.0                  | > 3.5 | MRO-MRV 53          | 10050                  | 97.6          | 76.6          | 85.00                                | 32.6124                              |        |
|                        | 13.06          |                | 107.2                   | 251.0                  | > 3.5 | MRO-MRV 63          | 13550                  | 148.5         | 127.5         | 85.00                                | 41.5040                              |        |
|                        | 14.0           | 14.13          | 99.1                    | 276.0                  | 0.8   | MRO-MRV 23          | 4340                   | 32.3          | 11.3          | 85.00                                | 1.0580                               |        |
|                        |                | 13.52          | 103.5                   | 260.4                  | 1.8   | MRO-MRV 33          | 5520                   | 37.2          | 16.2          | 85.00                                | 2.5250                               |        |
|                        |                | 13.87          | 100.9                   | 266.4                  | 1.9   | MRO-MRV 43          | 7190                   | 62.0          | 41.0          | 85.00                                | 5.5410                               |        |
|                        |                | 13.63          | 102.7                   | 262.5                  | > 3.5 | MRO-MRV 53          | 10340                  | 97.6          | 76.6          | 85.00                                | 29.4533                              |        |
|                        |                | 13.51          | 103.6                   | 260.3                  | > 3.5 | MRO-MRV 63          | 14110                  | 148.5         | 127.5         | 85.00                                | 30.9420                              |        |
|                        | 16.0           | 16.68          | 83.9                    | 315.5                  | 1.0   | MRO-MRV 23          | 3620                   | 32.3          | 11.3          | 85.00                                | 0.8580                               |        |
|                        |                | 16.30          | 85.9                    | 311.5                  | 1.7   | MRO-MRV 33          | 5730                   | 37.2          | 16.2          | 85.00                                | 2.8190                               |        |
|                        |                | 16.21          | 86.4                    | 312.9                  | 2.3   | MRO-MRV 43          | 7420                   | 62.0          | 41.0          | 85.00                                | 6.0497                               |        |
|                        |                | 16.24          | 86.2                    | 312.8                  | > 3.5 | MRO-MRV 53          | 10150                  | 97.6          | 76.6          | 85.00                                | 30.7169                              |        |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 3                      | 16.0           | 16.10          | 87                      | 309.3                  | > 3.5 | MRO-MRV 63          | 14450                  | 148.5         | 127.5         | 85.00                                | 35.7680                              |
|                        |                | 17.80          | 78.6                    | 340.9                  | 0.7   | MRO-MRV 23          | 4480                   | 32.3          | 11.3          | 85.00                                | 0.6830                               |
|                        | 18.0           | 17.33          | 80.8                    | 332.6                  | 1.5   | MRO-MRV 33          | 5680                   | 37.2          | 16.2          | 85.00                                | 2.2830                               |
|                        |                | 17.55          | 79.8                    | 338.9                  | 1.8   | MRO-MRV 43          | 7740                   | 62.0          | 41.0          | 85.00                                | 5.0261                               |
|                        |                | 18.02          | 77.7                    | 347.2                  | > 3.5 | MRO-MRV 53          | 11300                  | 97.6          | 76.6          | 85.00                                | 27.8473                              |
|                        |                | 17.87          | 78.4                    | 344.1                  | > 3.5 | MRO-MRV 63          | 15380                  | 148.5         | 127.5         | 85.00                                | 26.9670                              |
|                        | 20.0           | 20.55          | 68.1                    | 387.5                  | 0.8   | MRO-MRV 23          | 3720                   | 32.3          | 11.3          | 85.00                                | 0.7790                               |
|                        |                | 19.10          | 73.3                    | 365.6                  | 1.1   | MRO-MRV 33          | 5730                   | 37.2          | 16.2          | 85.00                                | 2.3640                               |
|                        |                | 20.22          | 69.2                    | 390.0                  | 2.0   | MRO-MRV 43          | 7980                   | 62.0          | 41.0          | 85.00                                | 5.5318                               |
|                        |                | 20.53          | 68.2                    | 393.4                  | > 3.5 | MRO-MRV 53          | 8650                   | 97.6          | 76.6          | 85.00                                | 29.1621                              |
|                        | 22.4           | 20.36          | 68.8                    | 391.2                  | > 3.5 | MRO-MRV 63          | 14100                  | 148.5         | 127.5         | 85.00                                | 31.0610                              |
|                        |                | 21.67          | 64.6                    | 412.5                  | 1.3   | MRO-MRV 33          | 5740                   | 37.2          | 16.2          | 85.00                                | 2.5320                               |
|                        |                | 21.94          | 63.8                    | 422.4                  | 1.6   | MRO-MRV 43          | 8310                   | 62.0          | 41.0          | 85.00                                | 4.6963                               |
|                        |                | 22.85          | 61.3                    | 439.2                  | 3.2   | MRO-MRV 53          | 11180                  | 97.6          | 76.6          | 85.00                                | 26.9452                              |
|                        | 25.0           | 22.66          | 61.8                    | 434.4                  | > 3.5 | MRO-MRV 63          | 16460                  | 148.5         | 127.5         | 85.00                                | 24.2220                              |
|                        |                | 26.73          | 52.4                    | 509.1                  | 1.1   | MRO-MRV 33          | 5730                   | 37.2          | 16.2          | 85.00                                | 2.0370                               |
|                        |                | 26.10          | 53.6                    | 504.0                  | 1.7   | MRO-MRV 43          | 8690                   | 62.0          | 41.0          | 85.00                                | 5.1123                               |
|                        |                | 26.97          | 51.9                    | 516.5                  | 3.2   | MRO-MRV 53          | 8140                   | 97.6          | 76.6          | 85.00                                | 27.9078                              |
|                        | 28.0           | 25.48          | 55                      | 489.4                  | > 3.5 | MRO-MRV 63          | 16820                  | 148.5         | 127.5         | 85.00                                | 25.3770                              |
|                        |                | 28.74          | 48.7                    | 545.5                  | 0.7   | MRO-MRV 33          | 5740                   | 37.2          | 16.2          | 85.00                                | 1.9940                               |
|                        |                | 27.92          | 50.1                    | 537.2                  | 1.4   | MRO-MRV 43          | 8990                   | 62.0          | 41.0          | 85.00                                | 4.4508                               |
|                        |                | 27.68          | 50.6                    | 531.8                  | 2.9   | MRO-MRV 53          | 9800                   | 97.6          | 76.6          | 85.00                                | 26.4183                              |
|                        | 31.5           | 27.45          | 51                      | 528.8                  | > 3.5 | MRO-MRV 63          | 15700                  | 148.5         | 127.5         | 85.00                                | 22.6360                              |
|                        |                | 33.27          | 42.1                    | 634.6                  | 0.9   | MRO-MRV 33          | 5740                   | 37.2          | 16.2          | 85.00                                | 2.2750                               |
|                        |                | 32.52          | 43.1                    | 620.9                  | 1.4   | MRO-MRV 43          | 9390                   | 62.0          | 41.0          | 85.00                                | 4.8644                               |
|                        |                | 31.69          | 44.2                    | 607.2                  | 2.8   | MRO-MRV 53          | 8230                   | 97.6          | 76.6          | 85.00                                | 27.3913                              |
|                        | 35.5           | 31.85          | 44                      | 612.9                  | > 3.5 | MRO-MRV 63          | 11540                  | 148.5         | 127.5         | 85.00                                | 25.5240                              |
|                        |                | 34.26          | 40.9                    | 672.0                  | 0.8   | MRO-MRV 33          | 5740                   | 37.2          | 16.2          | 85.00                                | 1.9540                               |
|                        |                | 34.06          | 41.1                    | 646.2                  | 1.3   | MRO-MRV 43          | 9580                   | 62.0          | 41.0          | 85.00                                | 4.3066                               |
|                        |                | 34.12          | 41                      | 658.4                  | 2.6   | MRO-MRV 53          | 8340                   | 97.6          | 76.6          | 85.00                                | 25.9891                              |
|                        | 40.0           | 33.83          | 41.4                    | 650.8                  | > 3.5 | MRO-MRV 63          | 13920                  | 148.5         | 127.5         | 85.00                                | 21.3370                              |
|                        |                | 40.23          | 34.8                    | 777.3                  | 0.7   | MRO-MRV 33          | 5740                   | 37.2          | 16.2          | 85.00                                | 1.8490                               |
|                        |                | 41.65          | 33.6                    | 796.9                  | 2.1   | MRO-MRV 53          | 8510                   | 97.6          | 76.6          | 85.00                                | 25.4059                              |
|                        |                | 42.78          | 32.7                    | 819.4                  | > 3.5 | MRO-MRV 63          | 11390                  | 148.5         | 127.5         | 85.00                                | 20.2710                              |
|                        | 45.0           | 42.50          | 32.9                    | 812.9                  | 1.0   | MRO-MRV 43          | 10020                  | 62.0          | 41.0          | 85.00                                | 4.1893                               |
|                        |                | 43.14          | 32.5                    | 822.6                  | 2.1   | MRO-MRV 53          | 8540                   | 97.6          | 76.6          | 85.00                                | 25.6370                              |
|                        |                | 42.95          | 32.6                    | 828.3                  | 3.1   | MRO-MRV 63          | 16450                  | 148.5         | 127.5         | 85.00                                | 23.3660                              |
|                        |                | 51.25          | 27.3                    | 980.0                  | 1.0   | MRO-MRV 43          | 9720                   | 62.0          | 41.0          | 85.00                                | 4.0217                               |
|                        | 50.0           | 51.34          | 27.3                    | 992.3                  | 1.7   | MRO-MRV 53          | 8720                   | 97.6          | 76.6          | 85.00                                | 25.2163                              |
|                        |                | 50.91          | 27.5                    | 978.6                  | 3.4   | MRO-MRV 63          | 9810                   | 148.5         | 127.5         | 85.00                                | 18.9780                              |
|                        |                | 54.84          | 25.5                    | 1050.0                 | 0.9   | MRO-MRV 43          | 9800                   | 62.0          | 41.0          | 85.00                                | 4.0943                               |
|                        |                | 56.67          | 24.7                    | 1081.3                 | 1.6   | MRO-MRV 53          | 8820                   | 97.6          | 76.6          | 85.00                                | 25.3529                              |
|                        | 56.0           | 56.19          | 24.9                    | 1083.9                 | 3.1   | MRO-MRV 63          | 9970                   | 148.5         | 127.5         | 85.00                                | 19.4030                              |
|                        |                | 63.95          | 21.9                    | 1237.5                 | 0.8   | MRO-MRV 43          | 10090                  | 62.0          | 41.0          | 85.00                                | 3.9699                               |
|                        |                | 64.91          | 21.6                    | 1242.9                 | 1.4   | MRO-MRV 53          | 8950                   | 97.6          | 76.6          | 85.00                                | 25.0608                              |
|                        |                | 64.36          | 21.8                    | 1244.4                 | 2.7   | MRO-MRV 63          | 10200                  | 148.5         | 127.5         | 85.00                                | 18.5080                              |
|                        | 71.0           | 72.56          | 19.3                    | 1383.3                 | 1.2   | MRO-MRV 53          | 10800                  | 97.6          | 76.6          | 85.00                                | 25.1812                              |
|                        |                | 73.41          | 19.1                    | 1413.0                 | 2.3   | MRO-MRV 63          | 11430                  | 148.5         | 127.5         | 85.00                                | 18.8420                              |
|                        | 80.0           | 79.37          | 17.6                    | 1536.0                 | 0.8   | MRO-MRV 53          | 16160                  | 97.6          | 76.6          | 85.00                                | 25.0122                              |
|                        |                | 84.55          | 16.6                    | 1625.8                 | 2.1   | MRO-MRV 63          | 11400                  | 148.5         | 127.5         | 85.00                                | 18.1240                              |

# RO-RV

## Selezione Motoriduttore - Geared Motor Selection - Getriebemotorauswahl

### MRO/MRV - 1400 rpm

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 3                      | 90.0           | 91.04          | 15.4                    | 1770.0                 | 1.0   | MRO-MRV 53          | 8400                   | 97.6          | 76.6          | 85.00                                | 24.8176                              |
|                        |                | 90.27          | 15.5                    | 1737.9                 | 1.9   | MRO-MRV 63          | 11400                  | 148.5         | 127.5         | 85.00                                | 17.8220                              |
|                        | 100.0          | 100.20         | 14                      | 1907.1                 | 0.9   | MRO-MRV 53          | 8000                   | 97.6          | 76.6          | 85.00                                | 24.8837                              |
|                        |                | 100.70         | 13.9                    | 1938.5                 | 1.7   | MRO-MRV 63          | 9800                   | 148.5         | 127.5         | 85.00                                | 17.9540                              |
|                        | 112.0          | 109.18         | 12.8                    | 2125.0                 | 0.8   | MRO-MRV 53          | 11200                  | 97.6          | 76.6          | 85.00                                | 24.8595                              |
|                        |                | 118.58         | 11.8                    | 2290.9                 | 1.5   | MRO-MRV 63          | 9800                   | 148.5         | 127.5         | 85.00                                | 17.6270                              |
|                        | 125.0          | 119.59         | 11.7                    | 2334.8                 | 0.8   | MRO-MRV 53          | 7200                   | 97.6          | 76.6          | 85.00                                | 24.7730                              |
|                        |                | 128.72         | 10.9                    | 2490.0                 | 1.0   | MRO-MRV 63          | 22060                  | 148.5         | 127.5         | 85.00                                | 17.7600                              |
|                        | 140.0          | 141.23         | 9.9                     | 2724.3                 | 1.2   | MRO-MRV 63          | 9800                   | 148.5         | 127.5         | 85.00                                | 17.5400                              |
|                        | 160.0          | 154.91         | 9.04                    | 2964.7                 | 1.1   | MRO-MRV 63          | 9800                   | 148.5         | 127.5         | 85.00                                | 17.5010                              |
| 4                      | 6.3            | 180.49         | 7.35                    | 3722.7                 | 0.7   | MRO-MRV 63          | 19400                  | 148.5         | 127.5         | 85.00                                | 17.4310                              |
|                        |                | 6.62           | 211.4                   | 170.2                  | 1.2   | MRO-MRV 23          | 3350                   | 40.3          | 11.3          | 130.00                               | 1.7940                               |
|                        |                | 6.43           | 217.6                   | 164.7                  | 2.6   | MRO-MRV 33          | 4550                   | 45.2          | 16.2          | 130.00                               | 5.3400                               |
|                        |                | 6.60           | 212.1                   | 169.4                  | 2.8   | MRO-MRV 43          | 5570                   | 70.0          | 41.0          | 130.00                               | 11.5009                              |
|                        |                | 6.48           | 215.9                   | 166.1                  | > 3.5 | MRO-MRV 53          | 8020                   | 105.6         | 76.6          | 130.00                               | 46.0154                              |
|                        | 8.0            | 6.43           | 217.7                   | 164.8                  | > 3.5 | MRO-MRV 63          | 10740                  | 156.5         | 127.5         | 130.00                               | 78.1860                              |
|                        |                | 8.47           | 165.3                   | 214.6                  | 1.0   | MRO-MRV 23          | 3620                   | 40.3          | 11.3          | 130.00                               | 1.3930                               |
|                        |                | 8.25           | 169.7                   | 211.8                  | 2.1   | MRO-MRV 33          | 5540                   | 45.2          | 16.2          | 130.00                               | 4.2720                               |
|                        |                | 8.35           | 167.6                   | 214.1                  | 2.5   | MRO-MRV 43          | 6000                   | 70.0          | 41.0          | 130.00                               | 9.2271                               |
|                        |                | 8.57           | 163.3                   | 220.0                  | > 3.5 | MRO-MRV 53          | 8770                   | 105.6         | 76.6          | 130.00                               | 38.9230                              |
|                        | 9.0            | 8.50           | 164.7                   | 218.2                  | > 3.5 | MRO-MRV 63          | 11850                  | 156.5         | 127.5         | 130.00                               | 60.6320                              |
|                        |                | 9.09           | 154                     | 233.8                  | 1.6   | MRO-MRV 33          | 5710                   | 45.2          | 16.2          | 130.00                               | 4.6310                               |
|                        |                | 8.72           | 160.6                   | 224.1                  | 2.9   | MRO-MRV 43          | 5980                   | 70.0          | 41.0          | 130.00                               | 10.1119                              |
|                        | 10.0           | 10.17          | 137.7                   | 259.7                  | 1.9   | MRO-MRV 33          | 5630                   | 45.2          | 16.2          | 130.00                               | 3.6570                               |
|                        |                | 10.43          | 134.2                   | 268.1                  | 2.3   | MRO-MRV 43          | 6430                   | 70.0          | 41.0          | 130.00                               | 7.7706                               |
|                        |                | 10.87          | 128.8                   | 279.5                  | > 3.5 | MRO-MRV 53          | 9470                   | 105.6         | 76.6          | 130.00                               | 34.9392                              |
|                        |                | 10.78          | 129.9                   | 276.5                  | > 3.5 | MRO-MRV 63          | 12750                  | 156.5         | 127.5         | 130.00                               | 48.5070                              |
|                        | 11.2           | 11.65          | 120.2                   | 298.0                  | 1.3   | MRO-MRV 33          | 5730                   | 45.2          | 16.2          | 130.00                               | 3.8410                               |
|                        |                | 11.04          | 126.8                   | 282.6                  | 2.3   | MRO-MRV 43          | 6520                   | 70.0          | 41.0          | 130.00                               | 8.3593                               |
|                        | 12.5           | 12.72          | 110                     | 327.3                  | 1.7   | MRO-MRV 33          | 5710                   | 45.2          | 16.2          | 130.00                               | 3.1860                               |
|                        |                | 13.29          | 105.4                   | 339.2                  | 2.0   | MRO-MRV 43          | 6950                   | 70.0          | 41.0          | 130.00                               | 6.6865                               |
|                        |                | 13.17          | 106.3                   | 337.3                  | > 3.5 | MRO-MRV 53          | 10050                  | 105.6         | 76.6          | 130.00                               | 32.6124                              |
|                        |                | 13.06          | 107.2                   | 334.6                  | > 3.5 | MRO-MRV 63          | 13550                  | 156.5         | 127.5         | 130.00                               | 41.5040                              |
|                        | 14.0           | 13.52          | 103.5                   | 347.2                  | 1.3   | MRO-MRV 33          | 5520                   | 45.2          | 16.2          | 130.00                               | 2.5250                               |
|                        |                | 13.87          | 100.9                   | 355.2                  | 1.5   | MRO-MRV 43          | 7190                   | 70.0          | 41.0          | 130.00                               | 5.5410                               |
|                        |                | 13.63          | 102.7                   | 350.0                  | 3.0   | MRO-MRV 53          | 10340                  | 105.6         | 76.6          | 130.00                               | 29.4533                              |
|                        |                | 13.51          | 103.6                   | 347.1                  | > 3.5 | MRO-MRV 63          | 14110                  | 156.5         | 127.5         | 130.00                               | 30.9420                              |
|                        | 16.0           | 16.30          | 85.9                    | 415.4                  | 1.3   | MRO-MRV 33          | 5730                   | 45.2          | 16.2          | 130.00                               | 2.8190                               |
|                        |                | 16.21          | 86.4                    | 417.1                  | 1.8   | MRO-MRV 43          | 7420                   | 70.0          | 41.0          | 130.00                               | 6.0497                               |
|                        |                | 16.24          | 86.2                    | 417.0                  | > 3.5 | MRO-MRV 53          | 10150                  | 105.6         | 76.6          | 130.00                               | 30.7169                              |
|                        |                | 16.10          | 87                      | 412.4                  | > 3.5 | MRO-MRV 63          | 14450                  | 156.5         | 127.5         | 130.00                               | 35.7680                              |
|                        | 18.0           | 17.33          | 80.8                    | 443.5                  | 1.2   | MRO-MRV 33          | 5680                   | 45.2          | 16.2          | 130.00                               | 2.2830                               |
|                        |                | 17.55          | 79.8                    | 451.9                  | 1.4   | MRO-MRV 43          | 7740                   | 70.0          | 41.0          | 130.00                               | 5.0261                               |
|                        |                | 18.02          | 77.7                    | 463.0                  | 2.7   | MRO-MRV 53          | 11300                  | 105.6         | 76.6          | 130.00                               | 27.8473                              |
|                        |                | 17.87          | 78.4                    | 458.8                  | > 3.5 | MRO-MRV 63          | 15380                  | 156.5         | 127.5         | 130.00                               | 26.9670                              |
|                        | 20.0           | 20.22          | 69.2                    | 520.0                  | 1.5   | MRO-MRV 43          | 7980                   | 70.0          | 41.0          | 130.00                               | 5.5318                               |
|                        |                | 20.53          | 68.2                    | 524.6                  | 3.1   | MRO-MRV 53          | 8650                   | 105.6         | 76.6          | 130.00                               | 29.1621                              |
|                        |                | 20.36          | 68.8                    | 521.6                  | > 3.5 | MRO-MRV 63          | 14100                  | 156.5         | 127.5         | 130.00                               | 31.0610                              |
|                        | 22.4           | 21.94          | 63.8                    | 563.3                  | 1.2   | MRO-MRV 43          | 8310                   | 70.0          | 41.0          | 130.00                               | 4.6963                               |
|                        |                | 22.85          | 61.3                    | 585.6                  | 2.4   | MRO-MRV 53          | 11180                  | 105.6         | 76.6          | 130.00                               | 26.9452                              |

**MRO/MRV - 1400 rpm**

| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 4                      | 22.4           | 22.66          | 61.8                    | 579.2                  | > 3.5 | MRO-MRV 63          | 16460                  | 156.5         | 127.5         | 130.00                               | 24.2220                              |
|                        | 25.0           | 26.10          | 53.6                    | 672.0                  | 1.3   | MRO-MRV 43          | 8690                   | 70.0          | 41.0          | 130.00                               | 5.1123                               |
|                        |                | 26.97          | 51.9                    | 688.7                  | 2.4   | MRO-MRV 53          | 8140                   | 105.6         | 76.6          | 130.00                               | 27.9078                              |
|                        |                | 25.48          | 55                      | 652.5                  | > 3.5 | MRO-MRV 63          | 16820                  | 156.5         | 127.5         | 130.00                               | 25.3770                              |
|                        | 28.0           | 27.92          | 50.1                    | 716.3                  | 1.1   | MRO-MRV 43          | 8990                   | 70.0          | 41.0          | 130.00                               | 4.4508                               |
|                        |                | 27.68          | 50.6                    | 709.1                  | 2.2   | MRO-MRV 53          | 9800                   | 105.6         | 76.6          | 130.00                               | 26.4183                              |
|                        |                | 27.45          | 51                      | 705.0                  | 3.5   | MRO-MRV 63          | 15700                  | 156.5         | 127.5         | 130.00                               | 22.6360                              |
|                        | 31.5           | 32.52          | 43.1                    | 827.9                  | 1.1   | MRO-MRV 43          | 9390                   | 70.0          | 41.0          | 130.00                               | 4.8644                               |
|                        |                | 31.69          | 44.2                    | 809.6                  | 2.1   | MRO-MRV 53          | 8230                   | 105.6         | 76.6          | 130.00                               | 27.3913                              |
|                        |                | 31.85          | 44                      | 817.1                  | 3.5   | MRO-MRV 63          | 11540                  | 156.5         | 127.5         | 130.00                               | 25.5240                              |
|                        | 35.5           | 34.12          | 41                      | 877.9                  | 1.9   | MRO-MRV 53          | 8340                   | 105.6         | 76.6          | 130.00                               | 25.9891                              |
|                        |                | 33.83          | 41.4                    | 867.7                  | 3.1   | MRO-MRV 63          | 13920                  | 156.5         | 127.5         | 130.00                               | 21.3370                              |
|                        | 40.0           | 41.65          | 33.6                    | 1062.5                 | 1.6   | MRO-MRV 53          | 8510                   | 105.6         | 76.6          | 130.00                               | 25.4059                              |
|                        |                | 42.78          | 32.7                    | 1092.6                 | 2.7   | MRO-MRV 63          | 11390                  | 156.5         | 127.5         | 130.00                               | 20.2710                              |
|                        | 45.0           | 43.14          | 32.5                    | 1096.8                 | 1.6   | MRO-MRV 53          | 8540                   | 105.6         | 76.6          | 130.00                               | 25.6370                              |
|                        |                | 42.95          | 32.6                    | 1104.3                 | 2.3   | MRO-MRV 63          | 16450                  | 156.5         | 127.5         | 130.00                               | 23.3660                              |
|                        | 50.0           | 51.34          | 27.3                    | 1323.1                 | 1.3   | MRO-MRV 53          | 8720                   | 105.6         | 76.6          | 130.00                               | 25.2163                              |
|                        |                | 50.91          | 27.5                    | 1304.9                 | 2.6   | MRO-MRV 63          | 9810                   | 156.5         | 127.5         | 130.00                               | 18.9780                              |
|                        | 56.0           | 56.67          | 24.7                    | 1441.7                 | 1.2   | MRO-MRV 53          | 8820                   | 105.6         | 76.6          | 130.00                               | 25.3529                              |
|                        |                | 56.19          | 24.9                    | 1445.2                 | 2.3   | MRO-MRV 63          | 9970                   | 156.5         | 127.5         | 130.00                               | 19.4030                              |
|                        | 63.0           | 64.91          | 21.6                    | 1657.1                 | 1.1   | MRO-MRV 53          | 8950                   | 105.6         | 76.6          | 130.00                               | 25.0608                              |
|                        |                | 64.36          | 21.8                    | 1659.3                 | 2.0   | MRO-MRV 63          | 10200                  | 156.5         | 127.5         | 130.00                               | 18.5080                              |
|                        | 71.0           | 72.56          | 19.3                    | 1844.4                 | 0.9   | MRO-MRV 53          | 10800                  | 105.6         | 76.6          | 130.00                               | 25.1812                              |
|                        |                | 73.41          | 19.1                    | 1884.1                 | 1.7   | MRO-MRV 63          | 11430                  | 156.5         | 127.5         | 130.00                               | 18.8420                              |
|                        | 80.0           | 84.55          | 16.6                    | 2167.7                 | 1.6   | MRO-MRV 63          | 11400                  | 156.5         | 127.5         | 130.00                               | 18.1240                              |
|                        | 90.0           | 91.04          | 15.4                    | 2360.0                 | 0.8   | MRO-MRV 53          | 8400                   | 105.6         | 76.6          | 130.00                               | 24.8176                              |
|                        |                | 90.27          | 15.5                    | 2317.2                 | 1.5   | MRO-MRV 63          | 11400                  | 156.5         | 127.5         | 130.00                               | 17.8220                              |
|                        | 100.0          | 100.20         | 14                      | 2542.9                 | 0.7   | MRO-MRV 53          | 8000                   | 105.6         | 76.6          | 130.00                               | 24.8837                              |
|                        |                | 100.70         | 13.9                    | 2584.6                 | 1.3   | MRO-MRV 63          | 9800                   | 156.5         | 127.5         | 130.00                               | 17.9540                              |
|                        | 112.0          | 118.58         | 11.8                    | 3054.5                 | 1.1   | MRO-MRV 63          | 9800                   | 156.5         | 127.5         | 130.00                               | 17.6270                              |
|                        | 125.0          | 128.72         | 10.9                    | 3320.0                 | 0.8   | MRO-MRV 63          | 22060                  | 156.5         | 127.5         | 130.00                               | 17.7600                              |
|                        | 140.0          | 141.23         | 9.9                     | 3632.4                 | 0.9   | MRO-MRV 63          | 9800                   | 156.5         | 127.5         | 130.00                               | 17.5400                              |
|                        | 160.0          | 154.91         | 9.04                    | 3952.9                 | 0.9   | MRO-MRV 63          | 9800                   | 156.5         | 127.5         | 130.00                               | 17.5010                              |
| 5.5                    | 6.3            | 6.48           | 215.9                   | 228.3                  | > 3.5 | MRO-MRV 53          | 8020                   | 119.6         | 76.6          | 240.00                               | 46.0154                              |
|                        |                | 6.43           | 217.7                   | 226.6                  | > 3.5 | MRO-MRV 63          | 10740                  | 170.5         | 127.5         | 240.00                               | 78.1860                              |
|                        | 8.0            | 8.57           | 163.3                   | 302.5                  | > 3.5 | MRO-MRV 53          | 8770                   | 119.6         | 76.6          | 240.00                               | 38.9230                              |
|                        |                | 8.50           | 164.7                   | 300.0                  | > 3.5 | MRO-MRV 63          | 11850                  | 170.5         | 127.5         | 240.00                               | 60.6320                              |
|                        | 10.0           | 10.87          | 128.8                   | 384.4                  | 3.2   | MRO-MRV 53          | 9470                   | 119.6         | 76.6          | 240.00                               | 34.9392                              |
|                        |                | 10.78          | 129.9                   | 380.2                  | > 3.5 | MRO-MRV 63          | 12750                  | 170.5         | 127.5         | 240.00                               | 48.5070                              |
|                        | 12.5           | 13.17          | 106.3                   | 463.9                  | 3.0   | MRO-MRV 53          | 10050                  | 119.6         | 76.6          | 240.00                               | 32.6124                              |
|                        |                | 13.06          | 107.2                   | 460.1                  | > 3.5 | MRO-MRV 63          | 13550                  | 170.5         | 127.5         | 240.00                               | 41.5040                              |
|                        | 14.0           | 13.63          | 102.7                   | 481.3                  | 2.2   | MRO-MRV 53          | 10340                  | 119.6         | 76.6          | 240.00                               | 29.4533                              |
|                        |                | 13.51          | 103.6                   | 477.2                  | 3.4   | MRO-MRV 63          | 14110                  | 170.5         | 127.5         | 240.00                               | 30.9420                              |
|                        | 16.0           | 16.24          | 86.2                    | 573.4                  | 2.6   | MRO-MRV 53          | 10150                  | 119.6         | 76.6          | 240.00                               | 30.7169                              |
|                        |                | 16.10          | 87                      | 567.0                  | > 3.5 | MRO-MRV 63          | 14450                  | 170.5         | 127.5         | 240.00                               | 35.7680                              |
|                        | 18.0           | 18.02          | 77.7                    | 636.6                  | 2.0   | MRO-MRV 53          | 11300                  | 119.6         | 76.6          | 240.00                               | 27.8473                              |
|                        |                | 17.87          | 78.4                    | 630.9                  | 3.1   | MRO-MRV 63          | 15380                  | 170.5         | 127.5         | 240.00                               | 26.9670                              |
|                        | 20.0           | 20.53          | 68.2                    | 721.3                  | 2.2   | MRO-MRV 53          | 8650                   | 119.6         | 76.6          | 240.00                               | 29.1621                              |
|                        |                | 20.36          | 68.8                    | 717.3                  | > 3.5 | MRO-MRV 63          | 14100                  | 170.5         | 127.5         | 240.00                               | 31.0610                              |
|                        | 22.4           | 22.85          | 61.3                    | 805.2                  | 1.8   | MRO-MRV 53          | 11180                  | 119.6         | 76.6          | 240.00                               | 26.9452                              |

**MRO/MRV - 1400 rpm**

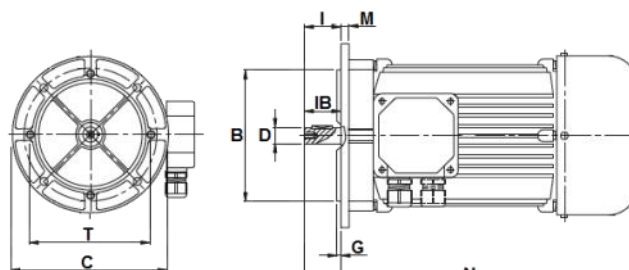
| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 5.5                    | 22.4           | 22.66          | 61.8                    | 796.4                  | 2.8   | MRO-MRV 63          | 16460                  | 170.5         | 127.5         | 240.00                               | 24.2220                              |
|                        | 25.0           | 26.97          | 51.9                    | 946.9                  | 1.8   | MRO-MRV 53          | 8140                   | 119.6         | 76.6          | 240.00                               | 27.9078                              |
|                        |                | 25.48          | 55                      | 897.2                  | 2.6   | MRO-MRV 63          | 16820                  | 170.5         | 127.5         | 240.00                               | 25.3770                              |
|                        | 28.0           | 27.68          | 50.6                    | 975.0                  | 1.6   | MRO-MRV 53          | 9800                   | 119.6         | 76.6          | 240.00                               | 26.4183                              |
|                        |                | 27.45          | 51                      | 969.4                  | 2.5   | MRO-MRV 63          | 15700                  | 170.5         | 127.5         | 240.00                               | 22.6360                              |
|                        | 31.5           | 31.69          | 44.2                    | 1113.3                 | 1.5   | MRO-MRV 53          | 8230                   | 119.6         | 76.6          | 240.00                               | 27.3913                              |
|                        |                | 31.85          | 44                      | 1123.6                 | 2.5   | MRO-MRV 63          | 11540                  | 170.5         | 127.5         | 240.00                               | 25.5240                              |
|                        | 35.5           | 34.12          | 41                      | 1207.1                 | 1.4   | MRO-MRV 53          | 8340                   | 119.6         | 76.6          | 240.00                               | 25.9891                              |
|                        |                | 33.83          | 41.4                    | 1193.1                 | 2.3   | MRO-MRV 63          | 13920                  | 170.5         | 127.5         | 240.00                               | 21.3370                              |
|                        | 40.0           | 41.65          | 33.6                    | 1460.9                 | 1.2   | MRO-MRV 53          | 8510                   | 119.6         | 76.6          | 240.00                               | 25.4059                              |
|                        |                | 42.78          | 32.7                    | 1502.3                 | 2.0   | MRO-MRV 63          | 11390                  | 170.5         | 127.5         | 240.00                               | 20.2710                              |
|                        | 45.0           | 43.14          | 32.5                    | 1508.1                 | 1.1   | MRO-MRV 53          | 8540                   | 119.6         | 76.6          | 240.00                               | 25.6370                              |
|                        |                | 42.95          | 32.6                    | 1518.5                 | 1.7   | MRO-MRV 63          | 16450                  | 170.5         | 127.5         | 240.00                               | 23.3660                              |
|                        | 50.0           | 50.91          | 27.5                    | 1794.2                 | 1.9   | MRO-MRV 63          | 9810                   | 170.5         | 127.5         | 240.00                               | 18.9780                              |
|                        | 56.0           | 56.19          | 24.9                    | 1987.1                 | 1.7   | MRO-MRV 63          | 9970                   | 170.5         | 127.5         | 240.00                               | 19.4030                              |
|                        | 63.0           | 64.36          | 21.8                    | 2281.5                 | 1.5   | MRO-MRV 63          | 10200                  | 170.5         | 127.5         | 240.00                               | 18.5080                              |
|                        | 71.0           | 73.41          | 19.1                    | 2590.6                 | 1.3   | MRO-MRV 63          | 11430                  | 170.5         | 127.5         | 240.00                               | 18.8420                              |
|                        | 80.0           | 84.55          | 16.6                    | 2980.6                 | 1.1   | MRO-MRV 63          | 11400                  | 170.5         | 127.5         | 240.00                               | 18.1240                              |
|                        | 90.0           | 90.27          | 15.5                    | 3186.2                 | 1.1   | MRO-MRV 63          | 11400                  | 170.5         | 127.5         | 240.00                               | 17.8220                              |
| 7.5                    | 6.3            | 6.48           | 215.9                   | 311.4                  | 3.0   | MRO-MRV 53          | 8020                   | 128.6         | 76.6          | 330.00                               | 46.0154                              |
|                        |                | 6.43           | 217.7                   | 308.9                  | > 3.5 | MRO-MRV 63          | 10740                  | 179.5         | 127.5         | 330.00                               | 78.1860                              |
|                        | 8.0            | 8.57           | 163.3                   | 412.5                  | 2.7   | MRO-MRV 53          | 8770                   | 128.6         | 76.6          | 330.00                               | 38.9230                              |
|                        |                | 8.50           | 164.7                   | 409.1                  | > 3.5 | MRO-MRV 63          | 11850                  | 179.5         | 127.5         | 330.00                               | 60.6320                              |
|                        | 10.0           | 10.87          | 128.8                   | 524.1                  | 2.3   | MRO-MRV 53          | 9470                   | 128.6         | 76.6          | 330.00                               | 34.9392                              |
|                        |                | 10.78          | 129.9                   | 518.4                  | > 3.5 | MRO-MRV 63          | 12750                  | 179.5         | 127.5         | 330.00                               | 48.5070                              |
|                        | 12.5           | 13.17          | 106.3                   | 632.5                  | 2.2   | MRO-MRV 53          | 10050                  | 128.6         | 76.6          | 330.00                               | 32.6124                              |
|                        |                | 13.06          | 107.2                   | 627.4                  | 3.4   | MRO-MRV 63          | 13550                  | 179.5         | 127.5         | 330.00                               | 41.5040                              |
|                        | 14.0           | 13.63          | 102.7                   | 656.3                  | 1.6   | MRO-MRV 53          | 10340                  | 128.6         | 76.6          | 330.00                               | 29.4533                              |
|                        |                | 13.51          | 103.6                   | 650.8                  | 2.5   | MRO-MRV 63          | 14110                  | 179.5         | 127.5         | 330.00                               | 30.9420                              |
|                        | 16.0           | 16.24          | 86.2                    | 781.9                  | 1.9   | MRO-MRV 53          | 10150                  | 128.6         | 76.6          | 330.00                               | 30.7169                              |
|                        |                | 16.10          | 87                      | 773.2                  | 3.0   | MRO-MRV 63          | 14450                  | 179.5         | 127.5         | 330.00                               | 35.7680                              |
|                        | 18.0           | 18.02          | 77.7                    | 868.1                  | 1.4   | MRO-MRV 53          | 11300                  | 128.6         | 76.6          | 330.00                               | 27.8473                              |
|                        |                | 17.87          | 78.4                    | 860.3                  | 2.3   | MRO-MRV 63          | 15380                  | 179.5         | 127.5         | 330.00                               | 26.9670                              |
|                        | 20.0           | 20.53          | 68.2                    | 983.6                  | 1.6   | MRO-MRV 53          | 8650                   | 128.6         | 76.6          | 330.00                               | 29.1621                              |
|                        |                | 20.36          | 68.8                    | 978.1                  | 2.6   | MRO-MRV 63          | 14100                  | 179.5         | 127.5         | 330.00                               | 31.0610                              |
|                        | 22.4           | 22.85          | 61.3                    | 1097.9                 | 1.3   | MRO-MRV 53          | 11180                  | 128.6         | 76.6          | 330.00                               | 26.9452                              |
|                        |                | 22.66          | 61.8                    | 1086.0                 | 2.1   | MRO-MRV 63          | 16460                  | 179.5         | 127.5         | 330.00                               | 24.2220                              |
|                        | 25.0           | 26.97          | 51.9                    | 1291.2                 | 1.3   | MRO-MRV 53          | 8140                   | 128.6         | 76.6          | 330.00                               | 27.9078                              |
|                        |                | 25.48          | 55                      | 1223.4                 | 1.9   | MRO-MRV 63          | 16820                  | 179.5         | 127.5         | 330.00                               | 25.3770                              |
|                        | 28.0           | 27.68          | 50.6                    | 1329.5                 | 1.2   | MRO-MRV 53          | 9800                   | 128.6         | 76.6          | 330.00                               | 26.4183                              |
|                        |                | 27.45          | 51                      | 1321.9                 | 1.9   | MRO-MRV 63          | 15700                  | 179.5         | 127.5         | 330.00                               | 22.6360                              |
|                        | 31.5           | 31.69          | 44.2                    | 1518.1                 | 1.1   | MRO-MRV 53          | 8230                   | 128.6         | 76.6          | 330.00                               | 27.3913                              |
|                        |                | 31.85          | 44                      | 1532.1                 | 1.9   | MRO-MRV 63          | 11540                  | 179.5         | 127.5         | 330.00                               | 25.5240                              |
|                        | 35.5           | 34.12          | 41                      | 1646.1                 | 1.0   | MRO-MRV 53          | 8340                   | 128.6         | 76.6          | 330.00                               | 25.9891                              |
|                        |                | 33.83          | 41.4                    | 1627.0                 | 1.7   | MRO-MRV 63          | 13920                  | 179.5         | 127.5         | 330.00                               | 21.3370                              |
|                        | 40.0           | 41.65          | 33.6                    | 1992.2                 | 0.9   | MRO-MRV 53          | 8510                   | 128.6         | 76.6          | 330.00                               | 25.4059                              |
|                        |                | 42.78          | 32.7                    | 2048.6                 | 1.4   | MRO-MRV 63          | 11390                  | 179.5         | 127.5         | 330.00                               | 20.2710                              |
|                        | 45.0           | 43.14          | 32.5                    | 2056.5                 | 0.8   | MRO-MRV 53          | 8540                   | 128.6         | 76.6          | 330.00                               | 25.6370                              |
|                        |                | 42.95          | 32.6                    | 2070.7                 | 1.2   | MRO-MRV 63          | 16450                  | 179.5         | 127.5         | 330.00                               | 23.3660                              |
|                        | 50.0           | 50.91          | 27.5                    | 2446.6                 | 1.4   | MRO-MRV 63          | 9810                   | 179.5         | 127.5         | 330.00                               | 18.9780                              |

**MRO/MRV - 1400 rpm**

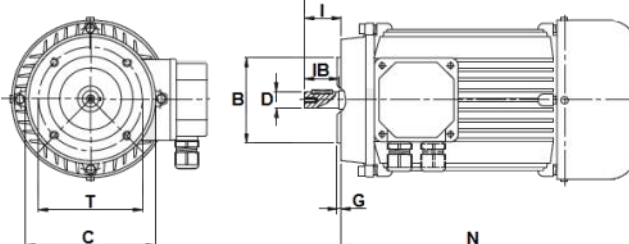
| P <sub>1</sub><br>[kW] | i <sub>n</sub> | i <sub>r</sub> | n <sub>2</sub><br>[rpm] | M <sub>2</sub><br>[Nm] | FS    | Tipo - Size - Größe | F <sub>r2</sub><br>[N] | MRO/V<br>[kg] | FRO/V<br>[kg] | J <sub>m</sub><br>× 10 <sup>-4</sup> | J <sub>1</sub><br>× 10 <sup>-4</sup> |
|------------------------|----------------|----------------|-------------------------|------------------------|-------|---------------------|------------------------|---------------|---------------|--------------------------------------|--------------------------------------|
| 7.5                    | 56.0           | 56.19          | 24.9                    | 2709.7                 | 1.2   | MRO-MRV 63          | 9970                   | 179.5         | 127.5         | 330.00                               | 19.4030                              |
|                        | 63.0           | 64.36          | 21.8                    | 3111.1                 | 1.1   | MRO-MRV 63          | 10200                  | 179.5         | 127.5         | 330.00                               | 18.5080                              |
|                        | 71.0           | 73.41          | 19.1                    | 3532.6                 | 0.9   | MRO-MRV 63          | 11430                  | 179.5         | 127.5         | 330.00                               | 18.8420                              |
|                        | 80.0           | 84.55          | 16.6                    | 4064.5                 | 0.8   | MRO-MRV 63          | 11400                  | 179.5         | 127.5         | 330.00                               | 18.1240                              |
|                        | 90.0           | 90.27          | 15.5                    | 4344.8                 | 0.8   | MRO-MRV 63          | 11400                  | 179.5         | 127.5         | 330.00                               | 17.8220                              |
| 11                     | 6.3            | 6.48           | 215.9                   | 456.7                  | 2.0   | MRO-MRV 53          | 8020                   | 166.6         | 76.6          | 620.00                               | 46.0154                              |
|                        |                | 6.43           | 217.7                   | 453.1                  | > 3.5 | MRO-MRV 63          | 10740                  | 217.5         | 127.5         | 620.00                               | 78.1860                              |
|                        | 8.0            | 8.57           | 163.3                   | 605.0                  | 1.8   | MRO-MRV 53          | 8770                   | 166.6         | 76.6          | 620.00                               | 38.9230                              |
|                        |                | 8.50           | 164.7                   | 600.0                  | 2.9   | MRO-MRV 63          | 11850                  | 217.5         | 127.5         | 620.00                               | 60.6320                              |
|                        | 10.0           | 10.87          | 128.8                   | 768.8                  | 1.6   | MRO-MRV 53          | 9470                   | 166.6         | 76.6          | 620.00                               | 34.9392                              |
|                        |                | 10.78          | 129.9                   | 760.4                  | 2.6   | MRO-MRV 63          | 12750                  | 217.5         | 127.5         | 620.00                               | 48.5070                              |
|                        | 12.5           | 13.17          | 106.3                   | 927.7                  | 1.5   | MRO-MRV 53          | 10050                  | 166.6         | 76.6          | 620.00                               | 32.6124                              |
|                        |                | 13.06          | 107.2                   | 920.2                  | 2.3   | MRO-MRV 63          | 13550                  | 217.5         | 127.5         | 620.00                               | 41.5040                              |
|                        | 14.0           | 13.63          | 102.7                   | 962.5                  | 1.1   | MRO-MRV 53          | 10340                  | 166.6         | 76.6          | 620.00                               | 29.4533                              |
|                        |                | 13.51          | 103.6                   | 954.5                  | 1.7   | MRO-MRV 63          | 14110                  | 217.5         | 127.5         | 620.00                               | 30.9420                              |
|                        | 16.0           | 16.24          | 86.2                    | 1146.8                 | 1.3   | MRO-MRV 53          | 10150                  | 166.6         | 76.6          | 620.00                               | 30.7169                              |
|                        |                | 16.10          | 87                      | 1134.1                 | 2.1   | MRO-MRV 63          | 14450                  | 217.5         | 127.5         | 620.00                               | 35.7680                              |
|                        | 18.0           | 18.02          | 77.7                    | 1273.1                 | 1.0   | MRO-MRV 53          | 11300                  | 166.6         | 76.6          | 620.00                               | 27.8473                              |
|                        |                | 17.87          | 78.4                    | 1261.8                 | 1.5   | MRO-MRV 63          | 15380                  | 217.5         | 127.5         | 620.00                               | 26.9670                              |
|                        | 20.0           | 20.53          | 68.2                    | 1442.6                 | 1.1   | MRO-MRV 53          | 8650                   | 166.6         | 76.6          | 620.00                               | 29.1621                              |
|                        |                | 20.36          | 68.8                    | 1434.5                 | 1.8   | MRO-MRV 63          | 14100                  | 217.5         | 127.5         | 620.00                               | 31.0610                              |
|                        | 22.4           | 22.66          | 61.8                    | 1592.9                 | 1.4   | MRO-MRV 63          | 16460                  | 217.5         | 127.5         | 620.00                               | 24.2220                              |
|                        | 25.0           | 25.48          | 55                      | 1794.3                 | 1.3   | MRO-MRV 63          | 16820                  | 217.5         | 127.5         | 620.00                               | 25.3770                              |
|                        | 28.0           | 27.45          | 51                      | 1938.8                 | 1.3   | MRO-MRV 63          | 15700                  | 217.5         | 127.5         | 620.00                               | 22.6360                              |
|                        | 31.5           | 31.85          | 44                      | 2247.1                 | 1.3   | MRO-MRV 63          | 11540                  | 217.5         | 127.5         | 620.00                               | 25.5240                              |
|                        | 35.5           | 33.83          | 41.4                    | 2386.3                 | 1.1   | MRO-MRV 63          | 13920                  | 217.5         | 127.5         | 620.00                               | 21.3370                              |
| 15                     | 6.3            | 6.48           | 215.9                   | 622.8                  | 1.5   | MRO-MRV 53          | 8020                   | 176.6         | 76.6          | 740.00                               | 46.0154                              |
|                        |                | 6.43           | 217.7                   | 617.9                  | 2.7   | MRO-MRV 63          | 10740                  | 227.5         | 127.5         | 740.00                               | 78.1860                              |
|                        | 8.0            | 8.57           | 163.3                   | 825.0                  | 1.3   | MRO-MRV 53          | 8770                   | 176.6         | 76.6          | 740.00                               | 38.9230                              |
|                        |                | 8.50           | 164.7                   | 818.2                  | 2.1   | MRO-MRV 63          | 11850                  | 227.5         | 127.5         | 740.00                               | 60.6320                              |
|                        | 10.0           | 10.87          | 128.8                   | 1048.3                 | 1.2   | MRO-MRV 53          | 9470                   | 176.6         | 76.6          | 740.00                               | 34.9392                              |
|                        |                | 10.78          | 129.9                   | 1036.8                 | 1.9   | MRO-MRV 63          | 12750                  | 227.5         | 127.5         | 740.00                               | 48.5070                              |
|                        | 12.5           | 13.17          | 106.3                   | 1265.1                 | 1.1   | MRO-MRV 53          | 10050                  | 176.6         | 76.6          | 740.00                               | 32.6124                              |
|                        |                | 13.06          | 107.2                   | 1254.9                 | 1.7   | MRO-MRV 63          | 13550                  | 227.5         | 127.5         | 740.00                               | 41.5040                              |
|                        | 14.0           | 13.63          | 102.7                   | 1312.5                 | 0.8   | MRO-MRV 53          | 10340                  | 176.6         | 76.6          | 740.00                               | 29.4533                              |
|                        |                | 13.51          | 103.6                   | 1301.6                 | 1.3   | MRO-MRV 63          | 14110                  | 227.5         | 127.5         | 740.00                               | 30.9420                              |
|                        | 16.0           | 16.24          | 86.2                    | 1563.8                 | 0.9   | MRO-MRV 53          | 10150                  | 176.6         | 76.6          | 740.00                               | 30.7169                              |
|                        |                | 16.10          | 87                      | 1546.5                 | 1.5   | MRO-MRV 63          | 14450                  | 227.5         | 127.5         | 740.00                               | 35.7680                              |
|                        | 18.0           | 18.02          | 77.7                    | 1736.1                 | 0.7   | MRO-MRV 53          | 11300                  | 176.6         | 76.6          | 740.00                               | 27.8473                              |
|                        |                | 17.87          | 78.4                    | 1720.6                 | 1.1   | MRO-MRV 63          | 15380                  | 227.5         | 127.5         | 740.00                               | 26.9670                              |
|                        | 20.0           | 20.53          | 68.2                    | 1967.2                 | 0.8   | MRO-MRV 53          | 8650                   | 176.6         | 76.6          | 740.00                               | 29.1621                              |
|                        |                | 20.36          | 68.8                    | 1956.2                 | 1.3   | MRO-MRV 63          | 14100                  | 227.5         | 127.5         | 740.00                               | 31.0610                              |
|                        | 22.4           | 22.66          | 61.8                    | 2172.1                 | 1.0   | MRO-MRV 63          | 16460                  | 227.5         | 127.5         | 740.00                               | 24.2220                              |
|                        | 25.0           | 25.48          | 55                      | 2446.8                 | 0.9   | MRO-MRV 63          | 16820                  | 227.5         | 127.5         | 740.00                               | 25.3770                              |
|                        | 28.0           | 27.45          | 51                      | 2643.9                 | 0.9   | MRO-MRV 63          | 15700                  | 227.5         | 127.5         | 740.00                               | 22.6360                              |
|                        | 31.5           | 31.85          | 44                      | 3064.3                 | 0.9   | MRO-MRV 63          | 11540                  | 227.5         | 127.5         | 740.00                               | 25.5240                              |
|                        | 35.5           | 33.83          | 41.4                    | 3254.0                 | 0.8   | MRO-MRV 63          | 13920                  | 227.5         | 127.5         | 740.00                               | 21.3370                              |
| 18.5                   | 6.3            | 6.48           | 215.9                   | 768.1                  | 1.2   | MRO-MRV 53          | 8020                   | 196.6         | 76.6          | 1300.00                              | 46.0154                              |
|                        |                | 6.43           | 217.7                   | 762.0                  | 2.2   | MRO-MRV 63          | 10740                  | 247.5         | 127.5         | 1300.00                              | 78.1860                              |
|                        | 8.0            | 8.57           | 163.3                   | 1017.5                 | 1.1   | MRO-MRV 53          | 8770                   | 196.6         | 76.6          | 1300.00                              | 38.9230                              |



IEC - B5



IEC - B14

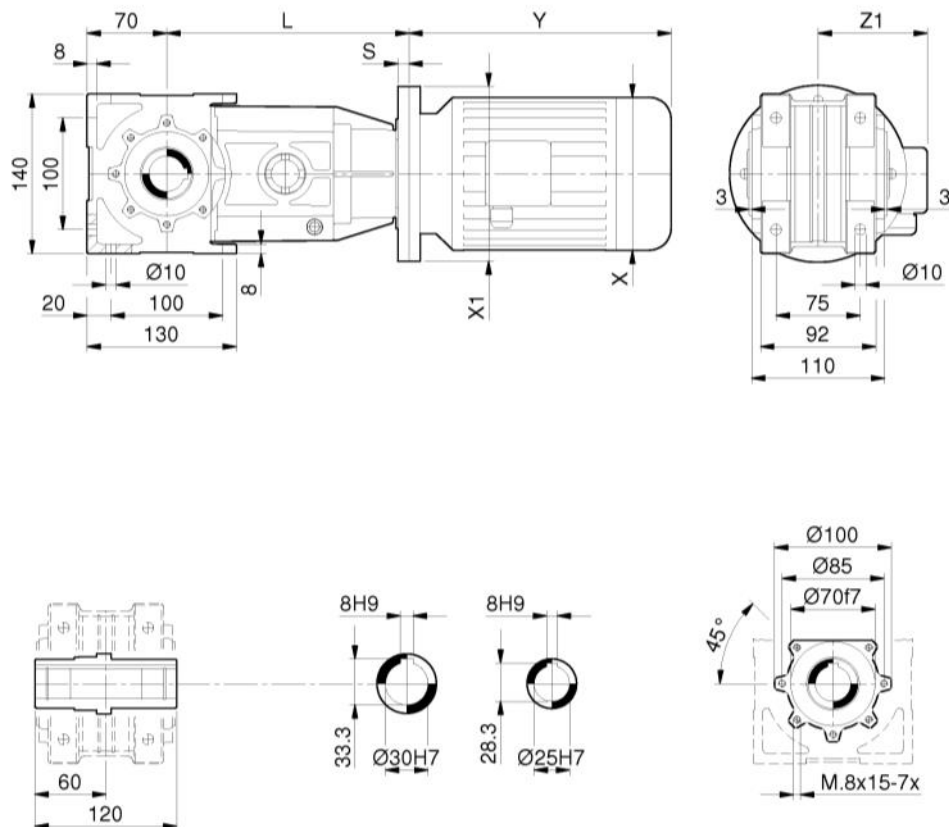
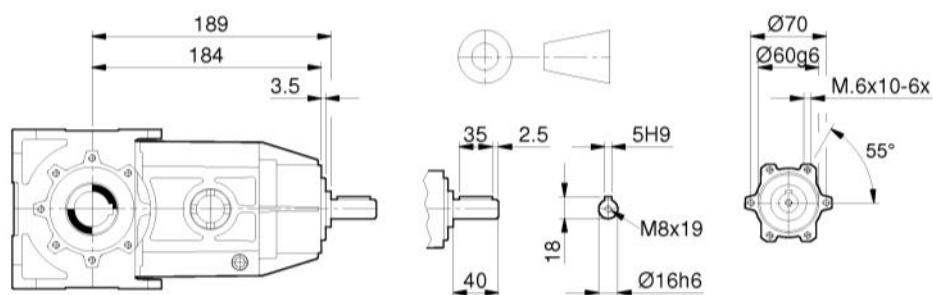


| Taglia<br>Size<br>Größe  | 4 poli - poles - Pole |                      |                | 2 poli - poles - Pole |                      |                | Flangia - Flange -<br>Flansch<br>C / T / B    | Albero<br>Shaft<br>Welle<br>D x L | G   | IB  | M   | N              | O              |
|--------------------------|-----------------------|----------------------|----------------|-----------------------|----------------------|----------------|-----------------------------------------------|-----------------------------------|-----|-----|-----|----------------|----------------|
|                          | kW                    | rpm                  | kg<br>(B3)     | kW                    | rpm                  | kg<br>(B3)     |                                               |                                   |     |     |     |                |                |
| T56A<br>T56B             | 0.06<br>0.09          | 1410<br>1340         | 2.5<br>2.6     | 0.09<br>0.14          | 2730<br>2750         | 2.6<br>3.2     | B5 - 120 / 100 / 80<br>B14 - 80 / 65 / 50     | 9 x 20                            | 2.5 | 20  | 8.5 | 168<br>125     | 188<br>145     |
| T63A<br>T63B             | 0.13<br>0.18          | 1340<br>1360         | 3.7<br>4.3     | 0.18<br>0.25          | 2770<br>2820         | 3.7<br>4.3     | B5 - 140 / 115 / 95<br>B14 - 90 / 75 / 60     | 11 x 23                           | 2.5 | 23  | 10  | 190.5<br>140   | 213.5<br>161   |
| T71A<br>T71B             | 0.25<br>0.37          | 1410<br>1370         | 5.8<br>6.2     | 0.37<br>0.55          | 2860<br>2860         | 5.8<br>6.2     | B5 - 160 / 130 / 110<br>B14 - 105 / 85 / 70   | 14 x 30                           | 3.0 | 30  | 10  | 218<br>168     | 248<br>188     |
| T80A<br>T80B             | 0.55<br>0.75          | 1430<br>1430         | 8.5<br>9.8     | 0.75<br>1.1           | 2860<br>2850         | 8.5<br>9.8     | B5 - 200 / 165 / 130<br>B14 - 120 / 100 / 80  | 19 x 40                           | 3.0 | 40  | 11  | 248            | 282            |
| T90S<br>T90L             | 1.1<br>1.5            | 1430<br>1430         | 12.0<br>13.5   | 1.5<br>2.2            | 2880<br>2850         | 12.0<br>13.5   | B5 - 200 / 165 / 130<br>B14 - 140 / 115 / 95  | 24 x 50                           | 3.5 | 50  | 10  | 255<br>280     | 305<br>330     |
| T100A<br>T100B           | 2.2<br>3              | 1430<br>1430         | 19.0<br>21.0   | 3<br>4                | 2910<br>2920         | 18.5<br>21.0   | B5 - 250 / 215 / 180<br>B14 - 160 / 130 / 110 | 28 x 60                           | 4.0 | 60  | 14  | 312            | 372            |
| T112A                    | 4                     | 1440                 | 29.0           | 5.5                   | 2920                 | 32.0           | B5 - 250 / 215 / 180<br>B14 - 160 / 130 / 110 | 28 x 60                           | 4.0 | 60  | 14  | 330            | 390            |
| T132S<br>T132M<br>T132ML | 5.5<br>7.5<br>9.2     | 1460<br>1460<br>1460 | 43<br>52<br>54 | 7.5<br>11<br>15       | 2920<br>2940<br>2940 | 48<br>54<br>58 | B5 - 300 / 265 / 230<br>B14 - 200 / 165 / 130 | 38 x 80                           | 4.0 | 80  | 20  | 380.5<br>418.5 | 460.5<br>498.5 |
| T160M<br>T160L           | 11<br>15              | 1470<br>1480         | 90<br>100      | ---<br>18.5           | ---<br>2960          | ---<br>99      | B5 - 350 / 300 / 250<br>B14 - 250 / 215 / 180 | 42 x 110                          | 5.0 | 110 | 20  | 491<br>535     | 601<br>645     |
| T180M<br>T180L           | 18.5<br>22            | 1470<br>1480         | 120<br>135     | 22<br>---             | 2940<br>---          | 110<br>---     | B% - 350 / 300 / 250                          | 48 x 110                          | 5.0 | 110 | 20  | 610            | 720            |

Dimensioni e pesi non impegnativi

Not binding dimensions and weights

unverbindliche Abmessungen u. Gewichte

**RO13**
**MRO  
FRO**

**RO**


| IEC          | 56          | 63          | 71            | 80          | 90 S        | 90 L        |  |
|--------------|-------------|-------------|---------------|-------------|-------------|-------------|--|
| X / Y / Z1   | 110/168/108 | 123/185/110 | 140/220/121   | 159/238/138 | 176/255/149 | 176/280/149 |  |
| X1 (B5) / S  | 120/13      | 140/13      | 160/13.5      | 200/13.5    | ---         | ---         |  |
| X1 (B14) / S | ---         | 90/13       | 105/18.5      | 120/13.5    | 140/13.5    | 140/13.5    |  |
| L (RO13)     | 197         | 197         | 197.5 (202.5) | 197.5       | 197.5       | 197.5       |  |

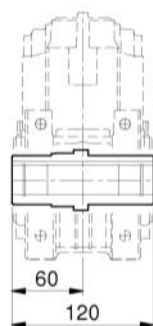
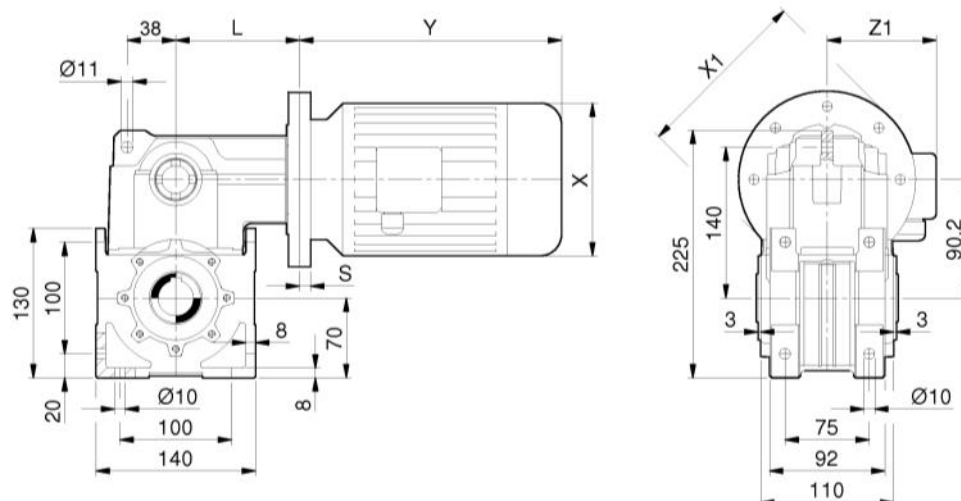
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Not binding dimensions and weights

unverbindliche Abmessungen u. Gewichte

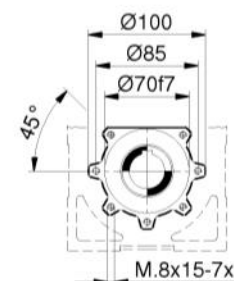
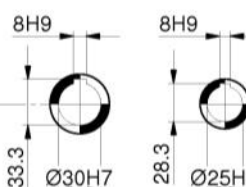
## RV13

MRV  
FRV

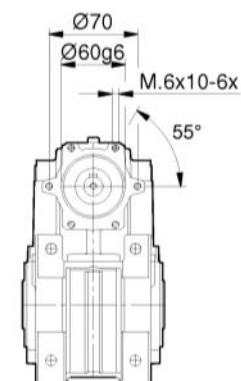
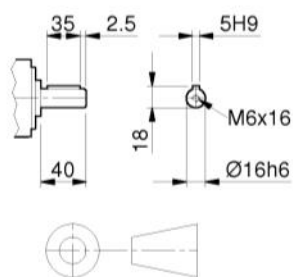
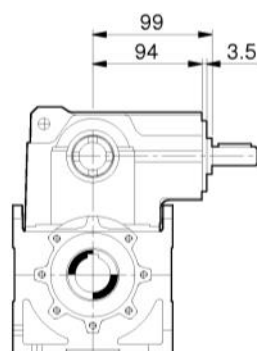


AC30

AC25



RV



| IEC          | 56          | 63          | 71            | 80          | 90 S        | 90 L        |  |
|--------------|-------------|-------------|---------------|-------------|-------------|-------------|--|
| X / Y / Z1   | 110/168/108 | 123/185/110 | 140/220/121   | 159/238/138 | 176/255/149 | 176/280/149 |  |
| X1 (B5) / S  | 120/13      | 140/13      | 160/13.5      | 200/13.5    | ---         | ---         |  |
| X1 (B14) / S | ---         | 90/13       | 105/18.5      | 120/13.5    | 140/13.5    | 140/13.5    |  |
| L (RV13)     | 107         | 107         | 107.5 (112.5) | 107.5       | 107.5       | 107.5       |  |

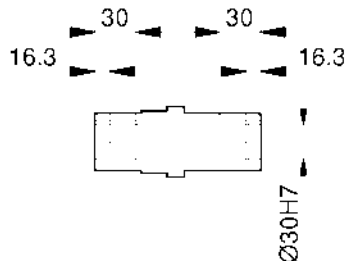
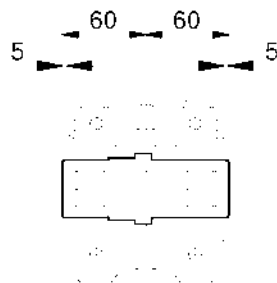
Dimensioni e pesi non impegnativi

Not binding dimensions and weights

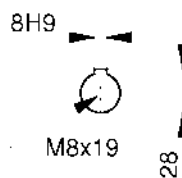
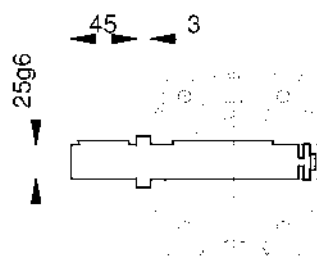
unverbindliche Abmessungen u. Gewichte

**RO13-RV13**

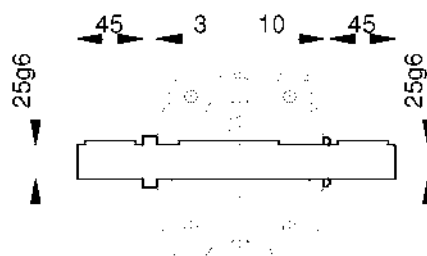
**AC**



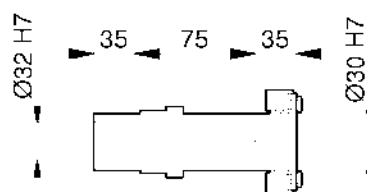
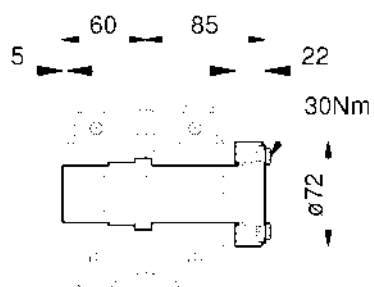
**AS**



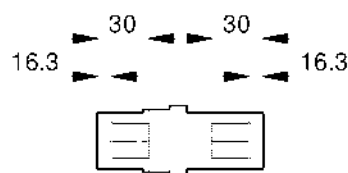
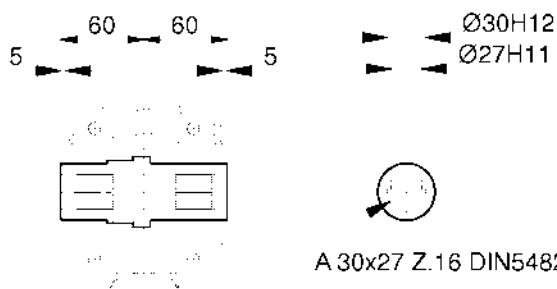
**AD**



**ACC**



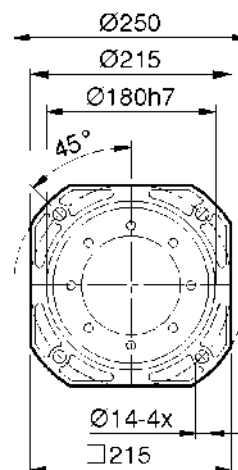
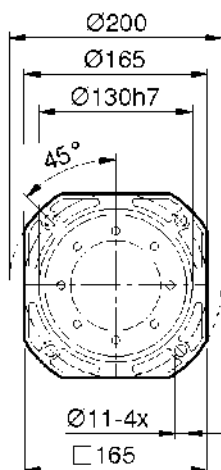
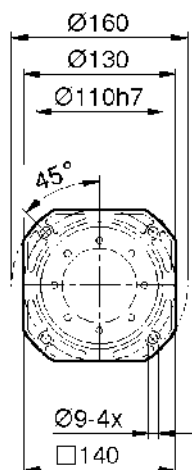
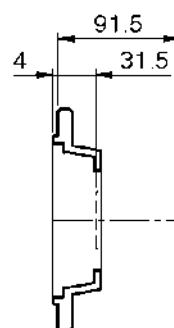
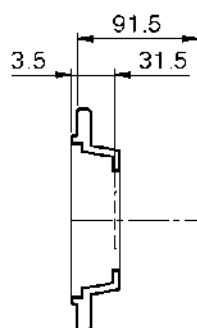
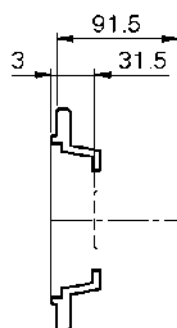
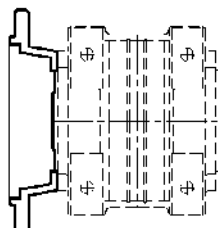
**ACS**



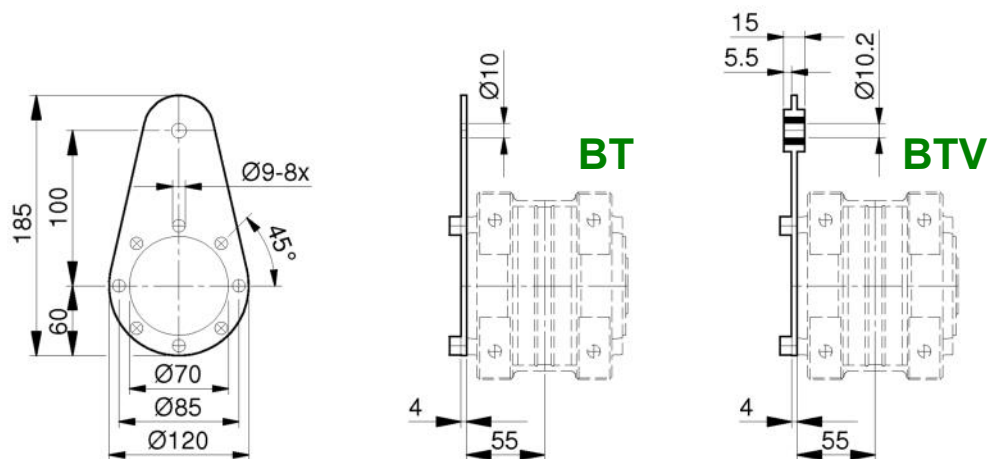
A 30x27 Z.16 DIN5482

- Dimensioni del perno macchina: pagine
- Machine shaft dimensions: pages 84-86
- Maschinenwelle Abmessungen: Seiten

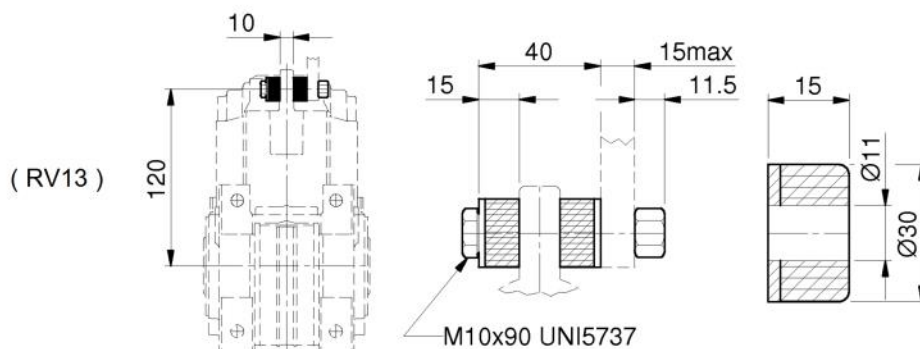
## RO13-RV13



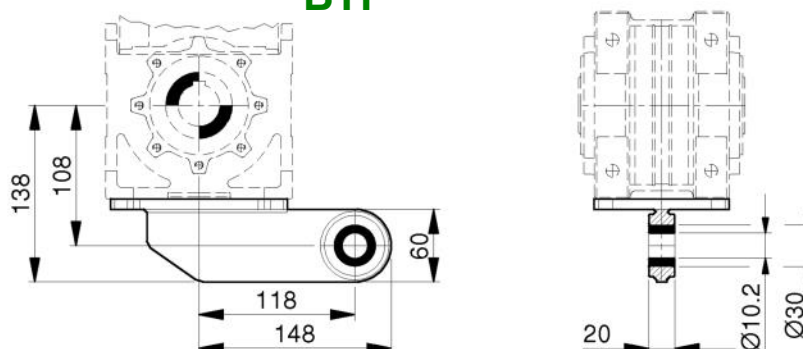
**RO13-RV13**



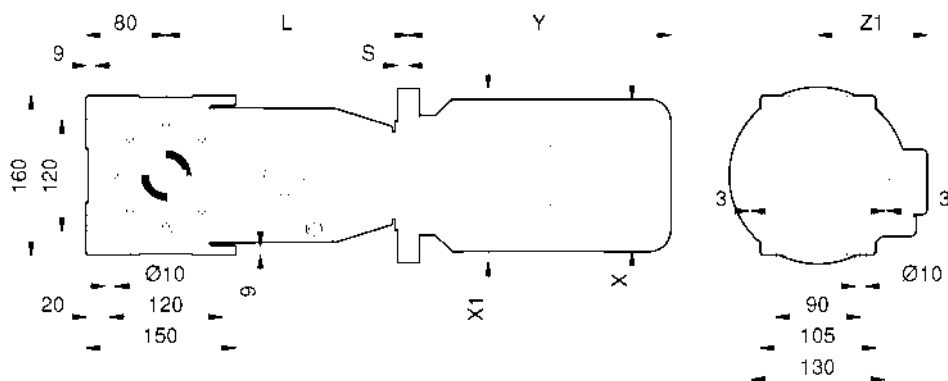
**BTA**



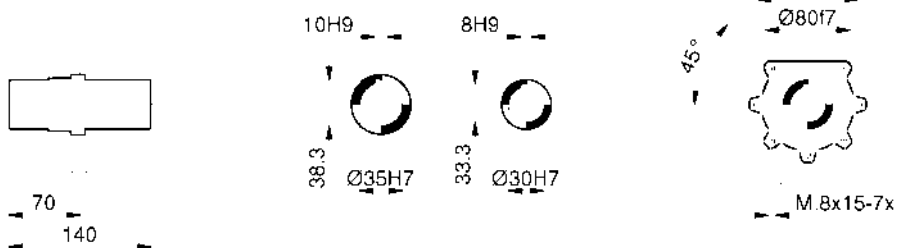
**BTF**



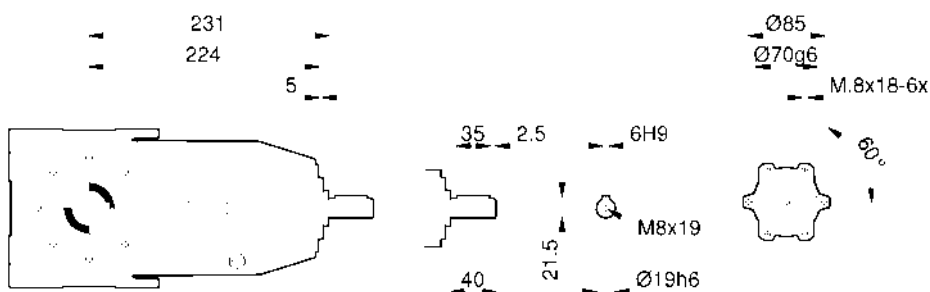
**MRO**  
**FRO**



**AC35    AC30**

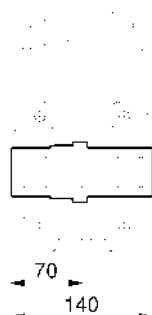
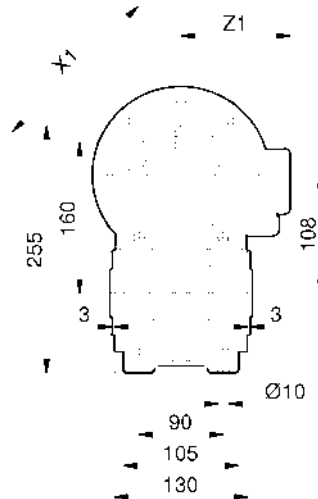
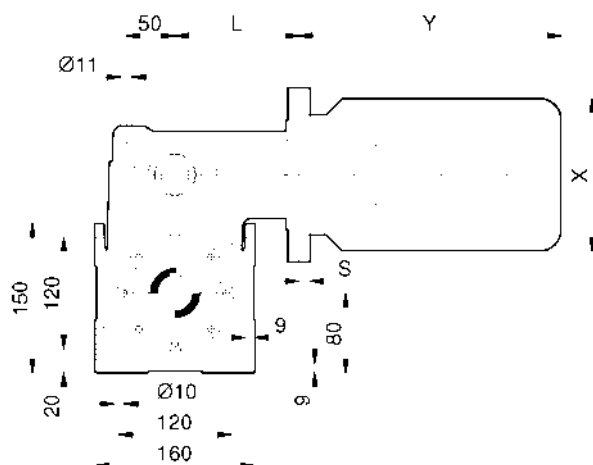
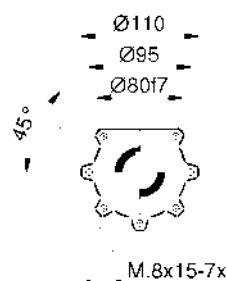
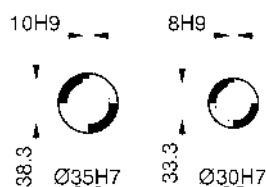
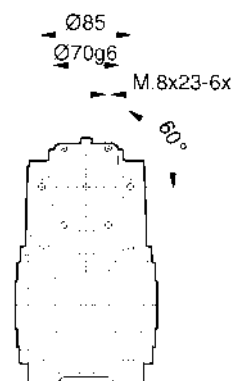
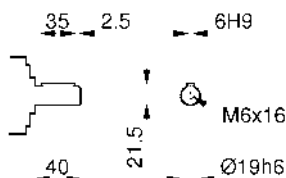
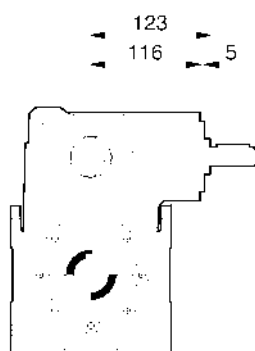


## RO



| IEC          | 71          | 80            | 90 S          | 90 L          | 100           | 112           |  |
|--------------|-------------|---------------|---------------|---------------|---------------|---------------|--|
| X / Y / Z1   | 140/220/121 | 159/238/138   | 176/255/149   | 176/280/149   | 195/314/160   | 219/328/172   |  |
| X1 (B5) / S  | 160/15.5    | 200/15.5      | 200/15.5      | 200/15.5      | 250/16.5      | 250/16.5      |  |
| X1 (B14) / S | 105/15.5    | 120/17.5      | 140/17.5      | 140/17.5      | 160/15.5      | 160/15.5      |  |
| L (RO23)     | 239.5       | 239.5 (241.5) | 239.5 (241.5) | 239.5 (241.5) | 240.5 (239.5) | 240.5 (239.5) |  |

unverbindliche Abmessungen u. Gewichte

**RV23**
**MRV  
FRV**

**AC35 AC30**

**RV**


| IEC          | 71          | 80            | 90 S          | 90 L          | 100           | 112           |  |
|--------------|-------------|---------------|---------------|---------------|---------------|---------------|--|
| X / Y / Z1   | 140/220/121 | 159/238/138   | 176/255/149   | 176/280/149   | 195/314/160   | 219/328/172   |  |
| X1 (B5) / S  | 160/15.5    | 200/15.5      | 200/15.5      | 200/15.5      | 250/16.5      | 250/16.5      |  |
| X1 (B14) / S | 105/15.5    | 120/17.5      | 140/17.5      | 140/17.5      | 160/15.5      | 160/15.5      |  |
| L (RV23)     | 131.5       | 131.5 (133.5) | 131.5 (133.5) | 131.5 (133.5) | 132.5 (131.5) | 132.5 (131.5) |  |

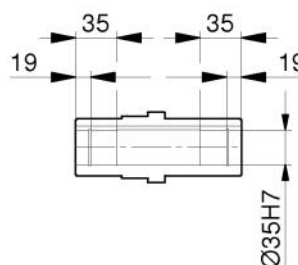
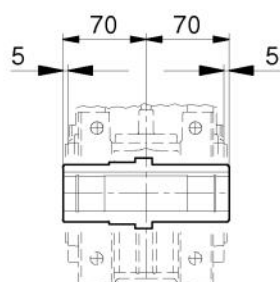
Dimensioni e pesi non impegnativi

Not binding dimensions and weights

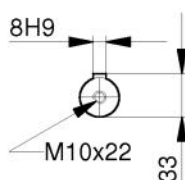
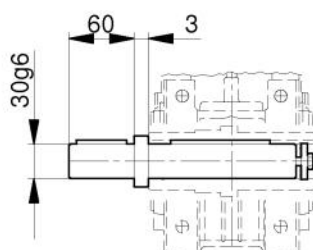
unverbindliche Abmessungen u. Gewichte

## RO23-RV23

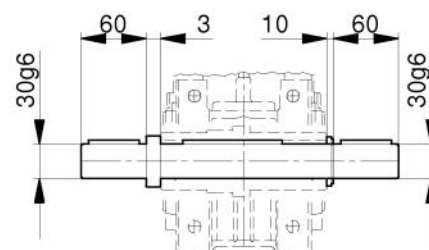
AC



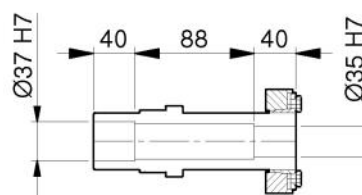
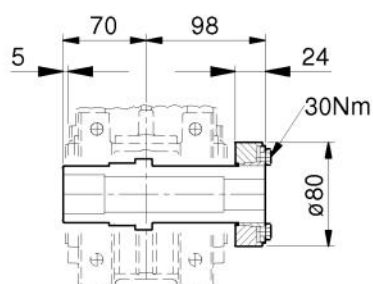
AS



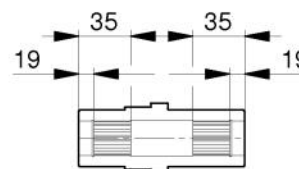
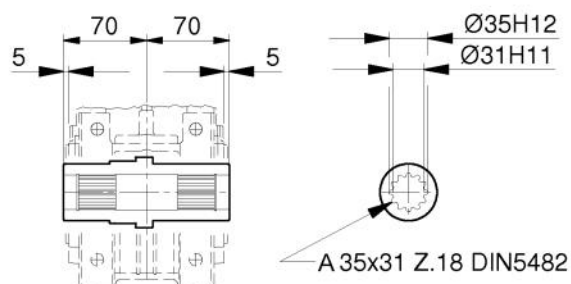
AD



ACC

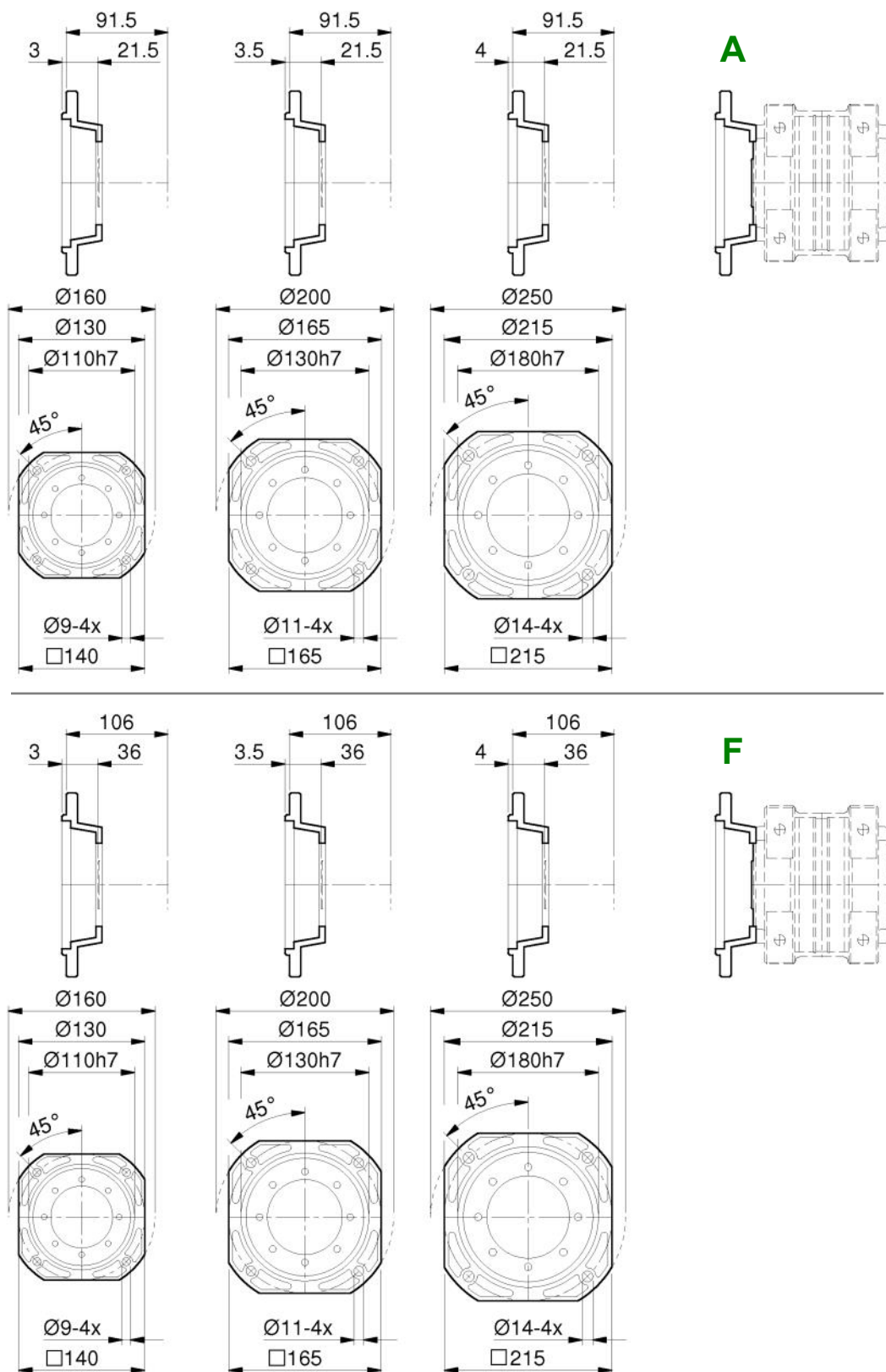


ACS



- Dimensioni del perno macchina: pagine  
- Machine shaft dimensions: pages 84-86  
- Maschinenwelle Abmessungen: Seiten

**RO23-RV23**

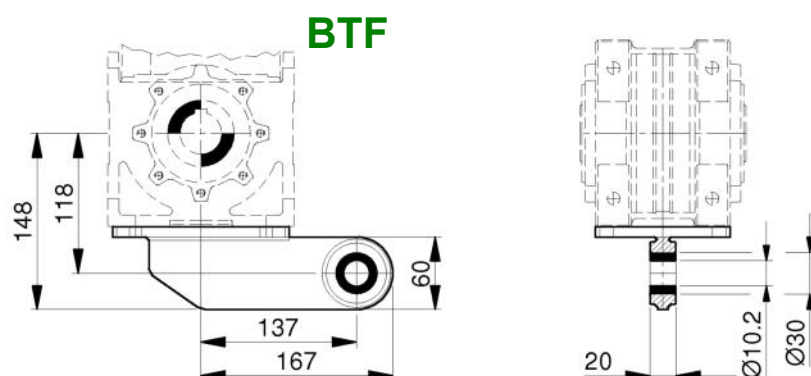
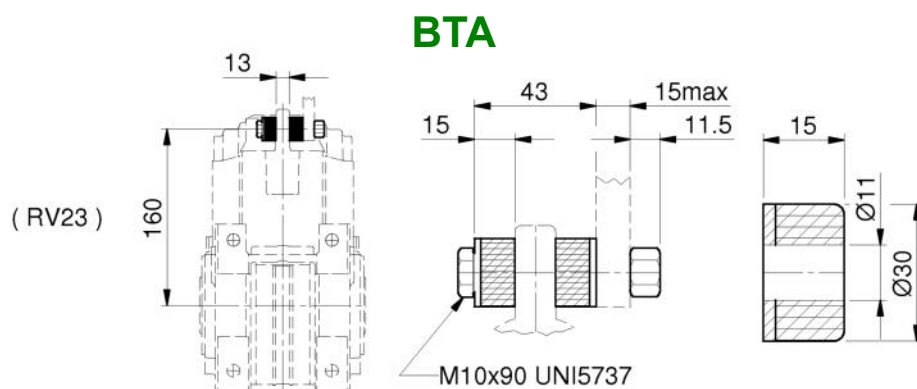
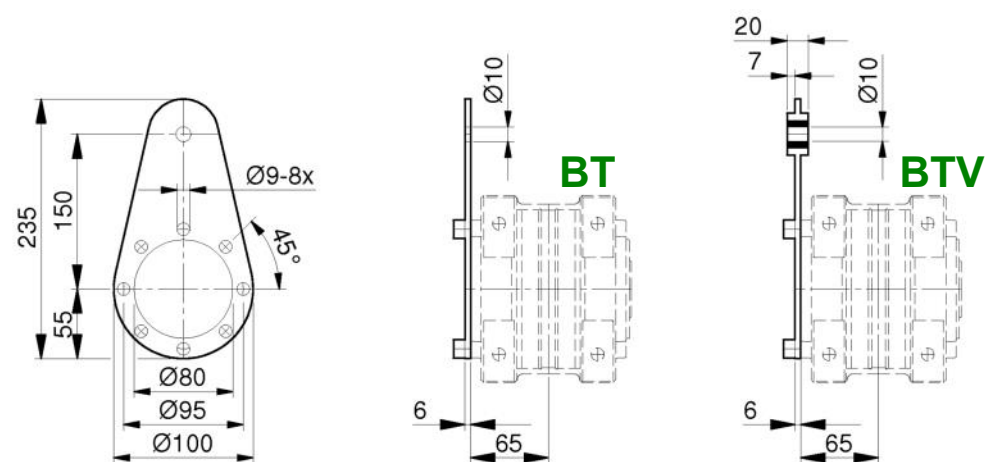


Dimensioni e pesi non impegnativi

Not binding dimensions and weights

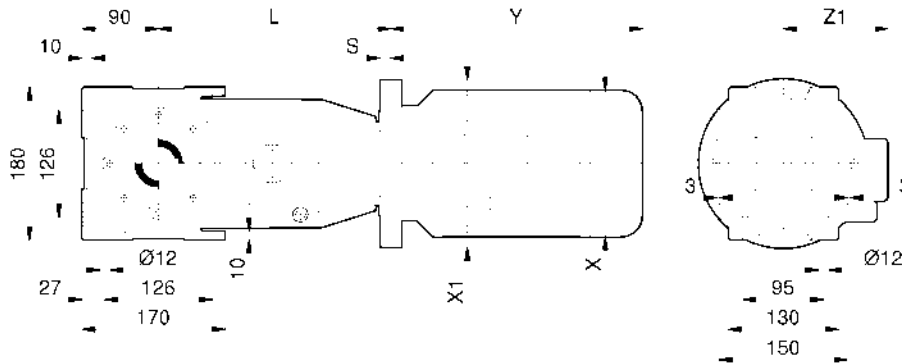
unverbindliche Abmessungen u. Gewichte

## RO23-RV23

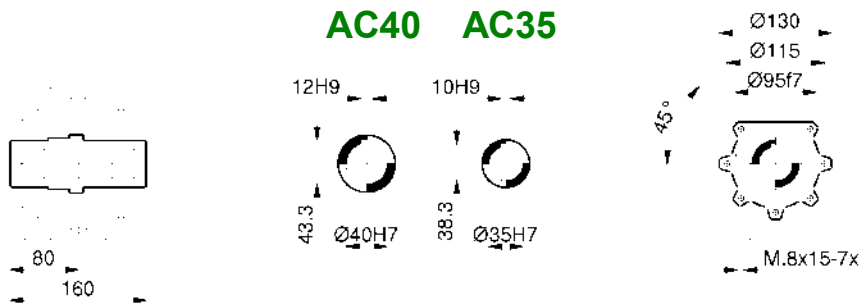


R033

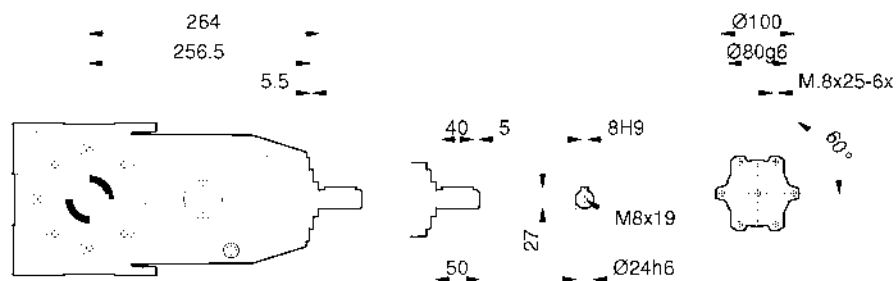
**MRO**  
**FRO**



**AC40    AC35**



RO



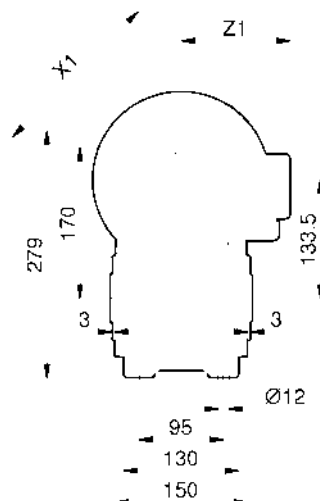
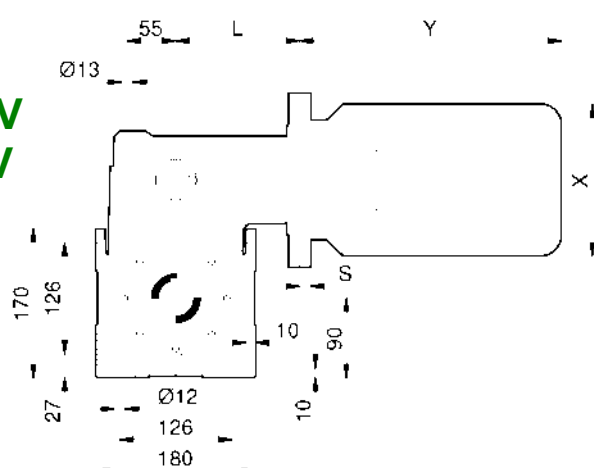
| IEC          | 71          | 80          | 90 S        | 90 L        | 100         | 112         |  |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
| X / Y / Z1   | 140/220/121 | 159/238/138 | 176/255/149 | 176/280/149 | 195/314/160 | 219/328/172 |  |
| X1 (B5) / S  | 160/15,5    | 200/15,5    | 200/18,5    | 200/18,5    | 250/16,5    | 250/16,5    |  |
| X1 (B14) / S | - - -       | 120/15,5    | 140/15,5    | 140/15,5    | 160/15,5    | 160/15,5    |  |
| L (RO33)     | 272         | 272         | 275 (272)   | 275 (272)   | 273 (272)   | 273 (272)   |  |

Dimensioni e pesi non impegnativi

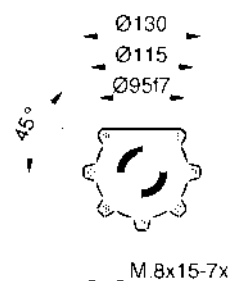
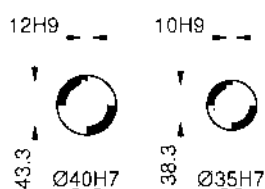
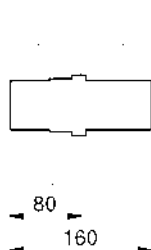
Not binding dimensions and weights

unverbindliche Abmessungen u. Gewichte

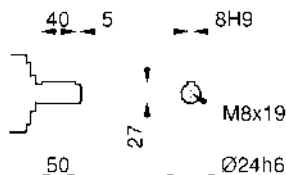
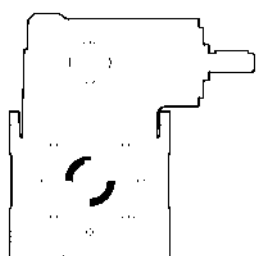
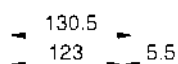
## RV33

MRV  
FRV


AC40 AC35



RV



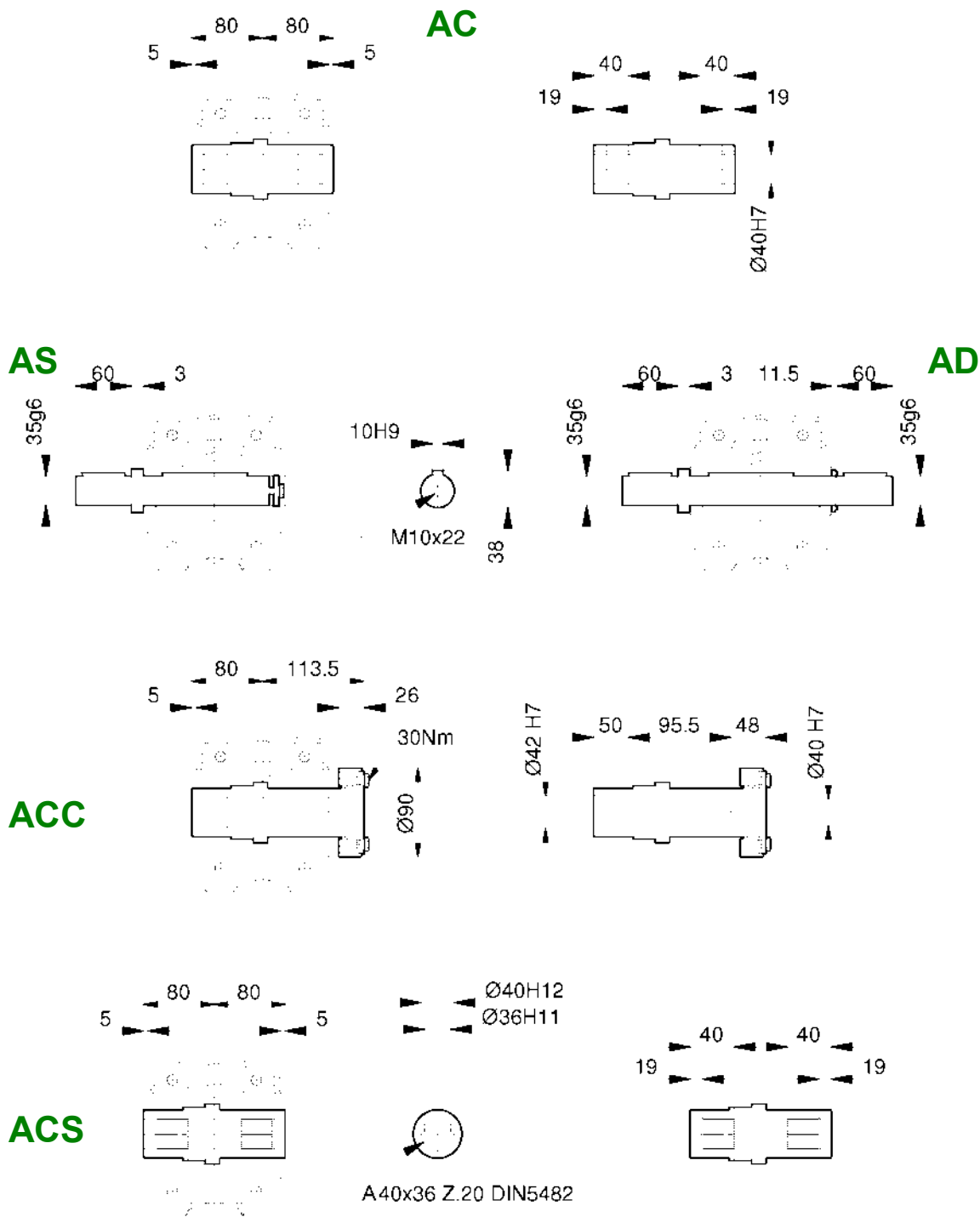
| IEC          | 71          | 80          | 90 S          | 90 L          | 100           | 112           |  |
|--------------|-------------|-------------|---------------|---------------|---------------|---------------|--|
| X / Y / Z1   | 140/220/121 | 159/238/138 | 176/255/149   | 176/280/149   | 195/314/160   | 219/328/172   |  |
| X1 (B5) / S  | 160/15.5    | 200/15.5    | 200/15.5      | 200/15.5      | 250/16.5      | 250/16.5      |  |
| X1 (B14) / S | ---         | 120/15.5    | 140/17.5      | 140/17.5      | 160/15.5      | 160/15.5      |  |
| L (RV33)     | 138.5       | 144.5       | 138.5 (141.5) | 138.5 (141.5) | 139.5 (138.5) | 139.5 (138.5) |  |

Dimensioni e pesi non impegnativi

Not binding dimensions and weights

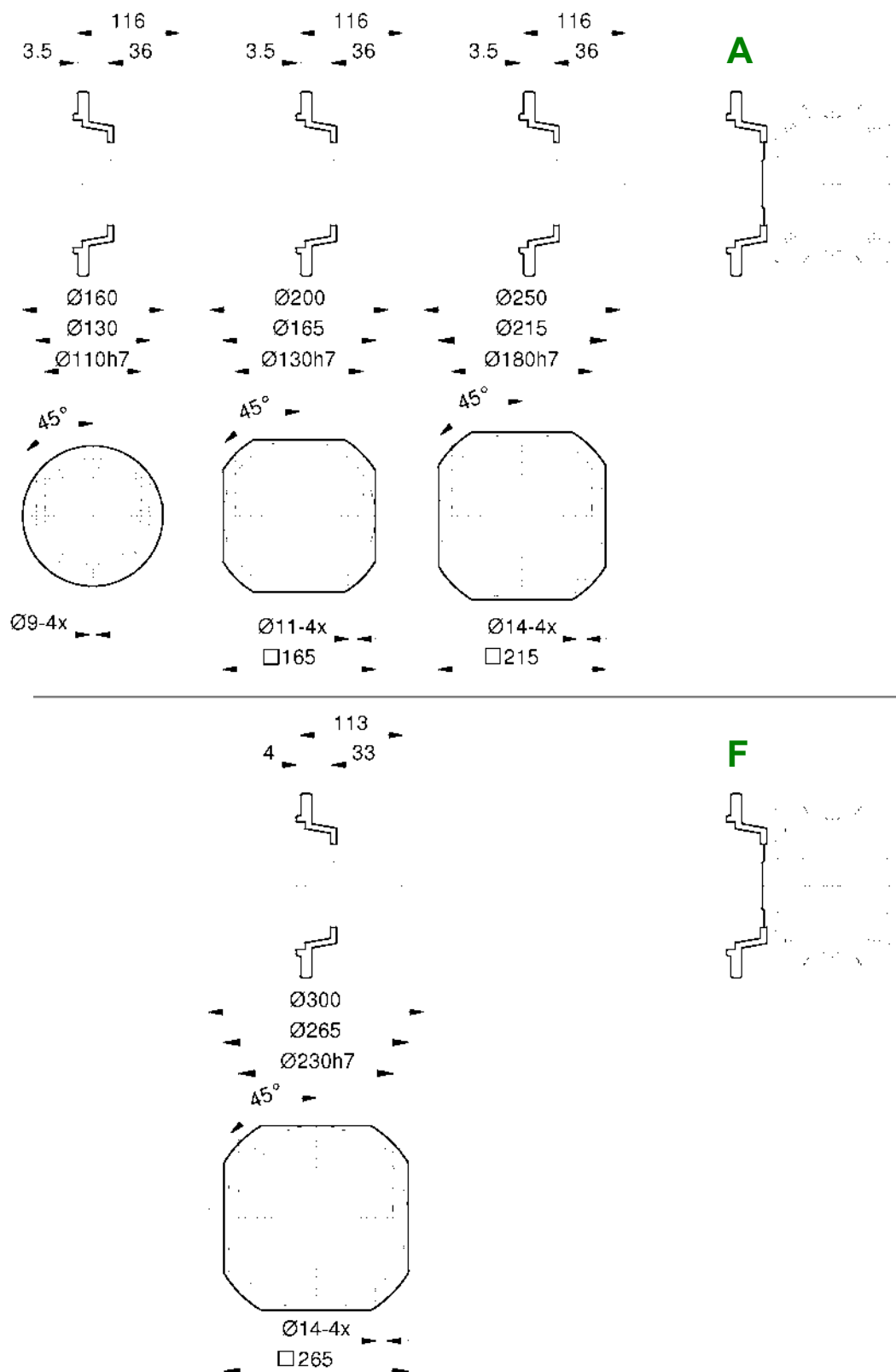
unverbindliche Abmessungen u. Gewichte

**RO33-RV33**

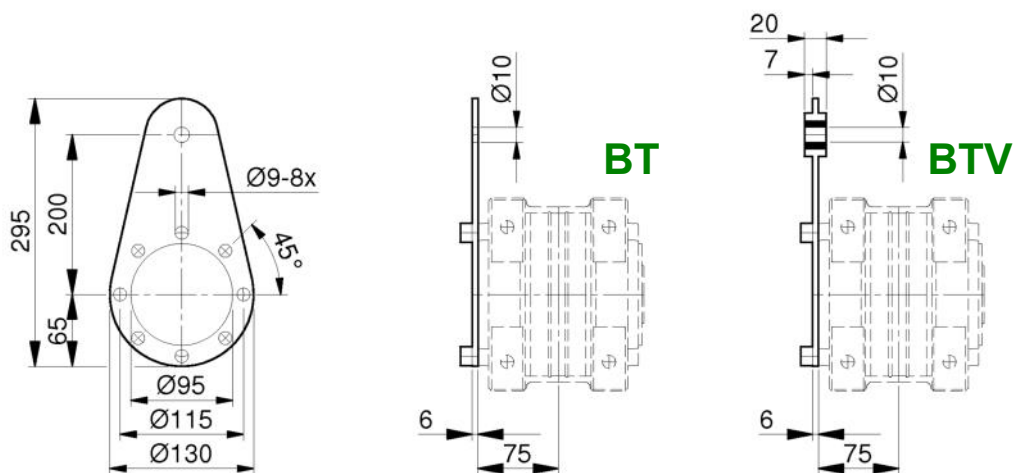


- Dimensioni del perno macchina: pagine  
- Machine shaft dimensions: pages 84-86  
- Maschinenwelle Abmessungen: Seiten

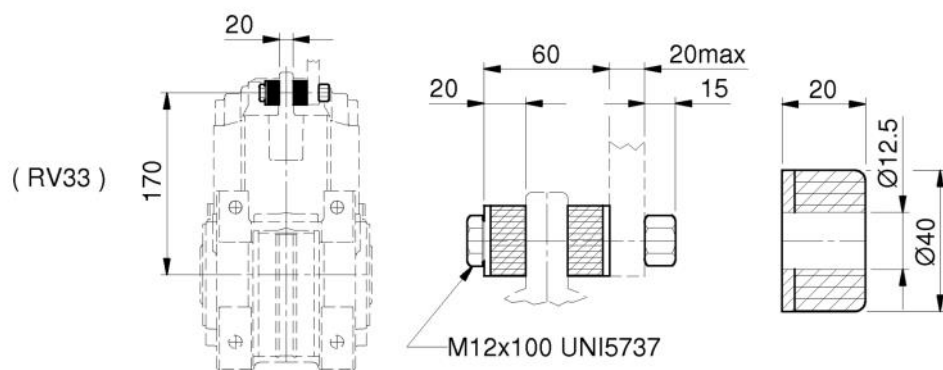
## RO33-RV33



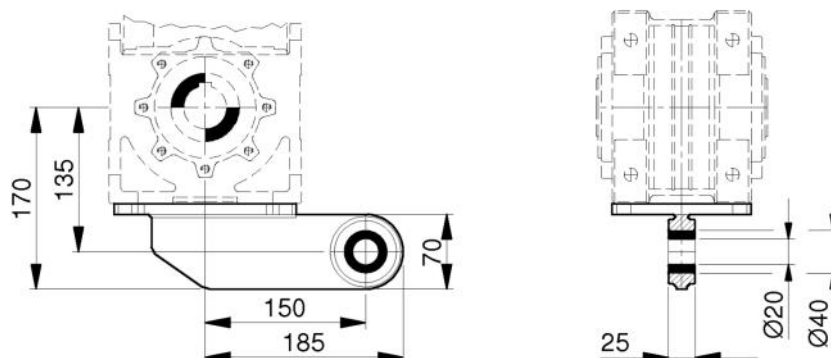
**RO33-RV33**



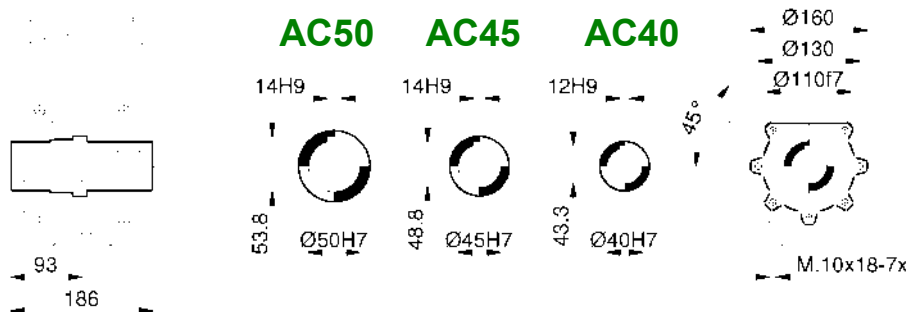
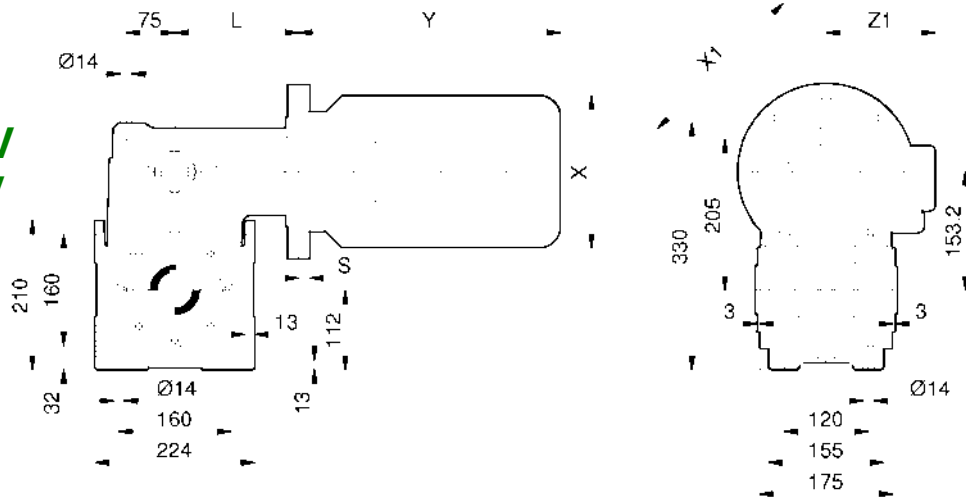
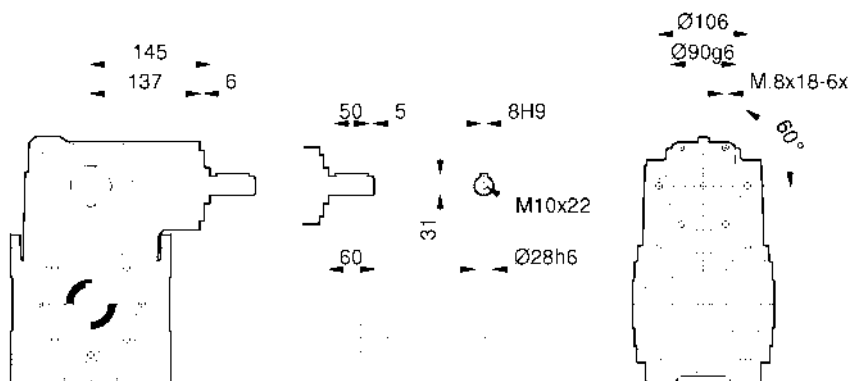
**BTA**



**BTF**





**RO43**
**MRV  
FRV**

**RV**


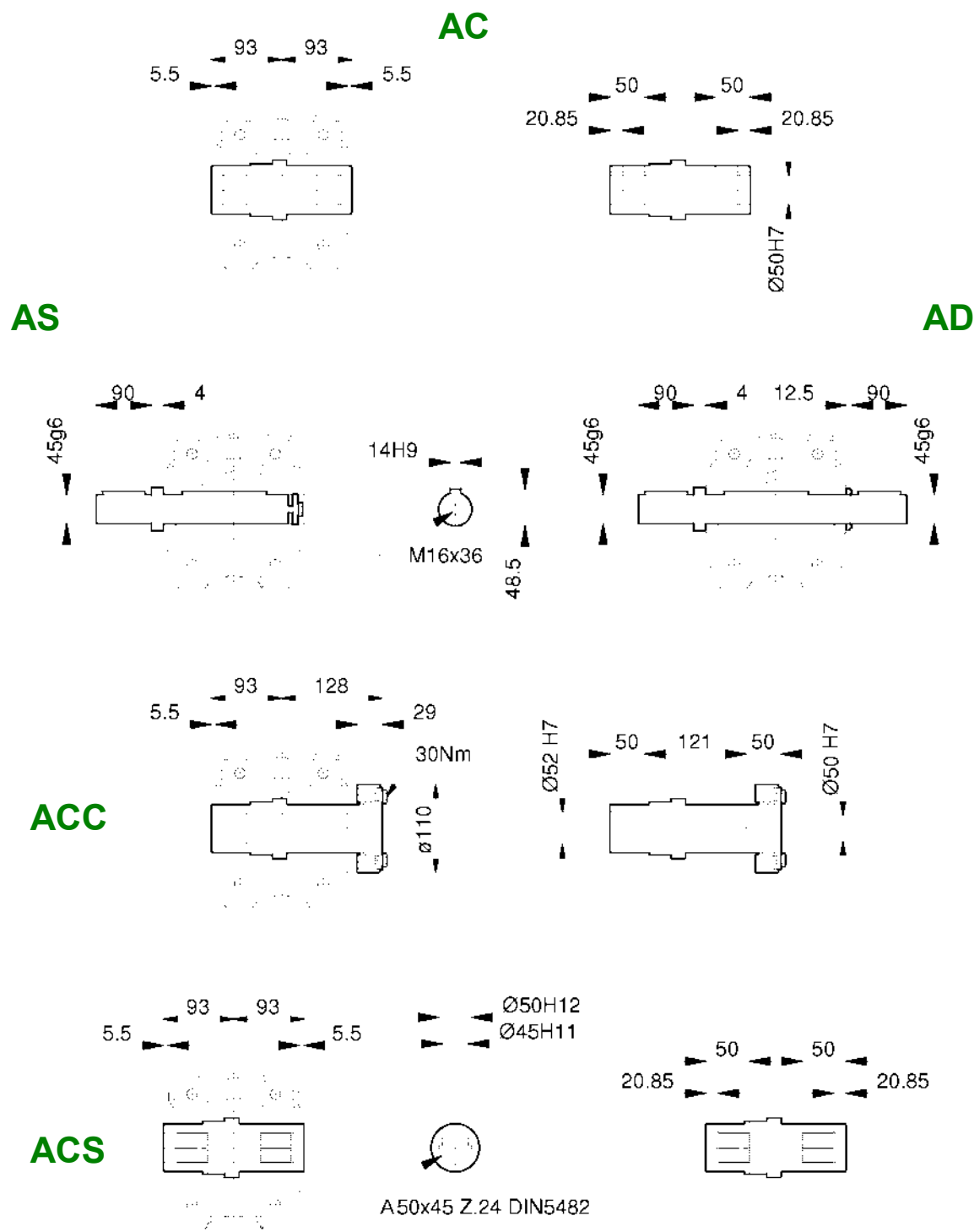
| IEC          | 71          | 80          | 90 S        | 90 L        | 100         | 112         |  |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
| X / Y / Z1   | 140/220/121 | 159/238/138 | 176/255/149 | 176/280/149 | 195/314/160 | 219/328/172 |  |
| X1 (B5) / S  | 160/18      | 200/18      | 200/18      | 200/18      | 250/18.5    | 250/18.5    |  |
| X1 (B14) / S | ---         | ---         | ---         | ---         | 160/18      | 160/18      |  |
| L (RV43)     | 155         | 155         | 155 (157)   | 155 (157)   | 155.5 (155) | 155.5 (155) |  |

Dimensioni e pesi non impegnativi

Not binding dimensions and weights

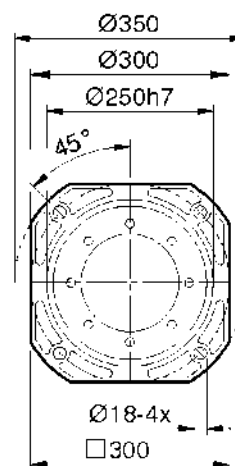
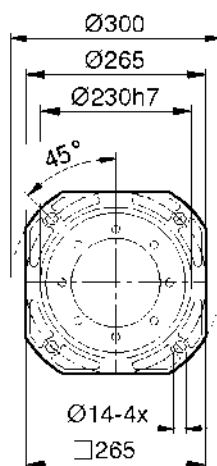
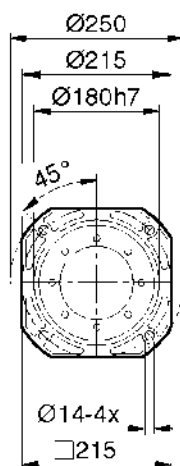
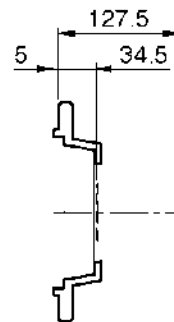
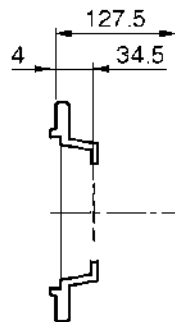
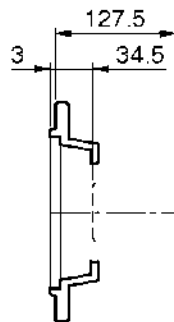
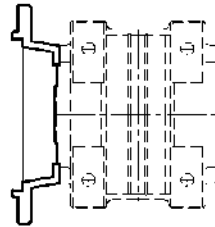
unverbindliche Abmessungen u. Gewichte

## RO43-RV43

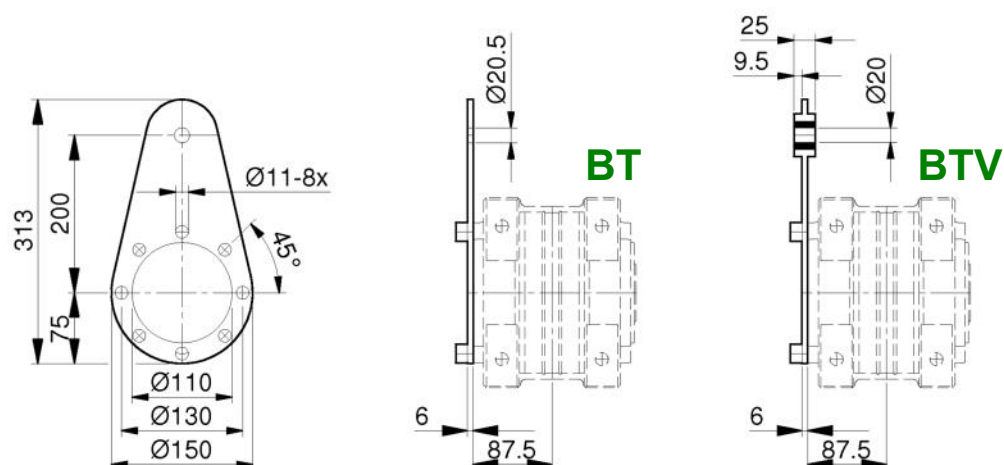


- Dimensioni del perno macchina: pagine  
 - Machine shaft dimensions: pages  
 - Maschinenwelle Abmessungen: Seiten

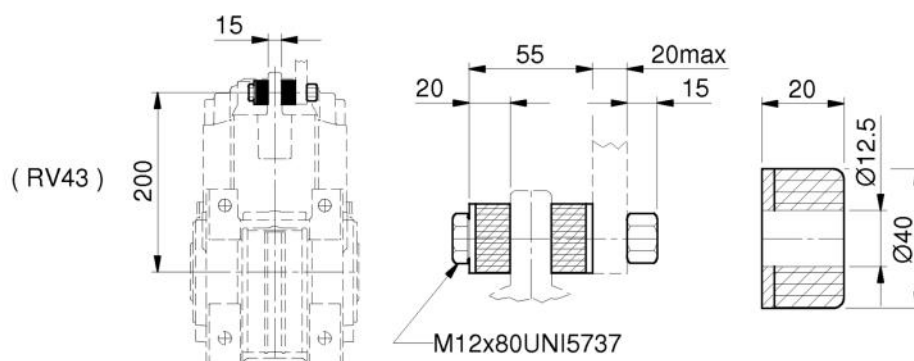
**RO43-RV43**



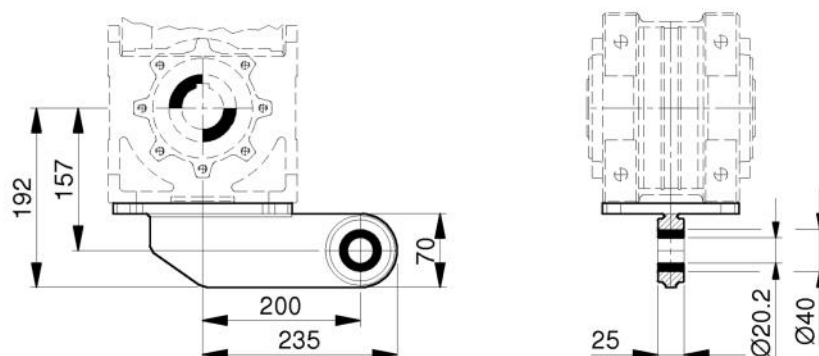
## RO43-RV43

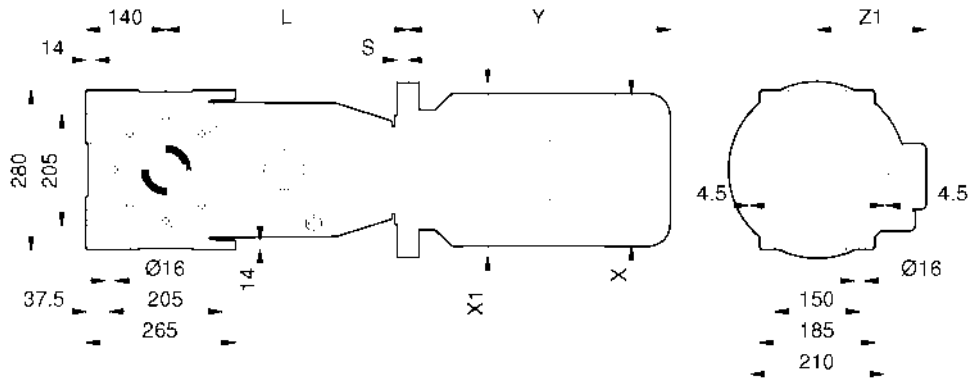
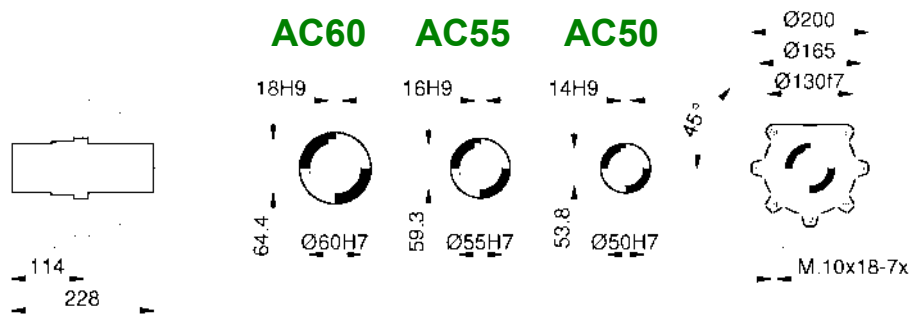
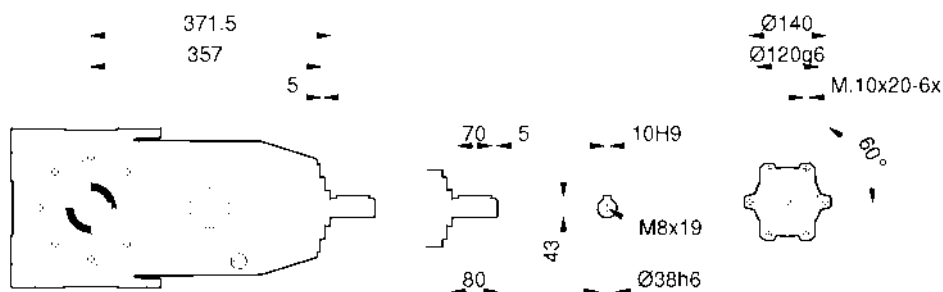


## BTA



## BTF



**RO53**
**MRO  
FRO**

**AC60**
**AC55**
**AC50**

**RO**


| IEC          | 80          | 90 S / L        | 100         | 112         | 132 S / M       | 160         | 180         |
|--------------|-------------|-----------------|-------------|-------------|-----------------|-------------|-------------|
| X / Y / Z1   | 159/238/138 | 176/255-280/149 | 195/314/160 | 219/328/172 | 258/368-410/192 | 310/486/235 | 320/580/245 |
| X1 (B5) / S  | 200/22      | 200/22          | 250/22      | 250/22      | 300/22          | 350/35      | 350/35      |
| X1 (B14) / S | ---         | ---             | ---         | ---         | 200/22          | 250/22      | 300/22      |
| L (RO53)     | 379         | 379             | 379         | 379         | 379             | 392 (379)   | 392 (379)   |

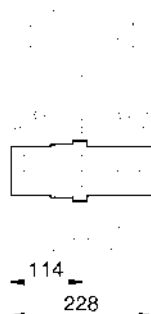
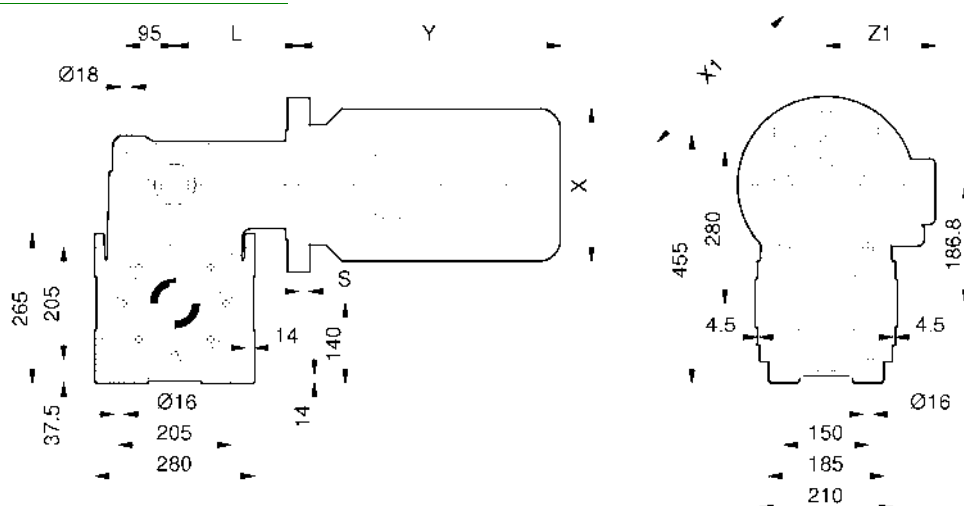
Dimensioni e pesi non impegnativi

Not binding dimensions and weights

unverbindliche Abmessungen u. Gewichte

# RV53

## MRV FRV



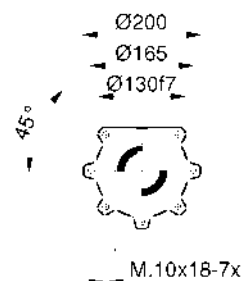
## AC60



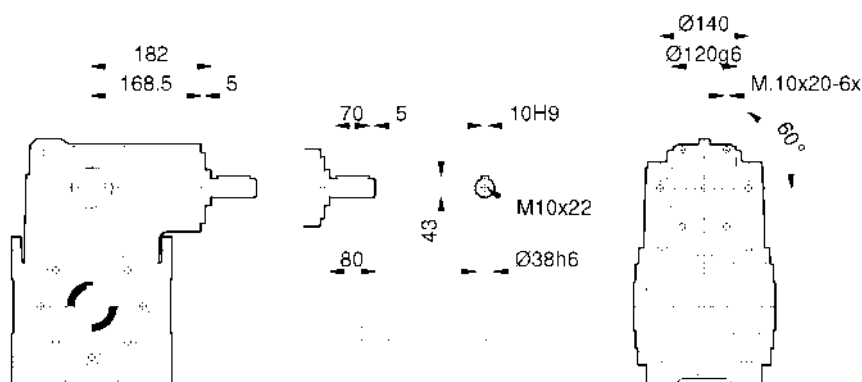
## AC55



## AC50



## RV



| IEC          | 80          | 90 S / L        | 100         | 112         | 132 S / M       | 160           | 180           |
|--------------|-------------|-----------------|-------------|-------------|-----------------|---------------|---------------|
| X / Y / Z1   | 159/238/138 | 176/255-280/149 | 195/314/160 | 219/328/172 | 258/368-410/192 | 310/486/235   | 320/580/245   |
| X1 (B5) / S  | 200/22      | 200/22          | 250/22      | 250/22      | 300/22          | 350/35        | 350/35        |
| X1 (B14) / S | ---         | ---             | ---         | ---         | 200/22          | 250/22        | 300/22        |
| L (RV53)     | 190.5       | 190.5           | 190.5       | 190.5       | 190.5           | 203.5 (190.5) | 203.5 (190.5) |

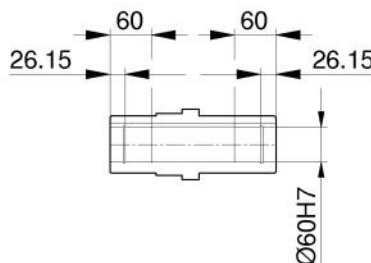
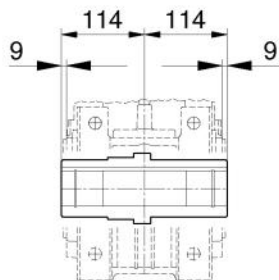
Dimensioni e pesi non impegnativi

Not binding dimensions and weights

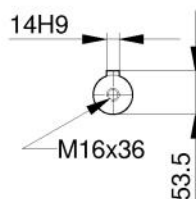
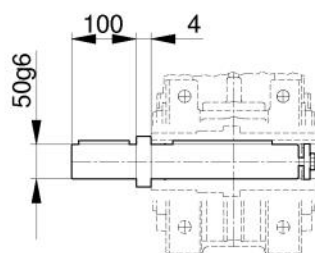
unverbindliche Abmessungen u. Gewichte

**RO53-RV53**

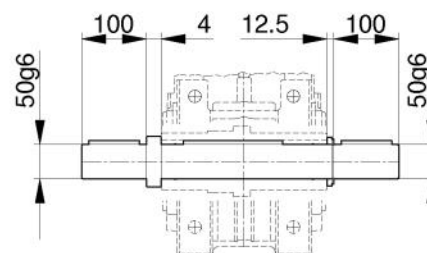
**AC**



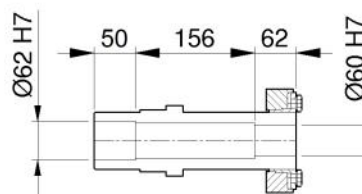
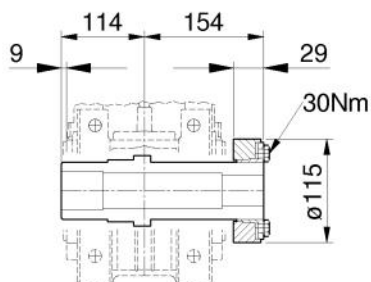
**AS**



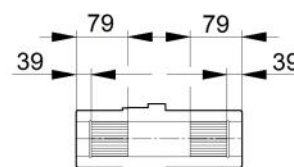
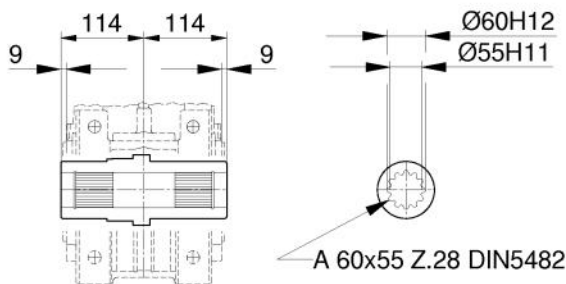
**AD**



**ACC**

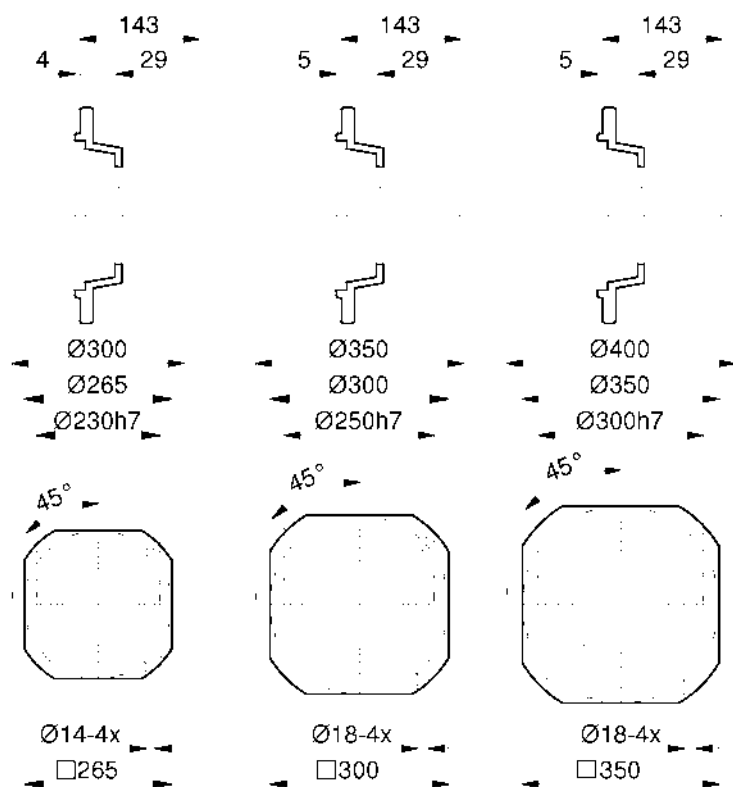
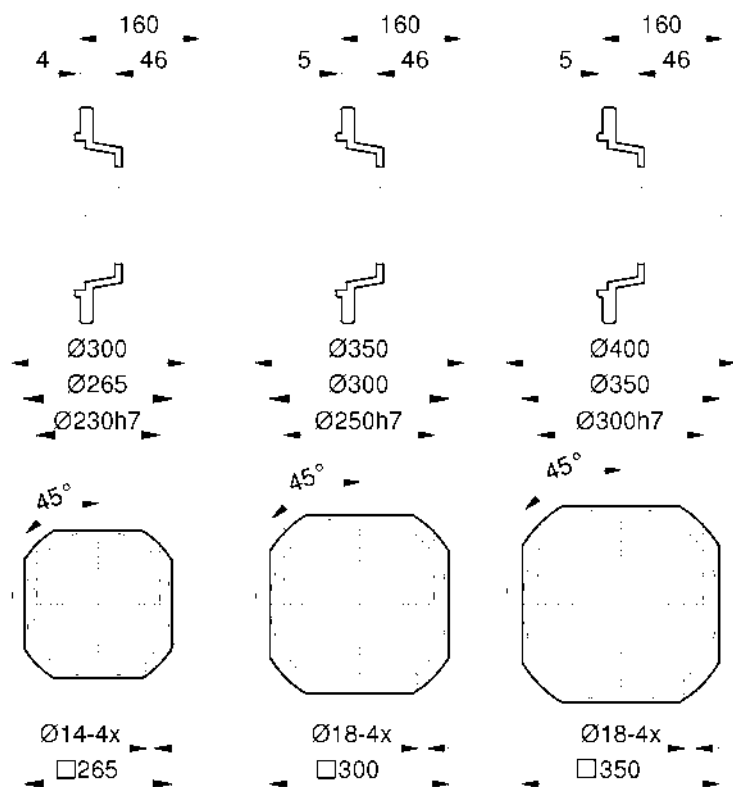


**ACS**

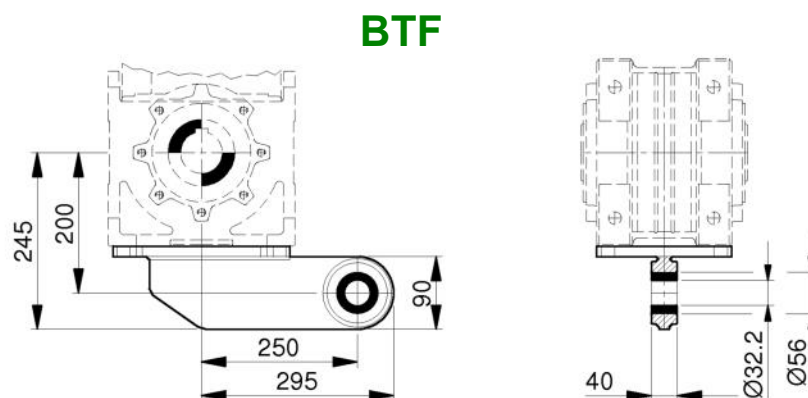
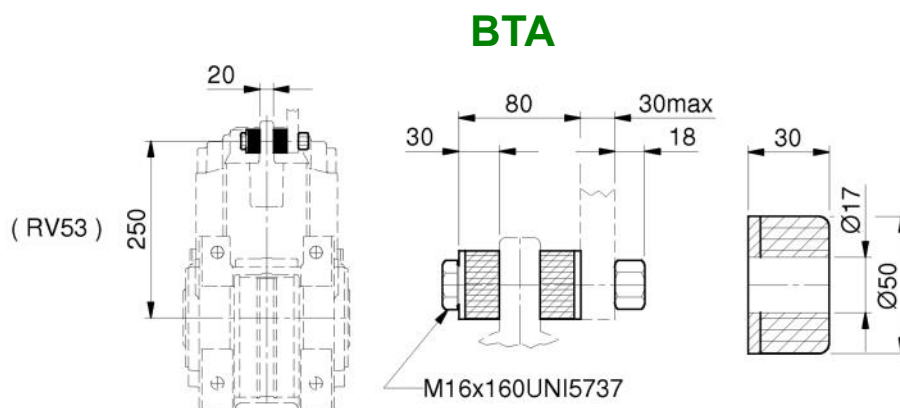
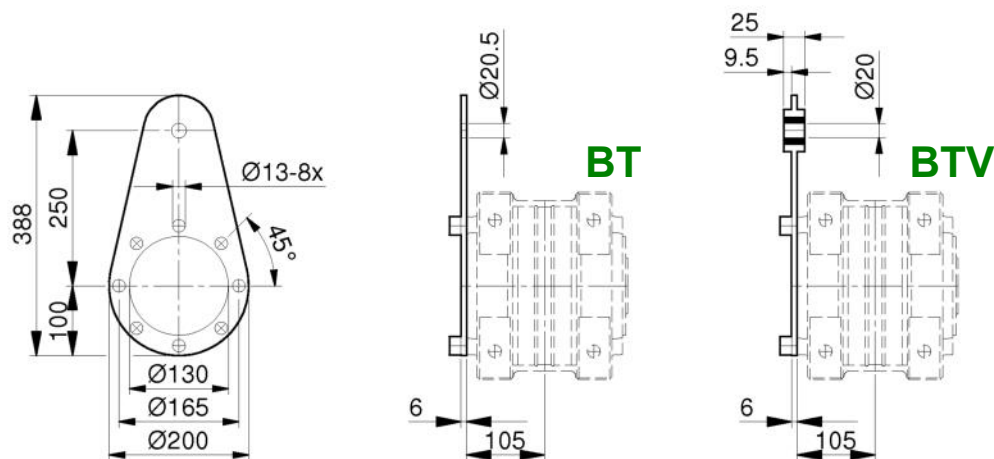


- Dimensioni del perno macchina: pagine 84-86
- Machine shaft dimensions: pages 84-86
- Maschinenwelle Abmessungen: Seiten 84-86

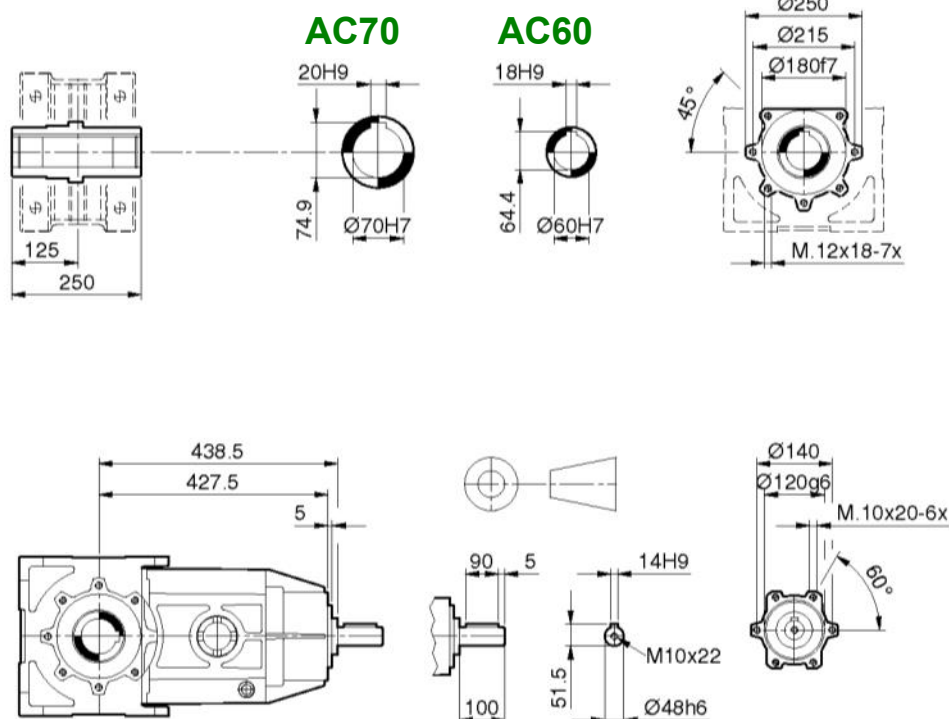
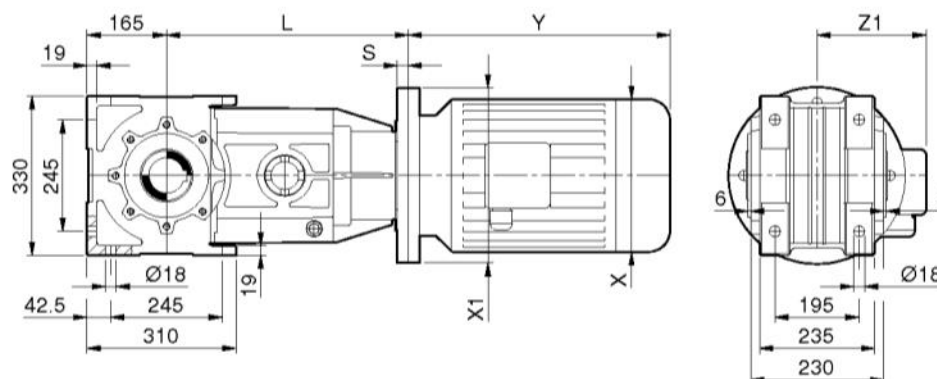
## RO53-RV53



**RO53-RV53**



## RO63

MRO  
FRO


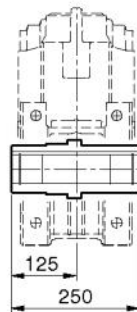
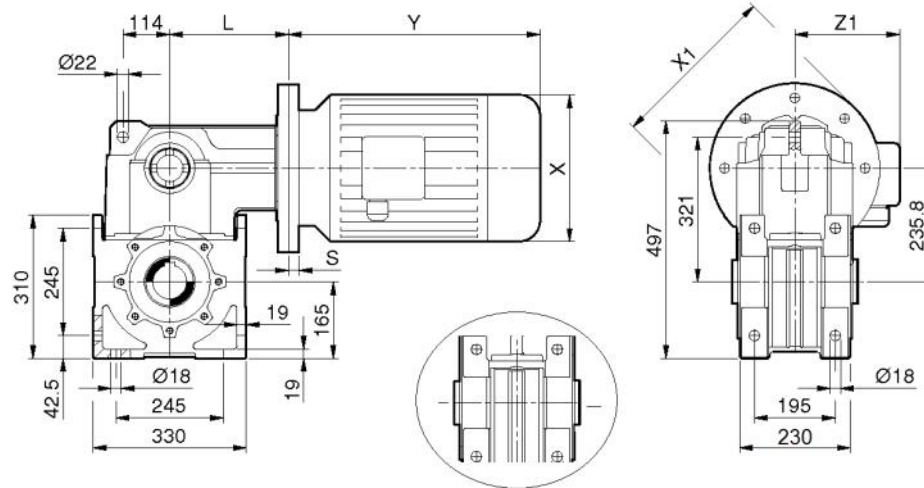
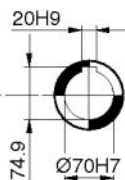
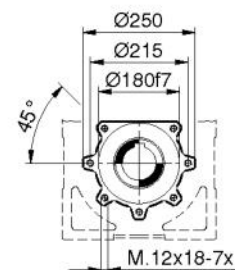
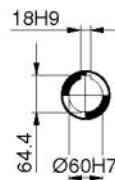
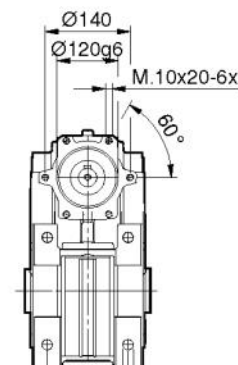
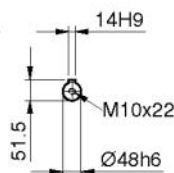
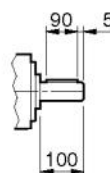
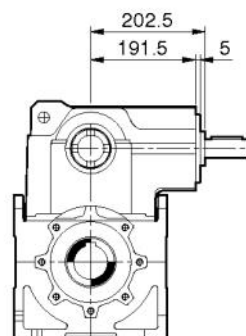
RO

| IEC          | 80          | 90 S / L        | 100         | 112         | 132 S / M       | 160         | 180         |
|--------------|-------------|-----------------|-------------|-------------|-----------------|-------------|-------------|
| X / Y / Z1   | 159/238/138 | 176/255-280/149 | 195/314/160 | 219/328/172 | 258/368-410/192 | 310/486/235 | 320/580/245 |
| X1 (B5) / S  | 200/22      | 200/22          | 250/22      | 250/22      | 300/22          | 350/35      | 350/35      |
| X1 (B14) / S | ---         | ---             | ---         | ---         | 200/22          | 250/22      | 300/22      |
| L (RO63)     | 449.5       | 449.5           | 449.5       | 449.5       | 449.5           | 462.5       | 462.5       |

Dimensioni e pesi non impegnativi

Not binding dimensions and weights

unverbindliche Abmessungen u. Gewichte

**RV63**
**MRV  
FRV**

**AC70**

**AC60**

**RV**


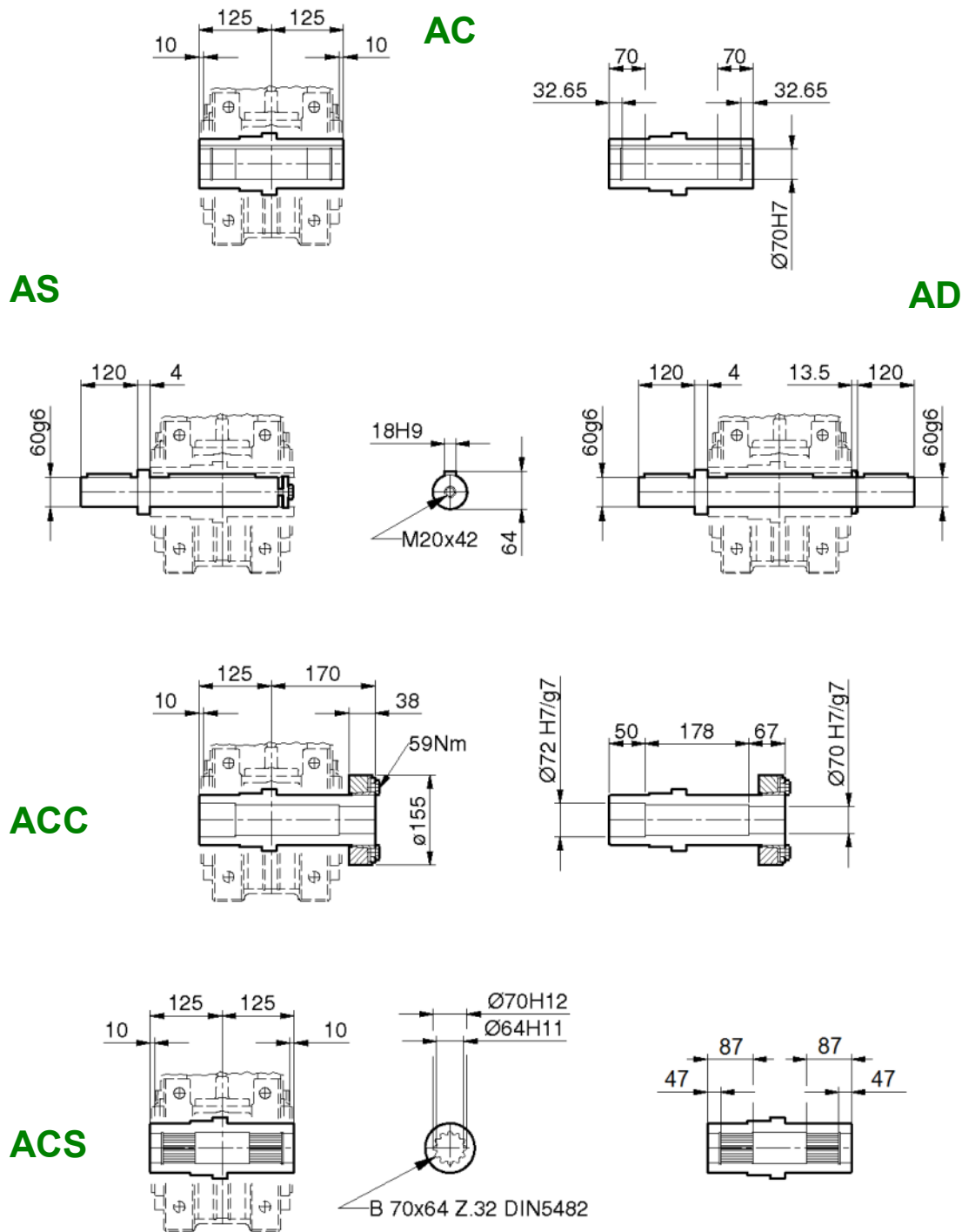
|              |             |                 |             |             |                 |               |               |
|--------------|-------------|-----------------|-------------|-------------|-----------------|---------------|---------------|
| RV           | 63          | 63              | 63          | 63          | 63              | 63            | 63            |
| IEC          | 80          | 90 S / L        | 100         | 112         | 132 S / M       | 160           | 180           |
| X / Y / Z1   | 159/238/138 | 176/255-280/149 | 195/314/160 | 219/328/172 | 258/368-410/192 | 310/486/235   | 320/580/245   |
| X1 (B5) / S  | 200/22      | 200/22          | 250/22      | 250/22      | 300/22          | 350/35        | 350/35        |
| X1 (B14) / S | ---         | ---             | ---         | ---         | 200/22          | 250/22        | 300/22        |
| L (RV63)     | 205.5       | 205.5           | 205.5       | 205.5       | 205.5           | 218.5 (205.5) | 218.5 (205.5) |

Dimensioni e pesi non impegnativi

Not binding dimensions and weights

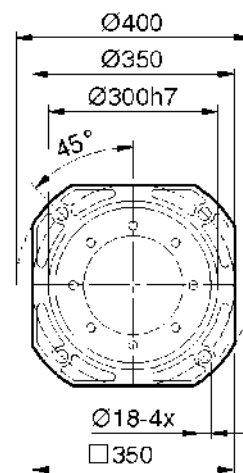
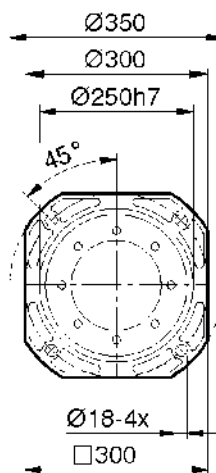
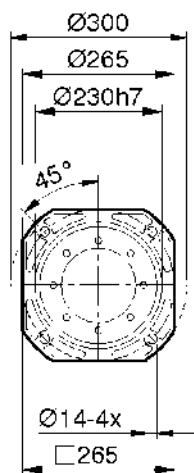
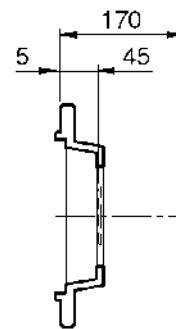
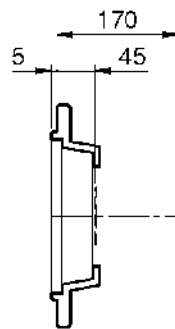
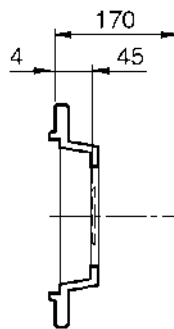
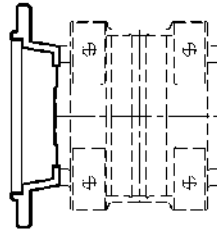
unverbindliche Abmessungen u. Gewichte

## RO63-RV63

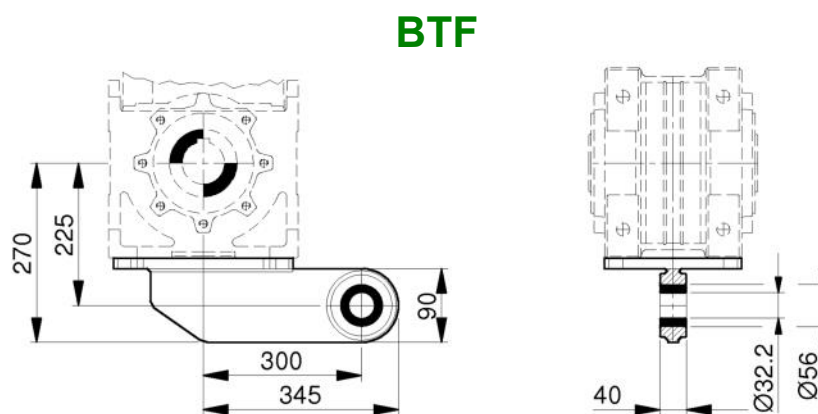
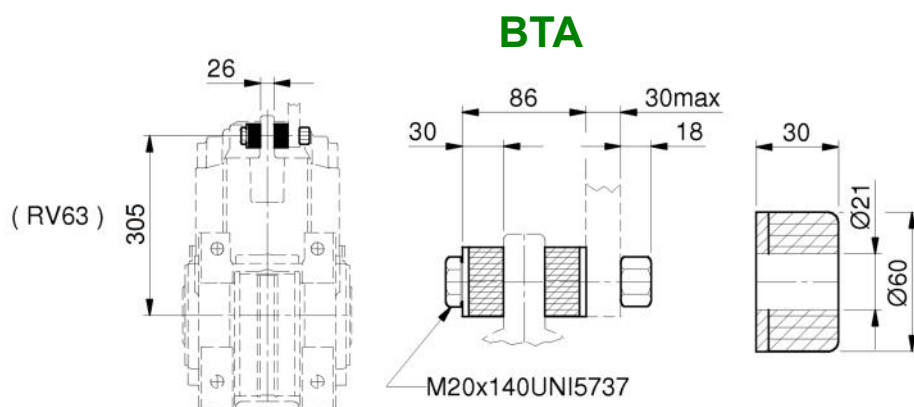


- Dimensioni del perno macchina: pagine 84-86  
 - Machine shaft dimensions: pages 84-86  
 - Maschinenwelle Abmessungen: Seiten

**RO63-RV63**



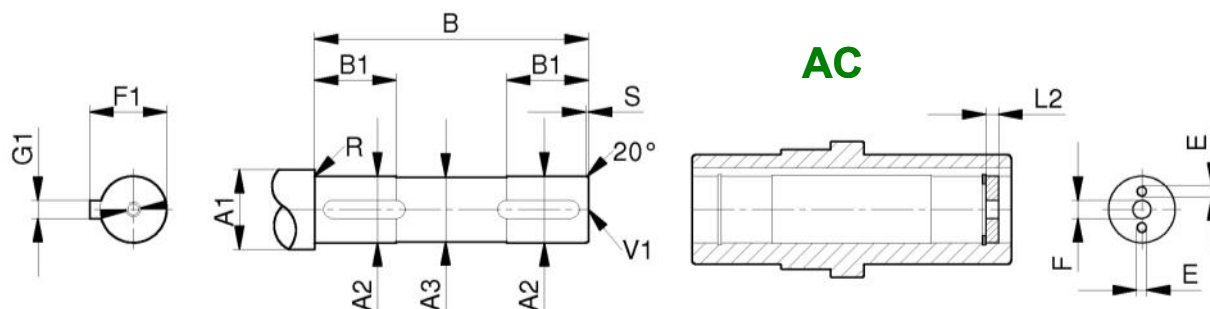
## RO63-RV63



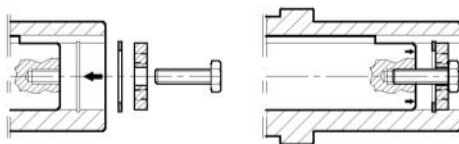
La tabella fornisce le dimensioni dell'albero macchina adatto ad inserirsi nell'albero cavo di uscita AC con chiavetta standard.

The table shows the dimensions of the machine shaft to be fitted into the AC hollow output shaft with standard key.

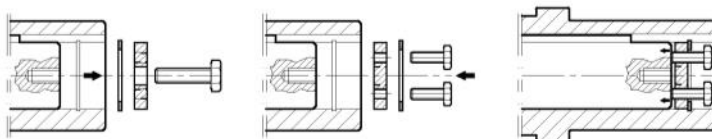
Die Tabelle gibt die Abmessungen der Maschinenwelle an, geeignet zur Einsetzung der Ausgangskeilhohlwelle AC mit externer Schrumpfscheibe.



- Montaggio  
Mounting  
Montage



- Smontaggio  
Disassembly  
Demontage



| Size        | A1 | A2        | A3 | B     | B1 | E   | F  | F1   | G1 | L2   | R   | S | V1     |
|-------------|----|-----------|----|-------|----|-----|----|------|----|------|-----|---|--------|
| RO13 - RV13 | 40 | <b>30</b> | 29 | 98    | 35 | M6  | 11 | 33   | 8  | 5.5  | 1   | 2 | M10x22 |
|             | 35 | <b>25</b> | 24 | 98    | 35 | M6  | 9  | 28   | 8  | 4.5  | 1   | 2 | M8x19  |
| RO22 - RV23 | 45 | <b>35</b> | 34 | 113.5 | 40 | M8  | 11 | 38   | 10 | 7    | 1   | 2 | M10x22 |
|             | 40 | <b>30</b> | 29 | 113.5 | 40 | M6  | 11 | 33   | 8  | 7    | 1   | 2 | M10x22 |
| RO32 - RV33 | 50 | <b>40</b> | 39 | 133.5 | 45 | M8  | 13 | 43   | 12 | 7    | 1   | 2 | M12x28 |
|             | 45 | <b>35</b> | 34 | 133.5 | 45 | M8  | 11 | 38   | 10 | 7    | 1   | 2 | M10x22 |
| RO42 - RV43 | 60 | <b>50</b> | 49 | 155.5 | 55 | M10 | 17 | 53.5 | 14 | 8    | 1.5 | 3 | M16x36 |
|             | 55 | <b>45</b> | 44 | 155.5 | 55 | M10 | 17 | 48.5 | 14 | 8    | 1.5 | 3 | M16x36 |
|             | 50 | <b>40</b> | 39 | 155.5 | 55 | M8  | 13 | 43   | 12 | 8    | 1.5 | 3 | M12x28 |
| RO52 - RV53 | 75 | <b>60</b> | 59 | 185   | 65 | M12 | 17 | 64   | 18 | 12.5 | 2   | 4 | M16x36 |
|             | 70 | <b>55</b> | 54 | 185   | 65 | M12 | 17 | 59   | 16 | 12.5 | 2   | 4 | M16x36 |
|             | 65 | <b>50</b> | 49 | 185   | 65 | M10 | 17 | 53.5 | 14 | 12.5 | 2   | 4 | M16x36 |
| RO62 - RV3  | 85 | <b>70</b> | 69 | 205   | 70 | M12 | 21 | 74.5 | 20 | 12.5 | 2   | 4 | M20x42 |
|             | 80 | <b>65</b> | 64 | 205   | 70 | M12 | 21 | 69   | 18 | 12.5 | 2   | 4 | M20x42 |
|             | 75 | <b>60</b> | 59 | 205   | 70 | M12 | 21 | 64   | 18 | 12.5 | 2   | 4 | M16x36 |

Dimensioni e pesi non impegnativi

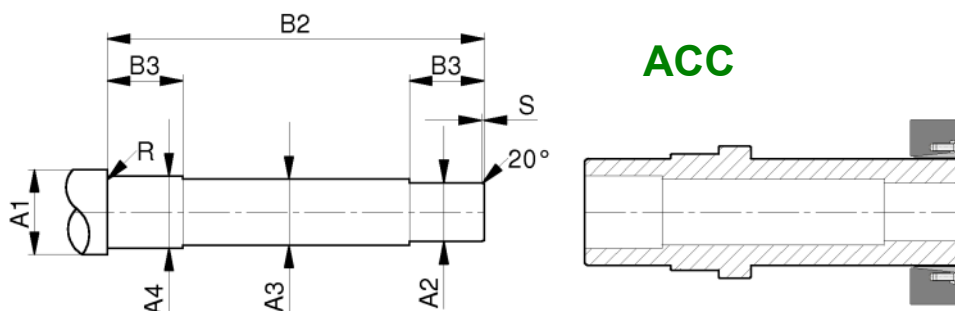
Not binding dimensions and weights

unverbindliche Abmessungen u. Gewichte

La tabella fornisce le dimensioni dell'albero macchina adatto ad inserirsi nell'albero cavo di uscita ACC con calettatore esterno.

The table shows the dimensions of the machine shaft to be fitted into the ACC hollow output shaft with shrink disk.

Die Tabelle gibt die Abmessungen der Maschinenwelle an, geeignet zur Einsetzung der Ausgangskehilhohlwelle ACC mit externer Schrumpfscheibe.



| Size        | A1 | A2        | A3 | A4 | B2  | B3 | R   | S |
|-------------|----|-----------|----|----|-----|----|-----|---|
| RO13 - RV13 | 40 | <b>30</b> | 29 | 32 | 144 | 34 | 1   | 2 |
| RO23 - RV23 | 45 | <b>35</b> | 34 | 37 | 167 | 39 | 1   | 2 |
| RO33 - RV33 | 50 | <b>40</b> | 39 | 42 | 189 | 49 | 1   | 2 |
| RO43 - RV43 | 60 | <b>50</b> | 49 | 52 | 220 | 49 | 1.5 | 3 |
| RO53 - RV53 | 75 | <b>60</b> | 59 | 62 | 267 | 49 | 2   | 4 |
| RO63 - RV63 | 85 | <b>70</b> | 69 | 72 | 294 | 49 | 2   | 4 |

Il calettatore è basato sullo sperimentato principio del cuneo per creare un accoppiamento meccanico per interferenza senza chiave.

Il serraggio assiale delle viti è convertito in pressione di contatto radiale fra albero e mozzo, causandone lo stabile calettamento.

#### Montaggio

Pulire accuratamente le superfici di contatto dell'albero e del mozzo e applicare un leggero velo d'olio. Serrare le viti in modo graduale ed uniforme fino a raggiungere la coppia di serraggio. Non usare oli contenenti bisolfuro di molibdeno che originano notevole riduzione del coefficiente d'attrito. Durante il serraggio delle viti non avviene nessun spostamento assiale del mozzo rispetto all'albero.

#### Smontaggio

Allentare le viti con sequenza continua e graduale senza estrarre le viti dalle filettature.

In caso di riutilizzo, applicare alle viti e superfici coniche un lubrificante in pasta per garantire un coefficiente d'attrito di 0.04. Coppie di serraggio, tolleranze e rugosità secondo le specifiche del costruttore.

The shrink-disk fit relies upon the proven wedge principle to create a keyless mechanical interference fit.

Screw axial locking tension is converted into radial contact pressure on the shaft/hub connection, making the shrink fit steady.

#### Assembly

Carefully clean the shaft/hub contact surfaces and grease with a fine layer of oil. Tighten the screws gradually and evenly until the locking torque is reached.

Do not use lubricants containing molybdenum bisulphide that origins notable lowering of the friction coefficient. No axial hub shifting occurs as regards the shaft when are tightening the screws.

#### Disassembly

Loose the screws in a continuous and even way without removing the screws.

In case of further assembly, apply a lubricant paste on screws and tapered surfaces to guarantee a friction coefficient of 0.04. Locking torques, tolerances and roughness according to manufacturer's specifications.

Die Schrumpfscheibe liegt dem versuchten Prinzip des Keiles zugrunde, um eine mechanische Kupplung zur Interferenz ohne Keilnut zu kreieren. Das axiale Anziehen der Schrauben wurde in radialem Anpressdruck zwischen Welle und Nabe umgesetzt, verursacht Stabilität der Schrumpfscheibe.

#### Montage

Sorgfältig die Kontaktflächen der Welle und der Nabe reinigen und ein wenig Öl aufbringen. Die Schrauben gradual und einheitlich anziehen bis zur Erzielung des Anzugsdrehmoment. Verwenden Sie keine Öle mit Molybdänsulfid, wegen erheblicher Reduzierung des Reibungskoeffizienten. Während des Anziehens der Schrauben erfolgt keine axiale Verschiebung der Nabe gegenüber der Welle.

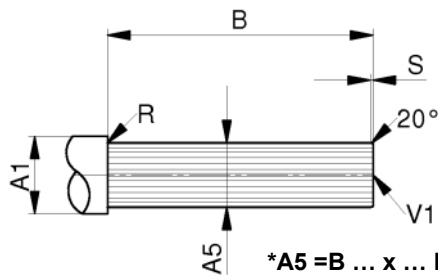
#### Demontage

Lösen Sie die Schrauben kontinuierlich und schrittweise, ohne die Schrauben aus dem Gewinde zu entfernen. Im Falle der Wiederverwendung, tragen Sie auf den Schrauben und Kegelflächen eine Schmierpaste, um ein Reibungskoeffizient von 0.04 zu garantieren. Drehmomente, Toleranzen und Rauigkeit nach Angaben des Herstellers.

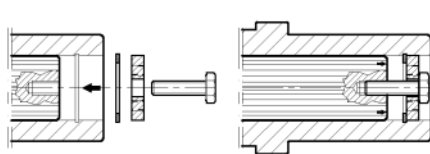
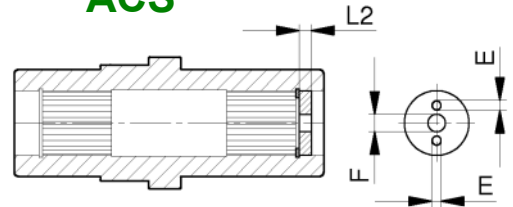
La tabella fornisce le dimensioni dell'albero macchina adatto ad inserirsi nell'albero cavo di uscita scanalato ACS.

The table shows the dimensions of the machine shaft to be fitted into the ACS splined hollow output shaft.

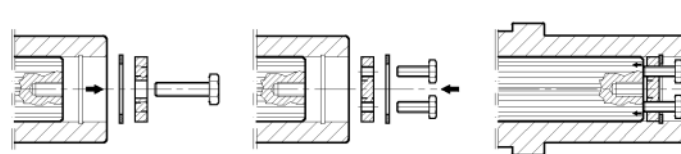
Die Tabelle gibt die Abmessungen der Maschinenwelle an, geeignet zur Einsetzung der Ausgangskeilhohlwelle ACS mit externer Schrumpfscheibe.



**ACS**



Montaggio / Mounting / Montage



Smontaggio / Disassembly / Demontage

| Size        | A1 | A5    | B     | E   | F  | L2   | R   | S | V1     |
|-------------|----|-------|-------|-----|----|------|-----|---|--------|
| RO13- RV13  | 40 | 30x27 | 98    | M6  | 11 | 5.5  | 1   | 2 | M8x19  |
| RO23 - RV23 | 45 | 35x31 | 113.5 | M8  | 11 | 7    | 1   | 2 | M10x22 |
| RO33 - RV33 | 50 | 40x36 | 133.5 | M8  | 13 | 7    | 1   | 2 | M10x22 |
| RO43 - RV43 | 60 | 50x45 | 155.5 | M10 | 17 | 8    | 1.5 | 3 | M16x36 |
| RO53 - RV53 | 75 | 60x55 | 185   | M12 | 17 | 12.5 | 2   | 4 | M16x36 |
| RO63 - RV63 | 85 | 70x64 | 205   | M12 | 21 | 12.5 | 2   | 4 | M20x42 |

Gli alberi scanalati hanno denti che ingrana-  
no con corrispondenti scanalature di un  
pezzo accoppiante e gli trasferiscono la  
coppia mantenendo la corrispondenza an-  
golare fra loro.  
Alternativi al collegamento cava/chiavetta.  
gli scanalati forniscono maggior coppia e  
maggiore durata alla fatica.

Spline shafts have teeth that mesh with  
grooves in a mating piece and transfer  
torque to it, maintaining the angular corre-  
spondence between them.  
As alternative to key/keyway connection.  
splines provide higher torque and longer  
fatigue lifetime.

Die Keilwellen haben Zähne mit entspre-  
chenden Nuten eines Kupplungsstückes  
und übertragen das Drehmoment mit Ein-  
haltung des Winkels zwischen ihnen.  
Alternativ zur Verbindung von Schlüssel/  
Keilnut, die Keilwellen bieten mehr Drehmo-  
ment und höhere Lebensdauer an.

Le posizioni degli accessori, nelle definizioni RH e LH, fanno riferimento alla posizione di montaggio H1 a pag. 14 e sono viste dal lato inferiore del riduttore RO o RV.

Il lato della carcassa con la vite come indicata è la esatta identificazione del lato di riferimento.

Se l'accessorio viene richiesto montato in fabbrica, l'ordine è considerato in sospeso fino alla determinazione del lato RH o LH.

Per altre posizioni di montaggio, riferirsi al Servizio Clienti.

Accessory positions, here defined as RH and LH, refer to H1 mounting position at page 14 and are seen from the bottom side of the gearbox RO or RV accordingly.

The housing side with the screw as shown is the right identification of the reference side.

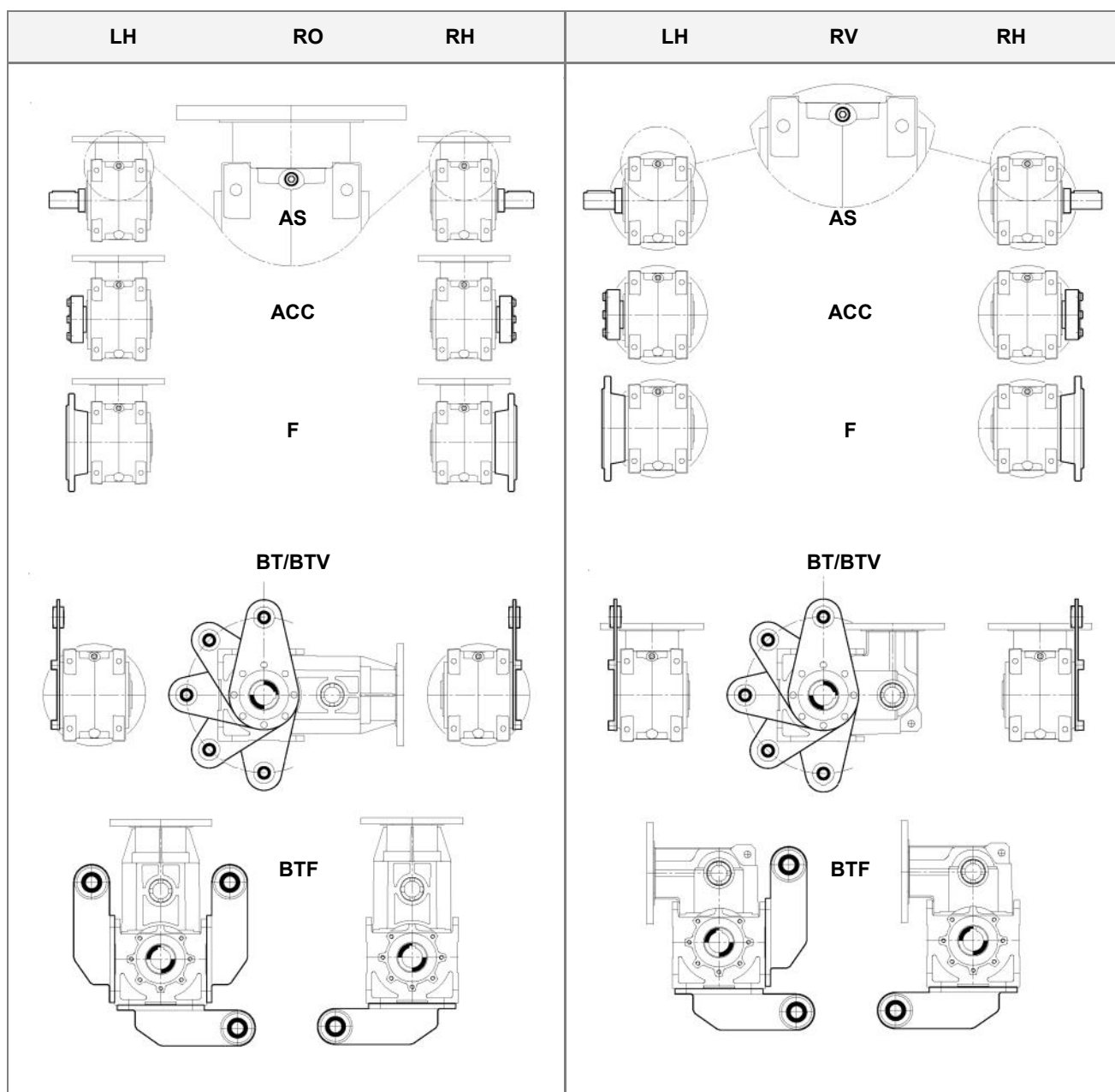
If the accessory is requested in-house assembled, the order is held-on until RH or LH side is defined.

For other mounting positions, please refer to the Customer Service.

Die Zubehörbaulagen, hier als RH und LH definiert, beziehen sich auf H1 Einbaulage auf Seite 14 und werden von der Unterseite des Getriebes RO oder RV entsprechend gesehen. Die Seite des Gehäuses mit der Schraube, wie gezeigt ist die genaue Identifizierung der Referenzseite.

Wenn das Zubehör am haus angeforderte gebaut wird die Reihenfolge gehalten, bis Seite RH oder LH definiert ist.

Für andere Einbaulagen entnehmen Sie bitte dem Kundendienst beziehen.



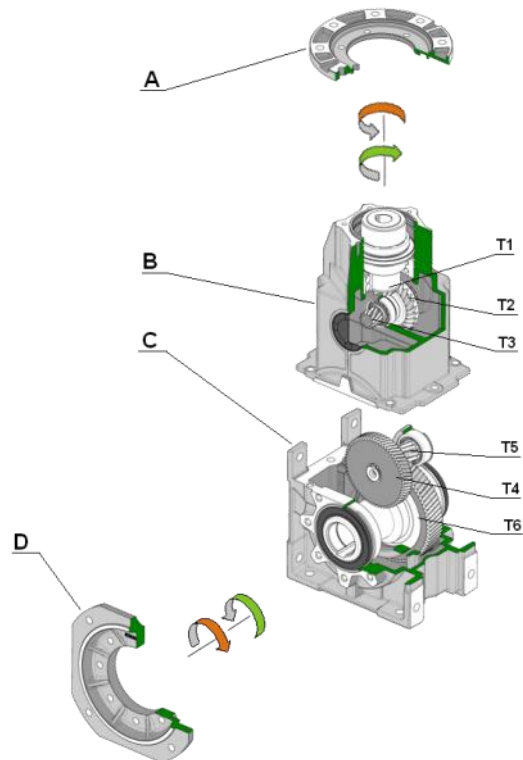
## RO

### Versione in linea In-line version Inlineausführung

- A - Flangia motore  
Motor flange  
Motorflansch
- B - Coperchio entrata 3 coppie + ingranaggi T1. T2. T3  
Three-stage input cover + T1. T2 and T3 gears  
Dreistufige Eingangsdeckel u. Räder T1. T2. T3
- C - Carcassa + ingranaggi T4. T5. T6  
Housing + T4. T5. T6 gears  
Gehäuse u. Räder T4. T5. T6
- D - Flangia di uscita  
Output flange  
Abtriebsflansch



- Rotazione entrata / uscita
- Input / output rotation
- Drehrichtung



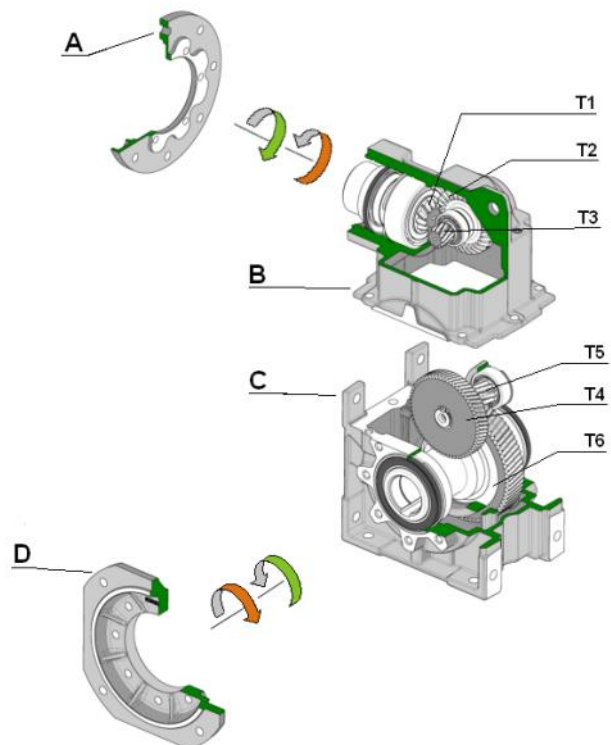
## RV

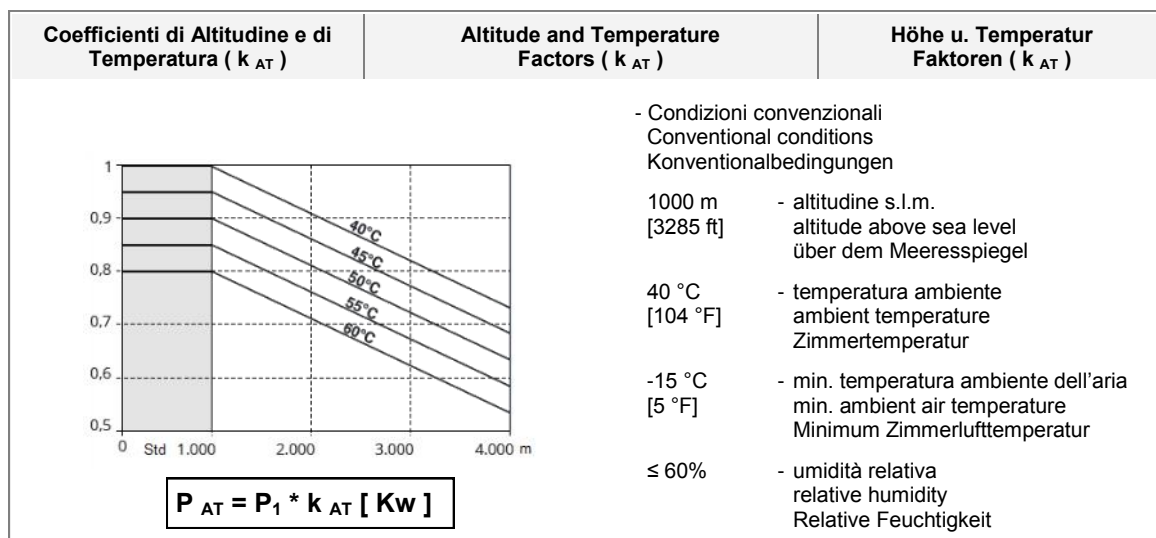
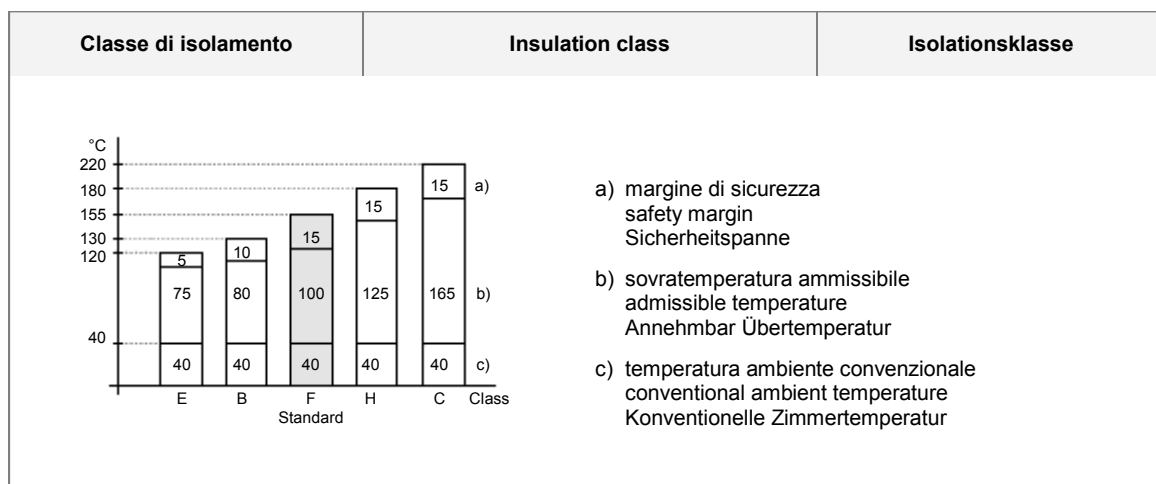
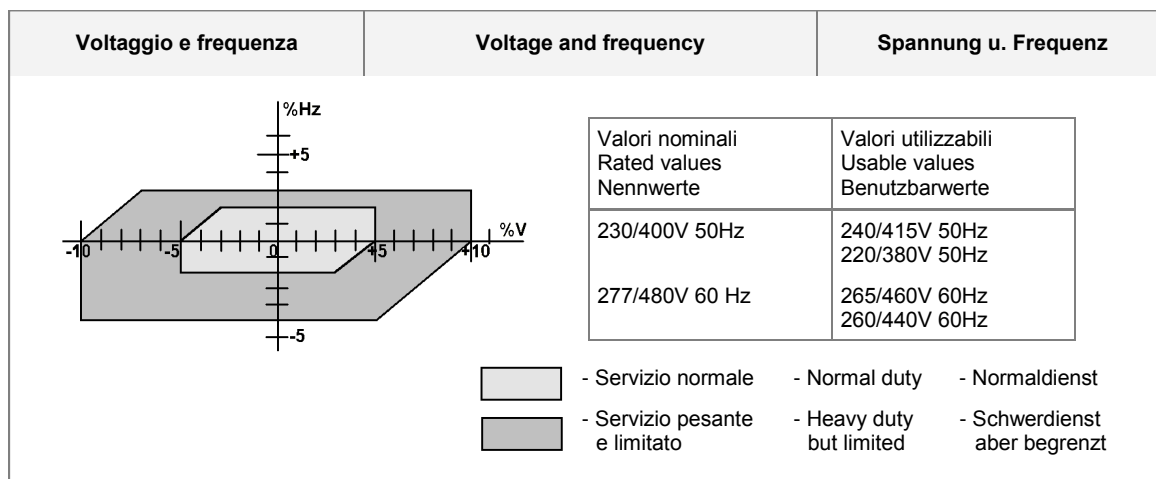
### Versione a squadra Right angle version Winkelausführung

- A - Flangia motore  
Motor flange  
Motorflansch IEC
- B - Coperchio entrata 3 coppie + ingranaggi T1. T2. T3  
Three-stage input cover + T1. T2. T3 gears  
Dreistufige Eingangsdeckel u. Räder T1. T2. T3
- C - Carcassa + ingranaggi T4. T5. T6  
Housing + T4. T5. T6 gears  
Gehäuse u. Räder T4. T5. T6
- D - Flangia uscita  
Output flange  
Abtriebsflansch



- Rotazione entrata / uscita
- Input / output rotation
- Drehrichtung





## RO-RV ATEX - Direttiva Europea 94/9/CE - European Directive 94/9/EC - Europäische Richtlinie 94/9/EU

La Direttiva Europea 94/9/CE-ATEX riguarda non solo gli apparecchi elettrici ma tutte le macchine e gli organi di comando che sono destinati. soli o combinati. ad essere utilizzati in atmosfere potenzialmente esplosive nei territori della Comunità Europea. I riduttori VARVEL-ATEX sono costruiti con

- carcassa e coperchi in materiale metallico. contenenti gli elementi di trasmissione montati su cuscinetti a sfere o a rulli;
- paraolio in Viton sugli alberi di entrata e di uscita;
- quantità di lubrificante idonea per assicurare il funzionamento del progetto;
- viteria sigillata con pasta frena-filetti.

I riduttori VARVEL-ATEX sono identificati nella Direttiva come «componenti», pertanto privati di loro funzione autonoma. ma essenziali per il funzionamento di apparecchi e di sistemi di protezione destinati alla produzione. trasporto. immagazzinamento. misurazione. regolazione e conversione d'energia e trasformazione dei materiali che. per le loro proprie potenzialità d'inflammabilità. rischiano di provocare l'innesco di un'esplosione.

### Terminologia Direttiva ATEX:

- **Gruppo**  
Gruppo I - utilizzazione in miniera  
Gruppo II - utilizzazione in industrie di superficie
- **Categoria**  
Categoria 1 - esposizione continuata in ambiente possibilmente esplosivo con durata > 1000 ore/anno o con frequenti malfunzionamenti  
Categoria 2 - esposizione occasionale in ambiente possibilmente esplosivo con durata fra 10 e 1000 ore/anno o con saltuari malfunzionamenti  
Categoria 3 - esposizione poco probabile in ambiente possibilmente esplosivo e se avvenuta. si verifica per un breve periodo con durata inferiore a 10 ore/anno
- **Lettere "G" e "D"**  
Presenza di gas (G) e di polveri (D)
- **Lettere "c" e "k"**  
Indici di sicurezza di costruzione (c) e di immersione in liquido (k).
- **IP66**  
Grado di protezione
- **T<sub>max</sub> e T<sub>amb</sub>**  
Temperature massima di superficiale (T<sub>max</sub>) e d'ambiente (T<sub>amb</sub>).

The European Directive 94/9/EC-ATEX relates not only to electric devices but to all the machines and driving units destined. alone or combined. to operate in potentially explosive environments within European Community territory.

The gearboxes VARVEL-ATEX are manufactured

- with metallic housings and covers. containing the driving gears fitted on ball or roller bearings;
- Viton oil seals on input and output shafts;
- the needed oil quantity to ensure the unit operation;
- sealed thread screws with sealing paste.

The gearboxes VARVEL-ATEX are identified in the Directive as «components», therefore stripped away any autonomous function. but fundamental to operation of units and protection systems destined to production. transport. storage. measuring. adjusting and conversion of energy and material transformation that because of their own inflammable potentiality. risk to induce an explosion trigger.

### Directive-ATEX terminology:

- **Group**  
Group I - use in mine  
Group II - use in surface industries
- **Category**  
Category 1 - continuous exposure in possibly explosive environment for more than 1000 hrs/year or with frequent malfunctioning  
Category 2 - occasional exposure in possibly explosive environment for 10 to 1000 hrs/year or with sporadic malfunctioning  
Category 3 - not very likely exposure in possibly explosive environment and if happened. not longer than 10 hours/year
- **Letters "G" and "D"**  
Gas (G) or dust (D) presence
- **Letters "c" and "k"**  
Safety indication of construction (c) and immersion in liquid (k)
- **IP66**  
Protection grade
- **T<sub>max</sub> and T<sub>amb</sub>**  
Surface (T<sub>max</sub>) and Ambient (T<sub>amb</sub>) max. temperature

Die Europäische Richtlinie 94/9/EG-ATEX gilt nicht für elektrische Ausrüstungen. sondern auch für alle Arten von Maschinen und Steuerungsteile. allein oder kombiniert. für den Gebrauch in potentiell explosiver Atmosphäre in den Gebieten der Europäischen Gemeinschaft. Die VARVEL-ATEX Getriebe sind hergestellt mit

- Gehäuse und Deckel in Metall. beinhaltet Getriebe montiert auf Kugel- oder Rollengelen;
- Viton-Dichtungen auf Eingangs- und Ausgangswellen;
- ausreichende Ölmenge. um das Funktionieren des Projekts zu gewährleisten;
- Schrauben sind mit Schraubensicherungs-paste abgedichtet.

VARVEL-ATEX Getriebe sind in der Richtlinie als "Komponenten" identifiziert. von daher ihre autonome Funktion. aber wesentlich für den Betrieb von Geräten und Schutzsystemen für die Produktion. Transport. Lagerung. Messung. Regelung und Umwandlung von Energie und Verarbeitung von Materialien. die wegen ihrer eigenen potenzieller Entflammbarkeit. die Auslösung einer Explosion riskieren.

### Terminologie ATEX Richtlinie

- **Gruppe**  
Gruppe I - Verwendung in Minen  
Gruppe II - Verwendung in Oberflächen Branchen
- **Kategorien**  
Kategorie 1 - kontinuierliche Exposition in möglicher explosiver Umgebung bei Dauer > 1000 Stunden/Jahr oder mit häufigen Störungen  
Kategorie 2 - gelegentliche Exposition in möglicher explosiver Umgebung mit Dauer zwischen 10 und 1000 Stunden/Jahr o mit gelegentlichen Fehlfunktionen  
Kategorie 3 - unwahrscheinliche Exposition. in möglicher explosiver Umgebung und wenn dies eintritt. bei einem kurzen Zeitraum mit Dauer von weniger als 10 Stunden/Jahr
- **Buchstaben "G" und "D"**  
Vorhandensein von Gas (G) und Staub (D)
- **Buchstaben "c" und "k"**  
Indiz der Bausicherheit (c) und Eintauchen in Flüssigkeit (k).
- **IP66**  
Schutzgrad
- **T<sub>max</sub> e T<sub>amb</sub>**  
Maximale Oberflächentemperatur (T<sub>max</sub>) und Umgebungstemperatur (T<sub>amb</sub>).

# ATEX - Direttiva Europea 94/9/CE - European Directive 94/9/EC - Europäische Richtlinie 94/9/EU **RO-RV**

Le serie VARVEL RO e RV sono conformi alle richieste di progetto esatte dal Gruppo II, Categoria 2 o 3 e per funzionamento in zone con pericolo di esplosione in presenza di gas (zona 1 e zona 2) e di polveri combustibili (zona 21 e zona 22).

I prodotti VARVEL-ATEX sono marcati

**II 2 GD ck IP66**  
T<sub>max</sub>=135°C

VARVEL RO and RV series are conforming with design requirements asked by Group II, Category 2 or 3, and for operation in possible hazardous zones in presence of gas (zones 1 and 2) and combustible dust (zones 21 and 22).

The VARVEL-ATEX products are marked

**II 2 GD ck IP66**  
T<sub>max</sub>=135°C

Die Serie VARVEL RO u. RV sind Übereinstimmung mit die Konstruktionsanforderungen gebeten von Gruppe II, Kategorie 2 oder 3 und für Betrieb in Zonen mit Explosionsgefahr in der Gegenwart von Gas (Zone 1 und Zone 2) und Staub (Zone 21 und Zone 22).

Die Produkte VARVEL-ATEX sind markiert

**II 2 GD ck IP66**  
T<sub>max</sub>=135°C

| Gruppo<br>Group<br>Gruppe | Categoria<br>Category<br>Kategorie | Gas. Vapori. Nebbie<br>Gas. Vapours. Cloud<br>Gas. Dämpfe. Nebel | Zona<br>Zone | Polveri<br>Dust<br>Stäube |
|---------------------------|------------------------------------|------------------------------------------------------------------|--------------|---------------------------|
| I (a)                     | M1 (c)<br>M2 (d)                   |                                                                  |              |                           |
| II (b)                    | 1 (c)                              | G (0)                                                            |              | D (20)                    |
|                           | 2 (d)                              | G (1)                                                            |              | D (21)                    |
|                           | 3 (e)                              | G (2)                                                            |              | D (22)                    |

## Attenzione

I riduttori VARVEL-ATEX **non sono certificati** per funzionamento nelle aree in **colore grigio**.

- (a) - Miniere
- (b) - Industrie di superficie
- (c) - Livello di protezione: molto elevato
- (d) - Livello di protezione: elevato
- (e) - Livello di protezione: normale
- (0) - Presenza continua di gas
- (1) - Presenza discontinua di gas
- (2) - Presenza occasionale di gas
- (20) - Presenza continua di polveri
- (21) - Presenza discontinua di polveri
- (22) - Presenza occasionale di polveri

## Warning

The VARVEL-ATEX gearboxes **are not certified** for operation in **shaded areas**.

- (a) - Mines
- (b) - Surface industries
- (c) - Protection level: very high
- (d) - Protection level: high
- (e) - Protection level: normal
- (0) - Continuous presence of gas
- (1) - Discontinuous presence of gas
- (2) - Occasional presence of gas
- (20) - Continuous presence of dust
- (21) - Discontinuous presence of dust
- (22) - Occasional presence of dust

## Vorsicht !

Die Getriebe VARVEL-ATEX sind für den Anbau in die **Graufarbezone nicht zertifiziert**.

- (a) - Bergwerke
- (b) - Oberfläche-Industrien
- (c) - Schutzklasse: sehr hoch
- (d) - Schutzklasse: hoch
- (e) - Schutzklasse: normal
- (0) - ständige Gegenwart von gas
- (1) - nicht ständige Gegenwart von gas
- (2) - gelegentliche Gegenwart von gas
- (20) - ständige Gegenwart von Stäube
- (21) - nicht ständige Gegenwart von Stäube
- (22) - gelegentliche Gegenwart von Stäube

## Estratto delle ISTRUZIONI D'USO E MANUTENZIONE

(manuale completo su [www.varvel.com](http://www.varvel.com))

Ai sensi della Direttiva Macchine 2006/42/CE e relativa Linea Guida, i riduttori e i variatori di velocità sono considerati "elementi separati di macchine che non hanno un'applicazione specifica e che sono destinati ad essere incorporati nella macchina. La macchina completa dotata di questi componenti deve soddisfare i requisiti essenziali pertinenti di sicurezza e tutela della salute" della citata Direttiva.

### Installazione

Accertarsi che il gruppo da installare abbia le caratteristiche atte a svolgere la funzione richiesta e che la posizione di montaggio sia coerente con quanto ordinato. Tali caratteristiche sono deducibili dalla targhetta d'identificazione apposta sul riduttore. Effettuare la verifica della stabilità del montaggio affinché non si verifichino vibrazioni o sovraccarichi durante il funzionamento.

### Funzionamento

Il riduttore può essere collegato per rotazione oraria o antioraria. Arrestare immediatamente il riduttore in caso di funzionamento difettoso o di rumorosità anomala. rimuovere il difetto o ritornare l'apparecchio alla fabbrica per un'adeguata revisione. Se la parte difettosa non è sostituita, anche altri componenti possono essere danneggiati con conseguenti ulteriori danneggiamenti e più scarsa possibilità di risalire alle cause.

### Manutenzione

Sebbene i gruppi siano provati con funzionamento senza carico prima della spedizione, è consigliabile non usarli a carico massimo durante le prime 20-30 ore di funzionamento affinché le parti interne possano adattarsi reciprocamente. I riduttori sono spediti già riempiti con olio sintetico a lunga durata e, se occorre sostituirlo o rabboccare il lubrificante, non mescolare oli a base sintetica con oli a base minerale.

### Movimentazione

In caso di sollevamenti con paranco, utilizzare posizioni di aggancio sulla struttura della carcassa, golfari ove esistenti, fori dei piedi o sulle flange, evitando tutte le parti mobili.

### Verniciatura

Qualora il gruppo subisca una verniciatura successiva, è necessario proteggere accuratamente gli anelli di tenuta, i piani di accoppiamento e gli alberi sporgenti.

### Conservazione prolungata a magazzino

Per permanenze maggiori di tre mesi, è consigliata l'applicazione di antiossidanti su alberi esterni e piani lavorati, e di grasso protettivo sui labbri dei paraolio.

### Gestione Ambientale del prodotto

In conformità alla Certificazione Ambientale ISO 14001, sono suggerite le seguenti indicazioni per lo smaltimento del nostro prodotto:

- i componenti del gruppo che vengono rottamati debbono essere consegnati a centri di raccolta autorizzati per i materiali metallici;
- gli oli ed i lubrificanti raccolti dal gruppo devono essere smaltiti consegnandoli ai Consorzi Oli esauriti;
- gli imballi a corredo dei gruppi (pallet, cartone, carta, plastica, ecc.) vanno avviati per quanto più possibile al recupero/riciclo, consegnandoli a ditte autorizzate per le singole classi di rifiuto.

## Abstract of OPERATION AND MAINTENANCE INSTRUCTIONS

(complete manual on [www.varvel.com](http://www.varvel.com))

Under the terms of the Machine Directive 2006/42/EC and relevant Guidelines, the speed gearboxes and variators are considered as "machines' separate elements not having a specific application and meant for being incorporated onto the machine. The complete machine and equipped with such components must comply with the essential and relevant requisites for safety and health preservation" of the mentioned Directive.

### Installation

Check if the unit to be installed, is properly selected to perform the required function and that its mounting position complies with the order. The nameplate reports such information. Check mounting stability to ensure the unit runs without vibrations or overloads.

### Running

The unit may be connected for clockwise or counter-clockwise rotation.

The unit must be stopped as soon as defective running or unexpected noise occur, remove the faulty part or return the unit to the factory for checking.

If the faulty part is not replaced, other parts can also be affected, causing more severe damage and making the identification of initial cause more difficult.

### Maintenance

Although the units are no-load run tested in the factory before despatch, it is recommended not to run them at maximum load for the first 20-30 running hours to allow the proper running in.

The gearboxes are delivered already filled with long-life synthetic oil and, in case of replacement or topping, do not mix with mineral lubricants.

### Handling

When hoisting, use relevant housing locations or eyebolts if provided, or foot or flange holes. Never hoist on any moving part.

### Painting

Carefully protect oil seals, coupling faces and shafts when units are re-painted.

### Long-term storage

For storages longer than three months, apply anti-oxidants onto shafts and machined surfaces, and protective grease on oil seal lips.

### Product's Environmental Management

In conformity with Environmental Certification ISO 14001, we recommend the following to dispose of our products:

- scraped components of the units to be delivered to authorized centres for metal object collection;
- oils and lubricants drained from the units to be delivered to Exhausted Oil Unions;
- packages (pallets, carton boxes, paper, plastic, etc.) to lead into regeneration/recycling circuits as far as possible, by delivering separate waste classes to authorized companies.

## Zusammenfassung der BETRIEBS- u. WARTUNGSANWEISUNGEN

(vollständiges Handbuch auf [www.varvel.com](http://www.varvel.com))

Gemäß der Maschinenrichtlinie 2006/42/EC und der zugehörigen Richtlinie gelten Getriebe und Verstellgetriebe als "separate Elemente von Maschinen, die keine spezifische Anwendung haben und die in der Maschine eingebaut werden sollen. Die gesamte Maschine, die mit diesen Komponenten ausgerüstet ist, muss den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der vorgenannten Richtlinie entsprechen.

### Aufstellung

Vor der Aufstellung ist zu prüfen, dass die Antriebseinheit in Bezug auf die Betriebsbedingungen richtig ausgewählt wurde und die Einbaulage mit der Bestellung übereinstimmt. Angaben hierüber sind auf dem Typenschild zu finden. Die Stützkonstruktion für die Getriebe ist so stabil auszuführen, dass keine Schwingungen oder Überlastungen auftreten, eventuell sind elastische Kupplungen oder Drehmomentbegrenzer zu verwenden.

### Inbetriebnahme

Die Antriebseinheit kann in beiden Drehrichtungen eingesetzt werden. Die Einheit muss sofort angehalten werden, wenn ein unzulässiger Lauf oder unerwartete Geräusche auftreten.

Das fehlerhafte Teil ist zu ersetzen oder die Einheit ist zur Überprüfung einzuschicken. Falls das fehlerhafte Teil nicht ersetzt wird, kann dies zu weiteren Schäden an anderen Bauteilen führen, was eine Feststellung der Ursachen sehr schwierig machen kann.

### Wartung

Obwohl die Einheiten vor der Auslieferung im Leerlauf getestet wurden, ist es ratsam sie in den ersten 20-30 Stunden nicht mit Volllast zu betreiben, um ein einwandfreies Einlaufen zu gewährleisten. Die Einheiten werden entsprechend den Angaben auf dem Typenschild mit synthetischem Schmierstoff Lebensdauer geschmiert ausgeliefert. Bei einem eventuellen Ölwechsel oder Nachfüllen darf der Schmierstoff nicht mit Mineralöl vermischt werden.

### Handhabung und Transport

Beim Heben und Transport ist auf standsichere Lage und sorgfältige Befestigung geeigneter Hebe Vorrichtungen zu achten. Bewegliche Teile dürfen nicht zum Anheben benutzt werden.

### Anstrich

Beim Erneuern oder dem zusätzlichen Aufbringen eines Anstriches sind die Dichtungen, Kupplungssitze und Wellen sorgfältig zu schützen.

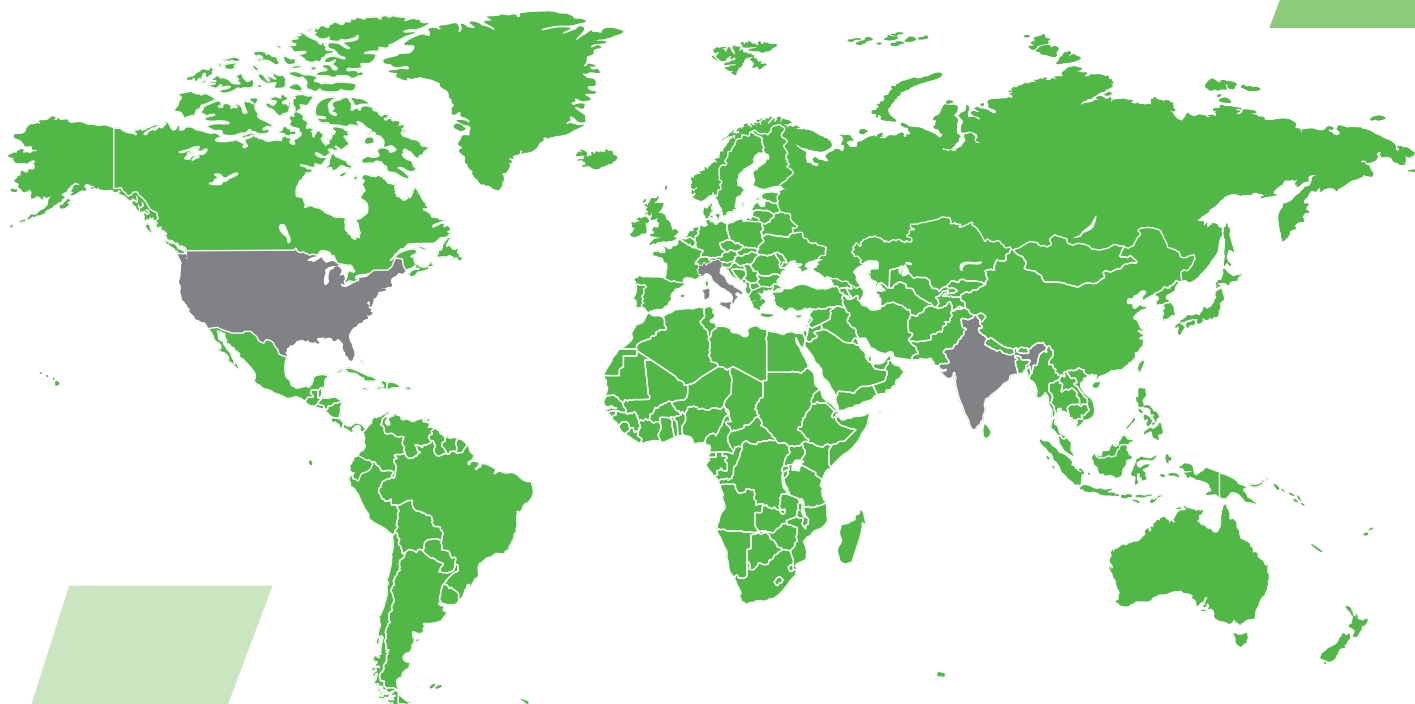
### Langzeitlagerung

Die Einlagerung der Einheiten muss trocken und staubfrei erfolgen. Bei einer Einlagerungszeit über 3 Monate sind bearbeitete Flächen und Wellen mit Rostschutzmitteln zu besprühen. Dichtlippen sind mit Fett zu schützen.

### Entsorgung

In Übereinstimmung mit ISO 14001 weisen wir darauf hin, im Falle des Verschrottens die einzelnen Metallteile getrennt zu behandeln und Schmiermittel bei den befugten Stellen zu entsorgen.

Verpackungen sollten soweit wie möglich wieder verwendet werden.



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