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Catalogue
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Sati è una realtà importante nella produzione e distribuzione di prodotti per la trasmissione di potenza ad uso industriale. Fondata nel 1974, Sati è diventata leader nel settore coniugando l'esperienza all'innovazione. Quello che rende unica Sati sono il servizio e la capacità di risposta al cliente.

L'ampia gamma di prodotti, la velocità e la puntualità nella consegna sono i nostri punti di forza. Un magazzino organizzato con le più moderne tecnologie gestionali, personale altamente qualificato e multilingue e un sistema di consegna in tempo reale sono i motivi che spingono sempre più clienti a scegliere Sati.

Sati è fuori standard non solo per il servizio d'eccellenza offerto, ma anche per la sua produzione di articoli speciali a disegno. Il nostro personale qualificato esegue accurati studi di fattibilità, seleziona i migliori produttori sul mercato italiano o asiatico ed esegue rigorosi controlli qualitativi sui componenti ricevuti. Procedure collaudate per prodotti sempre diversi: per Sati anche lo speciale è ordinaria amministrazione! La vasta gamma di articoli a catalogo rispetta normative e misure internazionali; i processi interni sono tutti rispondenti all'UNI EN ISO 9001.

In un mondo che corre Sati riesce a essere competitiva e rendere competitivi i propri clienti, perché noi il prodotto lo consegniamo subito, con puntualità, in qualsiasi quantità e in qualsiasi parte del mondo. Il magazzino di SATI, con i suoi 5000 metri quadri di superficie, è il centro strategico dell'azienda. Il nostro sistema informatizzato è uno strumento fondamentale per gestire più di 10.000 articoli in giacenza e 20.000 spedizioni annuali. Inoltre grazie a Diogene, un sistema di E-Business avanzato, il rapporto con la nostra clientela è sempre più stretto. Inviare ordini, verificare se la spedizione è già stata eseguita, ristampare le fatture: con Diogene il cliente può controllare in tempo reale lo stato dei suoi acquisti.

**Tutto ciò che vi serve, ovunque. Con rapidità e puntualità.**

*Sati is a major player in the production and distribution of power transmission products for industrial use. Founded in 1974, Sati has grown up to the rank of leading company in its sector combining experience with innovation. What makes Sati unique are the excellence in service and the uncompromising dedication to customer's needs.*

*Our strength is represented by a wide range of products as well as fast and timely deliveries. In addition to this, a warehouse equipped with the most advanced management technologies, highly qualified multilingual staff and real-time delivery of orders are further reasons why more and more customers decide to give their preference to Sati.*

*Sati is out-of-standard not only for the excellence of its service, but also for the engineering of special design items. Our highly qualified team, through deeply detailed feasibility study, scouts and selects the top manufacturers on the Italian or on the Asian markets and performs strict quality controls on all components. Well tested procedures for the largest product diversification: for Sati, extraordinary is ordinary! Our vast range of off-the-shelf articles respects all the international standards and regulations; internal processes all comply with UNI EN ISO 9001.*

*In a world that runs so fast, Sati succeeds in being competitive, and in making its customers competitive, too, because we deliver products immediately, timely, in whatever amount and everywhere in the world. Sati's warehouse, with its 5000 square metres, is the strategical centre of the company. Our computerized system is a key tool to handle over 10.000 articles in stock and 20.000 shipments per year. Besides, Diogene, a leading-edge E-Business tool, allows us to come closer to our customers, who can enter orders, verify their shipments' progress, reprint their invoices: Diogene enables our customers to have real-time control on the status of their purchases.*

***All you need, everywhere. Fast and timely.***

Sati
Brain Power

# RIDUTTORI A VITE SENZA FINE / *WORM GEARBOXES*


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## Presentazione della gamma SATI di riduttori a vite senza fine/ *SATI worm gearbox range*

SATI ha il piacere di presentare la sua nuova gamma di riduttori a vite senza fine, che entra a far parte, della vasta gamma di prodotti per la trasmissione del moto.

**I riduttori a vite senza fine SATI** sono disponibili nelle seguenti versioni:

- riduttori a vite senza fine semplici, costituiti da un singolo stadio di riduzione tramite coppia vite senza fine/corona elicoidale, con **rapporti di riduzione compresi fra 7,5/1 e 100/1.**

La gamma di riduttori a vite senza fine semplici consta di **10 grandezze che vanno dalla 25 fino alla 150.**

- riduttori a vite senza fine con **precoppia**, ovvero provvisti di un ulteriore stadio di riduzione ad ingranaggi elicoidali, un prestadio, situato a monte del riduttore.

Le grandezze dello stadio di precoppia sono 4 (**63-71-80 e 90**), che possono essere accoppiate a più grandezze di riduttori, come riportato nelle tabelle che seguono.

I rapporti di riduzione dei riduttori con precoppia vanno da **73,5/1 fino a 400/1.**

-riduttori **combinati** a vite senza fine, costituiti da due riduttori accoppiati in cascata fra di loro, ovvero disposti in serie l'uno dopo l'altro, in modo tale che il rapporto di riduzione totale del combinato sia pari al prodotto dei rapporti dei due stadi singoli accoppiati.

I rapporti di riduzione dei combinati vanno **da 100/1 fino a 5000/1.**

A complemento dei riduttori SATI propone ai suoi clienti anche i **motori elettrici asincroni trifase**, a singola velocità, nelle versioni a 2, 4 e 6 poli, in forma flangiata B5 o B14 dalla grandezza IEC 56 fino alla grandezza IEC 160, per accoppiamento diretto ai riduttori o, in alternativa , in forma con piedi B3.

Tutti i riduttori singoli e combinati sono disponibili tanto con entrata PAM, ovvero predisposta per accoppiamento diretto del motore elettrico, quanto con entrata albero maschio sporgente per accoppiamento ad una trasmissione in entrata.

La designazione dei prodotti, come apparirà chiaramente anche nelle tabelle che seguono, è la seguente:

- **VP** riduttore singolo con predisposizione **PAM**
- **VI** riduttore singolo con **entrata albero maschio**
- **VC** riduttore **combinato** con predisposizione **PAM**
- **VS** riduttore **combinato** con **entrata albero maschio**
- **VR** riduttori a vite senza fine con **precoppia** fornito nella sola versione con predisposizione **PAM**

La ragione per la quale i riduttori con precoppia sono forniti esclusivamente in versione PAM è che lo stadio di precoppia funge a tutti gli effetti pratici da stadio di riduzione in entrata, alla stessa stregua delle trasmissioni meccaniche, per cui l'eventuale impiego di una trasmissione in entrata risulta superfluo.

*SATI is pleased to introduce its new range of worm gearboxes, which joins its wide range of power transmission products.*

***SATI worm gearboxes** are available in the following versions:*

*- single worm gearboxes, consisting of a single reduction stage through a worm/helical wormwheel pair, with **reduction ratios between 7.5/1 and 100/1.***

*The range of single worm gearboxes consists of **10 sizes, ranging from 25 to 150.***

*- helical worm gearboxes, which have an additional reduction stage with helical gears, a pre-stage, located upstream of the gearbox.*

*The pre-stage consists of 4 sizes (**63-71-80 and 90**), which can be fitted with a certain number of gearbox sizes, as stated in the following tables.*

*The reduction ratios of the helical worm gearboxes range from **73.5/1 to 400/1.***

*- **combination** worm gearboxes, consisting of two gearboxes fitted in cascade one after the other, that is to say arranged in series one after the other, in such a way that the total reduction ratio of the combination unit is equal to the product of the individual ratios of the two mutually connected single stages.*

*The reduction ratios of the combination gearboxes range **from 100/1 to 5000/1.***

*In addition to its gearboxes, SATI offers its customers a range of **three-phase asynchronous single-speed electric motors**, in versions with 2, 4 and 6 poles, in B5 or B14 flanged version, size IEC 56 up to size IEC 160, for direct connection to the gearboxes or, alternatively, the foot-mounting B3 version.*

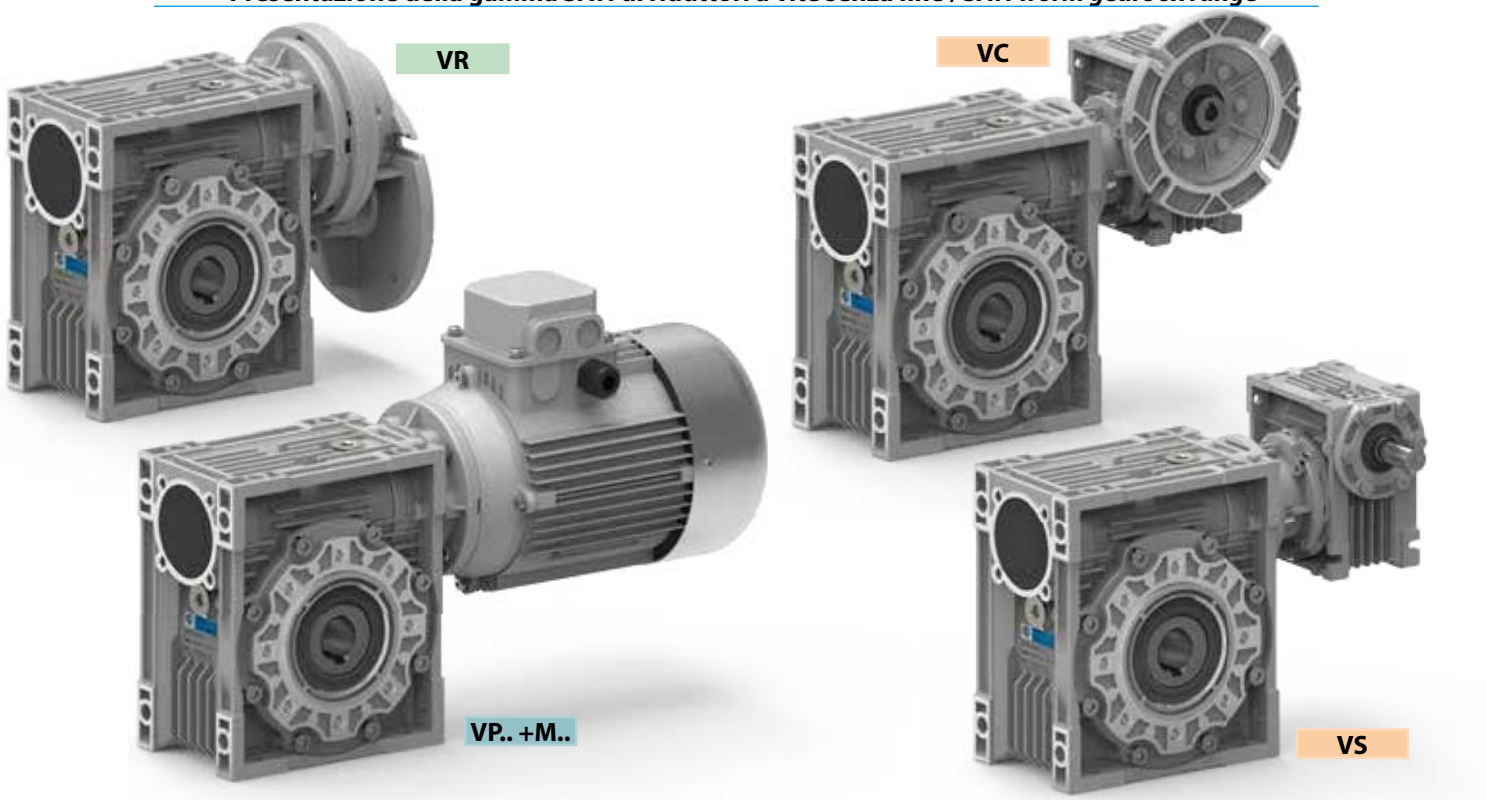
*All single and combination gearboxes are available both with PAM input, in other words ready for direct connection to the electric motor, and with the extended solid input shaft for connection to an input transmission.*

*Product designation, as is also clearly shown in the tables below, is as follows:*

- ***VP** single gearbox, with **PAM pre-arrangement***
- ***VI** single gearbox with **solid input shaft***
- ***VC** combination gearbox, with **PAM** pre-arrangement*
- ***VS combination** gearbox with solid input shaft*
- ***VR helical worm gearboxes** supplied only in the **PAM** version*

*The reason why the helical worm gearboxes are supplied only in the PAM version is that the pre-stage acts, to all practical effects, as an input reduction stage, in the same way as a mechanical transmission, so that the usage of an input transmission is meaningless.*

## Presentazione della gamma SATI di riduttori a vite senza fine / *SATI worm gearbox range*




Gli **alberi uscita standard**, chiamati anche alberi lenti o a bassa velocità, sono cavi.
Come accessori, sono fornibili alberi uscita maschi semplici e doppi, oltreché il **braccio di reazione** per montaggio pendolare.

Le carcasse dei riduttori della gamma a vite senza fine hanno forma quadra, consentendo una notevole flessibilità di installazione.
I piedi sono incorporati alla carcassa ed i riduttori sono idonei per montaggio su pavimento, soffitto e pareti laterali.
La versatilità e flessibilità del montaggio è uno dei reali punti di forza di questa gamma.
Come opzioni, SATI offre anche una vasta gamma di **flange in uscita**, che possono essere montate sul lato destro o sinistro dell'uscita riduttore.
Nelle pagine di catalogo dedicate ad ogni singola grandezza, è possibile prendere visione del numero e delle dimensioni delle flange uscita disponibili.

I due stadi dei riduttori combinati sono accoppiati fra di loro mediante flangia di combinazione ed albero di combinazione, il che rende particolarmente agevole e flessibile l'accoppiamento.

**MATERIALI E PROPRIETA'**

La carcassa dei riduttori dalla grandezza 25 fino alla grandezza 90 è costruita in **alluminio** da pressofusione.
La carcassa dei riduttori dalla grandezza 110 alla grandezza 150 è costruita in **ghisa** grigia.
Tutte le viti senza fine sono in acciaio legato da cementazione ad alta resistenza e sono cementate, temprate e sottoposte a rinvenimento di distensione.
Le corone elicoidali sono in **bronzo** ad alta resistenza all'usura.
Gli alberi lenti cavi sono in ghisa grigia.

**PUNTI DI FORZA DELLA GAMMA SATI**

I riduttori a vite senza fine sono i tipi di riduttore più versatili e flessibili e si prestano ad una vastissima gamma di possibili applicazioni.
I riduttori della gamma SATI hanno il grande vantaggio di essere facili da installare e disinstallare, nei quali le esigenze di manutenzione sono veramente ridotte al minimo.
Efficienti e robusti, si adattano ad ogni condizione di impiego che rientri nelle relative specifiche di funzionamento.

*The **standard output shafts**, also called low speed shafts, are hollow.*
*Single and double solid output shafts can be supplied as accessories, as well as the **torque arm** for shaft-mounting.*

*The housings of the worm gearboxes have a square shape, permitting high installation flexibility.*
*The feet are incorporated into the housing and the gearboxes are ideal for mounting on the floor, ceiling and side walls.*
*Assembly versatility and flexibility is one of the actual strong points of this range.*
*As options, SATI can also offer a **wide range of output flanges**, which can be fitted on the right or left side of the gearbox output.*
*You can look at the number and size of the available output flanges for each size on the pages in the catalogue devoted to each size.*

*The combination gearboxes are mutually fitted by means of a combination flange and a combination shaft, which makes fitting particularly easy and flexible.*

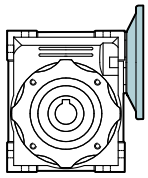
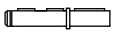
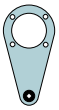
***MATERIALS AND PROPERTIES***

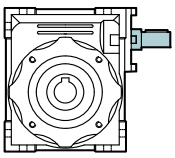
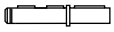
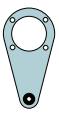
*The housing of the gearboxes from size 25 up to size 90 is made of pressure die **casting aluminium.***
*The housing of the gearboxes from size 110 up to size 150 is made of **grey cast iron.***
*All worms are made of high strength, case-hardening alloy steel and are case-hardened, hardened and subjected to stress relieving.*
*The helical wormwheels are made of high wear resistant **bronze.***
*The hollow output shafts are made of grey cast iron.*

***STRONG POINTS OF THE SATI RANGE***

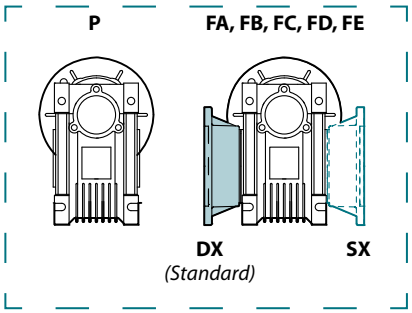
*The worm gearboxes are the most versatile and flexible types of gearboxes and prove to be ideal for a wide range of possible applications.*
*The gearboxes in the SATI range have the great advantage of being easy to install and uninstall, where maintenance needs are really minimal.*
*Strong and efficient, they adapt to all conditions of use within their operating specifications.*

## Designazione / *Designation*

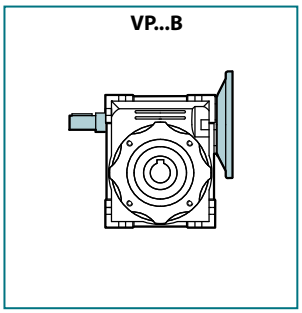
| RIDUTTORE A VITE SENZA FINE QUADRO FLANGIATO / *WORM GEARBOXES WITH FLANGE* | | | | | | | | | ACCESSORI / *ACCESSORIES* | |
|---|---|---|---|---|---|---|---|---|---|---|
| Riduttore *Gearbox* | Grandezza *Size* | Versione riduttore *Gearbox Version* | Posizione flangia uscita *Position Output flange* | Rapporto rid. = i *Ratio = i* | Predispos. attacco motore *Motor coupling* | Forma costruttiva *Version* | Posizione di mont. *Mounting position* | Seconda entrata *Additional input* | Albero uscita *Output shaft* | Braccio di reazione *Torque arm* |
| **VP** | **040** | **P** | **-** | **R10** | **63** | **B5** | **U** | **-** | **AD** | **BR** |
|  | 025<br>030<br>040<br>050<br>063<br>075<br>090<br>110<br>130<br>150 | P<br>FA<br>FB<br>FC<br>FD<br>FE<br>p.60 | -<br>DX<br>SX | R7.5<br>R10<br>R15<br>R20<br>R25<br>R30<br>R40<br>R50<br>R60<br>R80<br>R100 | 56<br>63<br>71<br>80<br>90<br>100<br>112<br>132 | B5<br>B14 | U*<br>B3<br>B6<br>B7<br>B8<br>V5<br>V6<br>p.8 | -<br>B | AS<br>  <br>AD<br> <br>p.93 | BR<br>  <br>p.93 |

| RIDUTTORE A VITE SENZA FINE QUADRO / *WORM GEARBOXES* | | | | | | | ACCESSORI / *ACCESSORIES* | |
|---|---|---|---|---|---|---|---|---|
| Riduttore *Gearbox* | Grandezza *Size* | Versione riduttore *Gearbox Version* | Posizione flangia uscita *Position Output flange* | Rapporto rid. = i *Ratio = i* | Posizione di mont. *Mounting position* | Seconda entrata *Additional input* | Albero uscita *Output shaft* | Braccio di reazione *Torque arm* |
| **VI** | **040** | **P** | **-** | **R10** | **U** | **-** | **AD** | **BR** |
|  | 030<br>040<br>050<br>063<br>075<br>090<br>110<br>130<br>150 | P<br>FA<br>FB<br>FC<br>FD<br>FE<br>p.60 | -<br>DX<br>SX | R7.5<br>R10<br>R15<br>R20<br>R25<br>R30<br>R40<br>R50<br>R60<br>R80<br>R100 | U*<br>B3<br>B6<br>B7<br>B8<br>V5<br>V6<br>p.8 | -<br>B | AS<br>  <br>AD<br> <br>p.93 | BR<br>  <br>p.93 |

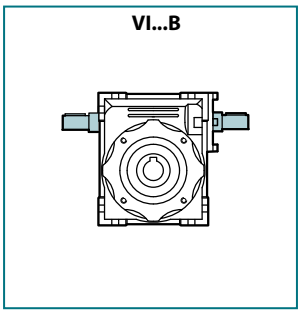
Versione riduttore / *Gearbox version*




Seconda entrata / *Additional input*



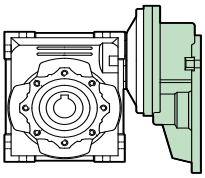
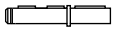
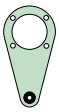

Seconda entrata / *Additional input*



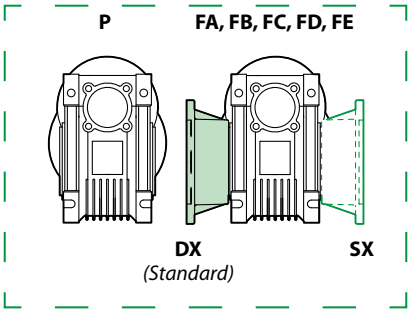

* Dalla gr. 25 alla 63, i riduttori sono forniti in posizione U = Universale

** From size 25 to 63, the gearboxes are supplied in position U = Universal*

## Designazione / *Designation*

| RIDUTTORE A VITE SENZA FINE CON PRECOPPIA / *HELICAL WORM GEARBOXES* | | | | | | | | | ACCESSORI / *ACCESSORIES* | |
|---|---|---|---|---|---|---|---|---|---|---|
| Riduttore *Gearbox* | Grandezza precoppia *Size pre-stage* | Grandezza riduttore *Size gearboxe* | Versione riduttore *Gearbox Version* | Posizione flangia uscita *Position Output flange* | Rapporto rid. = i *Ratio = i* | Predispos. attacco motore *Motor coupling* | Forma costruttiva *Version* | Posizione di montaggio *Mounting position* | Albero uscita *Output shaft* | Braccio di reazione *Torque arm* |
| **VR** | **063/ 040** | | **P** | **-** | **R73.5** | **63** | **B5** | **U** | **AD** | **BR** |
|  | **063/040**<br>**063/050**<br>**071/050**<br>**071/063**<br>**071/075**<br>**080/075**<br>**080/090**<br>**080/110**<br>**090/090**<br>**090/110**<br>**090/130** | | **P**<br>**FA**<br>**FB**<br>**FC**<br>**FD**<br>**FE** | **-**<br>**DX**<br>**SX** | **R61.2**<br>**R73.5**<br>**R75**<br>**R88.2**<br>**R90**<br>**R98**<br>**R117.5**<br>**R120**<br>**R122.5**<br>**R147**<br>**R150**<br>**R176.4**<br>**R180**<br>**R235.2**<br>**R240**<br>**R294**<br>**R300**<br>(1)<br>p.20 | **63**<br>**71**<br>**80**<br>**90** | **B5** | **U***<br>**B3**<br>**B6**<br>**B7**<br>**B8**<br>**V5**<br>**V6**<br>p.8 | **AS**<br>  <br>**AD**<br> <br>p.93 | **BR**<br>  <br>p.93 |

Versione riduttore / *Gearbox version*




(1) Rapporti di riduzione reali del kit precoppia, consultare tab. p.20

* Dalla gr. 25 alla 63, i riduttori sono forniti in posizione U = Universale

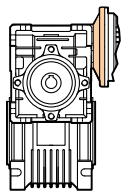
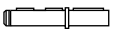
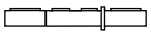
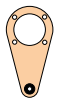
*(1) Actual reduction ratios, see table p.20*

** From size 25 to 63, the gearboxes are supplied in position U = Universal*

## Designazione / *Designation*

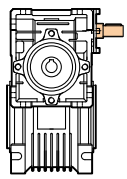
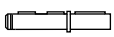
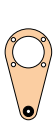
### RIDUTTORE COMBINATI A VITE SENZA FINE / COMBINATION *WORM GEARBOXES*

### ACCESSORI / *ACCESSORIES*

| Riduttore *Gearbox* | Grandezza riduttore entrata *Size input gearbox* | Grandezza riduttore uscita *Size output gearbox* | Versione riduttore *Gearbox Version* | Posizione flangia uscita *Position Output flange* | Rapporto rid. = i *Ratio = i* | Predispos. attacco motore *Motor coupling* | Forma costruttiva *Version* | Esecuzione *Version* | Posizione di montaggio *Mounting position* | Albero uscita *Output shaft* | Braccio di reazione *Torque arm* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VC** | **030/040** | | **P** | **-** | **R5000** | **63** | **B5** | **ADO** | **U** | **AD** | **BR** |
|  | 025/030<br>025/040<br>030/040<br>030/050<br>030/063<br>040/075<br>040/090<br>050/110<br>063/130<br>063/150 | | P<br>FA<br>FB<br>FC<br>FD<br>FE | -<br>DX<br>SX | R100<br>R150<br>R200<br>R250<br>R300<br>R400<br>R500<br>R600<br>R750<br>R900<br>R1200<br>R1500<br>R1800<br>R2400<br>R3000<br>R4000<br>R4800<br>R5000 | 56<br>63<br>71<br>80<br>90<br>100<br>112<br>132 | B5<br>B14 | ADO<br>BDO<br>ADV<br>BDV<br>ASO<br>BSO<br>ASV<br>BSV<br>p.9 | U*<br>B3<br>B6<br>B7<br>B8<br>V5<br>V6<br>(1)<br>p.8 | AS<br>  <br>AD<br>  <br>p.93 | BR<br>  <br>p.93 |

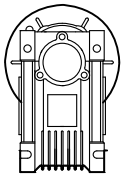
### RIDUTTORE COMBINATI A VITE SENZA FINE / COMBINATION *WORM GEARBOXES*

### ACCESSORI / *ACCESSORIES*

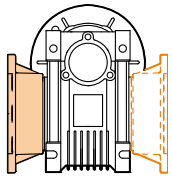
| Riduttore *Gearbox* | Grandezza riduttore entrata *Size input gearbox* | Grandezza riduttore uscita *Size output gearbox* | Versione riduttore *Gearbox Version* | Posizione flangia uscita *Position Output flange* | Rapporto rid. = i *Ratio = i* | Esecuzione *Version* | Posizione di montaggio *Mounting position* | Albero uscita *Output shaft* | Braccio di reazione *Torque arm* |
|---|---|---|---|---|---|---|---|---|---|
| **VS** | **030/040** | | **P** | **-** | **R5000** | **ADO** | **U** | **AD** | **BR** |
|  | 030/040<br>030/050<br>030/063<br>040/075<br>040/090<br>050/110<br>063/130<br>063/150 | | P<br>FA<br>FB<br>FC<br>FD<br>FE | -<br>DX<br>SX | R100<br>R150<br>R200<br>R250<br>R300<br>R400<br>R500<br>R600<br>R750<br>R900<br>R1200<br>R1500<br>R1800<br>R2400<br>R3000<br>R4000<br>R4800<br>R5000 | ADO<br>BDO<br>ADV<br>BDV<br>ASO<br>BSO<br>ASV<br>BSV<br>p.9 | U*<br>B3<br>B6<br>B7<br>B8<br>V5<br>V6<br>(1)<br>p.8 | AS<br>  <br>AD<br> <br>p.93 | BR<br>  <br>p.93 |

Versione riduttore / *Gearbox version*

**P**



**FA, FB, FC, FD, FE**



**DX** *(Standard)*

**SX**

(1) Posizione di montaggio riferita al riduttore uscita

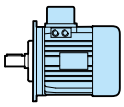
* Dalla gr. 25 alla 63, i riduttori sono forniti in posizione U = Universale

*(1) Mounting position refers to output gearbox*

** From size 25 to 63, the gearboxes are supplied in position U = Universal*

## Designazione / *Designation*

### MOTORE / *MOTOR*

| Motore *Motor* | Classe energetica * *Energy class* * | Grandezza *Size* | Potenza kW *Power kW* | Numero di poli *Number of poles* | Forma costruttiva *Version* |
|---|---|---|---|---|---|
| **M** | **1** | **63** | **0.25** | **4P** | **B5** |
|  p.99 | **1**<br>**2**<br>**3** | **56**<br>**63**<br>**71**<br>**80**<br>**90**<br>**100**<br>**112**<br>**132**<br>**160** | **0.06**<br>**0.09**<br>**0.12**<br>**0.18**<br>**0.25**<br>**0.37**<br>**0.55**<br>**0.75**<br>**1.1**<br>**1.5**<br>**2.2**<br>**3**<br>**4**<br>**5.5**<br>**7.5**<br>**11**<br>**15** | **2P**<br>**4P**<br>**6P** | **B3**<br>**B5**<br>**B14** |

*

I motori rispettano la normativa IEC 60034-30:2008 in riferimento alle "Classi di rendimento dei motori asincroni trifase a gabbia ad una velocità (codice IE)".

Tale norma prevede l'introduzione delle seguenti classi energetiche:
**- IE1 fino a 0.55 kW (codice 1 in designazione SATI)**
**- IE2 da 0.75 kW a 5.5 kW (codice 2 in designazione SATI)**
**- IE3 da 7.5 kW a 15 kW (codice 3 in designazione SATI)**

sono esclusi i motori autofrenanti, i motori realizzati in ambiente esplosivi e quelli realizzati per servizio intermittente (S3).

*

*Motors comply with IEC 60034-30:2008 regulation, with reference to "Efficiency classes of single speed, asynchronous three-phase cage motors (IE code)".*

*This standard introduces the following energy classes:*
***- IE1 up to 0.55 kW (code 1 in SATI designation)***
***- IE2 from 0.75 kW to 5.5 kW (code 2 in SATI designation)***
***- IE3 over 7.5 kW (code 3 in SATI designation)***

*This excludes brake motors, explosion-proof motors and motors conceived for intermittent duty cycle (S3).*

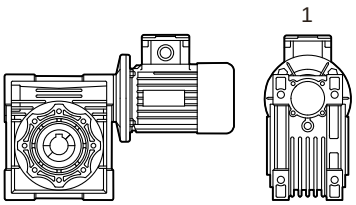
### VP 040 ... + M 1 63 ...

La designazione dei motoriduttori si ottiene sommando il codice riduttore al codice motore.
Per maggiori informazioni contattare il nostro l'ufficio tecnico.

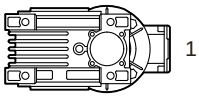
*The designation of gearmotors is obtained by summing the gear code with the motor code.*
*For further information please contact our Technical Office.*

## Posizioni di montaggio e quantità olio / *Mounting positions and quantity of oil*

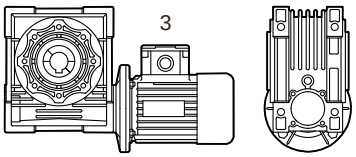
### VP / VI



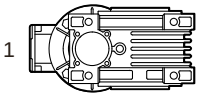

B3



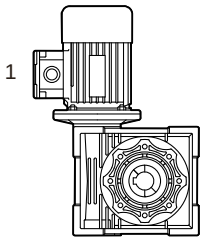

B6



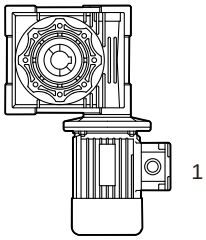

B8




B7




V5

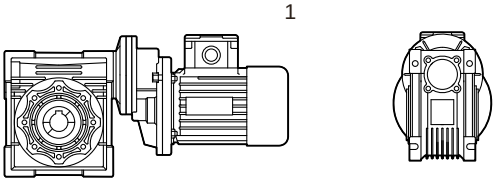



V6

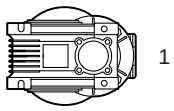
| VP / VI | 025 | 030 | 040 | 050 | 063 | 075 | 090 | 110 | 130 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|
| B3 | 0.02 | 0.04 | 0.08 | 0.15 | 0.3 | 0.55 | 1 | 3 | 4.5 | 7 |
| B8 | | | | | | | | 2.2 | 3.3 | 5.1 |
| B6 - B7 | | | | | | | | 2.5 | 3.5 | 5.4 |
| V5 | | | | | | | | 3 | 4.5 | 7 |
| V6 | | | | | | | | 2.2 | 3.3 | 5.1 |

Q.tà olio in litri
*Oil quantity in liters*

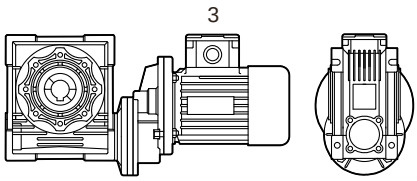
### VR



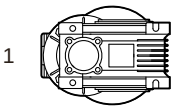

B3



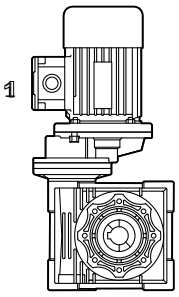

B6



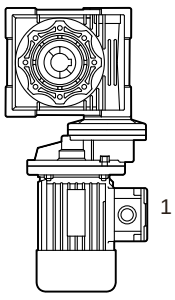

B8




B7




V5



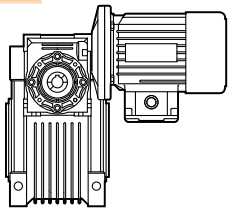

V6

| VR | 063 | 071 | 080 | 090 |
|---|---|---|---|---|
| | 0.05 | 0.07 | 0.15 | 0.15 |

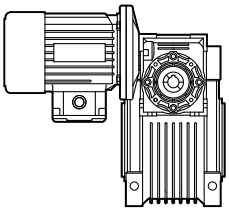
Q.tà olio in litri
*Oil quantity in litres*

## Esecuzione / *Versions*

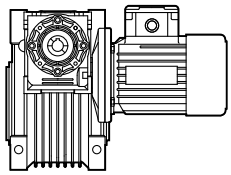
**VC / VS**



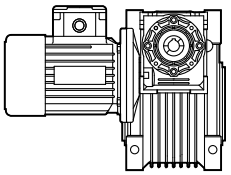
ADO



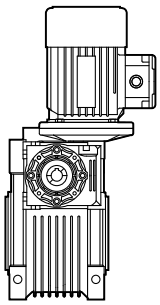
ASO



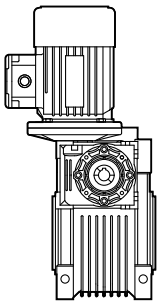
BDO



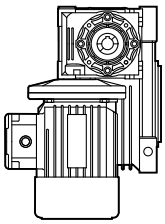
BSO



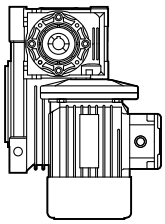
ADV



ASV



BSV



BDV

Nel caso dei riduttori combinati sono importanti tanto l'esecuzione quanto la posizione di montaggio.
L'esecuzione rappresenta la posizione reciproca che i due riduttori hanno uno rispetto all'altro.
Nelle immagini che definiscono le varie forme di esecuzione, il riduttore è sempre rappresentato in posizione di montaggio B3.
Per quel che riguarda invece la posizione di montaggio, essa fa esplicito riferimento al secondo riduttore, quello situato a valle.
Le varie posizioni di montaggio (indicate con le sigle B3, V5 ecc..) si riferiscono a detto riduttore e sono conformi a quanto indicato nelle tabelle delle posizioni di montaggio dei riduttori singoli.

*In the specific case of combined worm gearboxes, both the version and the mounting position have a great importance.*
*The version means the mutual position the two single worm gearboxes have in relation one with the other.*
*In the sketches that define the several possible versions, the combined unit is always shown in the mounting position B3.*
*On the other hand, as far as the mounting position is concerned, this one makes explicit reference to the second worm gearbox, the one located downstream.*
*The various mounting positions (indicated by the descriptions B3, V5 etc..) refer to said unit and wholly conform to what is stated in the tables of the mounting positions of the single worm gearboxes.*

## Lubrificazione / *Lubrification*

Tutti i riduttori SATI serie VP, VI, VR, VC e VS sono forniti completi di lubrificante.
Dalla grandezza 25 fino alla 90 i riduttori sono lubrificati con olio sintetico e non necessitano di manutenzione; per questa ragione sono definiti riduttori "lifetime".
Queste grandezze non richiedendo manutenzione e sono prive di tappi.
Dalla grandezza 110 alla 150 i riduttori sono lubrificati con olio minerale e vengono forniti completi di lubrificante nella quantità prevista in posizione di montaggio B3. In caso di posizione di montaggio diversa dalla B3, sarà compito del cliente adattare la quantità di olio alla posizione di montaggio (v. tab. precedenti). E' inoltre necessario al momento della messa in opera del riduttore, sostituire il tappo di carico, fornito chiuso per motivl di trasporto, con quello di sfiato fornito a corredo del riduttore stesso. La mancata installazione del tappo di sfiato può portare ad un malfunzionamento del riduttore e a possibili perdite di lubrificante.
Sarà inoltre cura del cliente installare i tappi di livello e di scarico nella corretta collocazione per la specifica posizione di montaggio adottata.
Per le grandezze dalla 110 alla 150, successivamente alla fase di rodaggio (circa 300 ore di funzionamento) si consiglia la sostituzione dell'olio.
Nelle tabelle precedenti sono riportate le quantità indicative di lubrificante contenute nei singoli riduttori in funzione delle posizioni di montaggio.
Nelle sostituzioni o nei rabbocchi, ricordarsi sempre di verificare che il lubrificante abbia raggiunto il livello corretto guardando nella spia trasparente del tappo di livello (il corretto livello è in mezzeria).

*All SATI VP, VI, VR, VC and VS series gearboxes are supplied complete with lubricant.*
*From size 25 to 90, the gearboxes are lubricated with synthetic oil and do not require any maintenance; for this reason, they are called lifetime gearboxes.*
*These maintenance-free sizes have no plugs.*
*From size 110 to 150, the gearboxes are lubricated with mineral oil and are supplied with the required oil amount for the mounting position B3. For mounting positions other than B3, it will be the responsibility of the customer to adjust the oil amount to the needs of the specific mounting position (see previous tab.). It is also necessary, at the time of installation of the gearbox, to replace the filler plug, supplied closed for reasons of transport, with the breather plug supplied with the gearbox itself. Failure to install the breather plug can lead to gearbox malfunctioning and possibly oil leakage.*

*It will also be necessary to remember to install the level and unloading plugs in the correct place for the specific mounting position.*
*For sizes from 110 to 150, after the running-in phase (approximately 300 hours of operation) we recommend changing the oil.*
*The above tables give the approximate amounts of lubricant contained in the single gearboxes according to the mounting positions.*
*When changing the oil or topping up, always remember to check that the lubricant reaches the correct level by looking through the window in the level plug (the correct level is in the centre).*

| **VP / VI** | **025 - 030 - 040 - 050 - 063 - 075 - 090** | **110 - 130 -150** |
|---|---|---|
| **Lubrificante / *Lubricant*** | **Olio sintetico / *Synthetic oil*** | **Olio minerale / *Mineral oil*** |
| **°C Ambiente / *Ambient*** | -25 ° / +50 °C | -5 ° / +40 °C |
| **ISO** | VG 320 | VG 220 |
| **SHELL** | TIVELA OIL S 320 | OMALA OIL 220 |
| **MOBIL** | SHC 632 | MOBILGEAR 630 |
| **BP** | ENERGOL SGXP320 | ENERGOL GRXP 220 |
| **CASTROL** | ALPHA SYNT PG320 | ALPHA MAX 220 |

## Controllo del livello e cambi dell'olio / *Level check and oil change*

Sono richiesti e necessari solamente per i riduttori lubrificati con olio minerale.
In linea di massima, si consiglia di provvedere al cambio dell'olio con la seguente frequenza;
- Temperatura operativa minore o uguale a 60 °C:
  servizio continuo: 5000 ore
  servizio intermittente: 8000 ore
- Temperatura operativa maggiore di 60 °C:
  servizio continuo: 2500 ore
  servizio intermittente: 5000 ore

Gli attuali riduttori non richiedono più come requisito indispensabile il cambio dell'olio dopo un periodo iniziale di rodaggio.

*These actions are needed only for gearboxes lubricated with mineral oil.*

*Generally, it is advisable to change the oil with the following frequency:*

- *Operating temperature below 60°C*
  *continuous service: 5000 hours*
  *intermittent service: 8000 hours*
- *Operating temperature above 60°C*
  *continuous service: 2500 hours*
  *intermittent service: 5000 hours*

*The current gearboxes no longer require an oil change as a prerequisite after an initial run-in period.*

## Simbologia / *Symbols*

| | | |
|---|---|---|
| $n_1$ | [$min^{-1}$] | Velocità in ingresso / *Input speed* |
| $n_2$ | [$min^{-1}$] | Velocità in uscita / *Output speed* |
| i | | Rapporto di riduzione / *Ratio* |
| $Mm_2$ | [Nm] | Coppia massima in uscita / Max *output torque* |
| $M_2$ | [Nm] | Coppia trasmessa / *Output torque* |
| $Mr_2$ | [Nm] | Coppia richiesta / Required *torque* |
| $Pm_1$ | [kW] | Potenza massima in entrata / *Max input power* |
| $Pm_2$ | [kW] | Potenza massima in uscita / *Max output power* |
| $Pn_1$ | [kW] | Potenza nominale in entrata / *Nominal input power* |
| Rd | | Rendimento dinamico / *Dynamic efficiency* |
| Rs | | Rendimento statico / *Static efficiency* |
| fs | | Fattore di servizio / *Service factor* |
| $Fr_1$ | [N] | Carico radiale ammissibile in entrata / *Permitted input radial load* |
| $Fa_1$ | [N] | Carico assiale ammissibile in entrata / *Permitted input axial load* |
| $Fr_2$ | [N] | Carico radiale ammissibile in uscita / *Permitted output radial load* |
| $Fa_2$ | [N] | Carico assiale ammissibile in uscita / *Permitted output axial load* |

## Introduzione / *Introduction*

La corretta selezione dei riduttori a vite senza fine avviene seguendo la successione degli argomenti esposti in questo catalogo. Di seguito vengono indicati i principali aspetti corredati delle relative indicazioni.

*To select the worm gearboxes correctly, please follow the sequence of topics covered in this catalogue. Here are the main aspects along with the relevant information.*

**$n_1$ ($min^{-1}$)**

## Velocità entrata / *Input speed*

Indica la velocità in entrata al riduttore vite senza fine.
Dipende dal tipo di motorizzazione prescelta.
Le velocità in ingresso si riferiscono all'impiego nei paesi in cui la frequenza della corrente alternata è 50 Hz.
Per valori di velocità diversi da quelli riportati in questo documento, contattare servizio tecnico Sati.

*This indicates the worm gearbox input speed.*
*It depends on the type of motor drive selected.*
*The input speeds relate to use in countries where the alternate current frequency is 50 Hz.*
*For speed values other than those stated in this document, please contact the Sati technical service.*

**i**

## Rapporto di riduzione / *Reduction ratio*

In generale, esso dipende dal numero di denti degli ingranaggi accoppiati.
Nel caso di riduttori a vite senza fine, però, il rapporto di riduzione si ottiene dividendo il numero di denti della corona elicoidale per il numero di filetti, o principi, della vite.
Viene definito dalla seguente relazione:

*Generally speaking, it depends on the number of teeth of the matching gears.*
*In the case of worm gearboxes, however, the reduction ratio is obtained by dividing the number of teeth of the helical wormwheel by the number of threads, or starts, of the worm.*
*It is defined by the following equation:*

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

## $n_2$ (min$^{-1}$) — Velocità in uscita / *Output speed*

Indica la velocità in uscita al riduttore vite senza fine.
Si ricava dalla relazione precedente:

*This indicates the worm gearbox output speed.*
*It is obtained from the previous equation:*

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

## $Mm_2$ (Nm) — Coppia massima in uscita / *Max output torque*

Indica la coppia in uscita massima trasmissibile dal riduttore considerando un funzionamento con servizio di carico continuo uniforme, corrispondente ad un fattore di servizio pari a 1, riferito ad un determinato valore di velocità $n_1$.
Tale valore corrisponde al valore di coppia trasmessa dalla versione riduttore (albero sporgente in ingresso) e può essere relazionato alla coppia trasmessa $M_2$ tramite la seguente formula:

*This indicates the maximum output torque that can be transmitted by the gearbox considering operation with a service of continuous uniform load, corresponding to a service factor of 1, relating to a specific speed value $n_1$.*

*This value corresponds to the torque transmitted by the gearbox version (extended solid input shaft) and may be related to the transmitted torque $M_2$ using the following formula:*

$$Mm_2 = M_2 \cdot fs$$

## $M_2$ (Nm) — Coppia trasmessa / *Output torque*

Indica la coppia in uscita trasmessa dal riduttore.
Dipende dalla velocità $n_1$, dalla potenza $P_1$ applicata in ingresso al riduttore (nel caso del motoriduttore $P_1 = Pn_1$) e dal rendimendo dinamico Rd.
Può essere ricavata dalla seguente relazione:

*This indicates the output torque transmitted by the gearbox.*
*It depends on the speed $n_1$, the power $P_1$ applied at the gearbox input (for gearmotor $P_1 = Pn_1$) and the dynamic efficiency Rd.*
*It can be obtained from the following equation:*

$$M_2 = \frac{9550 \cdot P_1 \cdot Rd}{n_2}$$

## Mr2 (Nm) — Coppia richiesta / *Required torque*

Indica la coppia richiesta dall'applicazione in uscita al riduttore.
E' un valore che deve essere calcolato in funzione dei dati dell'applicazione o che comunque l'utilizzatore del riduttore deve conoscere.

*This indicates the torque required by the application at the gearbox output.*
*It is a value to be calculated as a function of the application data or data that the gearbox user must know.*

## $Pm_1$ (kW) — Potenza massima in entrata / *Max input power*

Indica la massima potenza applicabile in ingresso al riduttore considerando un funzionamento con servizio di carico continuo uniforme, corrispondente ad un fattore di servizio pari a 1, riferito ad un determinato valore di velocità n1.
Tale valore corrisponde al valore massimo di potenza applicabile in ingresso nella versione riduttore (albero sporgente in ingresso).

*This indicates the maximum applicable gearbox input power considering operation with a service of continuous uniform load, corresponding to a service factor of 1, relating to a specific speed value n1.*

*This value corresponds to the maximum applicable input power value in the gearbox version (extended solid input shaft).*

## $Pm_2$ (kW) — Potenza massima in uscita / *Max output power*

Indica la massima potenza trasmessa in uscita al riduttore.
Si ricava dalle relazioni seguenti:

*This indicates the maximum transmitted gearbox output power.*
*It is obtained from the following equations:*

$$Pm_2 = \frac{Mm_2 \cdot n_2}{9550}$$

$$Pm_2 = Pm_1 \cdot Rd$$

**$Pn_1$ (kW)**

## Potenza nominale in entrata / *Rated input power*

Indica la potenza nominale del motore applicato in ingresso al riduttore.

*This indicates the rated power of the motor applied to the gearbox input.*

**Rd / Rs**

## Rendimento / *Efficiency*

**Rd:** rappresenta il rendimento dinamico, definito dal rapporto tra la potenza in uscita $P_2$ e quella in entrata $P_1$ al riduttore.
Le prestazioni dei riduttori sono state determinate considerando il valore di Rd il cui valore ottimale si raggiunge nel funzionamento a regime, successivo alla fase di rodaggio.

***Rd:*** *represents the dynamic efficiency, which is defined by the ratio of the gearbox output power $P_2$ to the gearbox input power $P_1$.*
*The performance of the gearboxes has been determined considering the value of Rd, whose optimal value is reached at steady operation stage, after completion of the running-in period.*

**Rs:** rappresenta il rendimento statico presente in fase di avviamento.
Al fine della corretta selezione del riduttore da impiegare, nel caso di applicazioni in cui non si raggiungono mai le condizioni di funzionamento a regime (es. sollevamenti), è importante declassare le prestazioni del riduttore in uscita utilizzando Rs.

***Rs:*** *represents the static efficiency in the start-up phase.*
*In order to properly select the gearbox to be used, in the case of applications that never reach steady operating conditions (e.g. lifting), it is important to downgrade the performance of the output gearbox by using Rs. In practice, performance rates are downgraded by using the ratio between Rs and Rd.*

Nella tabella della pagina seguente sono riportati i valori dei rendimenti riferiti ai diversi rapporti di riduzione. Nel caso di Rd, i valori sono riferiti a $n_1$= 1400 rpm

*The table on the next page gives the values of the efficiencies referred to different reduction ratios. In the case of Rd, the values are referred to $n_1$= 1400 rpm*

## Irreversibilità / *Irreversibility*

Strettamente legata al valore del rendimento (dinamico e statico) è l'irreversibilità del riduttore vite senza fine che consiste nell'impossibilità di porre in rotazione l'albero entrata del riduttore tramite l'applicazione di una coppia sull'albero uscita. Il livello di difficoltà con cui l'albero entrata viene posto in rotazione determina il grado di irreversibilità di un riduttore. Questo aspetto del funzionamento dei riduttori a vite senza fine cresce con l'aumentare del rapporto di riduzione (strettamente legato al rendimento) e dipende da più fattori (es. lubrificazione, presenza di vibrazioni, temperatura, ecc) e nel caso di un'applicazione in cui è richiesto un non ritorno del carico è comunque necessario dotare l'applicazione di un altro dispositivo frenante esterno perchè il vite senza fine non garantisce da solo l'assoluta assenza di movimento.

*Closely tied to the efficiency value (dynamic and static ones), there is the irreversibility of the worm gearbox, that consists in the inability of putting the gearbox input shaft in rotation by applying a torque on the output shaft. The level of difficulty by which the input shaft is put in rotation gives rise to the degree of irreversibility of a gearbox.*
*This aspect of the operation of worm gearboxes increases as the reduction ratio increases (closely related to the efficiency) and depends on several factors (e.g. lubrication, vibrations, temperature etc.) and in the case of an application that requires no return of the load, it is anyway necessary to equip the application with an additional outer braking device, because the worm alone does not assure the absolute absence of movement.*

## Irreversibilità dinamica / *Dynamic irreversibility*

Rappresenta la capacità di sostegno del carico in caso di arresto o assenza dell'azione motrice.
Tale condizione è di difficile ottenimento in quanto influenzata da eventuali vibrazioni che il carico può generare e dal tipo di applicazione stessa.
Nella tabella sottostante sono indicati i vari gradi di irreversibilità dinamica:

*This represents the ability to support the load when stopping or when there is no driving action.*
*This condition is difficult to obtain, since it is affected by the presence of any vibrations that the load might generate,as well as by the type of application.*
*The table below shows the varying degrees of dynamic irreversibility:*

| Rd | Irreversibilità dinamica | *Dynamic irreversibility* |
|---|---|---|
| **> 0.6** | Reversibilità dinamica | *Dynamic reversibility* |
| **0.5 - 0.6** | Reversibilità dinamica incerta | *Low dynamic reversibility* |
| **0.4 - 0.5** | Buona irreversibilità dinamica | *Good dynamic irreversibility* |
| **< 0.4** | Irreversibilità dinamica | *Dynamic irreversibility* |

## Irreversibilità statica / *Static irreversibility*

Rappresenta la capacità di impedimento alla rotazione indotta dall'albero uscita senza però escludere possibili rotazioni lente nel caso in cui il carico sia sottoposto o generi vibrazioni.
Nella tabella sottostante sono indicati i vari gradi di irreversibilità statica:

*It refers to the ability of prevention of the rotation induced by the output shaft, without anyway excluding possible low speed rotations just in case the load is subject to or generates vibrations.*
*In the table below, the various degrees of static irreversibility are given:*

| Rs | Irreversibilità statica | *Static irreversibility* |
|---|---|---|
| **> 0.55** | Reversibilità statica | *Static reversibility* |
| **0.5 - 0.6** | Reversibilità statica incerta | *Low static reversibility* |
| **< 0.4** | Irreversibilità statica | *Static irreversibility* |

| $n_1$ = 1400 (min$^{-1}$) | | R5 | R7.5 | R10 | R15 | R20 | R25 | R30 | R40 | R50 | R60 | R80 | R100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 025 | Rd | 0.86 | 0.84 | 0.82 | 0.78 | 0.74 | | 0.66 | 0.61 | 0.57 | 0.54 | | |
| | Rs | 0.71 | 0.70 | 0.67 | 0.60 | 0.55 | | 0.46 | 0.41 | 0.36 | 0.34 | | |
| 030 | Rd | 0.86 | 0.84 | 0.81 | 0.76 | 0.72 | 0.67 | 0.64 | 0.58 | 0.54 | 0.50 | 0.44 | |
| | Rs | 0.71 | 0.66 | 0.62 | 0.54 | 0.50 | 0.43 | 0.39 | 0.35 | 0.31 | 0.27 | 0.23 | |
| 040 | Rd | 0.88 | 0.86 | 0.85 | 0.81 | 0.77 | 0.74 | 0.69 | 0.64 | 0.61 | 0.57 | 0.51 | 0.47 |
| | Rs | 0.72 | 0.69 | 0.65 | 0.58 | 0.53 | 0.5 | 0.44 | 0.4 | 0.36 | 0.32 | 0.28 | 0.24 |
| 050 | Rd | 0.87 | 0.86 | 0.84 | 0.8 | 0.77 | 0.74 | 0.7 | 0.65 | 0.61 | 0.57 | 0.51 | 0.49 |
| | Rs | 0.73 | 0.69 | 0.65 | 0.58 | 0.54 | 0.5 | 0.44 | 0.39 | 0.35 | 0.32 | 0.27 | 0.23 |
| 063 | Rd | | 0.87 | 0.86 | 0.82 | 0.8 | 0.77 | 0.73 | 0.69 | 0.65 | 0.61 | 0.56 | 0.5 |
| | Rs | | 0.7 | 0.65 | 0.59 | 0.54 | 0.5 | 0.45 | 0.4 | 0.36 | 0.33 | 0.28 | 0.24 |
| 075 | Rd | | 0.88 | 0.87 | 0.84 | 0.81 | 0.79 | 0.75 | 0.71 | 0.68 | 0.64 | 0.59 | 0.54 |
| | Rs | | 0.7 | 0.67 | 0.6 | 0.57 | 0.52 | 0.46 | 0.42 | 0.38 | 0.35 | 0.29 | 0.26 |
| 090 | Rd | | 0.89 | 0.88 | 0.85 | 0.83 | 0.81 | 0.77 | 0.74 | 0.71 | 0.68 | 0.62 | 0.58 |
| | Rs | | 0.72 | 0.69 | 0.63 | 0.59 | 0.55 | 0.49 | 0.45 | 0.41 | 0.38 | 0.32 | 0.28 |
| 110 | Rd | | 0.89 | 0.88 | 0.85 | 0.84 | 0.83 | 0.78 | 0.77 | 0.74 | 0.71 | 0.66 | 0.62 |
| | Rs | | 0.71 | 0.68 | 0.62 | 0.61 | 0.58 | 0.48 | 0.48 | 0.44 | 0.41 | 0.36 | 0.32 |
| 130 | Rd | | 0.9 | 0.88 | 0.86 | 0.85 | 0.83 | 0.79 | 0.77 | 0.74 | 0.71 | 0.67 | 0.63 |
| | Rs | | 0.71 | 0.68 | 0.62 | 0.6 | 0.57 | 0.49 | 0.46 | 0.43 | 0.39 | 0.34 | 0.3 |
| 150 | Rd | | 0.91 | 0.9 | 0.88 | 0.86 | 0.84 | 0.83 | 0.78 | 0.76 | 0.73 | 0.68 | 0.64 |
| | Rs | | 0.73 | 0.71 | 0.66 | 0.6 | 0.57 | 0.54 | 0.45 | 0.42 | 0.39 | 0.33 | 0.29 |

**fs**

## Fattore di servizio / *Service factor*

E' un valore che prende in considerazione le varie condizioni di funzionamento dell'applicazione ed indica il sovradimensionamento da applicare ad un determinato riduttore per garantire la durata richiesta e resistenza agli urti.

I valori dei fattori di servizio sono riportati nella tabella seguente in funzione della tipologia di carico (A-B-C), dal numero di avviamenti all'ora e dalla durata del funzionamento (h/gg).

Il valore del fattore di servizio così individuato deve essere confrontato con il valore del fattore di servizio garantito dal riduttore scelto per l'applicazione (indicato nelle tabelle dati tecnici). Quest'ultimo deve essere uguale o superiore a quello individuato consultando la tabella seguente.

I valori riportati in tabella si riferiscono all'azionamento con motore elettrico. Nel caso di utilizzo di motore autofrenante è necessario considerare un numero di avviamenti doppio rispetto a quello effettivamente richiesto.

*This value takes into account the different operating conditions of the application and indicates the oversizing to apply to a specific gearbox in order to ensure the required duration and the necessary impact strength.*

*The values of the service factors are given in the following table according to the type of load (A-B-C), the number of starts per hour and the duration of operation (hours/days).*

*The service factor value, determined in this way, must be compared with the value of the service factor assured by the gearbox chosen for the application (indicated in the technical data tables). The latter must be equal to or greater than the one determined by referring to the following table.*

*The values shown in the table refer to operation with an electric motor. When using a brake motor, it is necessary to consider twice the number of starts actually required.*

| Classe di carico<br>Load class | h/gg<br>*hours/day* | N. AVVIAMENTI/ORA / *N. START-UP/HOUR* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 | 4 | 8 | 16 | 32 | 63 | 125 | 250 | 500 |
| **A**<br>**Carico uniforme**<br>***Uniform load*** | 4 | 0.8 | 0.8 | 0.9 | 0.9 | 1.0 | 1.1 | 1.1 | 1.2 | 1.2 |
| | 8 | 1.0 | 1.0 | 1.1 | 1.1 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| | 16 | 1.3 | 1.3 | 1.3 | 1.3 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| | 24 | 1.5 | 1.5 | 1.5 | 1.5 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |

| Classe di carico<br>Load class | h/gg<br>*hours/day* | N. AVVIAMENTI/ORA / *N. START-UP/HOUR* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 | 4 | 8 | 16 | 32 | 63 | 125 | 250 | 500 |
| **B**<br>**Carico con urti moderati**<br>***Moderate shock load*** | 4 | 1.0 | 1.0 | 1.0 | 1.0 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| | 8 | 1.3 | 1.3 | 1.3 | 1.3 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| | 16 | 1.5 | 1.5 | 1.5 | 1.5 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| | 24 | 1.8 | 1.8 | 1.8 | 1.8 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |

| Classe di carico<br>Load class | h/gg<br>*hours/day* | N. AVVIAMENTI/ORA / *N. START-UP/HOUR* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 | 4 | 8 | 16 | 32 | 63 | 125 | 250 | 500 |
| **C**<br>**Carico con urti forti**<br>***Heavy shock load*** | 4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| | 8 | 1.5 | 1.5 | 1.5 | 1.5 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| | 16 | 1.8 | 1.8 | 1.8 | 1.8 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| | 24 | 2.2 | 2.2 | 2.2 | 2.2 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |

## Carichi radiali / *Radial loads*

L'applicazione sull'albero entrata o uscita del riduttore di un qualsiasi tipo di organo di trasmissione (es. pignone, pulegge ecc.) determina delle spinte radiali ($Fr_1$ su albero entrata, $Fr_2$ su albero uscita) che, se non considerate, possono portare al danneggiamento del riduttore stesso.
Il carico radiale esterno Fr agente sull'albero del riduttore è ricavabile dalla seguente relazione:

*Applying any type of transmission component (e.g. sprocket, pulleys, etc.) on the gearbox input or output shaft generates radial loads ($Fr_1$ on the input shaft, $Fr_2$ on the output shaft) that, if not considered, might lead to damage to the gearbox.*
*The outer radial load Fr acting on the shaft of the gearbox can be obtained by the following equation:*

$$Fr = \frac{2000 \cdot M \cdot w}{D}$$

in cui:
- D (mm) = diametro primitivo dell'organo di trasmissione
- w = coefficiente dipendente da tipo di trasmissione
  - w = 1.1 ruota per ingranaggio
  - w = 1.4 ruota per catena
  - w = 1.5 - 2.5 puleggia per cinghia a V

*where:*
- *D (mm) = pitch diameter of the transmission part*
- *w = coefficient dependent on transmission type*
  - *w = 1.1 wheel for gear*
  - *w = 1.4 wheel for chain*
  - *w = 1.5 - 2.5 pulley for V belt*

Il valore del carico radiale ricavato dalla relazione precedente è da confrontare con i valori di Fr1 (se albero entrata) o Fr2 (se albero uscita) valori indicati nelle tabelle dati tecnici del riduttore.
Devono essere soddisfatte le seguenti relazioni:

*The radial load value obtained from the above equation is to be compared with the values of Fr1 (in case of input shaft) or Fr2 in case of output shaft), indicated in the gearbox technical data tables.*
*The following equations must be satisfied:*

$$Fr < Fr_1$$

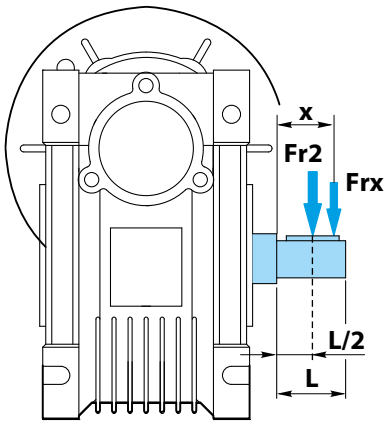
$$Fr < Fr_2$$

I valori di Fr1 ed Fr2 riportati nelle tabelle dati tecnici sono riferiti a carichi agenti sulla mezzeria dell'albero sporgente.
Nel caso in cui il carico sia applicato in una posizione diversa dalla mezzeria, è necessario valutarne l'effetto tramite le relazioni indicate nei paragrafi seguenti.

*The values of Fr1 and Fr2 given in the technical data tables refer to loads acting on the centre line of the extended shaft.*
*If the load is applied at a position other than the centre line, its effect must be evaluated by using the equations given in the following paragraphs.*

**Fr2 (N)**

## Carichi radiali uscita / *Output radial loads*




| VP | 025 | 030 | 040 | 050 | 063 | 075 | 090 | 110 | 130 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|
| a (mm) | 50 | 65 | 84 | 101 | 120 | 131 | 162 | 176 | 188 | 215 |
| b (mm) | 38 | 50 | 64 | 76 | 95 | 101 | 122 | 136 | 148 | 174 |
| Fr2max (N) | 1350 | 1830 | 3490 | 4840 | 6270 | 7380 | 8180 | 12000 | 13500 | 18000 |

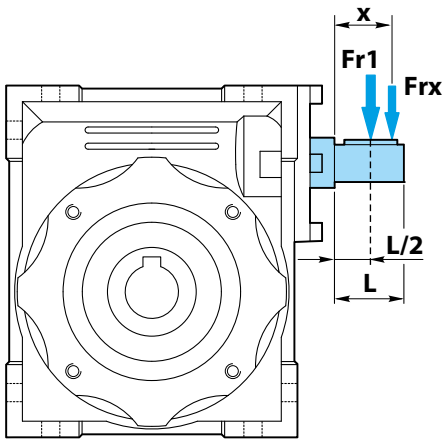
$$Frx = \frac{Fr2 \cdot a}{(b + x)} < Fr2max$$

$$Fr < Frx$$

*a, b = valori riportati nella tabella*
*a, b = values given in the table*

## $Fr_1$ (N)

### Carichi radiali entrata / *Input radial loads*




| VI / VS | 030 | 040 | 050 | 063 | 075 | 090 | 110 | 130 | 150 |
|---|---|---|---|---|---|---|---|---|---|
| a (mm) | 86 | 106 | 129 | 159 | 192 | 227 | 266 | 314 | 350 |
| b (mm) | 76 | 94.5 | 114 | 139 | 167 | 202 | 236 | 274 | 310 |
| Fr1max (N) | 210 | 350 | 490 | 700 | 980 | 1270 | 1700 | 2100 | 2800 |

$$Frx = \frac{Fr_1 \cdot a}{(b + x)} < Fr_1max$$

$$Fr < Frx$$

*a, b = valori riportati nella tabella*
*a, b = values given in the table*

## $Fa_1$ ; $Fa_2$ (N)

### Carichi assiali / *Axial loads*

A seconda del tipo di applicazione, insieme al carico radiale può essere presente anche una forza Fa agente assialmente sull'albero ($Fa_1$ nel caso di albero entrata, $Fa_2$ nel caso di albero uscita).
Il carico assiale massimo applicabile sull'albero è da considerare pari a:

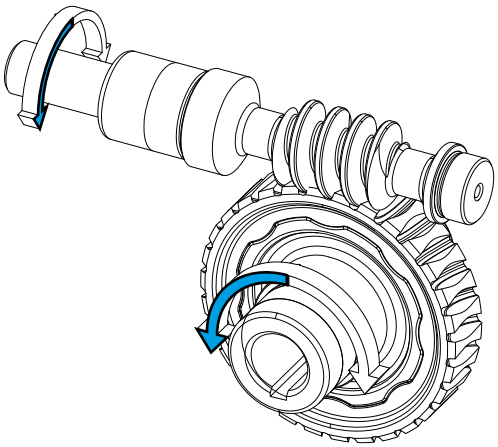
*Depending on the type of application, along with the radial load there may also be a force Fa acting axially on the shaft ($Fa_1$ for the input shaft, $Fa_2$ for the output shaft).*
*The maximum axial load applicable to the shaft is to be considered equal to:*

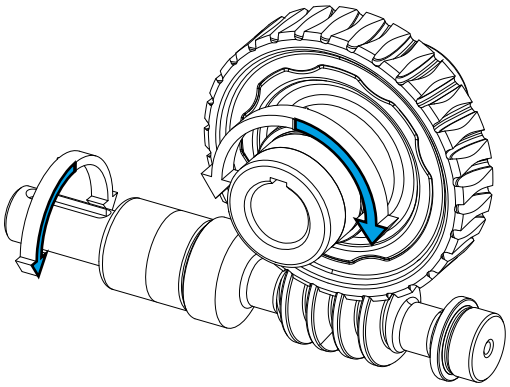
$$Fa_1 = Fr_1 \cdot 0.2$$

$$Fa_2 = Fr_2 \cdot 0.2$$

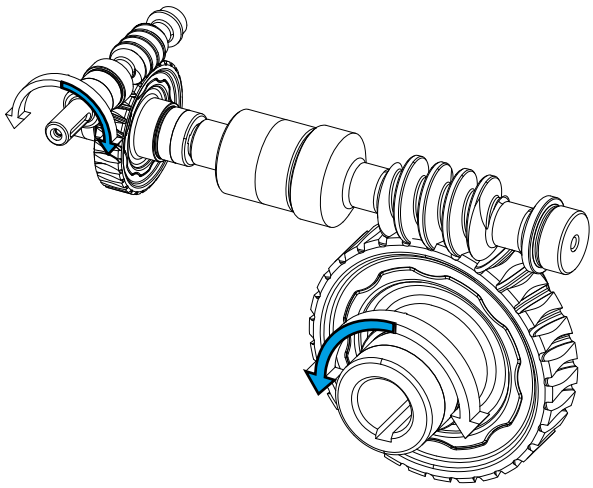
### Senso di rotazione / *Direction of rotation*

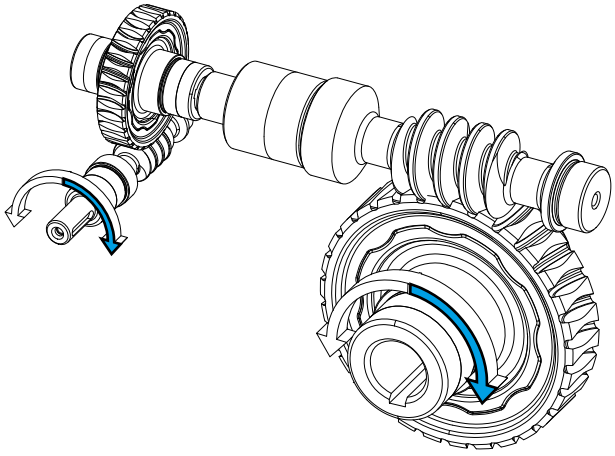
**VP / VI**





**VC / VS**





## Selezione / *Selection*

Per definire il riduttore o motoriduttore idoneo per l'applicazione, come primo passo, è necessario individuare il valore del fattore di servizio fs consigliato (consultando la realtiva tabella) noti il ciclo di lavoro ed il tipo di carico.

*To define the suitable gearbox or gearmotor for the application, as a first step, it is necessary to identify the recommended service factor fs (referring to the relevant table) knowing the operating cycle and the type of load.*

## Scelta del riduttore / *Selecting of gearbox*

Nota la velocità in entrata al riduttore $n_1$, dalle tabelle dati tecnici riduttore riferite a $n_1$= 1400 / 2800 / 900 ($min^{-1}$), si individuerà il prodotto che, in corrispondenza di un rapporto di riduzione prossimo a quello calcolato, ammetta una coppia:

*Knowing the gearbox input speed $n_1$ and using the gearbox technical data tables referring to $n_1$= 1400 / 2800 / 900 ($min^{-1}$), you can identify the product that, at a reduction ratio close to the calculated one, permits a torque:*

$$Mm_2 \geq Mr_2 \cdot fs$$

### $n_1$ 2800 $min^{-1}$

| | $n_2$ ($min^{-1}$) | $Mm_2$ (Nm) | $Pm_1$ (kW) | i | $FR_2$ (N) | $FR_1$ (N) |
|---|---|---|---|---|---|---|
| **VI 090** | | | | | | |
| | **373.3** | 210 | 9.0 | 7,5 | 2446 | 715 |
| | **280** | 235 | 7.7 | 10 | 2692 | 900 |
| | **186.7** | 270 | 6.0 | 15 | 3081 | 1034 |
| | **140** | 260 | 4.4 | 20 | 3391 | 1120 |
| | **112** | 250 | 3.4 | 25 | 3653 | 1270 |
| | **93.3** | 310 | 3.7 | 30 | 3882 | 1270 |
| | **70** | 275 | 2.6 | 40 | 4273 | 1270 |
| | **56** | 265 | 2.0 | 50 | 4603 | 1270 |
| | **46.7** | 245 | 1.6 | 60 | 4891 | 1270 |
| | **35** | 225 | 1.2 | 80 | 5383 | 1270 |

### $n_1$ 1400 $min^{-1}$

| | $n_2$ ($min^{-1}$) | $Mm_2$ (Nm) | $Pm_1$ (kW) | i | $FR_2$ (N) | $FR_1$ (N) |
|---|---|---|---|---|---|---|
| **VI 063/150** | | | | | | |
| | **9.3** | 1971 | 2.81 | 150 | 18000 | 500 |
| | **7.0** | 2084 | 2.28 | 200 | 18000 | 595 |
| | **5.6** | 2050 | 1.84 | 250 | 18000 | 595 |
| | **4.7** | 2312 | 1.75 | 300 | 18000 | 660 |
| | **3.5** | 2670 | 1.70 | 400 | 18000 | 595 |
| | **2.8** | 2330 | 1.27 | 500 | 18000 | 595 |
| | **2.3** | 2670 | 1.18 | 600 | 18000 | 660 |
| | **1.9** | 2330 | 0.87 | 750 | 18000 | 660 |
| | **1.6** | 2100 | 0.62 | 900 | 18000 | 700 |
| | **1.2** | 2670 | 0.66 | 1200 | 18000 | 700 |
| | **0.8** | 2100 | 0.37 | 1800 | 18000 | 700 |
| | **0.6** | 2670 | 0.39 | 2400 | 18000 | 700 |
| | **0.5** | 2330 | 0.29 | 3000 | 18000 | 700 |
| | **0.4** | 2330 | 0.24 | 4000 | 18000 | 700 |
| | **0.3** | 2330 | 0.21 | 5000 | 18000 | 700 |

## Scelta del motoriduttore / *Selecting of gearmotor*

1 - Se è nota la potenza motore P (kW) da applicare in ingresso al riduttore e richiesta dall'applicazione, si può passare direttamente alla consultazione delle tabelle dati tecnici motoriduttori (v. p.to 2).
In alternativa, se è nota la coppia richiesta in uscita dall'applicazione $Mr_2$, è necessario determinare la potenza motore P con la formula:

*1 - Knowing the motor power P (kW) to be applied at the gearbox input and required by the application, you can directly refer to the technical data tables for the gearmotors (see point 2).*
*Alternatively, if the output torque required by the application $Mr_2$ is known, it is necessary to determine the motor power P with the formula:*

$$P = \frac{Mr_2 \cdot n_2}{9550 \cdot Rd}$$

in cui $n_2$ è il numero di giri richiesti in uscita al motoriduttore ed Rd è il rendimento dinamico riportato nella relativa tabella.

*where $n_2$ is the number of revolutions required at the gearmotor output and Rd is the dynamic efficiency given in the relevant table.*

2 - Consultando le tabelle dei dati tecnici dei motoriduttori, individuare la motorizzazione in cui $Pn_1$ risulti maggiore o uguale alla potenza P precedentemente calcolata. Con riferimento ad una velocità $n_2$ prossima a quella desiderata, individuare la motorizzazione in cui il fattore di servizio fs indicato sia maggiore o uguale a quello ricavato all'inizio del processo di selezione.

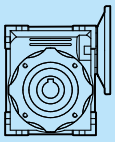
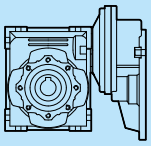
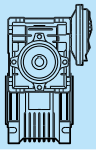
*2 - Referring to the technical data tables for the gearmotors, identify the motor drive where $Pn_1$ is greater than or equal to the power P previously calculated. With reference to a speed $n_2$ close to the one you want, identify the motor drive where the indicated service factor fs is greater than or equal to that obtained at the beginning of the selection process.*

**ESEMPIO:**
Dati applicazione:
P = 0.09 kW
fs = 2
$n_2 = 57\ (min^{-1})$

Motoriduttore selezionato:
VP040 i=50 -- $Pn_1$ = 0.09 kW -- fs = 2.8

*EXAMPLE:*
*Application data:*
*P = 0.09 kW*
*fs = 2*
*$n_2 = 57\ (min^{-1})$*

*Selected gearmotor:*
*VP040 i=50 -- $Pn_1$ = 0.09 kW -- fs = 2.8*

| **$Pn_1$** (kW) | **$n_2$** ($min^{-1}$) | **M2** (Nm) | **fs** | **i** |  |  |  | **$FR_2$** (N) |
|---|---|---|---|---|---|---|---|---|
| **0.09** | | | | | | | | |
| MT 056 0.09 2 | **56** | 9.4 | 1.4 | 50 | **VP030** | | | 1021 |
| n1 = 2800 $min^{-1}$ | **56** | 11 | 2.8 | 50 | **VP040** | | | 1964 |
| | **46.7** | 11 | 0.7 | 60 | **VP025** | | | 798 |
| | **46.7** | 10 | 1.1 | 60 | **VP030** | | | 1085 |
| | **46.7** | 12 | 2.3 | 60 | **VP040** | | | 2087 |
| | **35** | 13 | 0.9 | 80 | **VP030** | | | 1194 |

## Temperatura operativa / *Operating temperature*

Tutti i riduttori della nuova gamma SATI sono idonei ad operare fino ad una temperatura massima continuativa all'interno del riduttore di +85°C.

*All the gearboxes in the new SATI range are suitable to operate up to a maximum continuous temperature inside the gearbox of +85°C.*

Gli anelli di tenuta sono in mescole acrilonitriliche.

*The shaft seals are made of acrylonitrile compounds.*

Per temperature operative continuative più elevate di + 85°C, si richiede di consultare l'Ufficio Tecnico SATI per i suggerimenti del caso.
La temperatura minima a cui i riduttori possono operare è di -5°C.

*For continuous operating temperatures higher than + 85°C, it is necessary to contact the SATI Engineering Department for advice.*
*The minimum temperature at which the gearboxes can operate is -5°C.*

in caso di ambiente di lavoro con temperatura <-5 °C o > +40°C, contattare servizio tecnico SATI.

*For ambient temperatures <-5°C or >+40°C, it is recommended to contact SATI technical service.*

## Verniciatura / *Painting*

Tutti i riduttori SATI sono verniciati a polveri epossidiche in colore grigio RAL 9006, ad esclusione delle parti lavorate per appoggi di fissaggio e accoppiamenti.

*All SATI gearboxes are epoxy powder painted in the colour RAL 9006 grey, except for the machined parts, for fixing supports and couplings.*

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **0.06** | | | | | | | | |
| M1 056 0.06 4P... (n1 = 1400 $min^{-1}$) | **280** | 2 | 6.2 | 5 | **VP025** | | | 439 |
| | **280** | 2 | 10.1 | 5 | **VP030** | | | 597 |
| | **186.7** | 3 | 4.2 | 7.5 | **VP025** | | | 503 |
| | **186.7** | 3 | 6.9 | 7.5 | **VP030** | | | 683 |
| | **140** | 3 | 3.5 | 10 | **VP025** | | | 553 |
| | **140** | 3 | 5.4 | 10 | **VP030** | | | 752 |
| | **93.3** | 5 | 2.5 | 15 | **VP025** | | | 633 |
| | **93.3** | 5 | 3.8 | 15 | **VP030** | | | 861 |
| | **70** | 6 | 2 | 20 | **VP025** | | | 697 |
| | **70** | 6 | 3 | 20 | **VP030** | | | 948 |
| | **56** | 7 | 3 | 25 | **VP030** | | | 1021 |
| | **46.7** | 8 | 1.6 | 30 | **VP025** | | | 798 |
| | **46.7** | 8 | 2.5 | 30 | **VP030** | | | 1085 |
| | **35** | 10 | 1.3 | 40 | **VP025** | | | 878 |
| | **35** | 10 | 1.9 | 40 | **VP030** | | | 1194 |
| | **28** | 12* | 0.9* | 50 | **VP025** | | | 946 |
| | **28** | 11 | 1.5 | 50 | **VP030** | | | 1286 |
| | **28** | 13 | 3.3 | 50 | **VP040** | | | 2475 |
| | **23.3** | 14* | 0.7* | 60 | **VP025** | | | 1006 |
| | **23.3** | 13 | 1.3 | 60 | **VP030** | | | 1367 |
| | **23.3** | 14 | 2.6 | 60 | **VP040** | | | 2630 |
| | **17.5** | 14* | 0.9* | 80 | **VP030** | | | 1504 |
| | **17.5** | 17 | 1.9 | 80 | **VP040** | | | 2895 |
| | **14** | 25 | 1.3 | 100 | | | **VC025/030** | 1620 |
| | **14** | 20 | 1.5 | 100 | **VP040** | | | 3118 |
| | **14** | 26 | 2.7 | 100 | | | **VC030/040** | 2769 |
| | **9.3** | 32* | 0.9* | 150 | | | **VC025/030** | 1830 |
| | **9.3** | 37 | 1.9 | 150 | | | **VC030/040** | 3169 |
| | **7** | 41* | 0.7* | 200 | | | **VC025/030** | 1830 |
| | **7** | 47 | 1.4 | 200 | | | **VC030/040** | 3488 |
| | **7** | 47 | 2.6 | 200 | | | **VC030/050** | 4788 |
| | **5.6** | 44* | 0.8* | 250 | | | **VC025/030** | 1830 |
| | **5.6** | 55 | 1.1 | 250 | | | **VC030/040** | 3490 |
| | **5.6** | 55 | 2 | 250 | | | **VC030/050** | 4840 |
| | **4.7** | 59 | 1.2 | 300 | | | **VC025/040** | 3490 |
| | **4.7** | 57 | 1.3 | 300 | | | **VC030/040** | 3490 |
| | **4.7** | 61 | 2.4 | 300 | | | **VC030/050** | 4840 |
| | **3.5** | 71* | 0.9* | 400 | | | **VC025/040** | 3490 |
| | **3.5** | 70* | 0.9* | 400 | | | **VC030/040** | 3490 |
| | **3.5** | 73 | 1.7 | 400 | | | **VC030/050** | 4840 |
| | **3.5** | 76 | 3.4 | 400 | | | **VC030/063** | 6270 |
| | **2.8** | 96* | 0.6* | 500 | | | **VC030/040** | 3490 |
| | **2.8** | 82* | 0.7* | 500 | | | **VC025/040** | 3490 |
| | **2.8** | 85 | 1.4 | 500 | | | **VC030/050** | 4840 |
| | **2.8** | 88 | 2.7 | 500 | | | **VC030/063** | 6270 |
| | **2.3** | 101* | 0.6* | 600 | | | **VC025/040** | 3490 |
| | **2.3** | 104* | 0.7* | 600 | | | **VC030/040** | 3490 |
| | **2.3** | 109 | 1.3 | 600 | | | **VC030/050** | 4840 |
| | **2.3** | 111 | 2.4 | 600 | | | **VC030/063** | 6270 |
| | **1.9** | 116* | 0.5* | 750 | | | **VC025/040** | 3490 |
| | **1.9** | 121* | 0.6* | 750 | | | **VC030/040** | 3490 |
| | **1.9** | 127 | 1.1 | 750 | | | **VC030/050** | 4840 |
| | **1.9** | 129 | 2.1 | 750 | | | **VC030/063** | 6270 |
| | **1.6** | 143* | 0.5* | 900 | | | **VC025/040** | 3490 |
| | **1.6** | 139* | 0.5* | 900 | | | **VC030/040** | 3490 |
| | **1.6** | 141 | 1 | 900 | | | **VC030/050** | 4840 |
| | **1.6** | 148 | 1.8 | 900 | | | **VC030/063** | 6270 |
| | **1.2** | 171* | 0.4* | 1200 | | | **VC025/040** | 3490 |
| | **1.2** | 166* | 0.4* | 1200 | | | **VC030/040** | 3490 |
| | **1.2** | 169* | 0.7* | 1200 | | | **VC030/050** | 4840 |
| | **1.2** | 180 | 1.5 | 1200 | | | **VC030/063** | 6270 |
| | **0.93** | 199* | 0.7* | 1500 | | | **VC030/050** | 4840 |
| | **0.9** | 197* | 0.3* | 1500 | | | **VC025/040** | 3490 |
| | **0.9** | 196* | 0.4* | 1500 | | | **VC030/040** | 3490 |
| | **0.9** | 204 | 1.1 | 1500 | | | **VC030/063** | 6270 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **0.06** | | | | | | | | |
| M1 056 0.06 4P... (n1 = 1400 $min^{-1}$) | **0.9** | 248 | 1.8 | 1500 | | | **VC040/075** | 7380 |
| | **0.9** | 259 | 2.7 | 1500 | | | **VC040/090** | 8180 |
| | **0.8** | 217* | 0.3* | 1800 | | | **VC025/040** | 3490 |
| | **0.8** | 218* | 0.3* | 1800 | | | **VC030/040** | 3490 |
| | **0.8** | 278 | 1.6 | 1800 | | | **VC040/075** | 7380 |
| | **0.8** | 291 | 2.4 | 1800 | | | **VC040/090** | 8180 |
| | **0.78** | 222* | 0.7* | 1800 | | | **VC030/050** | 4840 |
| | **0.78** | 225* | 0.9* | 1800 | | | **VC030/063** | 6270 |
| | **0.6** | 268* | 0.2* | 2400 | | | **VC025/040** | 3490 |
| | **0.6** | 266* | 0.5* | 2400 | | | **VC030/050** | 4840 |
| | **0.6** | 330 | 1.1 | 2400 | | | **VC040/075** | 7380 |
| | **0.6** | 359 | 1.7 | 2400 | | | **VC040/090** | 8180 |
| | **0.58** | 261* | 0.2* | 2400 | | | **VC030/040** | 3490 |
| | **0.58** | 276* | 0.8* | 2400 | | | **VC030/063** | 6270 |
| | **0.5** | 324* | 0.2* | 3000 | | | **VC025/040** | 3490 |
| | **0.5** | 307* | 0.4* | 3000 | | | **VC030/050** | 4840 |
| | **0.5** | 406 | 1.4 | 3000 | | | **VC040/090** | 8180 |
| | **0.47** | 319* | 0.7* | 3000 | | | **VC030/063** | 6270 |
| | **0.47** | 377* | 0.8* | 3000 | | | **VC040/075** | 7380 |
| | **0.4** | 294* | 0.1* | 4000 | | | **VC025/040** | 3490 |
| | **0.4** | 279* | 0.1* | 4000 | | | **VC030/040** | 3490 |
| | **0.4** | 300* | 0.2* | 3200 | | | **VC030/040** | 3490 |
| | **0.35** | 288* | 0.3* | 4000 | | | **VC030/050** | 4840 |
| | **0.35** | 306* | 0.6* | 4000 | | | **VC030/063** | 6270 |
| | **0.35** | 355* | 0.7* | 4000 | | | **VC040/075** | 7380 |
| | **0.35** | 365 | 1.3 | 4000 | | | **VC040/090** | 8180 |
| | **0.3** | 356* | 0.1* | 5000 | | | **VC025/040** | 3490 |
| | **0.29** | 311* | 0.3* | 4800 | | | **VC030/050** | 4840 |
| | **0.28** | 338* | 0.1* | 5000 | | | **VC030/040** | 3490 |
| | **0.28** | 360* | 0.4* | 5000 | | | **VC030/063** | 6270 |
| | **0.28** | 419* | 0.5* | 5000 | | | **VC040/075** | 7380 |
| | **0.28** | 431 | 1 | 5000 | | | **VC040/090** | 8180 |
| **0.09** | | | | | | | | |
| M1 056 0.09 2P.. (n1 = 2800 $min^{-1}$) | **373.3** | 2 | 3.9 | 7.5 | **VP025** | | | 399 |
| | **373.3** | 2 | 6.5 | 7.5 | **VP030** | | | 542 |
| | **280** | 2.6 | 3.4 | 10 | **VP025** | | | 439 |
| | **280** | 2.6 | 5 | 10 | **VP030** | | | 597 |
| | **186.7** | 3.8 | 2.4 | 15 | **VP025** | | | 503 |
| | **186.7** | 3.7 | 3.5 | 15 | **VP030** | | | 683 |
| | **140** | 4.9 | 1.8 | 20 | **VP025** | | | 553 |
| | **140** | 4.7 | 2.5 | 20 | **VP030** | | | 752 |
| | **112** | 5.9 | 1.5 | 25 | **VP025** | | | 590 |
| | **112** | 5.5 | 2.9 | 25 | **VP030** | | | 810 |
| | **93.3** | 6.4 | 2.3 | 30 | **VP030** | | | 861 |
| | **93.3** | 6.7 | 13 | 30 | **VP025** | | | 633 |
| | **70** | 8.5 | 1.1 | 40 | **VP025** | | | 697 |
| | **70** | 8 | 18 | 40 | **VP030** | | | 948 |
| | **56** | 10* | 0.9* | 50 | **VP025** | | | 751 |
| | **56** | 9.4 | 1.4 | 50 | **VP030** | | | 1021 |
| | **56** | 11 | 2.8 | 50 | **VP040** | | | 1964 |
| | **46.7** | 11* | 0.7* | 60 | **VP025** | | | 798 |
| | **46.7** | 10 | 1.1 | 60 | **VP030** | | | 1085 |
| | **46.7** | 12 | 2.3 | 60 | **VP040** | | | 2087 |
| | **35** | 13* | 0.9* | 80 | **VP030** | | | 1194 |
| | **35** | 15 | 1.7 | 80 | **VP040** | | | 2298 |
| | **28** | 17 | 1.4 | 100 | **VP040** | | | 2475 |
| | **28** | 18 | 1.6 | 100 | | | **VC025/030** | 1286 |
| | **18.7** | 25 | 1.1 | 150 | | | **VC025/030** | 1472 |
| | **14** | 31* | 0.9* | 200 | | | **VC025/030** | 1620 |
| | **14** | 39 | 1.8 | 100 | | | **VC025/040** | 2769 |
| | **9.3** | 54 | 1.2 | 150 | | | **VC025/040** | 3488 |
| | **9.3** | 43 | 1.6 | 300 | | | **VC025/040** | 3490 |
| | **7** | 70* | 0.9* | 200 | | | **VC025/040** | 3488 |
| | **7** | 52 | 1.2 | 400 | | | **VC025/040** | 3490 |
| | **5.6** | 83* | 0.7* | 250 | | | **VC025/040** | 3490 |
| | **5.6** | 71* | 0.8* | 500 | | | **VC025/040** | 3490 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **0.09** | | | | | | | | |
| M1 056 0.09 4P.. (n1 = 1400 $min^{-1}$) | **280** | 3 | 4.1 | 5 | **VP025** | | | 439 |
| | **280** | 3 | 6.7 | 5 | **VP030** | | | 597 |
| | **186.7** | 4 | 2.8 | 7.5 | **VP025** | | | 503 |
| | **186.7** | 4 | 4.6 | 7.5 | **VP030** | | | 683 |
| | **140** | 5 | 2.4 | 10 | **VP025** | | | 553 |
| | **140** | 5 | 3.6 | 10 | **VP030** | | | 752 |
| | **93.3** | 7 | 1.6 | 15 | **VP025** | | | 633 |
| | **93.3** | 7 | 2.5 | 15 | **VP030** | | | 861 |
| | **70** | 9 | 1.3 | 20 | **VP025** | | | 697 |
| | **70** | 9 | 2 | 20 | **VP030** | | | 948 |
| | **56** | 10 | 2 | 25 | **VP030** | | | 1021 |
| | **46.7** | 12 | 1.1 | 30 | **VP025** | | | 798 |
| | **46.7** | 12 | 1.7 | 30 | **VP030** | | | 1085 |
| | **35** | 15* | 0.9* | 40 | **VP025** | | | 878 |
| | **35** | 14 | 1.2 | 40 | **VP030** | | | 1194 |
| | **28** | 17 | 1 | 50 | **VP030** | | | 1286 |
| | **28** | 19 | 2 | 50 | **VP040** | | | 2475 |
| | **23.3** | 19* | 0.9* | 60 | **VP030** | | | 1367 |
| | **23.3** | 21 | 1.7 | 60 | **VP040** | | | 2630 |
| | **17.5** | 26 | 1.3 | 80 | **VP040** | | | 2895 |
| | **14** | 38 | 0.8 | 100 | | | **VC025/030** | 1620 |
| | **14** | 29 | 1 | 100 | **VP040** | | | 3118 |
| | **14** | 39 | 1.8 | 100 | | | **VC030/040** | 2769 |
| | **14** | 40 | 3.4 | 100 | | | **VC030/050** | 3800 |
| | **9.3** | 49* | 0.6* | 150 | | | **VC025/030** | 1830 |
| | **9.3** | 56 | 1.3 | 150 | | | **VC030/040** | 3169 |
| | **9.3** | 56 | 2.4 | 150 | | | **VC030/050** | 4350 |
| | **7** | 62* | 0.5* | 200 | | | **VC025/030** | 1830 |
| | **7** | 70* | 0.9* | 200 | | | **VC030/040** | 3488 |
| | **7** | 70 | 1.7 | 200 | | | **VC030/050** | 4788 |
| | **5.6** | 66* | 0.5* | 250 | | | **VC025/030** | 1830 |
| | **5.6** | 83* | 0.7* | 250 | | | **VC030/040** | 3490 |
| | **5.6** | 83 | 1.3 | 250 | | | **VC030/050** | 4840 |
| | **5.6** | 85 | 2.7 | 250 | | | **VC030/063** | 6270 |
| | **4.7** | 75* | 0.4* | 300 | | | **VC025/030** | 1830 |
| | **4.7** | 88* | 0.8* | 300 | | | **VC030/040** | 3490 |
| | **4.7** | 92 | 1.6 | 300 | | | **VC030/050** | 4840 |
| | **4.7** | 88 | 2.9 | 300 | | | **VC030/063** | 6270 |
| | **3.5** | 107* | 0.3* | 400 | | | **VC025/030** | 1830 |
| | **3.5** | 107 | 1.2 | 400 | | | **VC030/050** | 4840 |
| | **3.5** | 114 | 2.2 | 400 | | | **VC030/063** | 6270 |
| | **2.8** | 115* | 0.3* | 500 | | | **VC025/030** | 1830 |
| | **2.8** | 123 | 1 | 500 | | | **VC030/050** | 4840 |
| | **2.8** | 132 | 1.8 | 500 | | | **VC030/063** | 6270 |
| | **2.3** | 135* | 0.2* | 600 | | | **VC025/030** | 1830 |
| | **2.3** | 159* | 0.9* | 600 | | | **VC030/050** | 4840 |
| | **2.3** | 166 | 1.6 | 600 | | | **VC030/063** | 6270 |
| | **1.9** | 151* | 0.2* | 750 | | | **VC025/030** | 1830 |
| | **1.9** | 185* | 0.8* | 750 | | | **VC030/050** | 4840 |
| | **1.9** | 194 | 1.4 | 750 | | | **VC030/063** | 6270 |
| | **1.6** | 178* | 0.2* | 900 | | | **VC025/030** | 1830 |
| | **1.6** | 212* | 0.7* | 900 | | | **VC030/050** | 4840 |
| | **1.6** | 200 | 1 | 900 | | | **VC030/063** | 6270 |
| | **1.2** | 212* | 0.1* | 1200 | | | **VC025/030** | 1830 |
| | **1.2** | 263* | 0.9* | 1200 | | | **VC030/063** | 6270 |
| | **0.93** | 305* | 0.7* | 1500 | | | **VC030/063** | 6270 |
| | **0.9** | 247* | 0.1* | 1500 | | | **VC025/030** | 1830 |
| | **0.9** | 360 | 1.1 | 1500 | | | **VC040/075** | 7380 |
| | **0.78** | 304* | 0.1* | 1800 | | | **VC025/030** | 1830 |
| | **0.78** | 404 | 1 | 1800 | | | **VC040/075** | 7380 |
| | **0.58** | 340* | 0.1* | 2400 | | | **VC025/030** | 1830 |
| | **0.58** | 496* | 0.7* | 2400 | | | **VC040/075** | 7380 |
| | **0.5** | 609* | 0.9* | 3000 | | | **VC040/090** | 8180 |
| | **0.47** | 405* | 0.1* | 3000 | | | **VC025/030** | 1830 |
| | **0.35** | 548* | 0.8* | 4000 | | | **VC040/090** | 8180 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ (min$^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **0.12** | | | | | | | | |
| M1 056 0.12 2P... (n1 = 2800 min$^{-1}$) | **373.3** | 2.7 | 3 | 7.5 | **VP025** | | | 399 |
| | **280** | 3.5 | 2.6 | 10 | **VP025** | | | 439 |
| | **186.7** | 5.1 | 1.8 | 15 | **VP025** | | | 503 |
| | **186.7** | 5 | 2.6 | 15 | **VP030** | | | 683 |
| | **140** | 6.5 | 1.4 | 20 | **VP025** | | | 553 |
| | **140** | 6 | 1.9 | 20 | **VP030** | | | 752 |
| | **112** | 7.9 | 1.1 | 25 | **VP025** | | | 590 |
| | **112** | 8 | 2.1 | 25 | **VP030** | | | 810 |
| | **93.3** | 9 | 1 | 30 | **VP025** | | | 633 |
| | **93.3** | 9 | 1.7 | 30 | **VP030** | | | 861 |
| | **70** | 11* | 0.8* | 40 | **VP025** | | | 697 |
| | **70** | 11 | 1.3 | 40 | **VP030** | | | 948 |
| | **56** | 13 | 1 | 50 | **VP030** | | | 1021 |
| | **56** | 14 | 2.1 | 50 | **VP040** | | | 1964 |
| | **46.7** | 14* | 0.8* | 60 | **VP030** | | | 1085 |
| | **46.7** | 16 | 1.7 | 60 | **VP040** | | | 2087 |
| | **35** | 20 | 1.3 | 80 | **VP040** | | | 2298 |
| | **28** | 23 | 1 | 100 | **VP040** | | | 2475 |
| M1 063 0.12 4P.. (n1 = 1400 min$^{-1}$) | **4.7** | 117 | 2.2 | 300 | | | **VC030/063** | 6270 |
| | **4.7** | 134 | 3.3 | 300 | | | **VC040/075** | 7380 |
| | **280** | 4 | 5.1 | 5 | **VP030** | | | 597 |
| | **186.7** | 5 | 3.4 | 7.5 | **VP030** | | | 683 |
| | **140** | 7 | 2.7 | 10 | **VP030** | | | 752 |
| | **93.3** | 10 | 1.9 | 15 | **VP030** | | | 861 |
| | **70** | 12 | 1.5 | 20 | **VP030** | | | 948 |
| | **70** | 13 | 3.3 | 20 | **VP040** | | | 1824 |
| | **56** | 14 | 1.5 | 25 | **VP030** | | | 1021 |
| | **56** | 16 | 2.5 | 25 | **VP040** | | | 1964 |
| | **46.7** | 16 | 1.3 | 30 | **VP030** | | | 1085 |
| | **46.7** | 17 | 2.6 | 30 | **VP040** | | | 2087 |
| | **35** | 19* | 0.9* | 40 | **VP030** | | | 1194 |
| | **35** | 21 | 1.9 | 40 | **VP040** | | | 2298 |
| | **28** | 23* | 0.8* | 50 | **VP030** | | | 1286 |
| | **28** | 25 | 1.5 | 50 | **VP040** | | | 2475 |
| | **28** | 26 | 2.9 | 50 | **VP050** | | | 3397 |
| | **23.3** | 28 | 1.3 | 60 | **VP040** | | | 2630 |
| | **23.3** | 29 | 2.3 | 60 | **VP050** | | | 3610 |
| | **19.1** | 42 | 1.2 | 73.3 | | **VR063/040** | | 2833 |
| | **17.5** | 34 | 1 | 80 | **VP040** | | | 2895 |
| | **17.5** | 35 | 1.9 | 80 | **VP050** | | | 3973 |
| | **15.9** | 46 | 1.2 | 88 | | **VR063/040** | | 3011 |
| | **14** | 38* | 0.8* | 100 | **VP040** | | | 3118 |
| | **14** | 52 | 1.4 | 100 | | | **VC030/040** | 2769 |
| | **14** | 40 | 1.4 | 100 | **VP050** | | | 4280 |
| | **14** | 54 | 2.6 | 100 | | | **VC030/050** | 3800 |
| | **14** | 54 | 2.8 | 100 | | | **VC030/063** | 4967 |
| | **11.9** | 57* | 0.9* | 117.3 | | **VR063/040** | | 3314 |
| | **11.7** | 58 | 1.8 | 117.2 | | **VR063/050** | | 4548 |
| | **9.5** | 66* | 0.7* | 146.7 | | **VR063/040** | | 3490 |
| | **9.5** | 68 | 1.3 | 146.7 | | **VR063/050** | | 4840 |
| | **9.3** | 74 | 1 | 150 | | | **VC030/040** | 3169 |
| | **9.3** | 74 | 1.8 | 150 | | | **VC030/050** | 4350 |
| | **9.3** | 75 | 2.8 | 150 | | | **VC030/063** | 5686 |
| | **8** | 75 | 1.1 | 176 | | **VR063/050** | | 4840 |
| | **7.9** | 74* | 0.6* | 176 | | **VR063/040** | | 3490 |
| | **7** | 94 | 1.3 | 200 | | | **VC030/050** | 4788 |
| | **7** | 95 | 2.7 | 200 | | | **VC030/063** | 6259 |
| | **6** | 92 | 1.5 | 234.6 | | **VR063/063** | | 6270 |
| | **5.8** | 88* | 0.8* | 234.6 | | **VR063/050** | | 4840 |
| | **5.6** | 110 | 1 | 250 | | | **VC030/050** | 4840 |
| | **5.6** | 114 | 2 | 250 | | | **VC030/063** | 6270 |
| | **5.6** | 120 | 3.2 | 250 | | | **VC040/075** | 7380 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **0.12** | | | | | | | | |
| M1 063 0.12 4P.. (n1 = 1400 $min^{-1}$) | **4.8** | 98* | 0.7* | 293.3 | | **VR063/050** | | 4840 |
| | **4.8** | 103 | 1.2 | 293.3 | | **VR063/063** | | 6270 |
| | **4.7** | 119 | 1.2 | 300 | | | **VC030/050** | 4840 |
| | **3.5** | 142* | 0.9* | 400 | | | **VC030/050** | 4840 |
| | **3.5** | 152 | 1.7 | 400 | | | **VC030/063** | 6270 |
| | **3.5** | 164 | 2.5 | 400 | | | **VC040/075** | 7380 |
| | **2.8** | 164* | 0.7* | 500 | | | **VC030/050** | 4840 |
| | **2.8** | 171 | 1.3 | 500 | | | **VC030/063** | 6270 |
| | **2.8** | 188 | 2 | 500 | | | **VC040/075** | 7380 |
| | **2.8** | 202 | 2.8 | 500 | | | **VC040/090** | 8180 |
| | **2.3** | 208 | 1.1 | 600 | | | **VC030/063** | 6270 |
| | **2.3** | 248 | 1.8 | 600 | | | **VC040/075** | 7380 |
| | **2.3** | 260 | 2.7 | 600 | | | **VC040/090** | 8180 |
| | **1.9** | 241* | 0.9* | 750 | | | **VC030/063** | 6270 |
| | **1.9** | 299 | 1.5 | 750 | | | **VC040/075** | 7380 |
| | **1.9** | 313 | 2.2 | 750 | | | **VC040/090** | 8180 |
| | **1.6** | 297* | 0.9* | 900 | | | **VC030/063** | 6270 |
| | **1.6** | 325 | 1.2 | 900 | | | **VC040/075** | 7380 |
| | **1.6** | 350 | 2 | 900 | | | **VC040/090** | 8180 |
| | **1.2** | 360* | 0.8* | 1200 | | | **VC030/063** | 6270 |
| | **1.2** | 399* | 0.9* | 1200 | | | **VC040/075** | 7380 |
| | **1.2** | 434 | 1.6 | 1200 | | | **VC040/090** | 8180 |
| | **1.2** | 448 | 2.8 | 1200 | | | **VC050/110** | 10320 |
| | **0.9** | 495* | 0.9* | 1500 | | | **VC040/075** | 7380 |
| | **0.9** | 518 | 1.4 | 1500 | | | **VC040/090** | 8180 |
| | **0.9** | 527 | 2.4 | 1500 | | | **VC050/110** | 10320 |
| | **0.8** | 556* | 0.8* | 1800 | | | **VC040/075** | 7380 |
| | **0.8** | 547* | 0.9* | 1800 | | | **VC040/090** | 8180 |
| | **0.8** | 592 | 2.1 | 1800 | | | **VC050/110** | 10320 |
| | **0.6** | 766 | 1.5 | 2400 | | | **VC050/110** | 10320 |
| | **0.58** | 695* | 0.9* | 2400 | | | **VC040/090** | 8180 |
| | **0.5** | 884 | 1.2 | 3000 | | | **VC050/110** | 10320 |
| | **0.35** | 784 | 1 | 4000 | | | **VC050/110** | 10320 |
| | **0.28** | 928* | 0.8* | 5000 | | | **VC050/110** | 10320 |
| M1 063 0.12 6P.. (n1 = 900 $min^{-1}$) | **12.3** | 62 | 1 | 73.3 | | **VR063/040** | | 3283 |
| | **10.2** | 68 | 1.1 | 88 | | **VR063/040** | | 3488 |
| | **7.7** | 83* | 0.8* | 117.3 | | **VR063/040** | | 3490 |
| | **180** | 5 | 3.7 | 5 | **VP030** | | | 692 |
| | **120** | 8 | 2.5 | 7.5 | **VP030** | | | 792 |
| | **90** | 10 | 2 | 10 | **VP030** | | | 871 |
| | **60** | 14 | 1.4 | 15 | **VP030** | | | 997 |
| | **60** | 15 | 3.3 | 15 | **VP040** | | | 1920 |
| | **45** | 18 | 1.1 | 20 | **VP030** | | | 1098 |
| | **45** | 19 | 2.5 | 20 | **VP040** | | | 2113 |
| | **36** | 20 | 1.1 | 25 | **VP030** | | | 1183 |
| | **36** | 23 | 1.9 | 25 | **VP040** | | | 2276 |
| | **30** | 23* | 0.9* | 30 | **VP030** | | | 1257 |
| | **30** | 25 | 1.9 | 30 | **VP040** | | | 2419 |
| | **22.5** | 29* | 0.7* | 40 | **VP030** | | | 1383 |
| | **22.5** | 32 | 1.4 | 40 | **VP040** | | | 2662 |
| | **22.5** | 32 | 2.6 | 40 | **VP050** | | | 3654 |
| | **18** | 36 | 1.2 | 50 | **VP040** | | | 2868 |
| | **18** | 38 | 2 | 50 | **VP050** | | | 3936 |
| | **15** | 41* | 0.9* | 60 | **VP040** | | | 3047 |
| | **15** | 42 | 1.7 | 60 | **VP050** | | | 4183 |
| | **12.3** | 63 | 1.7 | 73.3 | | **VR063/050** | | 4506 |
| | **11.3** | 50* | 0.7* | 80 | **VP040** | | | 3354 |
| | **11.3** | 50 | 1.4 | 80 | **VP050** | | | 4604 |
| | **10.2** | 70 | 2.1 | 88 | | **VR063/050** | | 4788 |
| | **9** | 56 | 1 | 100 | **VP050** | | | 4840 |
| | **7.7** | 84 | 1.5 | 117.3 | | **VR063/050** | | 4840 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **0.12** | | | | | | | | |
| M1 063 0.12 6P.. (n1 = 900 $min^{-1}$) | **6.1** | 97 | 1.2 | 146.7 | | **VR063/050** | | 4840 |
| | **6.1** | 101 | 2.1 | 146.7 | | **VR063/063** | | 6270 |
| | **5.1** | 108 | 1 | 176 | | **VR063/050** | | 4840 |
| | **5.1** | 112 | 1.8 | 176 | | **VR063/063** | | 6270 |
| | **3.8** | 125* | 0.7* | 234.6 | | **VR063/050** | | 4840 |
| | **3.8** | 131 | 1.3 | 234.6 | | **VR063/063** | | 6270 |
| | **3.1** | 145 | 1 | 293.3 | | **VR063/063** | | 6270 |
| **0.18** | | | | | | | | |
| M1 063 0.18 2P.. (n1 = 2800 $min^{-1}$) | **373.3** | 4 | 3.2 | 7.5 | **VP030** | | | 542 |
| | **280** | 5.2 | 2.5 | 10 | **VP030** | | | 597 |
| | **186.7** | 7.4 | 1.8 | 15 | **VP030** | | | 683 |
| | **140** | 9.5 | 1.3 | 20 | **VP030** | | | 752 |
| | **140** | 10 | 2.8 | 20 | **VP040** | | | 1447 |
| | **112** | 11 | 1.4 | 25 | **VP030** | | | 810 |
| | **112** | 12 | 2.3 | 25 | **VP040** | | | 1559 |
| | **93.3** | 13 | 1.2 | 30 | **VP030** | | | 861 |
| | **93.3** | 14 | 2.5 | 30 | **VP040** | | | 1657 |
| | **70** | 16* | 0.9* | 40 | **VP030** | | | 948 |
| | **70** | 17 | 1.8 | 40 | **VP040** | | | 1824 |
| | **70** | 18 | 3.2 | 40 | **VP050** | | | 2503 |
| | **56** | 21 | 1.4 | 50 | **VP040** | | | 1964 |
| | **56** | 21 | 2.5 | 50 | **VP050** | | | 2696 |
| | **46.7** | 24 | 1.2 | 60 | **VP040** | | | 2087 |
| | **46.7** | 24 | 2.1 | 60 | **VP050** | | | 2865 |
| | **35** | 29* | 0.8* | 80 | **VP040** | | | 2298 |
| | **35** | 30 | 1.5 | 80 | **VP050** | | | 3153 |
| | **28** | 34 | 1.2 | 100 | **VP050** | | | 3397 |
| M1 063 0.18 4P.. (n1 = 1400 $min^{-1}$) | **280** | 5 | 3.4 | 5 | **VP030** | | | 597 |
| | **186.7** | 8 | 2.3 | 7.5 | **VP030** | | | 683 |
| | **140** | 10 | 1.8 | 10 | **VP030** | | | 752 |
| | **93.3** | 14 | 1.3 | 15 | **VP030** | | | 861 |
| | **93.3** | 15 | 2.9 | 15 | **VP040** | | | 1657 |
| | **70** | 18 | 1 | 20 | **VP030** | | | 948 |
| | **70** | 19 | 2 | 20 | **VP040** | | | 1824 |
| | **56** | 21 | 1 | 25 | **VP030** | | | 1021 |
| | **56** | 23 | 1.7 | 25 | **VP040** | | | 1964 |
| | **46.7** | 24* | 0.8* | 30 | **VP030** | | | 1085 |
| | **46.7** | 26 | 1.7 | 30 | **VP040** | | | 2087 |
| | **35** | 32 | 1.3 | 40 | **VP040** | | | 2298 |
| | **35** | 33 | 2.3 | 40 | **VP050** | | | 3153 |
| | **28** | 38 | 1 | 50 | **VP040** | | | 2475 |
| | **28** | 39 | 1.9 | 50 | **VP050** | | | 3397 |
| | **23.3** | 43* | 0.8* | 60 | **VP040** | | | 2630 |
| | **23.3** | 43 | 1.6 | 60 | **VP050** | | | 3610 |
| | **19.1** | 64* | 0.8* | 73.3 | | **VR063/040** | | 2833 |
| | **17.5** | 52 | 1.2 | 80 | **VP050** | | | 3973 |
| | **15.9** | 70* | 0.8* | 88 | | **VR063/040** | | 3011 |
| | **14** | 78* | 0.9* | 100 | | | **VC030/040** | 2769 |
| | **14** | 60* | 0.9* | 100 | **VP050** | | | 4280 |
| | **14** | 81 | 1.7 | 100 | | | **VC030/050** | 3800 |
| | **14** | 81 | 1.9 | 100 | | | **VC030/063** | 4967 |
| | **11.9** | 85* | 0.6* | 117.3 | | **VR063/040** | | 3314 |
| | **11.9** | 87 | 1.1 | 117.3 | | **VR063/050** | | 4548 |
| | **9.5** | 101* | 0.9* | 146.7 | | **VR063/050** | | 4840 |
| | **9.3** | 112 | 1.2 | 150 | | | **VC030/050** | 4350 |
| | **9.3** | 113 | 1.9 | 150 | | | **VC030/063** | 5686 |
| | **7.9** | 113* | 0.7* | 176 | | **VR063/050** | | 4840 |
| | **7** | 141* | 0.9* | 200 | | | **VC030/050** | 4788 |
| | **7** | 143 | 1.8 | 200 | | | **VC030/063** | 6259 |
| | **7** | 150 | 2.8 | 200 | | | **VC040/075** | 7380 |
| | **5.8** | 133* | 0.6* | 234.6 | | **VR063/050** | | 4840 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\mathbf{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **0.18** | | | | | | | | |
| M1 063 0.18 4P.. (n1 = 1400 $min^{-1}$) | **5.6** | 171 | 1.4 | 250 | | | **VC030/063** | 6270 |
| | **5.6** | 180 | 2.1 | 250 | | | **VC040/075** | 7380 |
| | **5.6** | 188 | 3 | 250 | | | **VC040/090** | 8180 |
| | **4.7** | 183* | 0.8* | 300 | | | **VC030/050** | 4840 |
| | **4.7** | 175 | 1.5 | 300 | | | **VC030/063** | 6270 |
| | **4.7** | 200 | 2.2 | 300 | | | **VC040/075** | 7380 |
| | **4.7** | 210 | 3.3 | 300 | | | **VC040/090** | 8180 |
| | **3.5** | 222 | 1 | 400 | | | **VC030/063** | 6270 |
| | **3.5** | 246 | 1.7 | 400 | | | **VC040/075** | 7380 |
| | **3.5** | 259 | 2.4 | 400 | | | **VC040/090** | 8180 |
| | **2.8** | 257* | 0.8* | 500 | | | **VC030/063** | 6270 |
| | **2.8** | 282 | 1.3 | 500 | | | **VC040/075** | 7380 |
| | **2.8** | 303 | 1.9 | 500 | | | **VC040/090** | 8180 |
| | **2.3** | 333* | 0.8* | 600 | | | **VC030/063** | 6270 |
| | **2.3** | 362 | 1.1 | 600 | | | **VC040/075** | 7380 |
| | **2.3** | 390 | 1.8 | 600 | | | **VC040/090** | 8180 |
| | **1.9** | 435* | 0.9* | 750 | | | **VC040/075** | 7380 |
| | **1.9** | 469 | 1.5 | 750 | | | **VC040/090** | 8180 |
| | **1.6** | 487* | 0.8* | 900 | | | **VC040/075** | 7380 |
| | **1.6** | 526 | 1.3 | 900 | | | **VC040/090** | 8180 |
| | **1.2** | 622* | 0.7* | 1200 | | | **VC040/075** | 7380 |
| | **1.2** | 629 | 1 | 1200 | | | **VC040/090** | 8180 |
| | **1.2** | 671 | 1.9 | 1200 | | | **VC050/110** | 10320 |
| | **0.9** | 735* | 0.8* | 1500 | | | **VC040/090** | 8180 |
| | **0.9** | 790 | 1.6 | 1500 | | | **VC050/110** | 10320 |
| | **0.8** | 874* | 0.8* | 1800 | | | **VC040/090** | 8180 |
| | **0.8** | 861 | 1.5 | 1800 | | | **VC050/110** | 10320 |
| | **0.58** | 1113 | 1.1 | 2400 | | | **VC050/110** | 10320 |
| | **0.5** | 1370* | 0.8* | 3000 | | | **VC050/110** | 10320 |
| M1 071 0.18 6P.. (n1 = 900 $min^{-1}$) | **90** | 16 | 3 | 10 | **VP040** | | | 1677 |
| | **60** | 23 | 2.2 | 15 | **VP040** | | | 1920 |
| | **45** | 29 | 1.5 | 20 | **VP040** | | | 2113 |
| | **45** | 29 | 2.8 | 20 | **VP050** | | | 2900 |
| | **36** | 34 | 1.3 | 25 | **VP040** | | | 2276 |
| | **36** | 35 | 2.1 | 25 | **VP050** | | | 3124 |
| | **30** | 38 | 1.3 | 30 | **VP040** | | | 2419 |
| | **30** | 40 | 2.4 | 30 | **VP050** | | | 3320 |
| | **22.5** | 47 | 1 | 40 | **VP040** | | | 2662 |
| | **22.5** | 49 | 1.8 | 40 | **VP050** | | | 3654 |
| | **22.5** | 50 | 3.4 | 40 | **VP063** | | | 4776 |
| | **18** | 56 | 1.4 | 50 | **VP050** | | | 3936 |
| | **18** | 59 | 2.7 | 50 | **VP063** | | | 5145 |
| | **15** | 63 | 1.1 | 60 | **VP050** | | | 4183 |
| | **15** | 66 | 2.1 | 60 | **VP063** | | | 5467 |
| | **15** | 66 | 2.1 | 60 | **VP075** | | | 5467 |
| | **12.2** | 95 | 1.2 | 73.5 | | **VR071/050** | | 4506 |
| | **11.3** | 75* | 0.9* | 80 | **VP050** | | | 4604 |
| | **11.3** | 79 | 1.6 | 80 | **VP063** | | | 6018 |
| | **11.3** | 79 | 1.6 | 80 | **VP075** | | | 6018 |
| | **10.2** | 105 | 1.4 | 88.2 | | **VR071/050** | | 4788 |
| | **9** | 90 | 1.4 | 100 | **VP063** | | | 6270 |
| | **9** | 90 | 1.4 | 100 | **VP075** | | | 6270 |
| | **7.7** | 126 | 1 | 117.6 | | **VR071/050** | | 4840 |
| | **7.7** | 131 | 1.8 | 117.6 | | **VR071/063** | | 6270 |
| | **6.1** | 152 | 1.4 | 147 | | **VR071/063** | | 6270 |
| | **6** | 148* | 0.8* | 147 | | **VR071/050** | | |
| | **5.1** | 168 | 1.2 | 176.4 | | **VR071/063** | | 6270 |
| | **5.1** | 179 | 1.7 | 176.4 | | **VR071/075** | | 7380 |
| | **3.8** | 197* | 0.9* | 235.2 | | **VR071/063** | | 6270 |
| | **3.8** | 211 | 1.2 | 235.2 | | **VR071/075** | | 7380 |
| | **3.1** | 218* | 0.7* | 294 | | **VR071/063** | | 6270 |
| | **3.1** | 235 | 1 | 294 | | **VR071/075** | | 7380 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ (min$^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **0.25** | | | | | | | | |
| M1 063 0.25 2P.. (n1 = 2800 min$^{-1}$) | **373.3** | 5.6 | 2.3 | 7.5 | **VP030** | | | 542 |
| | **280** | 7.2 | 1.8 | 10 | **VP030** | | | 597 |
| | **186.7** | 10 | 1.3 | 15 | **VP030** | | | 683 |
| | **186.7** | 11 | 2.9 | 15 | **VP040** | | | 1315 |
| | **140** | 13* | 0.9* | 20 | **VP030** | | | 752 |
| | **140** | 14 | 2 | 20 | **VP040** | | | 1447 |
| | **112** | 15 | 1 | 25 | **VP030** | | | 810 |
| | **112** | 17 | 1.6 | 25 | **VP040** | | | 1559 |
| | **93.3** | 18* | 0.8* | 30 | **VP030** | | | 861 |
| | **93.3** | 20 | 1.7 | 30 | **VP040** | | | 1657 |
| | **70** | 25 | 1.2 | 40 | **VP040** | | | 1824 |
| | **70** | 25 | 2.3 | 40 | **VP040** | | | 2503 |
| | **56** | 29 | 1 | 50 | **VP040** | | | 1964 |
| | **56** | 30 | 1.8 | 50 | **VP040** | | | 2696 |
| | **46.7** | 34* | 0.8* | 60 | **VP040** | | | 2087 |
| | **46.7** | 34 | 1.5 | 60 | **VP040** | | | 2865 |
| | **35** | 42 | 1.1 | 80 | **VP040** | | | 3153 |
| | **28** | 48* | 0.8* | 100 | **VP040** | | | 3397 |
| | **7** | 150 | 1.4 | 400 | | | **VC030/063** | 6270 |
| | **5.6** | 175 | 1.2 | 500 | | | **VC030/063** | 6270 |
| M1 071 0.25 4P.. (n1 = 1400 min$^{-1}$) | **280** | 8 | 4.5 | 5 | **VP040** | | | 1149 |
| | **186.7** | 11 | 3.6 | 7.5 | **VP040** | | | 1315 |
| | **140** | 14 | 2.8 | 10 | **VP040** | | | 1447 |
| | **93.3** | 21 | 1.9 | 15 | **VP040** | | | 1657 |
| | **70** | 27 | 1.5 | 20 | **VP040** | | | 1824 |
| | **70** | 27 | 2.7 | 20 | **VP050** | | | 2503 |
| | **56** | 32 | 1.2 | 25 | **VP040** | | | 1964 |
| | **56** | 32 | 2.2 | 25 | **VP050** | | | 2696 |
| | **46.7** | 36 | 1.3 | 30 | **VP040** | | | 2087 |
| | **46.7** | 37 | 2.3 | 30 | **VP050** | | | 2865 |
| | **35** | 44* | 0.9* | 40 | **VP040** | | | 2298 |
| | **35** | 46 | 1.7 | 40 | **VP050** | | | 3153 |
| | **35** | 48 | 3.1 | 40 | **VP063** | | | 4122 |
| | **28** | 54 | 1.4 | 50 | **VP050** | | | 3397 |
| | **28** | 56 | 2.4 | 50 | **VP063** | | | 4440 |
| | **23.3** | 60 | 1.1 | 60 | **VP050** | | | 3610 |
| | **23.3** | 63 | 2 | 60 | **VP063** | | | 4719 |
| | **23.3** | 68 | 3.2 | 60 | **VP075** | | | 5569 |
| | **19** | 88 | 1 | 73.5 | | **VR071/050** | | 3889 |
| | **17.5** | 72* | 0.9* | 80 | **VP050** | | | 3973 |
| | **17.5** | 78 | 1.6 | 80 | **VP063** | | | 5193 |
| | **17.5** | 82 | 2.3 | 80 | **VP075** | | | 6130 |
| | **15.9** | 98 | 1.1 | 88.2 | | **VR071/050** | | 4132 |
| | **14** | 87 | 1.4 | 100 | **VP063** | | | 5595 |
| | **14** | 94 | 1.9 | 100 | **VP075** | | | 6603 |
| | **14** | 116 | 3 | 100 | | | **VC040/075** | 5863 |
| | **14** | 119 | 3 | 100 | | | **VC040/090** | 6487 |
| | **11.9** | 121* | 0.8* | 117.6 | | **VR071/050** | | 4548 |
| | **11.9** | 125 | 1.5 | 117.6 | | **VR071/063** | | 5945 |
| | **9.5** | 143 | 1.2 | 147 | | **VR071/063** | | 6270 |
| | **9.5** | 151 | 1.7 | 147 | | **VR071/075** | | 7380 |
| | **7.9** | 163 | 1 | 176.4 | | **VR071/063** | | 6270 |
| | **7.9** | 172 | 1.4 | 176.4 | | **VR071/075** | | 7380 |
| | **7** | 209 | 2 | 200 | | | **VC040/075** | 7380 |
| | **7** | 217 | 2.8 | 200 | | | **VC040/090** | 8174 |
| | **6** | 192* | 0.7* | 235.2 | | **VR071/063** | | 6270 |
| | **6** | 201 | 1.1 | 235.2 | | **VR071/075** | | 7380 |
| | **5.6** | 250 | 1.5 | 250 | | | **VC040/075** | 7380 |
| | **5.6** | 261 | 2.2 | 250 | | | **VC040/090** | 8180 |
| | **4.8** | 215* | 0.6* | 294 | | **VR071/063** | | 6270 |
| | **4.8** | 230* | 0.9* | 294 | | **VR071/075** | | 7380 |
| | **4.7** | 278 | 1.6 | 300 | | | **VC040/075** | 7380 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **0.25** | | | | | | | | |
| M1 071 0.25 4P.. (n1 = 1400 $min^{-1}$) | **4.7** | 291 | 2.4 | 300 | | | **VC040/090** | 8180 |
| | **3.5** | 336 | 1.1 | 400 | | | **VC040/075** | 7380 |
| | **3.5** | 359 | 1.7 | 400 | | | **VC040/090** | 8180 |
| | **3.5** | 386 | 3.1 | 400 | | | **VC050/110** | 10320 |
| | **2.8** | 384* | 0.8* | 500 | | | **VC040/075** | 7380 |
| | **2.8** | 420 | 1.3 | 500 | | | **VC040/090** | 8180 |
| | **2.8** | 512 | 2.3 | 500 | | | **VC050/110** | 10320 |
| | **2.8** | 460 | 3.4 | 500 | | | **VC063/130** | 13500 |
| | **2.3** | 517* | 0.9* | 600 | | | **VC040/075** | 7380 |
| | **2.3** | 512 | 1.2 | 600 | | | **VC040/090** | 8180 |
| | **2.3** | 548 | 2.3 | 600 | | | **VC050/110** | 10320 |
| | **2.3** | 571 | 3.1 | 600 | | | **VC063/130** | 13500 |
| | **1.9** | 622* | 0.7* | 750 | | | **VC040/075** | 7380 |
| | **1.9** | 598* | 0.9* | 750 | | | **VC040/090** | 8180 |
| | **1.9** | 660 | 1.9 | 750 | | | **VC050/110** | 10320 |
| | **1.9** | 687 | 2.6 | 750 | | | **VC063/130** | 13500 |
| | **1.9** | 666 | 3.5 | 750 | | | **VC063/150** | 18000 |
| | **1.6** | 667* | 0.8* | 900 | | | **VC040/090** | 8180 |
| | **1.6** | 751 | 1.7 | 900 | | | **VC050/110** | 10320 |
| | **1.6** | 783 | 2.2 | 900 | | | **VC063/130** | 13500 |
| | **1.6** | 840 | 2.5 | 900 | | | **VC063/150** | 18000 |
| | **1.2** | 905* | 0.8* | 1200 | | | **VC040/090** | 8180 |
| | **1.2** | 943 | 1.3 | 1200 | | | **VC050/110** | 10320 |
| | **1.2** | 988 | 1.8 | 1200 | | | **VC063/130** | 13500 |
| | **1.2** | 1013 | 2.6 | 1200 | | | **VC063/150** | 18000 |
| | **0.93** | 1064 | 1.2 | 1500 | | | **VC050/110** | 10320 |
| | **0.9** | 1165 | 1.5 | 1500 | | | **VC063/130** | 13500 |
| | **0.8** | 1315 | 1.3 | 1800 | | | **VC063/130** | 13500 |
| | **0.8** | 1199 | 1.8 | 1800 | | | **VC063/150** | 18000 |
| | **0.78** | 1195 | 1.1 | 1800 | | | **VC050/110** | 10320 |
| | **0.6** | 1676* | 0.7* | 2400 | | | **VC050/110** | 10320 |
| | **0.6** | 1624 | 1 | 2400 | | | **VC063/130** | 13500 |
| | **0.6** | 1446 | 1.8 | 2400 | | | **VC063/150** | 18000 |
| | **0.5** | 1713 | 1.4 | 3000 | | | **VC063/150** | 18000 |
| | **0.47** | 1935* | 0.8* | 3000 | | | **VC063/130** | 13500 |
| | **0.4** | 2026* | 0.9* | 4000 | | | **VC063/150** | 18000 |
| | **0.35** | 2046* | 0.6* | 4000 | | | **VC063/130** | 13500 |
| | **0.3** | 2251* | 0.7* | 5000 | | | **VC063/150** | 18000 |
| | **0.28** | 2430* | 0.5* | 5000 | | | **VC063/130** | 13500 |
| M1 071 0.25 6P.. (n1 = 900 $min^{-1}$) | **180** | 12 | 3.5 | 5 | **VP040** | | | 1331 |
| | **120** | 17 | 2.6 | 7.5 | **VP040** | | | 1524 |
| | **90** | 22 | 2 | 10 | **VP040** | | | 1677 |
| | **60** | 31 | 1.4 | 15 | **VP040** | | | 1920 |
| | **60** | 32 | 2.9 | 15 | **VP050** | | | 2635 |
| | **45** | 40 | 1.1 | 20 | **VP040** | | | 2113 |
| | **45** | 40 | 1.9 | 20 | **VP050** | | | 2900 |
| | **36** | 48* | 0.9* | 25 | **VP040** | | | 2276 |
| | **36** | 48 | 1.5 | 25 | **VP050** | | | 3124 |
| | **36** | 50 | 3 | 25 | **VP063** | | | 4084 |
| | **30** | 53* | 0.9* | 30 | **VP040** | | | 2419 |
| | **30** | 54 | 1.7 | 30 | **VP050** | | | 3320 |
| | **30** | 57 | 3.1 | 30 | **VP063** | | | 4339 |
| | **22.5** | 67* | 0.7* | 40 | **VP040** | | | 2662 |
| | **22.5** | 67 | 1.2 | 40 | **VP050** | | | 3654 |
| | **22.5** | 70 | 2.4 | 40 | **VP063** | | | 4776 |
| | **18** | 78 | 1 | 50 | **VP050** | | | 3936 |
| | **18** | 81 | 1.8 | 50 | **VP063** | | | 5145 |
| | **18** | 85 | 3 | 50 | **VP075** | | | 6073 |
| | **15** | 88* | 0.8* | 60 | **VP050** | | | 4183 |
| | **15** | 92 | 1.5 | 60 | **VP063** | | | 5467 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **0.25** | | | | | | | | |
| M1 071 0.25 6P.. (n1 = 900 $min^{-1}$) | **15** | 99 | 2.5 | 60 | **VP075** | | | 6453 |
| | **11.3** | 110 | 1.2 | 80 | **VP063** | | | 6018 |
| | **11.3** | 117 | 1.7 | 80 | **VP075** | | | 7103 |
| | **9** | 125 | 1 | 100 | **VP063** | | | 6270 |
| | **9** | 133 | 1.4 | 100 | **VP075** | | | 7380 |
| | **7.7** | 181 | 1.3 | 117.6 | | **VR071/063** | | 6270 |
| | **7.7** | 191 | 1.9 | 117.6 | | **VR071/075** | | 7380 |
| | **6.1** | 211 | 1 | 147 | | **VR071/063** | | 6270 |
| | **6.1** | 219 | 1.5 | 147 | | **VR071/075** | | 7380 |
| | **5.1** | 248 | 1.2 | 176.4 | | **VR071/075** | | 7380 |
| **0.37** | | | | | | | | |
| M1 071 0.37 2P.. (n1 = 2800 $min^{-1}$) | **373.3** | 8.3 | 3.4 | 7.5 | **VP040** | | | 1044 |
| | **280** | 11 | 2.6 | 10 | **VP040** | | | 1149 |
| | **186.7** | 16 | 1.9 | 15 | **VP040** | | | 1315 |
| | **140** | 20 | 1.4 | 20 | **VP040** | | | 1447 |
| | **112** | 25 | 1.1 | 25 | **VP040** | | | 1559 |
| | **112** | 25 | 2 | 25 | **VP050** | | | 2140 |
| | **93.3** | 29 | 1.2 | 30 | **VP040** | | | 1657 |
| | **93.3** | 29 | 2.2 | 30 | **VP050** | | | 2274 |
| | **70** | 37* | 0.8* | 40 | **VP040** | | | 1824 |
| | **70** | 37 | 1.6 | 40 | **VP050** | | | 2503 |
| | **70** | 38 | 2.9 | 40 | **VP063** | | | 3272 |
| | **56** | 44 | 1.2 | 50 | **VP050** | | | 2696 |
| | **56** | 45 | 2.3 | 50 | **VP063** | | | 3524 |
| | **56** | 47 | 3.5 | 50 | **VP075** | | | 4160 |
| | **46.7** | 50 | 1 | 60 | **VP050** | | | 2865 |
| | **46.7** | 52 | 1.9 | 60 | **VP063** | | | 3745 |
| | **46.7** | 55 | 2.9 | 60 | **VP075** | | | 4421 |
| | **35** | 62* | 0.7* | 80 | **VP050** | | | 3153 |
| | **35** | 65 | 1.4 | 80 | **VP063** | | | 4122 |
| | **35** | 68 | 2.1 | 80 | **VP075** | | | 4865 |
| | **28** | 74 | 1.1 | 100 | **VP063** | | | 4440 |
| | **28** | 78 | 1.7 | 100 | **VP075** | | | 5241 |
| | **9.3** | 182 | 1.3 | 300 | | | **VC030/063** | 6270 |
| | **7** | 222 | 1 | 400 | | | **VC030/063** | 6270 |
| M1 071 0.37 4P.. (n1 = 1400 $min^{-1}$) | **4.7** | 441 | 2.9 | 300 | | | **VC050/110** | 10320 |
| | **280** | 11 | 3 | 5 | **VP040** | | | 1149 |
| | **186.7** | 16 | 2.4 | 7.5 | **VP040** | | | 1315 |
| | **140** | 21 | 1.9 | 10 | **VP040** | | | 1447 |
| | **140** | 22 | 3.3 | 10 | **VP050** | | | 1987 |
| | **93.3** | 31 | 1.3 | 15 | **VP040** | | | 1657 |
| | **93.3** | 31 | 2.4 | 15 | **VP050** | | | 2274 |
| | **70** | 39 | 1 | 20 | **VP040** | | | 1824 |
| | **70** | 40 | 1.8 | 20 | **VP050** | | | 2503 |
| | **56** | 47* | 0.8* | 25 | **VP040** | | | 1964 |
| | **56** | 48 | 1.5 | 25 | **VP050** | | | 2696 |
| | **56** | 50 | 2.7 | 25 | **VP063** | | | 3524 |
| | **46.7** | 53* | 0.8* | 30 | **VP040** | | | 2087 |
| | **46.7** | 55 | 1.5 | 30 | **VP050** | | | 2865 |
| | **46.7** | 57 | 2.8 | 30 | **VP063** | | | 3745 |
| | **35** | 68 | 1.1 | 40 | **VP050** | | | 3153 |
| | **35** | 71 | 2.1 | 40 | **VP063** | | | 4122 |
| | **35** | 74 | 3.3 | 40 | **VP075** | | | 4865 |
| | **28** | 80* | 0.9* | 50 | **VP050** | | | 3397 |
| | **28** | 83 | 1.6 | 50 | **VP063** | | | 4440 |
| | **28** | 88 | 2.5 | 50 | **VP075** | | | 5241 |
| | **23.3** | 89* | 0.8* | 60 | **VP050** | | | 3610 |
| | **23.3** | 94 | 1.4 | 60 | **VP063** | | | 4719 |
| | **23.3** | 98 | 2.0 | 60 | **VP075** | | | 5569 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **0.37** | | | | | | | | |
| M1 071 0.37 4P.. (n1 = 1400 $min^{-1}$) | **17.5** | 115 | 1.1 | 80 | **VP063** | | | 5193 |
| | **17.5** | 121 | 1.6 | 80 | **VP075** | | | 6130 |
| | **14** | 129* | 0.9* | 100 | **VP063** | | | 5595 |
| | **14.0** | 139 | 1.3 | 100 | **VP075** | | | 6603 |
| | **14** | 172 | 2.1 | 100 | | | **VC040/075** | 5863 |
| | **14** | 176 | 2.1 | 100 | | | **VC040/090** | 6487 |
| | **11.9** | 185 | 1 | 117.6 | | **VR071/063** | | 5945 |
| | **9.5** | 212* | 0.8* | 147 | | **VR071/063** | | 6270 |
| | **9.5** | 223 | 1.1 | 147 | | **VR071/075** | | 7380 |
| | **9.3** | 245 | 1.7 | 150 | | | **VC040/075** | 6712 |
| | **9.3** | 251 | 2.1 | 150 | | | **VC040/090** | 7426 |
| | **7.9** | 254* | 0.9* | 176.4 | | **VR071/075** | | 7380 |
| | **7** | 309 | 1.4 | 200 | | | **VC040/075** | 7380 |
| | **7** | 322 | 1.9 | 200 | | | **VC040/090** | 8174 |
| | **7** | 338 | 3.4 | 200 | | | **VC050/110** | 10320 |
| | **5.6** | 370 | 1 | 250 | | | **VC040/075** | 7380 |
| | **5.6** | 386 | 1.5 | 250 | | | **VC040/090** | 8180 |
| | **5.6** | 412 | 2.8 | 250 | | | **VC050/110** | 10320 |
| | **4.7** | 405 | 1 | 300 | | | **VC040/075** | 7380 |
| | **4.7** | 402 | 1.5 | 300 | | | **VC040/090** | 8180 |
| | **3.5** | 498* | 0.7* | 400 | | | **VC040/075** | 7380 |
| | **3.5** | 523 | 1.2 | 400 | | | **VC040/090** | 8180 |
| | **3.5** | 571 | 2.1 | 400 | | | **VC050/110** | 10320 |
| | **3.5** | 571 | 2.9 | 400 | | | **VC063/130** | 13500 |
| | **2.8** | 611* | 0.9* | 500 | | | **VC040/090** | 8180 |
| | **2.8** | 757 | 1.5 | 500 | | | **VC050/110** | 10320 |
| | **2.8** | 681 | 2.3 | 500 | | | **VC063/130** | 13500 |
| | **2.8** | 681 | 3.4 | 500 | | | **VC063/150** | 18000 |
| | **2.3** | 757* | 0.8* | 600 | | | **VC040/090** | 8180 |
| | **2.3** | 812 | 1.6 | 600 | | | **VC050/110** | 10320 |
| | **2.3** | 844 | 2.1 | 600 | | | **VC063/130** | 13500 |
| | **2.3** | 840 | 3.2 | 600 | | | **VC063/150** | 18000 |
| | **1.9** | 950 | 1.3 | 750 | | | **VC050/110** | 10320 |
| | **1.9** | 1017 | 1.7 | 750 | | | **VC063/130** | 13500 |
| | **1.9** | 986 | 2.4 | 750 | | | **VC063/150** | 18000 |
| | **1.6** | 1079 | 1.2 | 900 | | | **VC050/110** | 10320 |
| | **1.6** | 1158 | 1.5 | 900 | | | **VC063/130** | 13500 |
| | **1.6** | 1244 | 1.7 | 900 | | | **VC063/150** | 18000 |
| | **1.2** | 1396* | 0.8* | 1200 | | | **VC050/110** | 10320 |
| | **1.2** | 1462 | 1.2 | 1200 | | | **VC063/130** | 13500 |
| | **1.2** | 1499 | 1.8 | 1200 | | | **VC063/150** | 18000 |
| | **0.9** | 1623* | 0.8* | 1500 | | | **VC050/110** | 10320 |
| | **0.9** | 1674 | 1.1 | 1500 | | | **VC063/130** | 13500 |
| | **0.8** | 1887* | 0.9* | 1800 | | | **VC063/130** | 13500 |
| | **0.8** | 1775 | 1.2 | 1800 | | | **VC063/150** | 18000 |
| | **0.6** | 2141 | 1.2 | 2400 | | | **VC063/150** | 18000 |
| | **0.5** | 2535* | 0.9* | 3000 | | | **VC063/150** | 18000 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ (min$^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **0.37** | | | | | | | | |
| M1 080 0.37 6P.. (n1 = 900 min$^{-1}$) | **180** | 17 | 4.3 | 5 | **VP050** | | | 1827 |
| | **120** | 25 | 3.3 | 7.5 | **VP050** | | | 2091 |
| | **90** | 33 | 2.5 | 10 | **VP050** | | | 2302 |
| | **60** | 47 | 1.8 | 15 | **VP050** | | | 2635 |
| | **45** | 60 | 1.3 | 20 | **VP050** | | | 2900 |
| | **45** | 60 | 2.4 | 20 | **VP063** | | | 3791 |
| | **36** | 72 | 1 | 25 | **VP050** | | | 3124 |
| | **36** | 74 | 1.9 | 25 | **VP063** | | | 4084 |
| | **36** | 77 | 3.1 | 25 | **VP075** | | | 4820 |
| | **30** | 80 | 1.1 | 30 | **VP050** | | | 3320 |
| | **30** | 82 | 2.1 | 30 | **VP063** | | | 4339 |
| | **30** | 87 | 3.3 | 30 | **VP075** | | | 5122 |
| | **22.5** | 102 | 1.6 | 40 | **VP063** | | | 4776 |
| | **22.5** | 108 | 2.6 | 40 | **VP075** | | | 5637 |
| | **18** | 120 | 1.2 | 50 | **VP063** | | | 5145 |
| | **18** | 126 | 1.8 | 50 | **VP075** | | | 6073 |
| | **18** | 136 | 3.2 | 50 | **VP090** | | | 6719 |
| | **15** | 137 | 1 | 60 | **VP063** | | | 5467 |
| | **15** | 144 | 1.5 | 60 | **VP075** | | | 6453 |
| | **15** | 153 | 2.5 | 60 | **VP090** | | | 7140 |
| | **12** | 206 | 1.6 | 75 | | **VR080/075** | | 6952 |
| | **11.3** | 167* | 0.8* | 80 | **VP063** | | | 6018 |
| | **11.3** | 173 | 1.2 | 80 | **VP075** | | | 7103 |
| | **11.3** | 185 | 1.7 | 80 | **VP090** | | | 7859 |
| | **11.3** | 201 | 2.8 | 80 | **VP110** | | | 9931 |
| | **10** | 260 | 1.7 | 90 | | **VR080/075** | | 7380 |
| | **9** | 196 | 1 | 100 | **VP075** | | | 7380 |
| | **9** | 212 | 1.3 | 100 | **VP090** | | | 8180 |
| | **9** | 232 | 2.2 | 100 | **VP110** | | | 10320 |
| | **7.5** | 283 | 1.3 | 120 | | **VR080/075** | | 7380 |
| | **6** | 324 | 1 | 150 | | **VR080/075** | | 7380 |
| | **6** | 347 | 1.6 | 150 | | **VR080/090** | | 8180 |
| | **5** | 389 | 1.3 | 180 | | **VR080/090** | | 8180 |
| | **3.8** | 471 | 1.0 | 240 | | **VR080/090** | | 8180 |
| | **3.8** | 509 | 1.6 | 240 | | **VR080/110** | | 10320 |
| | **3** | 577 | 1.3 | 300 | | **VR080/110** | | 10320 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **0.55** | | | | | | | | |
| M1 071 0.55 2P.. (n1 = 2800 $min^{-1}$) | **373** | 12 | 2.3 | 7.5 | **VP040** | | | 1044 |
| | **280** | 16 | 1.8 | 10 | **VP040** | | | 1149 |
| | **280** | 17 | 3.2 | 10 | **VP050** | | | 1577 |
| | **187** | 24 | 1.3 | 15 | **VP040** | | | 1315 |
| | **186.7** | 24 | 2.4 | 15 | **VP050** | | | 18,5 |
| | **140** | 30 | 1 | 20 | **VP040** | | | 1447 |
| | **140** | 31 | 1.7 | 20 | **VP050** | | | 1987 |
| | **140** | 32 | 3.3 | 20 | **VP063** | | | 2597 |
| | **112** | 37* | 0.8* | 25 | **VP040** | | | 1559 |
| | **112** | 38 | 1.4 | 25 | **VP050** | | | 2140 |
| | **112** | 39 | 2.5 | 25 | **VP063** | | | 2797 |
| | **93.3** | 43* | 0.8* | 30 | **VP040** | | | 1657 |
| | **93.3** | 43 | 1.5 | 30 | **VP050** | | | 2274 |
| | **93.3** | 44 | 2.7 | 30 | **VP063** | | | 2973 |
| | **70** | 55 | 1.1 | 40 | **VP050** | | | 2503 |
| | **70** | 56 | 1.9 | 40 | **VP063** | | | 3272 |
| | **70** | 59 | 3.1 | 40 | **VP075** | | | 3862 |
| | **56** | 65* | 0.8* | 50 | **VP050** | | | 2696 |
| | **56** | 68 | 1.5 | 50 | **VP063** | | | 3524 |
| | **56** | 70 | 2.3 | 50 | **VP075** | | | 4160 |
| | **46.7** | 74* | 0.7* | 60 | **VP050** | | | 2865 |
| | **46.7** | 78 | 1.2 | 60 | **VP063** | | | 3745 |
| | **46.7** | 81 | 2 | 60 | **VP075** | | | 4421 |
| | **35** | 96* | 0.9* | 80 | **VP063** | | | 4122 |
| | **35** | 99 | 1.3 | 80 | **VP075** | | | 4865 |
| | **28** | 111* | 0.7* | 100 | **VP063** | | | 4440 |
| | **28** | 116 | 1 | 100 | **VP075** | | | 5241 |
| | **9.3** | 305 | 2 | 300 | | | **VC040/090** | 8180 |
| | **7** | 375 | 1.5 | 400 | | | **VC040/090** | 8180 |
| | **5.6** | 441 | 1.2 | 500 | | | **VC040/090** | 8180 |
| M1 080 0.55 4P.. (n1 = 1400 $min^{-1}$) | **280** | 17 | 3.7 | 5 | **VP050** | | | 1577 |
| | **186.7** | 25 | 2.9 | 7.5 | **VP050** | | | 1805 |
| | **140** | 32 | 2.2 | 10 | **VP050** | | | 1987 |
| | **93.3** | 46 | 1.6 | 15 | **VP050** | | | 2274 |
| | **93.3** | 47 | 3.2 | 15 | **VP063** | | | 2973 |
| | **70** | 59 | 1.2 | 20 | **VP050** | | | 2503 |
| | **70** | 61 | 2.2 | 20 | **VP063** | | | 3272 |
| | **56** | 71 | 1 | 25 | **VP050** | | | 2696 |
| | **56** | 73 | 1.8 | 25 | **VP063** | | | 3524 |
| | **56** | 76 | 2.8 | 25 | **VP075** | | | 4160 |
| | **46.7** | 81 | 1 | 30 | **VP050** | | | 2865 |
| | **46.7** | 83 | 1.9 | 30 | **VP063** | | | 3745 |
| | **46.7** | 87 | 2.9 | 30 | **VP075** | | | 4421 |
| | **35** | 105 | 1.4 | 40 | **VP063** | | | 4122 |
| | **35** | 108 | 2 | 40 | **VP075** | | | 4865 |
| | **35** | 114 | 3.5 | 40 | **VP090** | | | 5383 |
| | **28** | 124 | 1.1 | 50 | **VP063** | | | 4440 |
| | **28** | 129 | 1.6 | 50 | **VP075** | | | 5241 |
| | **28** | 137 | 2.7 | 50 | **VP090** | | | 5799 |
| | **23.3** | 140* | 0.9* | 60 | **VP063** | | | 4719 |
| | **23.3** | 146 | 1.4 | 60 | **VP075** | | | 5569 |
| | **23.3** | 158 | 2.2 | 60 | **VP090** | | | 6163 |
| | **18.7** | 205 | 1.2 | 75 | | **VR080/075** | | 6000 |
| | **17.5** | 180 | 1.1 | 80 | **VP075** | | | 6130 |
| | **17.5** | 189 | 1.5 | 80 | **VP090** | | | 6783 |
| | **17.5** | 201 | 2.6 | 80 | **VP110** | | | 8571 |
| | **15.6** | 230 | 1.3 | 90 | | **VR080/075** | | 6375 |
| | **14** | 206* | 0.9* | 100 | **VP075** | | | 6603 |
| | **14** | 221 | 1.2 | 100 | **VP090** | | | 7306 |
| | **14** | 236 | 2 | 100 | **VP110** | | | 9232 |
| | **14** | 268 | 2.4 | 100 | | | **VC050/110** | 10320 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **0.55** | | | | | | | | |
| M1 080 0.55 4P.. (n1 = 1400 $min^{-1}$) | **11.7** | 284 | 1 | 120 | | **VR080/075** | | 7017 |
| | **11.7** | 297 | 1.6 | 120 | | **VR080/090** | | 7764 |
| | **9.3** | 332* | 0.8* | 150 | | **VR080/075** | | 7380 |
| | **9.3** | 355 | 1.3 | 150 | | **VR080/090** | | 8180 |
| | **9.3** | 387 | 2.4 | 150 | | | **VC050/110** | 10320 |
| | **9.3** | 387 | 3.1 | 150 | | | **VC063/110** | 9384 |
| | **7.8** | 398 | 1 | 180 | | **VR080/090** | | 8180 |
| | **7** | 503 | 2.3 | 200 | | | **VC050/110** | 10320 |
| | **7** | 503 | 3.2 | 200 | | | **VC063/130** | 13500 |
| | **5.8** | 513 | 1.3 | 240 | | **VR080/110** | | 10320 |
| | **5.6** | 612 | 1.9 | 250 | | | **VC050/110** | 10320 |
| | **5.6** | 612 | 2.5 | 250 | | | **VC063/130** | 13500 |
| | **4.7** | 597 | 1 | 300 | | **VR080/110** | | 10320 |
| | **4.7** | 639 | 2 | 300 | | | **VC050/110** | 10320 |
| | **4.7** | 666 | 2.6 | 300 | | | **VC063/130** | 13500 |
| | **3.5** | 826 | 1.4 | 400 | | | **VC050/110** | 10320 |
| | **3.5** | 849 | 1.9 | 400 | | | **VC063/130** | 13500 |
| | **2.8** | 984 | 1.1 | 500 | | | **VC050/110** | 10320 |
| | **2.8** | 996 | 1.6 | 500 | | | **VC063/130** | 13500 |
| | **2.3** | 1181 | 1 | 600 | | | **VC050/110** | 10320 |
| | **1.9** | 1411* | 0.9* | 750 | | | **VC050/110** | 10320 |
| | **1.9** | 1471 | 1.2 | 750 | | | **VC063/130** | 13500 |
| | **1.6** | 1651* | 0.8* | 900 | | | **VC050/110** | 10320 |
| | **1.2** | 2132* | 0.8* | 1200 | | | **VC063/130** | 13500 |
| | **0.8** | 2638* | 0.8* | 1800 | | | **VC063/150** | 18000 |
| | **0.6** | 3182* | 0.8* | 2400 | | | **VC063/150** | 18000 |
| M1 080 0.55 6P.. (n1 = 900 $min^{-1}$) | **120** | 38 | 2.2 | 7.5 | **VP050** | | | 2091 |
| | **90** | 49 | 1.7 | 10 | **VP050** | | | 2302 |
| | **90** | 50 | 3.1 | 10 | **VP063** | | | 3009 |
| | **60** | 69 | 1.2 | 15 | **VP050** | | | 2635 |
| | **60** | 71 | 2.2 | 15 | **VP063** | | | 3444 |
| | **45** | 89* | 0.9* | 20 | **VP050** | | | 2900 |
| | **45** | 90 | 1.6 | 20 | **VP063** | | | 3791 |
| | **45** | 93 | 2.9 | 20 | **VP075** | | | 4474 |
| | **36** | 109 | 1.3 | 25 | **VP063** | | | 4084 |
| | **36** | 124 | 2.1 | 25 | **VP075** | | | 4820 |
| | **36** | 117 | 3.5 | 25 | **VP090** | | | 5333 |
| | **30** | 123 | 1.4 | 30 | **VP063** | | | 4339 |
| | **30** | 128 | 2 | 30 | **VP075** | | | 5122 |
| | **22.5** | 152 | 1.1 | 40 | **VP063** | | | 4776 |
| | **22.5** | 159 | 1.5 | 40 | **VP075** | | | 5637 |
| | **22.5** | 168 | 2.7 | 40 | **VP090** | | | 6238 |
| | **18** | 181* | 0.9* | 50 | **VP063** | | | 5145 |
| | **18** | 187 | 1.2 | 50 | **VP075** | | | 6073 |
| | **18** | 198 | 2 | 50 | **VP090** | | | 6719 |
| | **15** | 207* | 0.7* | 60 | **VP063** | | | 5467 |
| | **15** | 214 | 1 | 60 | **VP075** | | | 6453 |
| | **15** | 224 | 1.6 | 60 | **VP090** | | | 7140 |
| | **15** | 242 | 2.8 | 60 | **VP110** | | | 9023 |
| | **12** | 306 | 1.1 | 75 | | **VR080/075** | | 6952 |
| | **11.3** | 262* | 0.8* | 80 | **VP075** | | | 7103 |
| | **11.3** | 275 | 1.1 | 80 | **VP090** | | | 7859 |
| | **11.3** | 294 | 1.9 | 80 | **VP110** | | | 9931 |
| | **10** | 341 | 1.1 | 90 | | **VR080/075** | | 7380 |
| | **9** | 315* | 0.9* | 100 | **VP090** | | | 8180 |
| | **9** | 338 | 1.5 | 100 | **VP110** | | | 10320 |
| | **7.5** | 441 | 1.4 | 120 | | **VR080/090** | | 8180 |
| | **6** | 516 | 1.1 | 150 | | **VR080/090** | | 8180 |
| | **5** | 578* | 0.9* | 180 | | **VR080/090** | | 8180 |
| | **3.8** | 756 | 1.1 | 240 | | **VR080/110** | | 10320 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **0.75** | | | | | | | | |
| M2 080 0.75 2P.. (n1 = 2800 $min^{-1}$) | **373.3** | 17 | 3 | 7.5 | **VP050** | | | 1433 |
| | **280** | 22 | 2.4 | 10 | **VP050** | | | 1577 |
| | **186.7** | 31 | 1.7 | 15 | **VP050** | | | 1805 |
| | **186.7** | 33 | 3.3 | 15 | **VP063** | | | 2359 |
| | **140** | 41 | 1.3 | 20 | **VP050** | | | 1987 |
| | **140** | 43 | 2.3 | 20 | **VP063** | | | 2597 |
| | **112** | 49 | 1 | 25 | **VP050** | | | 2140 |
| | **112** | 52 | 1.8 | 25 | **VP063** | | | 2797 |
| | **112** | 54 | 2.9 | 25 | **VP075** | | | 3302 |
| | **93.3** | 56 | 1.1 | 30 | **VP050** | | | 2274 |
| | **93.3** | 60 | 2 | 30 | **VP063** | | | 2973 |
| | **93.3** | 62 | 3 | 30 | **VP075** | | | 3509 |
| | **70** | 77 | 1.4 | 40 | **VP063** | | | 3272 |
| | **70** | 80 | 2.3 | 40 | **VP075** | | | 3862 |
| | **70** | 82 | 3.4 | 40 | **VP090** | | | 4273 |
| | **56** | 92 | 1.1 | 50 | **VP063** | | | 3524 |
| | **56** | 96 | 1.7 | 50 | **VP075** | | | 4160 |
| | **56** | 99 | 2.7 | 50 | **VP090** | | | 4603 |
| | **46.7** | 106* | 0.9* | 60 | **VP063** | | | 3745 |
| | **46.7** | 107 | 1.3 | 60 | **VP075** | | | 4421 |
| | **46.7** | 115 | 2.1 | 60 | **VP090** | | | 4891 |
| | **35** | 135 | 1 | 80 | **VP075** | | | 4865 |
| | **35** | 143 | 1.6 | 80 | **VP090** | | | 5383 |
| | **35** | 152 | 2.6 | 80 | **VP110** | | | 6803 |
| | **28** | 159* | 0.8* | 100 | **VP075** | | | 5241 |
| | **28** | 169 | 1.2 | 100 | **VP090** | | | 5799 |
| | **28** | 179 | 2.1 | 100 | **VP110** | | | 7328 |
| | **9.3** | 424 | 2.8 | 300 | | | **VC050/110** | 10320 |
| | **7** | 512 | 1.1 | 400 | | | **VC040/090** | 8180 |
| | **7** | 553 | 2.1 | 400 | | | **VC050/110** | 10320 |
| | **5.6** | 601* | 0.9* | 500 | | | **VC040/090** | 8180 |
| | **5.6** | 640 | 1.6 | 500 | | | **VC050/110** | 10320 |
| M2 080 0.75 4P.. (n1 = 1400 $min^{-1}$) | **280** | 23 | 2.7 | 5 | **VP050** | | | 1577 |
| | **186.7** | 34 | 2.1 | 7.5 | **VP050** | | | 1805 |
| | **140** | 44 | 1.6 | 10 | **VP050** | | | 1987 |
| | **140** | 45 | 3 | 10 | **VP063** | | | 2567 |
| | **93.3** | 63 | 1.2 | 15 | **VP050** | | | 2274 |
| | **93.3** | 64 | 2.2 | 15 | **VP063** | | | 2973 |
| | **93** | 66 | 3.5 | 15 | **VP075** | | | 3509 |
| | **70** | 81* | 0.9* | 20 | **VP050** | | | 2503 |
| | **70** | 83 | 1.6 | 20 | **VP063** | | | 3272 |
| | **70** | 85 | 2.8 | 20 | **VP075** | | | 3862 |
| | **56** | 99* | 0.7* | 25 | **VP050** | | | 2696 |
| | **56** | 100 | 1.3 | 25 | **VP063** | | | 3524 |
| | **56** | 102 | 2 | 25 | **VP075** | | | 4160 |
| | **46.7** | 112* | 0.8* | 30 | **VP050** | | | 2865 |
| | **46.7** | 114 | 1.4 | 30 | **VP063** | | | 3745 |
| | **46.7** | 117 | 2 | 30 | **VP075** | | | 4421 |
| | **35** | 143 | 1 | 40 | **VP063** | | | 4122 |
| | **35** | 147 | 1.5 | 40 | **VP075** | | | 4865 |
| | **35.0** | 156 | 3 | 40 | **VP090** | | | 5383 |
| | **28** | 171* | 0.8* | 50 | **VP063** | | | 4440 |
| | **28** | 177 | 1.2 | 50 | **VP075** | | | 5241 |
| | **28** | 184 | 1.8 | 50 | **VP090** | | | 5800 |
| | **28** | 194 | 3.4 | 50 | **VP110** | | | 7328 |
| | **23.3** | 200 | 1 | 60 | **VP075** | | | 5569 |
| | **23.3** | 212 | 1.5 | 60 | **VP090** | | | 6163 |
| | **23.3** | 227 | 2.7 | 60 | **VP110** | | | 7787 |
| | **18.7** | 280* | 0.9* | 75 | | **VR080/075** | | 6000 |
| | **17.5** | 258 | 1.1 | 80 | **VP090** | | | 6783 |
| | **17.5** | 274 | 1.9 | 80 | **VP110** | | | 8571 |
| | **17.5** | 250 | 80 | 6130 | **VP075** | | | 6130 |
| | **15.6** | 313 | 1 | 90 | | **VR080/075** | | 6375 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ (min$^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **0.75** | | | | | | | | |
| M2 080 0.75 4P.. (n1 = 1400 min$^{-1}$) | **14** | 302* | 0.9* | 100 | **VP090** | | | 7306 |
| | **14** | 322 | 1.5 | 100 | **VP110** | | | 9232 |
| | **14** | 365 | 1.8 | 100 | | | **VC050/110** | 8198 |
| | **14** | 369 | 3 | 100 | | | **VC063/130** | 10722 |
| | **11.7** | 405 | 1.2 | 120 | | **VR080/090** | | 7764 |
| | **9.3** | 483* | 0.9* | 150 | | **VR080/090** | | 8180 |
| | **9.3** | 527 | 1.8 | 150 | | | **VC050/110** | 9384 |
| | **9.3** | 521 | 3 | 150 | | | **VC063/130** | 12274 |
| | **7.8** | 543* | 0.7* | 180 | | **VR080/090** | | 8180 |
| | **7** | 685 | 1.7 | 200 | | | **VC050/110** | 10320 |
| | **7** | 685 | 2.3 | 200 | | | **VC063/130** | 13500 |
| | **7** | 685 | 3 | 200 | | | **VC063/150** | 18000 |
| | **5.8** | 700* | 0.9* | 240 | | **VR080/110** | | 10320 |
| | **5.6** | 835 | 1.4 | 250 | | | **VC050/110** | 10320 |
| | **5.6** | 835 | 1.8 | 250 | | | **VC063/130** | 13500 |
| | **5.6** | 835 | 2.5 | 250 | | | **VC063/150** | 18000 |
| | **4.7** | 871 | 1.5 | 300 | | | **VC050/110** | 10320 |
| | **4.7** | 908 | 1.9 | 300 | | | **VC063/130** | 13500 |
| | **4.7** | 993 | 2.3 | 300 | | | **VC063/150** | 18000 |
| | **3.5** | 1126 | 1.1 | 400 | | | **VC050/110** | 10320 |
| | **3.5** | 1157 | 1.4 | 400 | | | **VC063/130** | 13500 |
| | **3.5** | 1175 | 2.3 | 400 | | | **VC063/150** | 18000 |
| | **2.8** | 1535* | 0.8* | 500 | | | **VC050/110** | 10320 |
| | **2.8** | 1358 | 1.1 | 500 | | | **VC063/130** | 13500 |
| | **2.8** | 1291 | 1.8 | 500 | | | **VC063/150** | 18000 |
| | **2.3** | 1645* | 0.8* | 600 | | | **VC050/110** | 10320 |
| | **2.3** | 1631 | 1 | 600 | | | **VC063/130** | 13500 |
| | **2.3** | 1529 | 1.7 | 600 | | | **VC063/150** | 18000 |
| | **1.9** | 2005* | 0.9* | 750 | | | **VC063/130** | 13500 |
| | **1.9** | 1783 | 1.3 | 750 | | | **VC063/150** | 18000 |
| | **1.6** | 2283* | 0.8* | 900 | | | **VC063/130** | 13500 |
| | **1.6** | 2215* | 0.9* | 900 | | | **VC063/150** | 18000 |
| | **1.2** | 2680 | 1 | 1200 | | | **VC063/150** | 18000 |
| M2 090 0.75 6P.. (n1 = 900 min$^{-1}$) | **120** | 52 | 2.9 | 7.5 | **VP063** | | | 2734 |
| | **90** | 68 | 2.3 | 10 | **VP063** | | | 3009 |
| | **60** | 97 | 1.6 | 15 | **VP063** | | | 3444 |
| | **60** | 98 | 2.4 | 15 | **VP075** | | | 4065 |
| | **45** | 123 | 1.2 | 20 | **VP063** | | | 3791 |
| | **45** | 126 | 1.9 | 20 | **VP075** | | | 4474 |
| | **36** | 149* | 0.9* | 25 | **VP063** | | | 4084 |
| | **36** | 153 | 1.4 | 25 | **VP075** | | | 4820 |
| | **30** | 167 | 1 | 30 | **VP063** | | | 4339 |
| | **30** | 174 | 1.5 | 30 | **VP075** | | | 5122 |
| | **30** | 179 | 2.6 | 30 | **VP090** | | | 5667 |
| | **22.5** | 210* | 0.8* | 40 | **VP063** | | | 4776 |
| | **22.5** | 216 | 1.1 | 40 | **VP075** | | | 5637 |
| | **22.5** | 226 | 1.8 | 40 | **VP090** | | | 6238 |
| | **22.5** | 239 | 3.3 | 40 | **VP110** | | | 9931 |
| | **18** | 255 | 1 | 50 | **VP075** | | | 6073 |
| | **18** | 271 | 1.4 | 50 | **VP090** | | | 6719 |
| | **18** | 287 | 2.6 | 50 | **VP110** | | | 10320 |
| | **15** | 296* | 0.8* | 60 | **VP075** | | | 6453 |
| | **15** | 306 | 1.1 | 60 | **VP090** | | | 7140 |
| | **15** | 325 | 2.1 | 60 | **VP110** | | | 9023 |
| | **12.2** | 393 | 3.2 | 73.5 | | **VR090/110** | | 9614 |
| | **11.3** | 401 | 1.4 | 80 | **VP110** | | | 9931 |
| | **11.3** | 407 | 2.1 | 80 | **VP130** | | | 12989 |
| | **9.2** | 508 | 2.3 | 98 | | **VR090/110** | | 10320 |
| | **9** | 462 | 1.1 | 100 | **VP110** | | | 10320 |
| | **9** | 470 | 1.7 | 100 | **VP130** | | | 13500 |
| | **7.3** | 607 | 1.8 | 122.5 | | **VR090/110** | | 10320 |
| | **6.1** | 682 | 1.5 | 147 | | **VR090/110** | | 10320 |
| | **4.6** | 832 | 1.0 | 196 | | **VR090/110** | | 10320 |
| | **3.7** | 944 | 1.2 | 245 | | **VR090/130** | | 13500 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **1.10** | | | | | | | | |
| M2 080 1.10 2P.. (n1 = 2800 $min^{-1}$) | **373.3** | 25 | 2.1 | 7.5 | **VP050** | | | 1433 |
| | **280** | 33 | 1.7 | 10 | **VP050** | | | 1577 |
| | **280** | 33 | 3 | 10 | **VP063** | | | 2061 |
| | **186.7** | 48 | 1.2 | 15 | **VP050** | | | 1805 |
| | **186.7** | 46 | 2.1 | 15 | **VP063** | | | 2359 |
| | **186.7** | 50 | 3.3 | 15 | **VP075** | | | 2785 |
| | **140** | 62* | 0.9* | 20 | **VP050** | | | 1987 |
| | **140** | 60 | 1.6 | 20 | **VP063** | | | 2597 |
| | **140** | 65 | 2.7 | 20 | **VP075** | | | 3065 |
| | **112** | 72 | 1.2 | 25 | **VP063** | | | 2797 |
| | **112** | 77 | 2 | 25 | **VP075** | | | 3302 |
| | **112** | 81 | 3.1 | 25 | **VP090** | | | 3653 |
| | **93.3** | 87* | 0.7* | 30 | **VP050** | | | 2274 |
| | **93.3** | 82 | 1.4 | 30 | **VP063** | | | 2973 |
| | **93.3** | 89 | 1.9 | 30 | **VP075** | | | 3509 |
| | **93.3** | 93 | 3.3 | 30 | **VP090** | | | 3882 |
| | **70** | 104 | 1 | 40 | **VP063** | | | 3272 |
| | **70** | 114 | 1.4 | 40 | **VP075** | | | 3862 |
| | **70** | 120 | 2.3 | 40 | **VP090** | | | 4273 |
| | **56** | 137 | 1.1 | 50 | **VP075** | | | 4160 |
| | **56** | 145 | 1.8 | 50 | **VP090** | | | 4603 |
| | **56** | 150 | 3.3 | 50 | **VP110** | | | 5816 |
| | **46.7** | 158* | 0.9* | 60 | **VP075** | | | 4421 |
| | **46.7** | 169 | 1.5 | 60 | **VP090** | | | 4891 |
| | **46.7** | 176 | 2.7 | 60 | **VP110** | | | 6181 |
| | **35** | 201* | 0.7* | 80 | **VP075** | | | 4865 |
| | **35** | 210 | 1.1 | 80 | **VP090** | | | 5383 |
| | **35** | 222 | 1.8 | 80 | **VP110** | | | 6803 |
| | **28** | 248* | 0.8* | 100 | **VP090** | | | 5799 |
| | **28** | 263 | 1.4 | 100 | **VP110** | | | 7328 |
| | **9.3** | 621 | 1.9 | 300 | | | **VC050/110** | 10320 |
| | **7** | 810 | 1.4 | 400 | | | **VC050/110** | 10320 |
| | **5.6** | 938 | 1.1 | 500 | | | **VC050/110** | 10320 |
| M2 090 1.10 6P.. (n1 = 900 $min^{-1}$) | **120** | 76 | 2 | 7.5 | **VP063** | | | 2734 |
| | **120** | 77 | 2.8 | 7.5 | **VP075** | | | 3227 |
| | **90** | 99 | 1.5 | 10 | **VP063** | | | 3009 |
| | **90** | 100 | 2.3 | 10 | **VP075** | | | 3551 |
| | **60** | 142 | 1.1 | 15 | **VP063** | | | 3444 |
| | **60** | 144 | 1.6 | 15 | **VP075** | | | 4065 |
| | **60** | 149 | 3.1 | 15 | **VP090** | | | 4498 |
| | **45** | 180* | 0.8* | 20 | **VP063** | | | 3791 |
| | **45** | 184 | 1.3 | 20 | **VP075** | | | 4474 |
| | **45** | 195 | 2.2 | 20 | **VP090** | | | 4951 |
| | **36** | 225 | 1 | 25 | **VP075** | | | 4820 |
| | **36** | 231 | 1.6 | 25 | **VP090** | | | 5333 |
| | **36** | 239 | 3.2 | 25 | **VP110** | | | 6739 |
| | **30** | 256 | 1 | 30 | **VP075** | | | 5122 |
| | **30** | 263 | 1.8 | 30 | **VP090** | | | 5667 |
| | **30** | 270 | 3.1 | 30 | **VP110** | | | 7161 |
| | **22.5** | 322* | 0.9* | 40 | **VP075** | | | 5637 |
| | **22.5** | 331 | 1.2 | 40 | **VP090** | | | 6238 |
| | **22.5** | 345 | 2.3 | 40 | **VP110** | | | 7882 |
| | **18** | 397 | 1 | 50 | **VP090** | | | 6719 |
| | **18** | 414 | 1.8 | 50 | **VP110** | | | 8491 |
| | **15** | 448* | 0.8* | 60 | **VP090** | | | 7140 |
| | **15** | 476 | 1.4 | 60 | **VP110** | | | 9023 |
| | **12.2** | 576 | 2.2 | 73.5 | | **VR090/110** | | 9614 |
| | **11.3** | 588 | 1 | 80 | **VP110** | | | 9931 |
| | **11.3** | 598 | 1.4 | 80 | **VP130** | | | 12989 |
| | **9.2** | 746 | 1.6 | 98 | | **VR090/110** | | 10320 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **1.10** | | | | | | | | |
| M2 090 1.10 4P.. (n1 = 1400 $min^{-1}$) | **9** | 686 | 1.1 | 100 | **VP130** | | | 13500 |
| | **7.3** | 890 | 1.2 | 122.5 | | **VR090/110** | | 10320 |
| | **6.1** | 1000 | 1 | 147 | | **VR090/110** | | 10320 |
| | **186.7** | 50 | 2.6 | 7.5 | **VP063** | | | 2359 |
| | **140** | 65 | 2 | 10 | **VP063** | | | 2597 |
| | **140** | 66 | 3 | 10 | **VP075** | | | 3065 |
| | **93.3** | 93 | 1.5 | 15 | **VP063** | | | 2973 |
| | **93.3** | 96 | 2.1 | 15 | **VP075** | | | 3509 |
| | **70** | 122 | 1.1 | 20 | **VP063** | | | 3272 |
| | **70** | 123 | 1.7 | 20 | **VP075** | | | 3862 |
| | **70** | 128 | 3.1 | 20 | **VP090** | | | 4273 |
| | **56** | 146* | 0.9* | 25 | **VP063** | | | 3524 |
| | **56** | 150 | 1.3 | 25 | **VP075** | | | 4160 |
| | **56** | 156 | 2.4 | 25 | **VP090** | | | 4603 |
| | **46.7** | 167 | 1 | 30 | **VP063** | | | 3745 |
| | **46.7** | 171 | 1.3 | 30 | **VP075** | | | 4421 |
| | **46.7** | 178 | 2.4 | 30 | **VP090** | | | 4891 |
| | **35** | 216 | 1 | 40 | **VP075** | | | 4865 |
| | **35** | 225 | 1.6 | 40 | **VP090** | | | 5383 |
| | **35** | 237 | 3 | 40 | **VP110** | | | 6803 |
| | **28** | 263* | 0.9* | 50 | **VP075** | | | 5241 |
| | **28** | 270 | 1.3 | 50 | **VP090** | | | 5799 |
| | **28** | 281 | 2.3 | 50 | **VP110** | | | 7328 |
| | **23.3** | 297* | 0.7* | 60 | **VP075** | | | 5569 |
| | **23.3** | 311 | 1 | 60 | **VP090** | | | 6163 |
| | **23.3** | 324 | 1.9 | 60 | **VP110** | | | 7787 |
| | **19** | 392 | 2.5 | 73.50 | | **VR090/110** | | 8298 |
| | **17.5** | 384 | 1 | 80 | **VP090** | | | 6783 |
| | **17.5** | 402 | 1.3 | 80 | **VP110** | | | 8571 |
| | **17.5** | 408 | 2.1 | 80 | **VP130** | | | 11210 |
| | **14.3** | 508 | 1.8 | 98 | | **VR090/110** | | 9133 |
| | **14** | 473 | 1 | 100 | **VP110** | | | 9232 |
| | **14** | 480 | 1.5 | 100 | **VP130** | | | 12076 |
| | **14** | 542 | 2.1 | 100 | | | **VC063/130** | 10722 |
| | **11.4** | 599 | 1.5 | 122.5 | | **VR090/110** | | 9838 |
| | **9.5** | 686 | 1.1 | 147 | | **VR090/110** | | 10320 |
| | **9.3** | 764 | 2.1 | 150 | | | **VC063/130** | 12274 |
| | **9.3** | 753 | 3.1 | 150 | | | **VC063/150** | 18000 |
| | **7.1** | 828* | 0.8* | 196 | | **VR090/110** | | 10320 |
| | **7** | 1005 | 1.6 | 200 | | | **VC063/130** | 13500 |
| | **7** | 966 | 2.4 | 200 | | | **VC063/150** | 18000 |
| | **5.7** | 962* | 0.9* | 245 | | **VR090/130** | | 13500 |
| | **5.6** | 1224 | 1.2 | 250 | | | **VC063/130** | 13500 |
| | **5.6** | 1175 | 1.7 | 250 | | | **VC063/150** | 18000 |
| | **4.7** | 1312 | 1.3 | 300 | | | **VC063/130** | 13500 |
| | **4.7** | 1364 | 1.7 | 300 | | | **VC063/150** | 18000 |
| | **3.5** | 1671 | 1 | 400 | | | **VC063/130** | 13500 |
| | **3.5** | 1619 | 1.6 | 400 | | | **VC063/150** | 18000 |
| | **2.8** | 1991* | 0.8* | 500 | | | **VC063/130** | 13500 |
| | **2.8** | 1893 | 1.2 | 500 | | | **VC063/150** | 18000 |
| | **2.3** | 2510* | 0.7* | 600 | | | **VC063/130** | 13500 |
| | **2.3** | 2242 | 1.2 | 600 | | | **VC063/150** | 18000 |
| | **1.9** | 2616* | 0.9* | 750 | | | **VC063/150** | 18000 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **1.50** | | | | | | | | |
| M2 100 1.50 6P.. (n1 = 900 $min^{-1}$) | **120** | 105 | 2 | 7.5 | **VP075** | | | 3227 |
| | **90** | 137 | 1.7 | 10 | **VP075** | | | 3551 |
| | **90** | 138 | 2.7 | 10 | **VP090** | | | 3929 |
| | **60** | 196 | 1.2 | 15 | **VP075** | | | 4065 |
| | **60** | 201 | 2.1 | 15 | **VP090** | | | 4498 |
| | **45** | 255 | 1.1 | 20 | **VP075** | | | 4474 |
| | **45** | 258 | 1.5 | 20 | **VP090** | | | 4951 |
| | **45** | 264 | 2.7 | 20 | **VP110** | | | 6256 |
| | **36** | 311* | 0.8* | 25 | **VP075** | | | 4820 |
| | **36** | 314 | 1.2 | 25 | **VP090** | | | 5333 |
| | **36** | 322 | 2.4 | 25 | **VP110** | | | 6739 |
| | **36** | 330 | 3.2 | 25 | **VP130** | | | 8814 |
| | **30** | 354* | 0.8* | 30 | **VP075** | | | 5122 |
| | **30** | 358 | 1.3 | 30 | **VP090** | | | 5667 |
| | **30** | 363 | 2.3 | 30 | **VP110** | | | 7161 |
| | **30** | 377 | 3.1 | 30 | **VP130** | | | 9366 |
| | **22.5** | 459 | 1 | 40 | **VP090** | | | 6238 |
| | **22.5** | 471 | 1.7 | 40 | **VP110** | | | 7882 |
| | **22.5** | 478 | 2.3 | 40 | **VP130** | | | 10309 |
| | **18** | 565 | 1.3 | 50 | **VP110** | | | 8491 |
| | **18** | 573 | 1.8 | 50 | **VP130** | | | 11105 |
| | **18** | 589 | 2.7 | 50 | **VP150** | | | 15182 |
| | **15** | 649 | 1.1 | 60 | **VP110** | | | 9023 |
| | **15** | 659 | 1.4 | 60 | **VP130** | | | 11801 |
| | **15** | 678 | 2.1 | 60 | **VP150** | | | 16133 |
| | **11.3** | 815 | 1.1 | 80 | **VP130** | | | 12989 |
| | **11.3** | 841 | 1.5 | 80 | **VP150** | | | 17757 |
| | **9** | 955* | 0.8* | 100 | **VP130** | | | 13500 |
| | **9** | 971 | 1.2 | 100 | **VP150** | | | 18000 |
| M2 090 1.50 4P.. (n1 = 1400 $min^{-1}$) | **186.7** | 68 | 1.9 | 7.5 | **VP063** | | | 2359 |
| | **186.7** | 68 | 2.7 | 7.5 | **VP075** | | | 2785 |
| | **140** | 89 | 1.5 | 10 | **VP063** | | | 2597 |
| | **140** | 90 | 2.2 | 10 | **VP075** | | | 3065 |
| | **93.3** | 127 | 1.1 | 15 | **VP063** | | | 2973 |
| | **93.3** | 130 | 1.5 | 15 | **VP075** | | | 3509 |
| | **93.3** | 134 | 3 | 15 | **VP090** | | | 3882 |
| | **70** | 166* | 0.8* | 20 | **VP063** | | | 3272 |
| | **70** | 168 | 1.3 | 20 | **VP075** | | | 3862 |
| | **70** | 172 | 2.1 | 20 | **VP090** | | | 4273 |
| | **56** | 205 | 1 | 25 | **VP075** | | | 4160 |
| | **56** | 210 | 1.6 | 25 | **VP090** | | | 4603 |
| | **56** | 218 | 3.1 | 25 | **VP110** | | | 5816 |
| | **46.7** | 233 | 1 | 30 | **VP075** | | | 4421 |
| | **46.7** | 239 | 1.7 | 30 | **VP090** | | | 4891 |
| | **46.7** | 246 | 3 | 30 | **VP110** | | | 6181 |
| | **35** | 299* | 0.8* | 40 | **VP075** | | | 4865 |
| | **35** | 307 | 1.2 | 40 | **VP090** | | | 5383 |
| | **35** | 319 | 2.2 | 40 | **VP110** | | | 6803 |
| | **28** | 368* | 0.9* | 50 | **VP090** | | | 5799 |
| | **28** | 384 | 1.7 | 50 | **VP110** | | | 7328 |
| | **23.3** | 424* | 0.8* | 60 | **VP090** | | | 6163 |
| | **23.3** | 442 | 1.4 | 60 | **VP110** | | | 7787 |
| | **19** | 535 | 1.9 | 73.5 | | **VR090/110** | | 8298 |
| | **17.5** | 548* | 0.9* | 80 | **VP110** | | | 8571 |
| | **17.5** | 557 | 1.5 | 80 | **VP130** | | | 11210 |
| | **14.3** | 693 | 1.3 | 98 | | **VR090/110** | | 9133 |
| | **14** | 655 | 1.1 | 100 | **VP130** | | | 12076 |
| | **14** | 739 | 1.5 | 100 | | | **VC063/130** | 10722 |
| | **11.4** | 817 | 1.1 | 122.5 | | **VR090/110** | | 9838 |
| | **9.5** | 936* | 0.8* | 147 | | **VR090/110** | | 10320 |
| | **9.3** | 1042 | 1.5 | 150 | | | **VC063/130** | 12274 |
| | **9.3** | 1026 | 2.3 | 150 | | | **VC063/150** | 18000 |
| | **7.1** | 1149* | 0.8* | 196 | | **VR090/130** | | 13500 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **1.50** | | | | | | | | |
| M2 090 1.50 4P.. (n1 = 1400 $min^{-1}$) | **7** | 1371 | 1.2 | 200 | | | **VC063/130** | 13500 |
| | **7** | 1317 | 1.8 | 200 | | | **VC063/150** | 18000 |
| | **5.7** | 962* | 0.9* | 245 | | **VR090/130** | | 13500 |
| | **5.6** | 1669* | 0.9* | 250 | | | **VC063/130** | 13500 |
| | **5.6** | 1602 | 1.3 | 250 | | | **VC063/150** | 18000 |
| | **4.7** | 1789 | 1 | 300 | | | **VC063/130** | 13500 |
| | **4.7** | 1860 | 1.3 | 300 | | | **VC063/150** | 18000 |
| | **3.5** | 2279* | 0.7* | 400 | | | **VC063/130** | 13500 |
| | **3.5** | 2208 | 1.2 | 400 | | | **VC063/150** | 18000 |
| | **2.8** | 2582* | 0.9* | 500 | | | **VC063/150** | 18000 |
| | **2.3** | 3057* | 0.9* | 600 | | | **VC063/150** | 18000 |
| M2 090 1.50 2P.. (n1 = 2800 $min^{-1}$) | **373** | 35 | 2.7 | 7.5 | **VP063** | | | 1873 |
| | **280** | 45 | 2.2 | 10 | **VP063** | | | 2061 |
| | **280** | 45 | 3.2 | 10 | **VP075** | | | 2433 |
| | **186.7** | 66 | 1.6 | 15 | **VP063** | | | 2359 |
| | **186.7** | 66 | 2.3 | 15 | **VP075** | | | 2785 |
| | **140** | 86 | 1.2 | 20 | **VP063** | | | 2597 |
| | **140** | 86 | 1.9 | 20 | **VP075** | | | 3065 |
| | **140** | 90 | 2.9 | 20 | **VP090** | | | 3391 |
| | **112** | 105* | 0.9* | 25 | **VP063** | | | 2797 |
| | **112** | 105 | 1.4 | 25 | **VP075** | | | 3302 |
| | **112** | 110 | 2.3 | 25 | **VP090** | | | 3653 |
| | **93.3** | 120 | 1 | 30 | **VP063** | | | 2973 |
| | **93.3** | 121 | 1.4 | 30 | **VP075** | | | 3509 |
| | **93.3** | 127 | 2.4 | 30 | **VP090** | | | 3882 |
| | **70** | 156* | 0.7* | 40 | **VP063** | | | 3272 |
| | **70** | 156 | 1.1 | 40 | **VP075** | | | 3862 |
| | **70** | 164 | 1.7 | 40 | **VP090** | | | 4273 |
| | **70** | 170 | 3.1 | 40 | **VP110** | | | 5399 |
| | **56** | 187 | 1.3 | 50 | **VP075** | | | 4160 |
| | **56** | 197 | 1.3 | 50 | **VP090** | | | 4603 |
| | **56** | 205 | 2.4 | 50 | **VP110** | | | 5816 |
| | **46.7** | 215 | 1.1 | 60 | **VP075** | | | 4421 |
| | **46.7** | 227 | 1.1 | 60 | **VP090** | | | 4891 |
| | **46.7** | 236 | 2 | 60 | **VP110** | | | 6181 |
| | **35** | 287* | 0.8* | 80 | **VP090** | | | 5383 |
| | **35** | 299 | 1.3 | 80 | **VP110** | | | 6803 |
| | **28** | 358 | 1 | 100 | **VP110** | | | 7328 |
| | **9.3** | 847 | 1.4 | 300 | | | **VC050/110** | 10320 |
| | **9.3** | 878 | 1.9 | 300 | | | **VC063/130** | 13500 |
| | **7** | 1105 | 1 | 400 | | | **VC050/110** | 10320 |
| | **7** | 1105 | 1.4 | 400 | | | **VC063/130** | 13500 |
| | **5.6** | 1279* | 0.8* | 500 | | | **VC050/110** | 10320 |
| | **5.6** | 1305 | 1.1 | 500 | | | **VC063/130** | 13500 |
| **2.20** | | | | | | | | |
| M2 100 2.20 4P.. (n1 = 1400 $min^{-1}$) | **186.7** | 100 | 1.8 | 7.5 | **VP075** | | | 2785 |
| | **186.7** | 101 | 2.9 | 7.5 | **VP090** | | | 3081 |
| | **140** | 132 | 1.5 | 10 | **VP075** | | | 3065 |
| | **140** | 134 | 2.3 | 10 | **VP090** | | | 3391 |
| | **93.3** | 191 | 1 | 15 | **VP075** | | | 3509 |
| | **93.3** | 194 | 1.9 | 15 | **VP090** | | | 3882 |
| | **93.3** | 196 | 3.3 | 15 | **VP110** | | | 4905 |
| | **70** | 249* | 0.9* | 20 | **VP075** | | | 3862 |
| | **70.00** | 252 | 1.4 | 20 | **VP090** | | | 4273 |
| | **70** | 255 | 2.5 | 20 | **VP110** | | | 5399 |
| | **56** | 304* | 0.7* | 25 | **VP075** | | | 4160 |
| | **56.00** | 308 | 1.1 | 25 | **VP090** | | | 4603 |
| | **56** | 315 | 2.2 | 25 | **VP110** | | | 5816 |
| | **56** | 319 | 2.9 | 25 | **VP130** | | | 7607 |
| | **46.7** | 347* | 0.7* | 30 | **VP075** | | | 4421 |
| | **46.70** | 351 | 1.2 | 30 | **VP090** | | | 4891 |
| | **46.7** | 356 | 2 | 30 | **VP110** | | | 6181 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **2.20** | | | | | | | | |
| M2 100 2.20 4P.. (n1 = 1400 $min^{-1}$) | **46.7** | 365 | 2.9 | 30 | **VP130** | | | 8084 |
| | **35** | 468 | 1.5 | 40 | **VP110** | | | 6803 |
| | **35** | 468 | 2.2 | 40 | **VP130** | | | 8897 |
| | **30.00** | 456* | 0.9* | 40 | **VP090** | | | 5383 |
| | **28** | 563 | 1.2 | 50 | **VP110** | | | 7328 |
| | **28** | 563 | 1.7 | 50 | **VP130** | | | 9584 |
| | **28** | 570 | 2.5 | 50 | **VP150** | | | 13103 |
| | **23.3** | 648 | 1.0 | 60 | **VP110** | | | 7787 |
| | **23.3** | 648 | 1.4 | 60 | **VP130** | | | 10185 |
| | **23.3** | 657 | 1.9 | 60 | **VP150** | | | 13924 |
| | **17.5** | 816 | 1 | 80 | **VP130** | | | 11210 |
| | **17.5** | 816 | 1.4 | 80 | **VP150** | | | 15325 |
| | **14.0** | 976 | 1 | 100 | **VP130** | | | 12076 |
| | **14** | 960 | 1 | 100 | **VP150** | | | 16508 |
| M2 112 2.20 6P.. (n1 = 900 $min^{-1}$) | **120** | 154 | 1.4 | 7.5 | **VP075** | | | 3227 |
| | **120** | 156 | 2.2 | 7.5 | **VP090** | | | 3570 |
| | **90** | 201 | 1.1 | 10 | **VP075** | | | 3551 |
| | **90** | 203 | 1.8 | 10 | **VP090** | | | 3929 |
| | **90** | 205 | 3.5 | 10 | **VP110** | | | 4965 |
| | **60** | 291* | 0.9* | 15 | **VP075** | | | 4065 |
| | **60** | 294 | 1.4 | 15 | **VP090** | | | 4498 |
| | **60** | 298 | 2.6 | 15 | **VP110** | | | 5684 |
| | **45** | 374* | 0.7* | 20 | **VP075** | | | 4474 |
| | **45** | 532* | 0.9* | 30 | **VP090** | | | 5667 |
| | **45** | 378 | 1 | 20 | **VP090** | | | 4951 |
| | **45** | 388 | 1.9 | 20 | **VP110** | | | 6256 |
| | **36** | 467* | 0.9* | 25 | **VP090** | | | 5333 |
| | **36** | 473 | 1.6 | 25 | **VP110** | | | 6739 |
| | **36** | 479 | 2.2 | 25 | **VP130** | | | 8814 |
| | **30** | 532 | 1.6 | 30 | **VP110** | | | 7161 |
| | **30** | 546 | 2.1 | 30 | **VP130** | | | 9366 |
| | **22.5** | 701 | 1.1 | 40 | **VP110** | | | 7882 |
| | **22.5** | 700 | 1.6 | 40 | **VP130** | | | 10309 |
| | **18** | 841* | 0.9* | 50 | **VP110** | | | 8491 |
| | **18** | 840 | 1.2 | 50 | **VP130** | | | 11105 |
| | **18** | 864 | 1.9 | 50 | **VP150** | | | 15182 |
| | **15** | 967* | 0.7* | 60 | **VP110** | | | 9023 |
| | **15** | 966 | 1 | 60 | **VP130** | | | 11801 |
| | **15** | 995 | 1.4 | 60 | **VP150** | | | 16133 |
| | **11.3** | 1214* | 0.7* | 80 | **VP130** | | | 12898 |
| | **11.3** | 1233 | 1.1 | 80 | **VP150** | | | 17757 |
| | **9** | 1425* | 0.8* | 100 | **VP150** | | | 18000 |
| M2 090 2.20 2P.. (n1 = 2800 $min^{-1}$) | **373.3** | 51 | 1.8 | 7.5 | **VP063** | | | 1873 |
| | **373.3** | 50 | 2.6 | 7.5 | **VP075** | | | 2210 |
| | **280** | 66 | 1.5 | 10 | **VP063** | | | 2061 |
| | **280** | 66 | 2.2 | 10 | **VP075** | | | 2433 |
| | **280** | 68 | 3.5 | 10 | **VP090** | | | 2692 |
| | **186.7** | 97 | 1.1 | 15 | **VP063** | | | 2359 |
| **2.20** | | | | | | | | |
| M2 090 2.20 2P.. (n1 = 2800 $min^{-1}$) | **186.7** | 97 | 1.5 | 15 | **VP075** | | | 2785 |
| | **186.7** | 100 | 2.7 | 15 | **VP090** | | | 3081 |
| | **140** | 128* | 0.8* | 20 | **VP063** | | | 2597 |
| | **140** | 126 | 1.3 | 20 | **VP075** | | | 3065 |
| | **140** | 129 | 2 | 20 | **VP090** | | | 3391 |
| | **112** | 154 | 1 | 25 | **VP075** | | | 3302 |
| | **112** | 159 | 1.6 | 25 | **VP090** | | | 3653 |
| | **112** | 161 | 3.1 | 25 | **VP110** | | | 4616 |
| | **93.3** | 178 | 1 | 30 | **VP075** | | | 3509 |
| | **93.3** | 185 | 1.7 | 30 | **VP090** | | | 3882 |
| | **93.3** | 187 | 3 | 30 | **VP110** | | | 4905 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ (min$^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **2.20** | | | | | | | | |
| M2 090 2.20 2P.. (n1 = 2800 min$^{-1}$) | **70** | 234* | 0.8* | 40 | **VP075** | | | 3862 |
| | **70** | 237 | 1.2 | 40 | **VP090** | | | 4273 |
| | **70** | 243 | 2.2 | 40 | **VP110** | | | 5399 |
| | **56** | 289* | 0.9* | 50 | **VP090** | | | 4603 |
| | **56** | 296 | 1.7 | 50 | **VP110** | | | 5816 |
| | **46.7** | 347 | 1.4 | 60 | **VP110** | | | 6181 |
| | **38.6** | 398 | 2.1 | 73.5 | | **VR090/110** | | 6586 |
| | **35** | 444* | 0.9* | 80 | **VP110** | | | 6803 |
| | **35** | 444 | 1.3 | 80 | **VP130** | | | 8897 |
| | **28.9** | 516 | 1.5 | 98 | | **VR090/110** | | 7249 |
| | **28** | 525* | 0.7* | 100 | **VP110** | | | 7328 |
| | **28** | 525 | 1 | 100 | **VP130** | | | 9584 |
| | **23.1** | 617 | 1.2 | 122.5 | | **VR090/110** | | 7809 |
| **3.00** | | | | | | | | |
| M2 100 3.00 2P.. (n1 = 2800 min$^{-1}$) | **373.3** | 68 | 1.9 | 7.5 | **VP075** | | | 2210 |
| | **373.3** | 70 | 3 | 7.5 | **VP090** | | | 2446 |
| | **280** | 90 | 1.6 | 10 | **VP075** | | | 2433 |
| | **280** | 92 | 2.6 | 10 | **VP090** | | | 2692 |
| | **186.7** | 135 | 1.2 | 15 | **VP075** | | | 2785 |
| | **186.7** | 137 | 2 | 15 | **VP090** | | | 3081 |
| | **140** | 176 | 1 | 20 | **VP075** | | | 3065 |
| | **140** | 180 | 1.4 | 20 | **VP090** | | | 3391 |
| | **140** | 182 | 2.7 | 20 | **VP110** | | | 4285 |
| | **112** | 215* | 0.7* | 25 | **VP075** | | | 3302 |
| | **112** | 220 | 1.1 | 25 | **VP090** | | | 3653 |
| | **112** | 225 | 2.2 | 25 | **VP110** | | | 4616 |
| | **93.3** | 249* | 0.7* | 30 | **VP075** | | | 3509 |
| | **93.3** | 255 | 1.2 | 30 | **VP090** | | | 3882 |
| | **93.3** | 258 | 2.1 | 30 | **VP110** | | | 4905 |
| | **70** | 328* | 0.8* | 40 | **VP090** | | | 4273 |
| | **70** | 340 | 1.6 | 40 | **VP110** | | | 5399 |
| | **56** | 409 | 1.2 | 50 | **VP110** | | | 5816 |
| | **46.7** | 479 | 1 | 60 | **VP110** | | | 6181 |
| M2 100 3.00 4P.. (n1 = 1400 min$^{-1}$) | **186.7** | 137 | 1.4 | 7.5 | **VP075** | | | 2785 |
| | **186.7** | 138 | 2.1 | 7.5 | **VP090** | | | 3081 |
| | **140** | 180 | 1.1 | 10 | **VP075** | | | 3065 |
| | **140** | 182 | 1.7 | 10 | **VP090** | | | 3391 |
| | **140** | 182 | 3.3 | 10 | **VP110** | | | 4285 |
| | **93.3** | 261* | 0.8* | 15 | **VP075** | | | 3509 |
| | **93.3** | 264 | 1.4 | 15 | **VP090** | | | 3882 |
| | **93.3** | 264 | 2.5 | 15 | **VP110** | | | 4905 |
| | **70** | 344 | 1 | 20 | **VP090** | | | 4273 |
| | **70** | 348 | 1.9 | 20 | **VP110** | | | 5399 |
| | **56** | 420* | 0.8* | 25 | **VP090** | | | 4603 |
| | **56** | 430 | 1.6 | 25 | **VP110** | | | 5816 |
| | **56** | 430 | 2.2 | 25 | **VP130** | | | 7607 |
| | **46.7** | 479* | 0.9* | 30 | **VP090** | | | 4891 |
| | **46.7** | 485 | 1.5 | 30 | **VP110** | | | 6181 |
| | **46.7** | 491 | 2.1 | 30 | **VP130** | | | 8084 |
| | **35** | 638 | 1.1 | 40 | **VP110** | | | 6803 |
| | **35** | 638 | 1.6 | 40 | **VP130** | | | 8897 |
| | **28** | 767* | 0.9* | 50 | **VP110** | | | 7328 |
| | **28** | 767 | 1.3 | 50 | **VP130** | | | 9584 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\mathbf{M_{m2} = M_2 \times fs}$

## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **3.00** | | | | | | | | |
| M2 100 3.00 4P.. (n1 = 1400 $min^{-1}$) | **28** | 778 | 1.8 | 50 | **VP150** | | | 13103 |
| | **23.3** | 884 | 1 | 60 | **VP130** | | | 10185 |
| | **23.3** | 896 | 1.4 | 60 | **VP150** | | | 13924 |
| | **17.5** | 1113* | 0.8* | 80 | **VP130** | | | 11210 |
| | **17.5** | 1113 | 1 | 80 | **VP150** | | | 15325 |
| | **14.00** | 1310* | 0.8* | 100 | **VP150** | | | 16508 |
| M2 132 3.00 6P.. (n1 = 900 $min^{-1}$) | **120** | 212 | 3.1 | 7.5 | **VP110** | | | 4511 |
| | **90** | 280 | 2.5 | 10 | **VP110** | | | 4965 |
| | **90** | 280 | 3.4 | 10 | **VP130** | | | 6494 |
| | **60** | 406 | 1.9 | 15 | **VP110** | | | 5684 |
| | **60** | 406 | 2.6 | 15 | **VP130** | | | 7434 |
| | **45** | 528 | 1.4 | 20 | **VP110** | | | 6256 |
| | **45** | 535 | 1.9 | 20 | **VP130** | | | 8182 |
| | **45** | 541 | 2.8 | 20 | **VP150** | | | 11186 |
| | **36** | 653 | 1.2 | 25 | **VP110** | | | 6739 |
| | **36** | 653 | 1.6 | 25 | **VP130** | | | 8814 |
| | **36** | 669 | 2.1 | 25 | **VP150** | | | 12050 |
| | **30** | 736 | 1.1 | 30 | **VP110** | | | 7161 |
| | **30** | 745 | 1.6 | 30 | **VP130** | | | 9366 |
| | **30** | 783 | 1.8 | 30 | **VP150** | | | 12805 |
| | **22.5** | 955* | 0.8* | 40 | **VP110** | | | 7882 |
| | **22.5** | 955 | 1.2 | 40 | **VP130** | | | 10309 |
| | **22.5** | 968 | 1.9 | 40 | **VP150** | | | 14094 |
| | **18** | 1178 | 1.4 | 50 | **VP150** | | | 15182 |
| | **15** | 1357 | 1.1 | 60 | **VP150** | | | 16133 |
| **4.00** | | | | | | | | |
| M2 112 4.00 2P.. (n1 = 2800 $min^{-1}$) | **373.3** | 91 | 1.4 | 7.5 | **VP075** | | | 2210 |
| | **373.3** | 93 | 2.3 | 7.5 | **VP090** | | | 2446 |
| | **280** | 120 | 1.2 | 10 | **VP075** | | | 2433 |
| | **280** | 123 | 1.9 | 10 | **VP090** | | | 2692 |
| | **186.7** | 180* | 0.9* | 15 | **VP075** | | | 2785 |
| | **186.7** | 182 | 1.5 | 15 | **VP090** | | | 3081 |
| | **140** | 235 | 0.7 | 20 | **VP075** | | | 3065 |
| | **140** | 240 | 1.1 | 20 | **VP090** | | | 3391 |
| | **112** | 293* | 0.9* | 25 | **VP090** | | | 3653 |
| | **93.3** | 340* | 0.9* | 30 | **VP090** | | | 3882 |
| M2 112 4.00 4P.. (n1 = 1400 $min^{-1}$) | **186.7** | 180 | 1 | 7.5 | **VP075** | | | 2785 |
| | **186.7** | 184 | 1.6 | 7.5 | **VP090** | | | 3081 |
| | **187** | 184 | 3.0 | 8 | **VP110** | | | 3893 |
| | **140** | 237* | 0.8* | 10 | **VP075** | | | 3065 |
| | **140** | 243 | 1.3 | 10 | **VP090** | | | 3391 |
| | **140** | 243 | 2.5 | 10 | **VP110** | | | 4285 |
| | **93.3** | 352 | 1 | 15 | **VP090** | | | 3882 |
| | **93.3** | 352 | 1.9 | 15 | **VP110** | | | 4905 |
| | **70** | 458* | 0.8* | 20 | **VP090** | | | 4273 |
| | **70** | 464 | 1.4 | 20 | **VP110** | | | 5399 |
| | **56** | 573 | 1.2 | 25 | **VP110** | | | 5816 |
| | **56** | 573 | 1.6 | 25 | **VP130** | | | 7607 |
| | **46.7** | 647 | 1.1 | 30 | **VP110** | | | 6181 |
| | **46.7** | 655 | 1.6 | 30 | **VP130** | | | 8084 |
| | **35** | 863* | 0.8* | 40 | **VP110** | | | 6803 |
| | **35** | 851 | 1.2 | 40 | **VP130** | | | 8897 |
| | **28** | 1023 | 1 | 50 | **VP130** | | | 9584 |
| | **28** | 1037 | 1.4 | 50 | **VP150** | | | 13103 |
| | **23.3** | 1179* | 0.8* | 60 | **VP130** | | | 10185 |
| | **23.3** | 1195 | 1.1 | 60 | **VP150** | | | 13924 |
| | **17.5** | 1484* | 0.8* | 80 | **VP150** | | | 15325 |
| M2 132 4.00 6P.. (n1 = 900 $min^{-1}$) | **120** | 283 | 2.3 | 7.5 | **VP110** | | | 4511 |
| | **120** | 287 | 3.1 | 7.5 | **VP130** | | | 5901 |
| | **90** | 374 | 1.9 | 10 | **VP110** | | | 4965 |
| | **90** | 374 | 2.6 | 10 | **VP130** | | | 6494 |
| | **60** | 541 | 1.4 | 15 | **VP110** | | | 5684 |

* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\mathbf{M_{m2} = M_2 \times fs}$

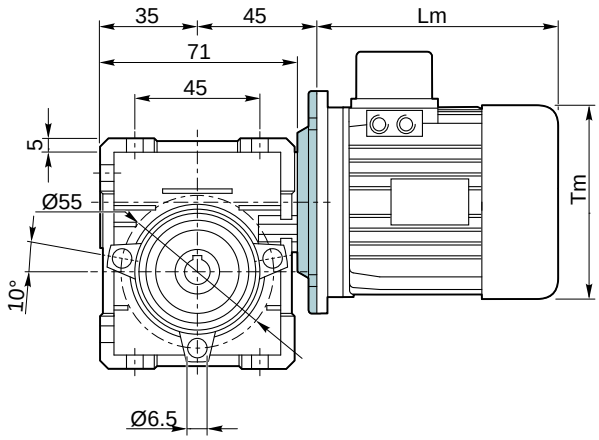
## Tabella dati tecnici motoriduttori / *Table technical data gearmotors*

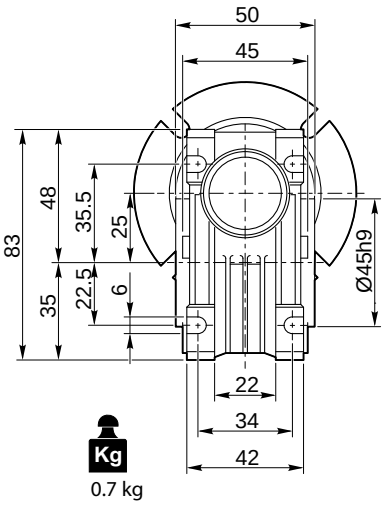
| $Pn_1$ (kW) | $n_2$ ($min^{-1}$) | $M_2$ (Nm) | fs | i | | | | $FR_2$ (N) |
|---|---|---|---|---|---|---|---|---|
| **4.00** | | | | | | | | |
| M2 132 4.00 6P.. (n1 = 900 $min^{-1}$) | **60** | 541 | 2 | 15 | **VP130** | | | 7434 |
| | **56** | 580 | 1.2 | 25 | **VP110** | | | 5816 |
| | **46.7** | 655 | 1.1 | 30 | **VP110** | | | 6181 |
| | **45** | 713 | 1.5 | 20 | **VP130** | | | 8182 |
| | **45** | 722 | 2.1 | 20 | **VP150** | | | 11186 |
| | **36** | 870 | 1.2 | 25 | **VP130** | | | 8814 |
| | **36** | 892 | 1.5 | 25 | **VP150** | | | 12050 |
| | **35** | 863* | 0.8* | 40 | **VP110** | | | 6803 |
| | **30** | 1006 | 1.2 | 30 | **VP130** | | | 9366 |
| | **30** | 1045 | 1.3 | 30 | **VP150** | | | 12805 |
| | **22.5** | 1291* | 0.9* | 40 | **VP130** | | | 10309 |
| | **22.5** | 1291 | 1.4 | 40 | **VP150** | | | 14094 |
| | **18** | 1571 | 1 | 50 | **VP150** | | | 15182 |
| | **15** | 1809* | 0.8* | 60 | **VP150** | | | 16133 |
| **5.50** | | | | | | | | |
| M2 132 5.50 4P.. (n1 = 1400 $min^{-1}$) | **186.7** | 253 | 2.2 | 7.5 | **VP110** | | | 3893 |
| | **140** | 334 | 1.8 | 10 | **VP110** | | | 4285 |
| | **140** | 334 | 2.5 | 10 | **VP130** | | | 5605 |
| | **93.3** | 484 | 1.4 | 15 | **VP110** | | | 4905 |
| | **93.3** | 490 | 1.9 | 15 | **VP130** | | | 6416 |
| | **70** | 638 | 1 | 20 | **VP110** | | | 5399 |
| | **70** | 645 | 1.4 | 20 | **VP130** | | | 7062 |
| | **70** | 645 | 2 | 20 | **VP150** | | | 9654 |
| | **56** | 798* | 0.9* | 25 | **VP110** | | | 5816 |
| | **56** | 788 | 1.2 | 25 | **VP130** | | | 7607 |
| | **56** | 788 | 1.5 | 25 | **VP150** | | | 10400 |
| | **46.7** | 901* | 0.8* | 30 | **VP110** | | | 6181 |
| | **46.7** | 900 | 1.2 | 30 | **VP130** | | | 8084 |
| | **46.7** | 934 | 1.3 | 30 | **VP150** | | | 11051 |
| | **35** | 1171* | 0.9* | 40 | **VP130** | | | 8897 |
| | **35** | 1171 | 1.3 | 40 | **VP150** | | | 12163 |
| | **28** | 1426 | 1 | 50 | **VP150** | | | 13103 |
| | **23.3** | 1643* | 0.8* | 60 | **VP150** | | | 13924 |
| **7.50** | | | | | | | | |
| M3 132 7.50 4P.. (n1 = 1400 $min^{-1}$) | **186.7** | 345 | 1.6 | 7.5 | **VP110** | | | 3893 |
| | **186.7** | 349 | 2.1 | 7.5 | **VP130** | | | 5092 |
| | **140** | 455 | 1.3 | 10 | **VP110** | | | 4285 |
| | **140** | 455 | 1.8 | 10 | **VP130** | | | 5605 |
| | **93.3** | 660 | 1 | 15 | **VP110** | | | 4905 |
| | **93.3** | 668 | 1.4 | 15 | **VP130** | | | 6416 |
| | **70** | 880* | 0.7* | 20 | **VP110** | | | 5399 |
| | **70** | 880 | 1.0 | 20 | **VP130** | | | 7062 |
| | **70** | 880 | 1.5 | 20 | **VP150** | | | 9654 |
| | **56** | 1074* | 0.9* | 25 | **VP130** | | | 7607 |
| | **56** | 1074 | 1.1 | 25 | **VP150** | | | 10400 |
| | **46.7** | 1228* | 0.8* | 30 | **VP130** | | | 8084 |
| | **46.7** | 1274* | 0.9* | 30 | **VP150** | | | 11051 |
| | **35** | 1596* | 0.7* | 40 | **VP130** | | | 8897 |
| | **35** | 1596 | 1 | 40 | **VP150** | | | 12163 |
| | **28** | 1971* | 0.7* | 50 | **VP150** | | | 13103 |
| **11.0** | | | | | | | | |
| M3 160 11.0 4P.. (n1 = 1400 $min^{-1}$) | **187** | 512 | 2.3 | 7.5 | **VP150** | | | 6962 |
| | **140** | 675 | 1.8 | 10 | **VP150** | | | 7663 |
| | **93.3** | 990 | 1.3 | 15 | **VP150** | | | 8771 |
| | **70** | 1291 | 1.0 | 20 | **VP150** | | | 9654 |
| | **56** | 1576* | 0.8* | 25 | **VP150** | | | 10400 |
| **15.0** | | | | | | | | |
| M3 160 15.0 4P.. (n1 = 1400 $min^{-1}$) | **187** | 698 | 1.7 | 7.5 | **VP150** | | | 6962 |
| | **140** | 921 | 1.3 | 10 | **VP150** | | | 7663 |
| | **93.3** | 1351* | 0.9* | 15 | **VP150** | | | 8771 |
| | **70** | 1760* | 0.7* | 20 | **VP150** | | | 9654 |

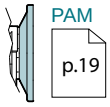
* **NOTA:** la coppia massima utilizzabile $M_{m2}$ deve essere determinata utilizzando il fattore di servizio fs: $\mathbf{M_{m2} = M_2 \times fs}$

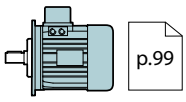
* **NOTE:** Maximun allowable torque $M_{m2}$ must be calculated using service factor fs: $\boldsymbol{M_{m2} = M_2 \times fs}$

**VP 025 P ...**

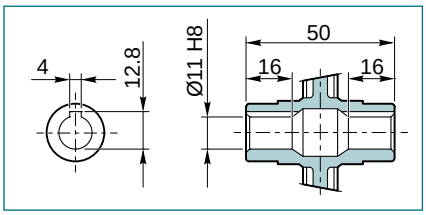


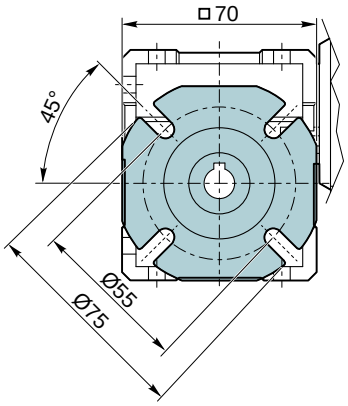



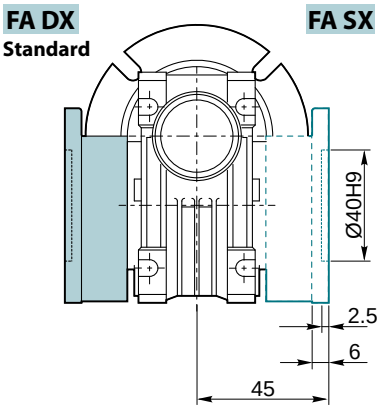




*Albero uscita / Output shaft*




**VP 025 F...**



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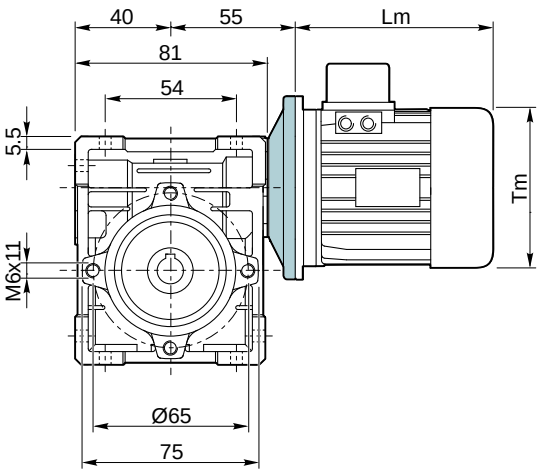
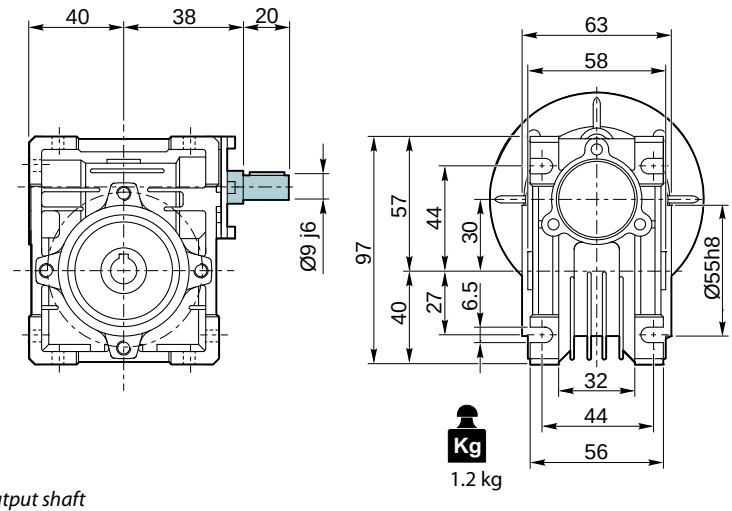
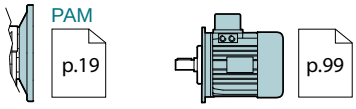
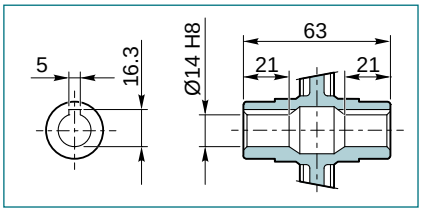



**VI 030 P ...**

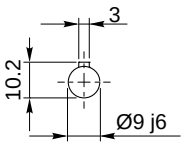


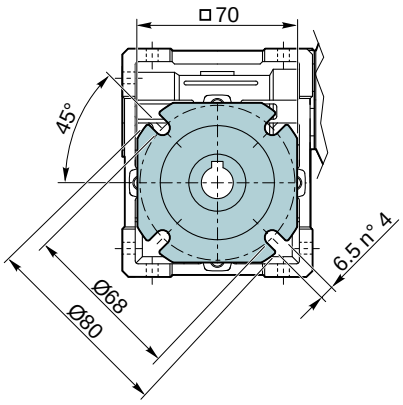

*Albero uscita / Output shaft*

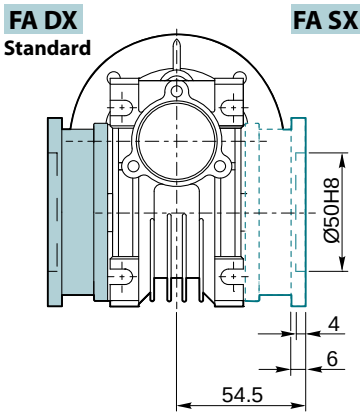



*Albero entrata / Input shaft*

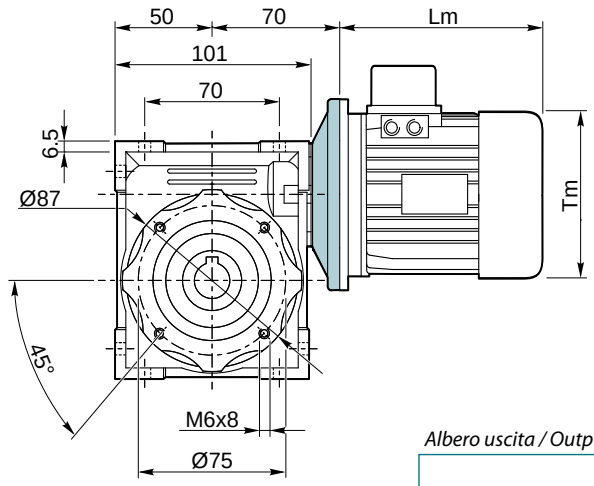


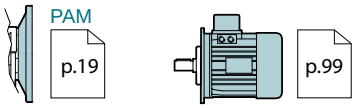

**VP 030 F... / VI 030 F...**



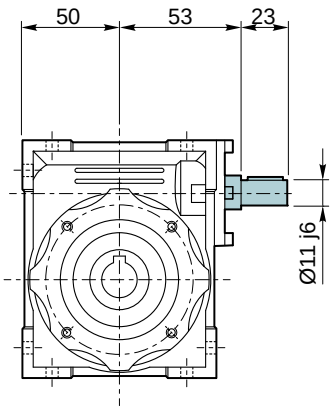



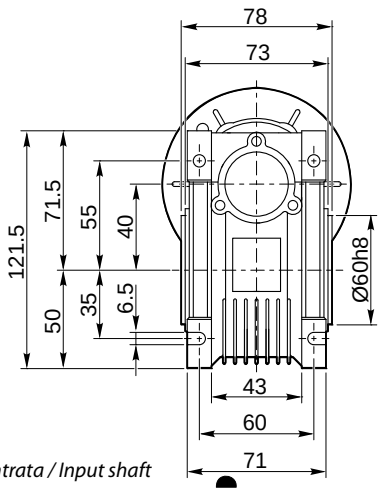
**VP 040 P ...**



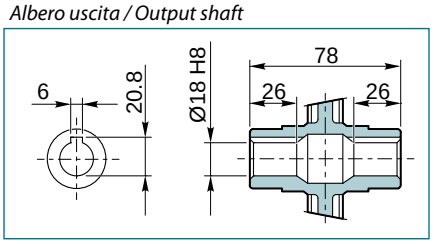




**VI 040 P ...**

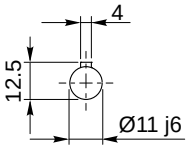


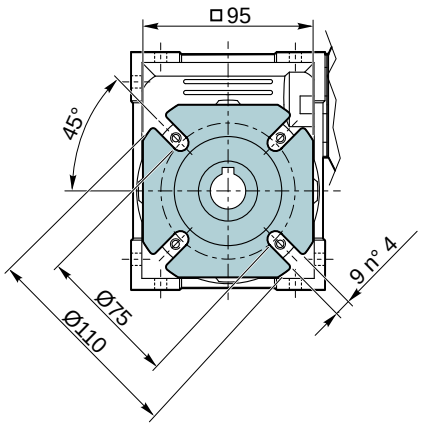

*Albero uscita / Output shaft*

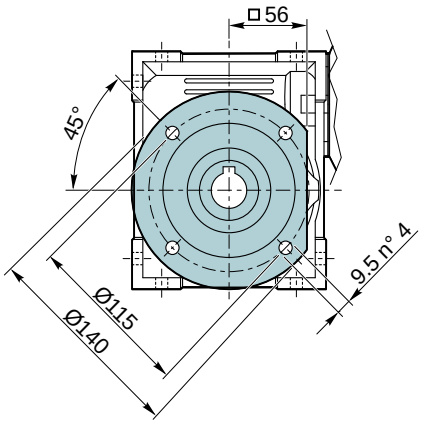


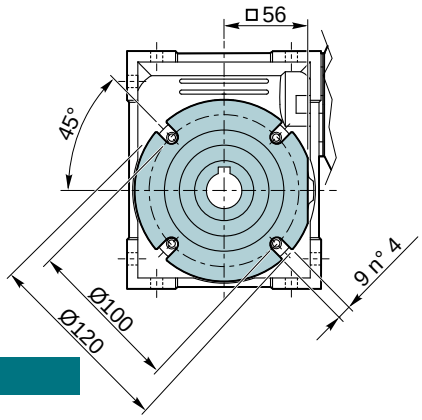

*Albero entrata / Input shaft*



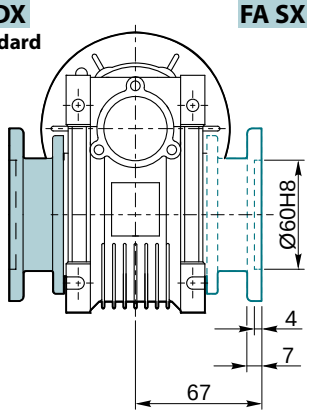

**VP 040 F... / VI 040 F...**



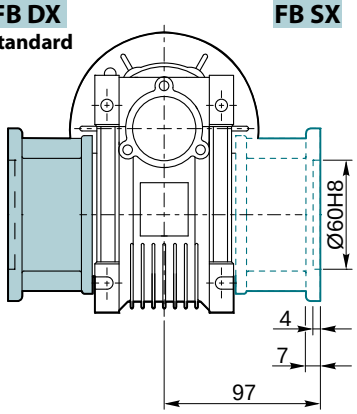



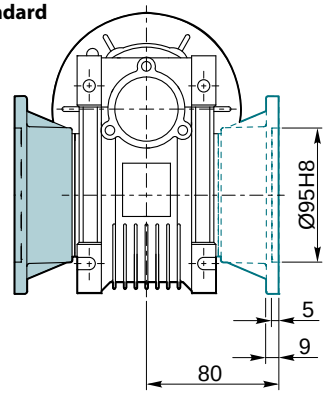

**FA DX** **FA SX**
**Standard**



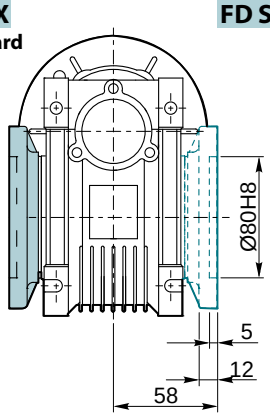

**FB DX** **FB SX**
**Standard**



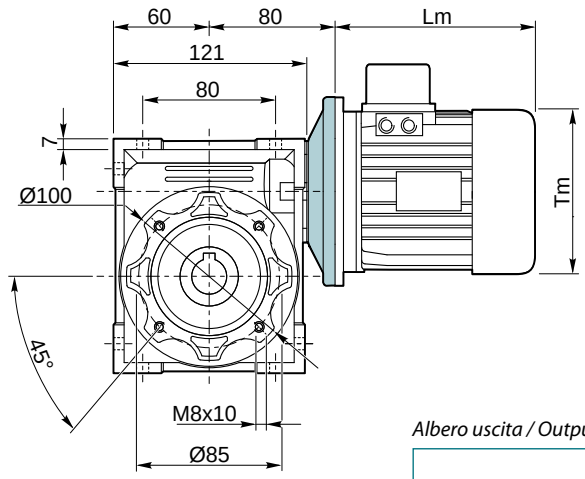

**FC DX** **FC SX**
**Standard**

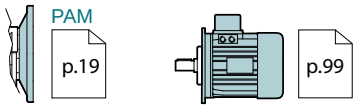



**FD DX** **FD SX**
**Standard**

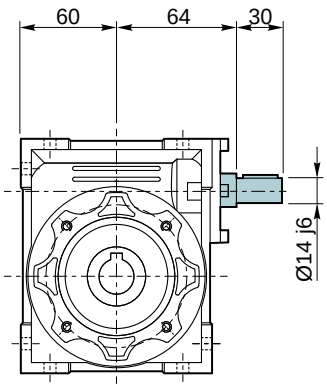


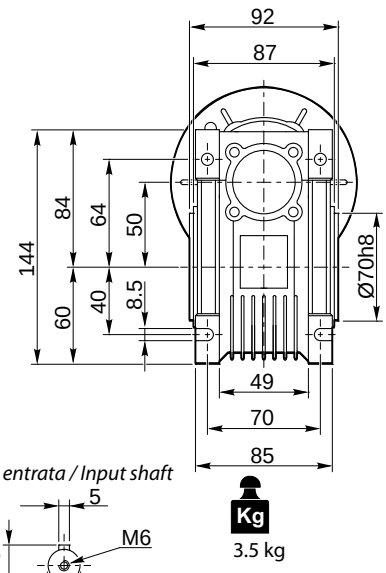
## VP 050 P ...



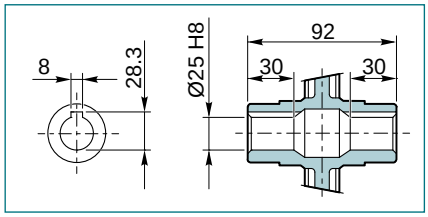




## VI 050 P ...

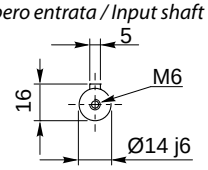


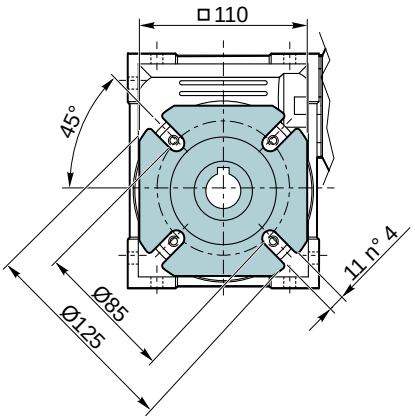

*Albero uscita / Output shaft*

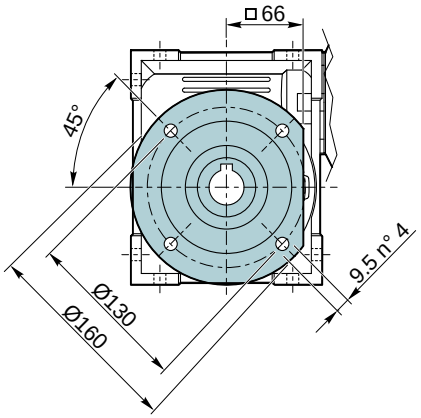


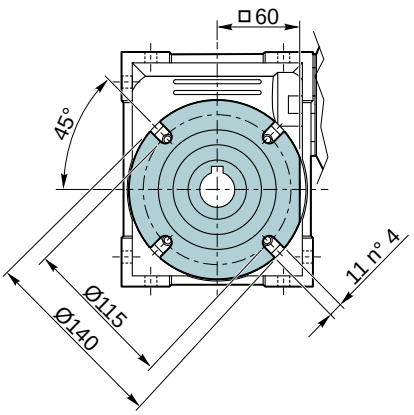

*Albero entrata / Input shaft*



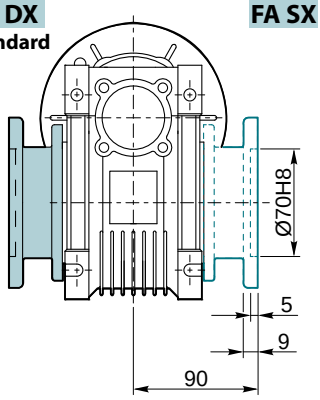

## VP 050 F... / VI 050 F...



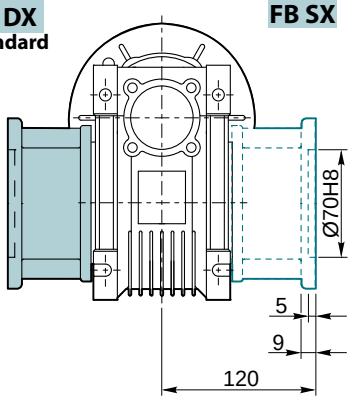



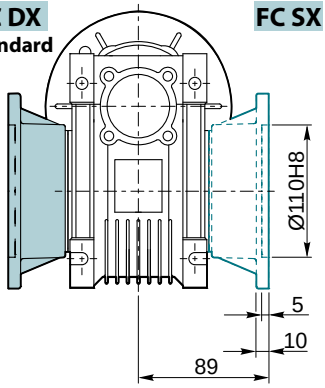

**FA DX** Standard **FA SX**



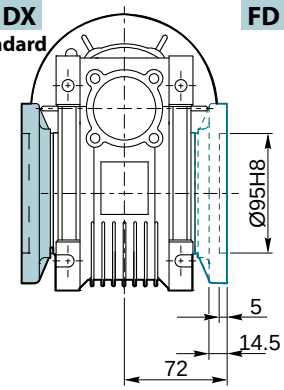

**FB DX** Standard **FB SX**



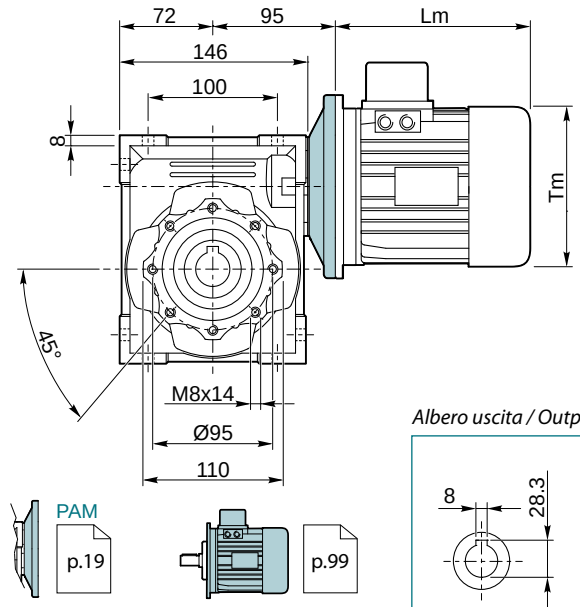

**FC DX** Standard **FC SX**



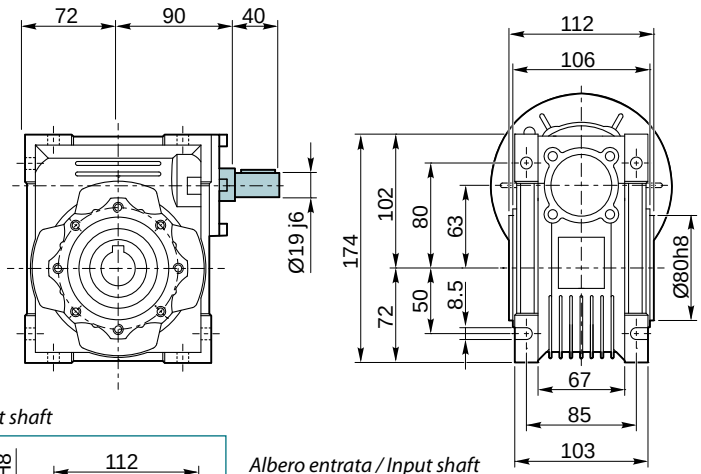

**FD DX** Standard **FD SX**



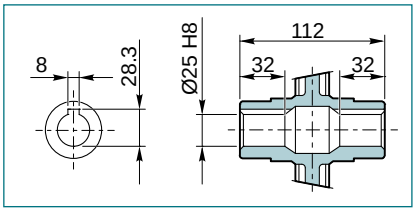
**VP 063 P ...**



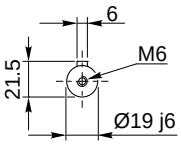

**VI 063 P ...**



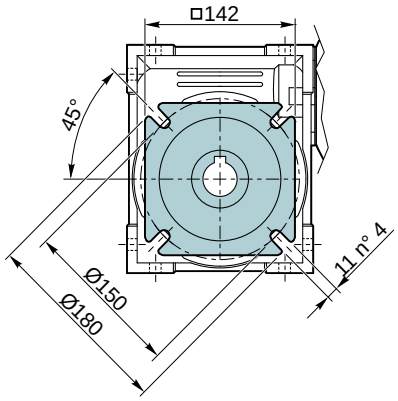

*Albero uscita / Output shaft*



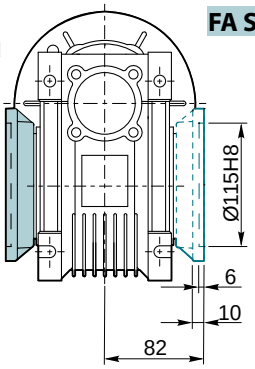

*Albero entrata / Input shaft*



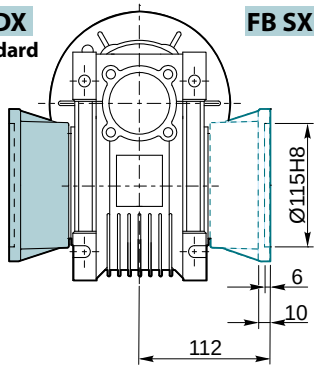

**VP 063 F... / VI 063 F...**

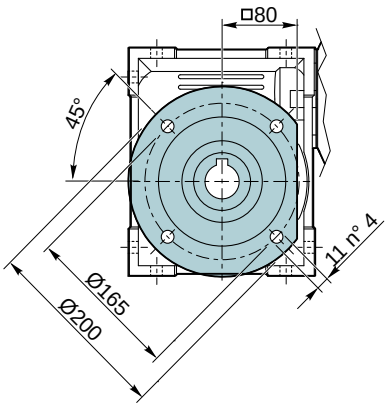



**FA DX** **Standard** **FA SX**

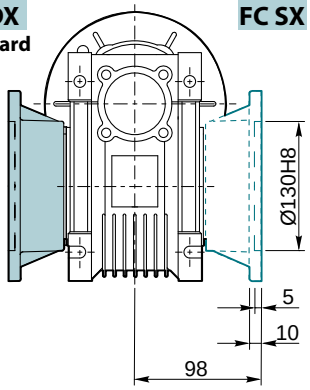



**FB DX** **Standard** **FB SX**

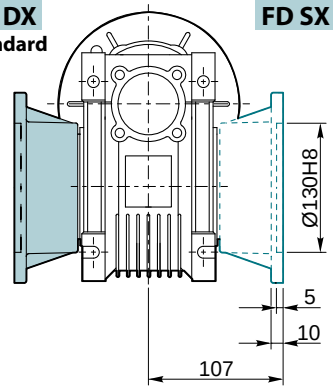


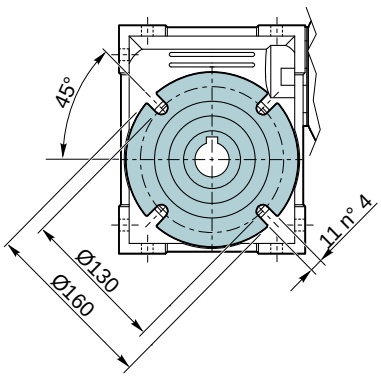




**FC DX** **Standard** **FC SX**

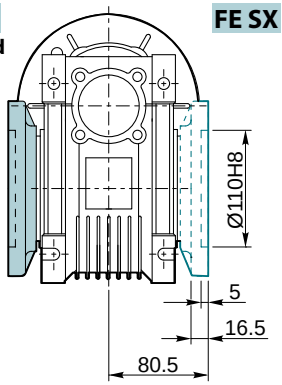



**FD DX** **Standard** **FD SX**

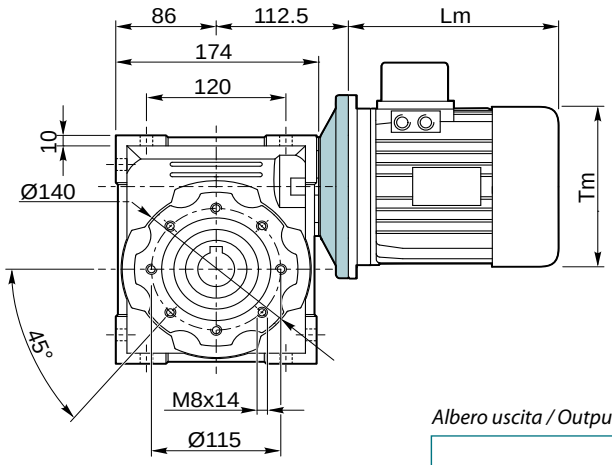


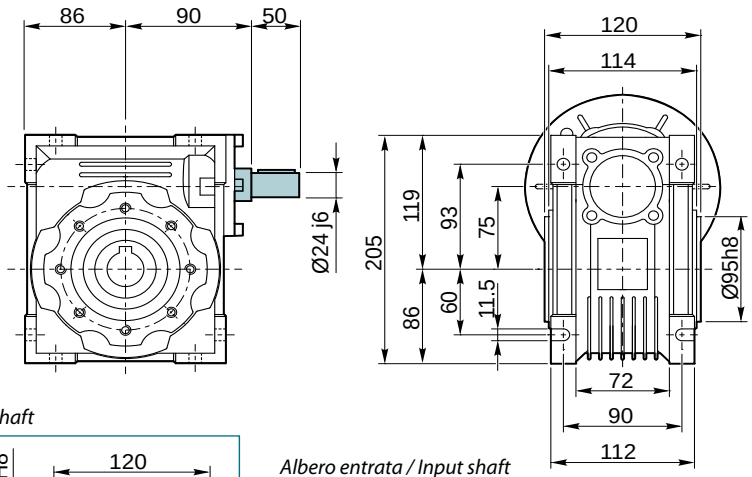

**FE DX** **Standard** **FE SX**

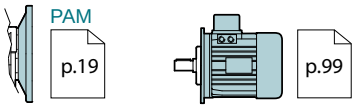


**VP 075 P ...**

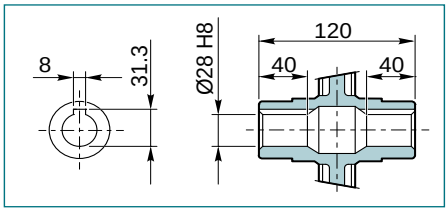



**VI 075 P ...**

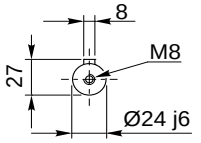



*Albero uscita / Output shaft*

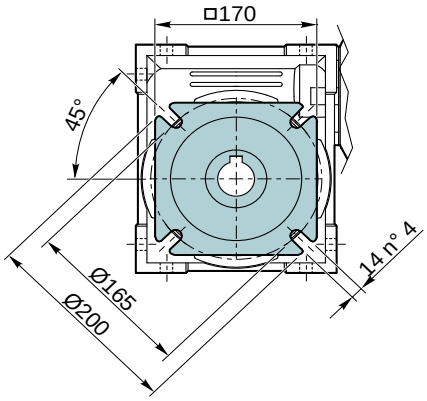


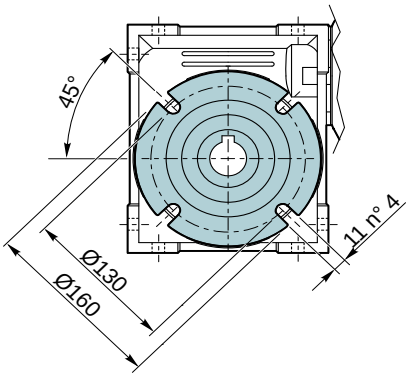

*Albero entrata / Input shaft*



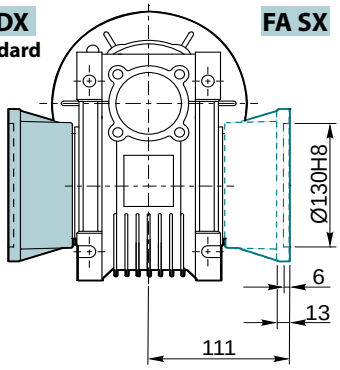

Kg 9.0 kg

**VP 075 F... / VI 075 F...**

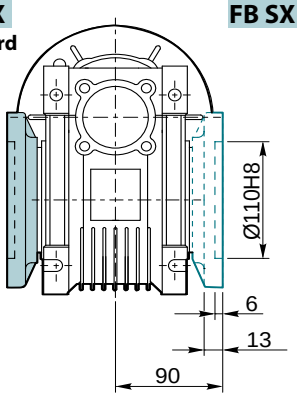


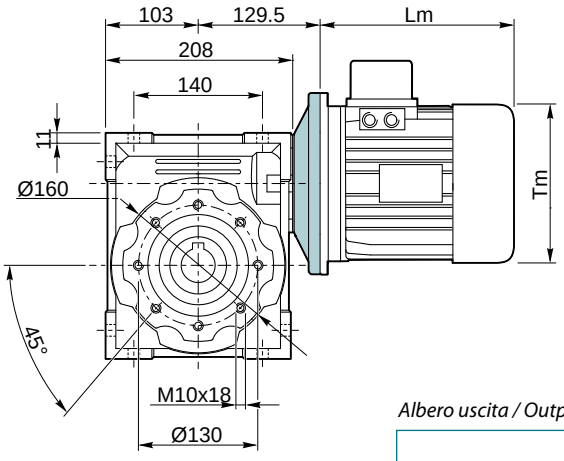

**FA DX** **Standard** **FA SX**



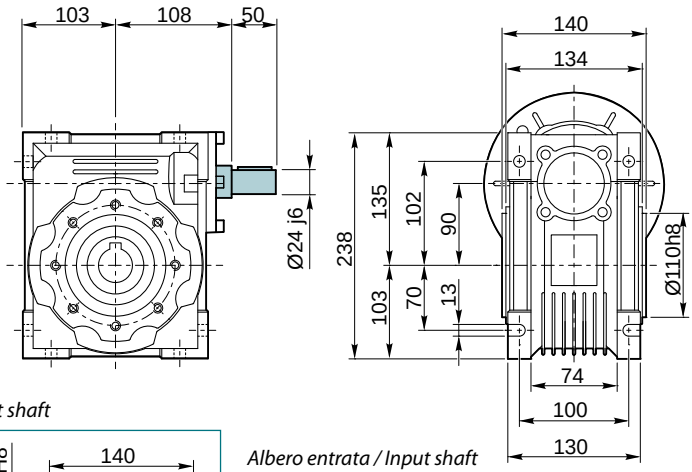

**FB DX** **Standard** **FB SX**



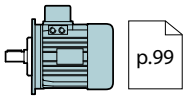
**VP 090 P ...**




**VI 090 P ...**

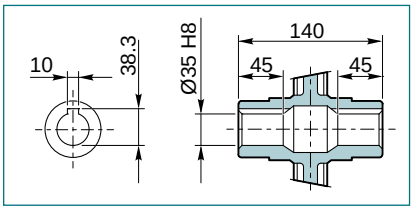



PAM p.19

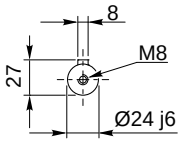


p.99

*Albero uscita / Output shaft*

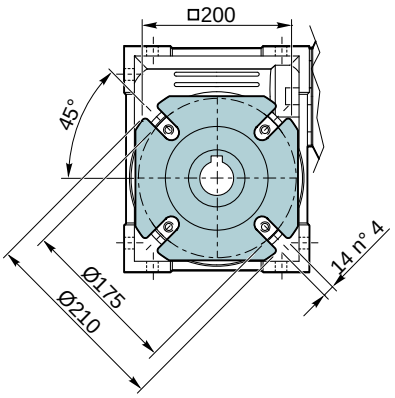



*Albero entrata / Input shaft*

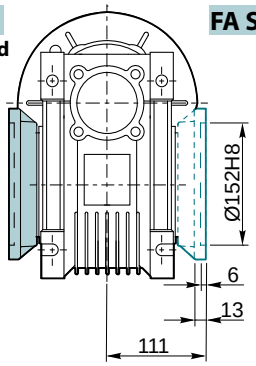



Kg
13 kg

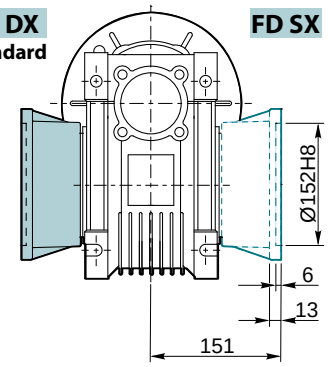
**VP 090 F... / VI 090 F...**

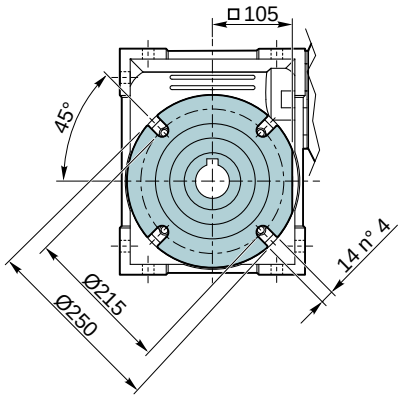



**FA DX** Standard **FA SX**

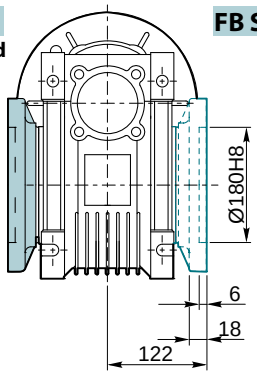


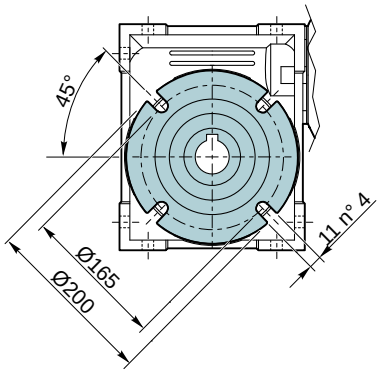

**FD DX** Standard **FD SX**



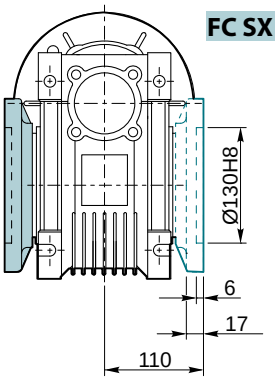




**FB DX** Standard **FB SX**

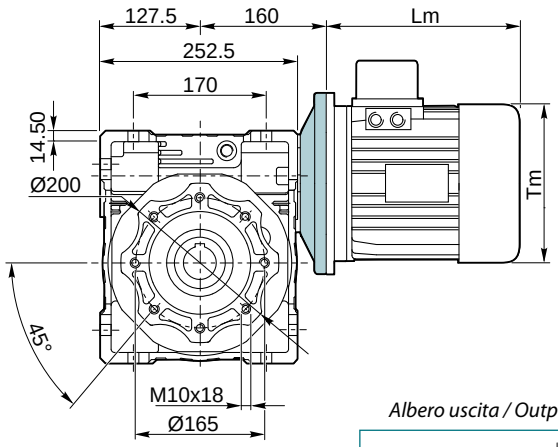


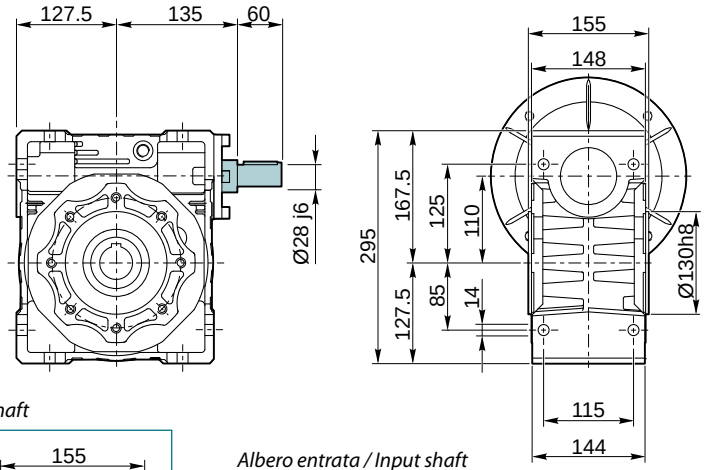

**FC DX** Standard **FC SX**

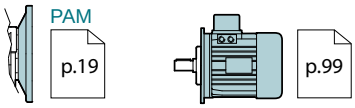


**VP 110 P ...**

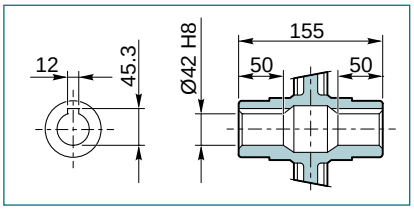



**VI 110 P ...**

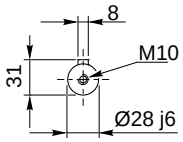



*Albero uscita / Output shaft*

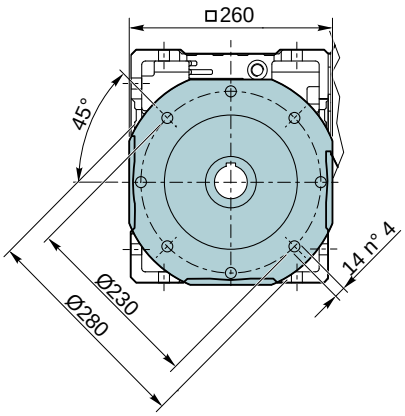



*Albero entrata / Input shaft*



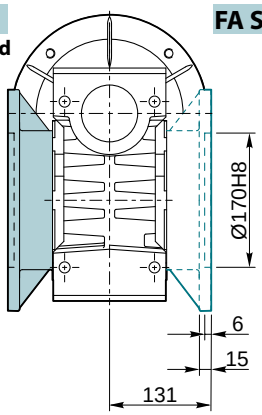

Kg
35 kg

**VP 110 F... / VI 110 F...**

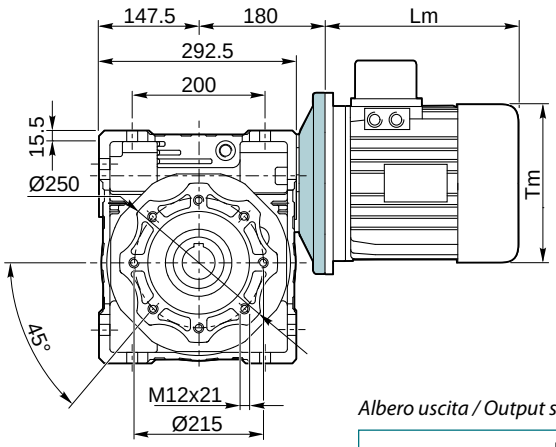



**FA DX**
**Standard**

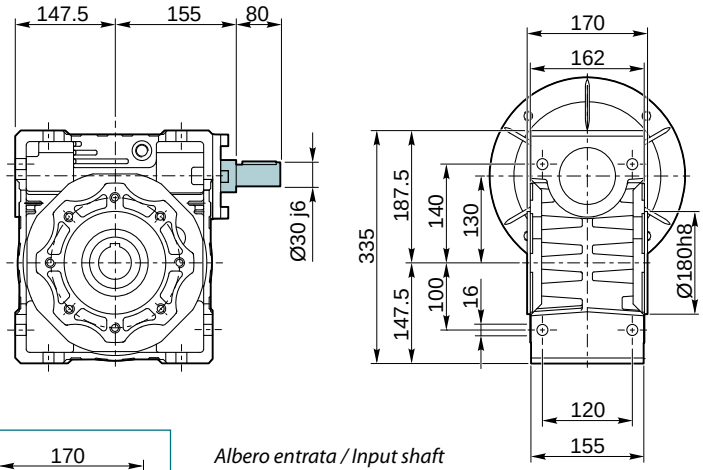
**FA SX**

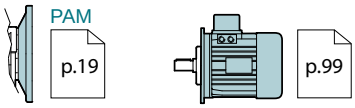


**VP 130 P ...**

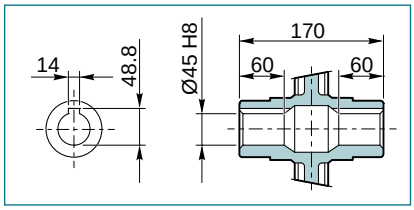



**VI 130 P ...**

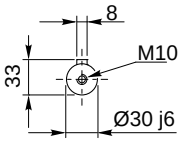



*Albero uscita / Output shaft*

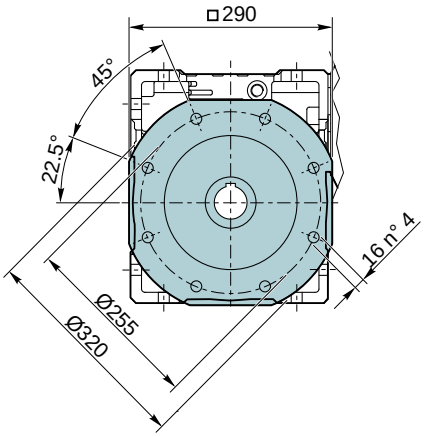



*Albero entrata / Input shaft*



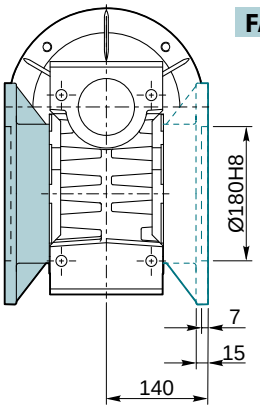

Kg
48 kg

**VP 130 F... / VI 130 F...**

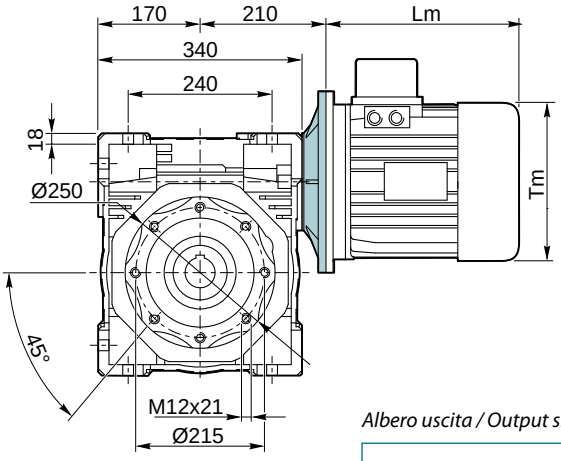



**FA DX**
**Standard**

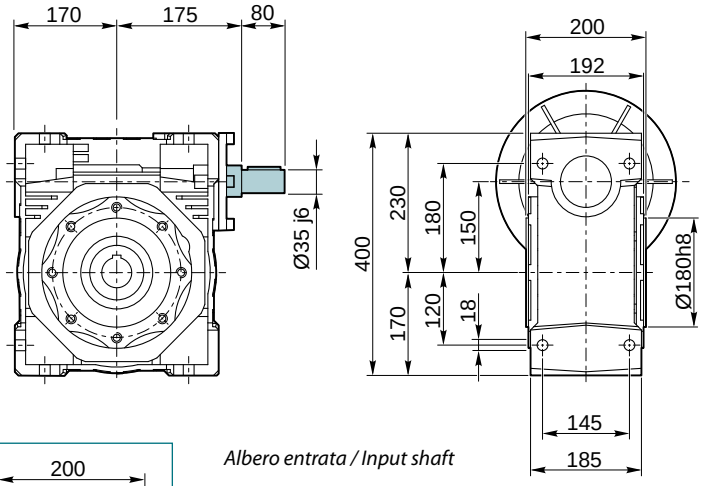
**FA SX**

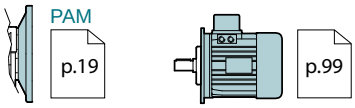


**VP 150 P ...**

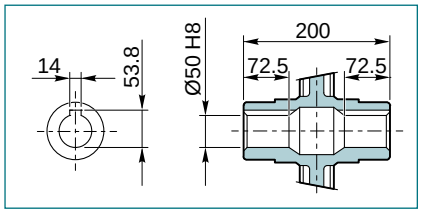



**VI 150 P ...**

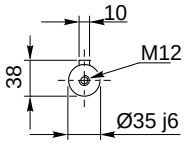



*Albero uscita / Output shaft*

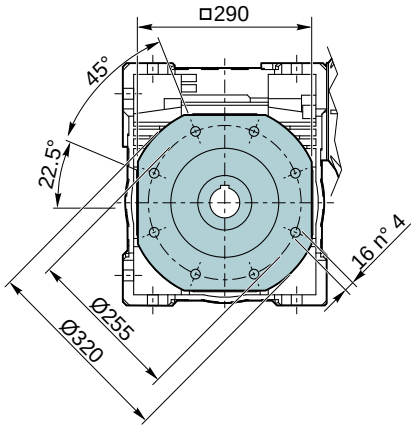



*Albero entrata / Input shaft*



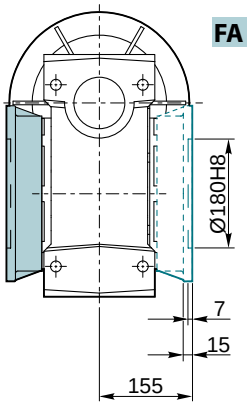

Kg
84 kg

**VP 150 F... / VI 150 F...**



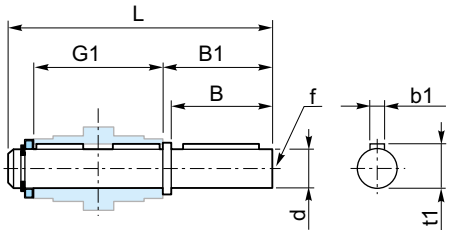

**FA DX**
**Standard**

**FA SX**

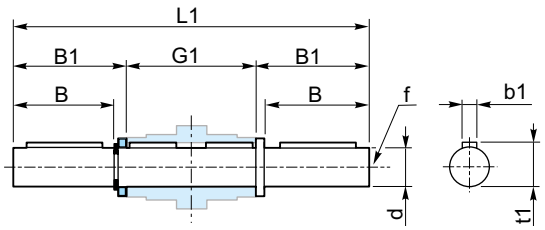


## Kit assemblaggio - Accessori / *Assembly Kit - Accessories*

### AS Albero lento semplice / *Single output shaft*

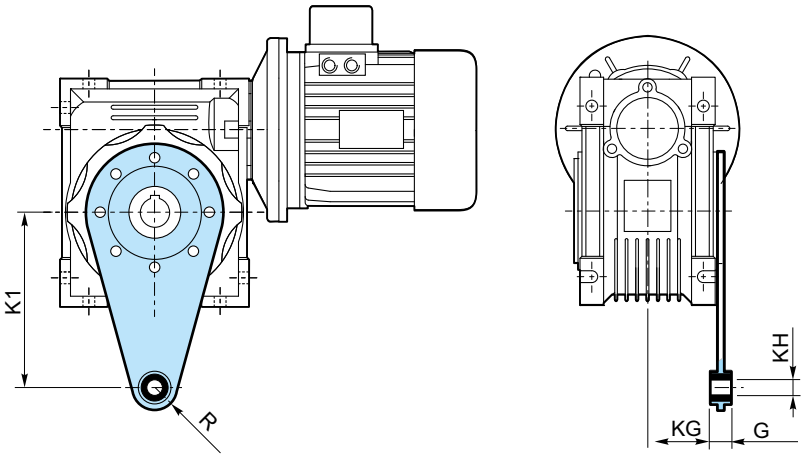



### AD Albero lento doppio / *Double output shaft*




| Riduttore *Gearbox* | Grandezza - *Size* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **VP / VI** | **025** | **030** | **040** | **050** | **063** | **075** | **090** | **110** | **130** | **150** |
| **VR** | **-** | **-** | **063/040** | **063/050<br>071/050** | **071/063** | **071/075<br>080/075** | **080/090<br>090/090** | **080/110<br>090/110** | **090/130** | **-** |
| **VC / VS** | **-** | **025/030** | **025/040<br>030/040** | **030/050** | **030/063** | **040/075** | **040/090** | **050/110** | **063/130** | **063/150** |
| **d** | 11 g6 | 14 h6 | 18 h6 | 25 h6 | 25 h6 | 28 h6 | 35 h6 | 42 h6 | 45 h6 | 50 h6 |
| **B** | 23 | 30 | 40 | 50 | 50 | 60 | 80 | 80 | 80 | 82 |
| **B1** | 25.5 | 32.5 | 43 | 53.5 | 53.5 | 63.5 | 84.5 | 84.5 | 85 | 87 |
| **G1** | 50 | 63 | 78 | 92 | 112 | 120 | 140 | 155 | 170 | 200 |
| **L** | 81 | 102 | 128 | 153 | 173 | 192 | 234 | 249 | 265 | 297 |
| **L1** | 101 | 128 | 164 | 199 | 219 | 247 | 309 | 324 | 340 | 374 |
| **f** | - | M6 | M6 | M10 | M10 | M10 | M12 | M16 | M16 | M16 |
| **b1** | 4 | 5 | 6 | 8 | 8 | 8 | 10 | 12 | 14 | 14 |
| **t1** | 12.5 | 16 | 20.5 | 28 | 28 | 31 | 38 | 45 | 48.5 | 53.5 |
| **CODICE / CODE AS** | AS025 | AS030 | AS040 | AS050 | AS063 | AS075 | AS090 | AS110 | AS130 | AS150 |
| **CODICE / CODE AD** | AD025 | AD030 | AD040 | AD050 | AD063 | AD075 | AD090 | AD110 | AD130 | AD150 |

### BR Braccio di reazione / *Torque arm*

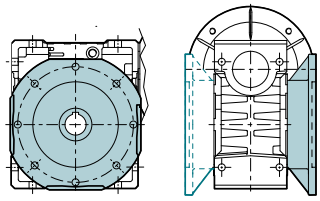



| Riduttore *Gearbox* | Grandezza - *Size* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **VP / VI** | **025** | **030** | **040** | **050** | **063** | **075** | **090** | **110** | **130** | **150** |
| **VR** | **-** | **-** | **063/040** | **063/050<br>071/050** | **071/063** | **071/075<br>080/075** | **080/090<br>090/090** | **080/110<br>090/110** | **090/130** | **-** |
| **VC / VS** | **-** | **025/030** | **025/040<br>030/040** | **030/050** | **030/063** | **040/075** | **040/090** | **050/110** | **063/130** | **063/150** |
| **K1** | 70 | 85 | 100 | 100 | 150 | 200 | 200 | 250 | 250 | 250 |
| **G** | 14 | 14 | 14 | 14 | 14 | 25 | 25 | 30 | 30 | 30 |
| **KG** | 17.5 | 24 | 31.5 | 38.5 | 49 | 47.5 | 57.5 | 62 | 69 | 84 |
| **KH** | 8 | 8 | 10 | 10 | 10 | 20 | 20 | 25 | 25 | 25 |
| **R** | 15 | 15 | 18 | 18 | 18 | 30 | 30 | 35 | 35 | 35 |
| **CODICE / CODE** | BR025 | BR030 | BR040 | BR050 | BR063 | BR075 | BR090 | BR110 | BR130 | BR150 |

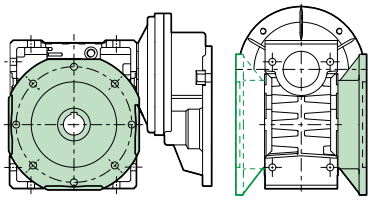
## Kit assemblaggio - Accessori / *Assembly Kit - Accessories*

### KIT FLANGIA USCITA / *KIT OUTPUT FLANGE*

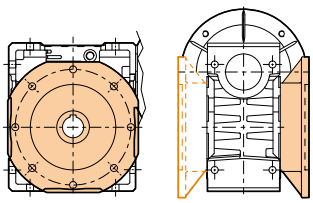
**VP / VI**



**VR**



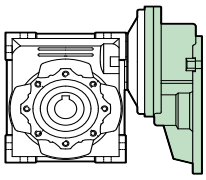
**VC / VS**



| Riduttore *Gearbox* | Grandezza - *Size* | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VP / VI** | **025** | **030** | **040** | | | | | **050** | | | | | **063** | | | | |
| **VR** | - | - | **063/040** | | | | | **063/050<br>071/050** | | | | | **071/063** | | | | |
| **VC / VS** | - | **025/030** | **025/040<br>030/040** | | | | | **030/050** | | | | | **030/063** | | | | |
| **TIPO FLANGIA / *TYPE FLANGE*** | FA | FA | FA | FB | FC | FD | FE | FA | FB | FC | FD | FE | FA | FB | FC | FD | FE |
| **CODICE / CODE** | **FA025** | **FA030** | **FA040** | **FB040** | **FC040** | **FD040** | **FE040** | **FA050** | **FB050** | **FC050** | **FD050** | **FE050** | **FA063** | **FB063** | **FC063** | **FD063** | **FE063** |

| Riduttore *Gearbox* | Grandezza - *Size* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **VP / VI** | **075** | **090** | | | | **110** | **130** | **150** |
| **VR** | **071/075<br>080/075** | **080/090<br>090/090** | | | | **080/110<br>090/110** | **090/130** | - |
| **VC / VS** | **040/075** | **040/090** | | | | **050/110** | **063/130** | **063/150** |
| **TIPO FLANGIA / *TYPE FLANGE*** | FA | FA | FB | FC | FD | FA | FA | FA |
| **CODICE / CODE** | **FA075** | **FA090** | **FB090** | **FC090** | **FD090** | **FA110** | **FA130** | **FA150** |

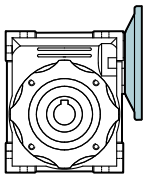
### KIT PRECOPPIA / *KIT PRE-STAGE*



| VR | CODICE / *CODE* | |
|---|---|---|
| **063/040** | PR063 | Kg 1.5 kg |
| **063/050** | | |
| **071/050** | PR071 | Kg 2.6 kg |
| **071/063** | | |
| **071/075** | | |
| **080/075** | PR080 | Kg 4.7 kg |
| **080/090** | | |
| **080/110** | | |
| **090/090** | PR090 | Kg 4.7 kg |
| **090/110** | | |
| **090/130** | | |

## Kit assemblaggio - Accessori / *Assembly Kit - Accessories*

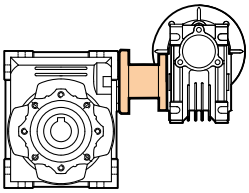
### KIT FLANGIA ENTRATA / *KIT INPUT FLANGE*



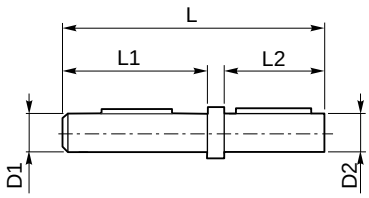
| VP | IEC | CODICE / *CODE* |
|---|---|---|
| **025** | 56B14 | FI025056B14 |
| **030** | 63B5 | FI030063B5 |
| | 63B14 | FI030063B14 |
| | 56B5 | FI030056B5 |
| | 56B14 | FI030056B14 |
| **040** | 71B5 | FI040071B5 |
| | 71B14 | FI040071B14 |
| | 63B5 | FI040063B5 |
| | 63B14 | FI040063B14 |
| | 56B5 | FI040056B5 |
| **050** | 80B5 | FI050080B5 |
| | 80B14 | FI050080B14 |
| | 71B5 | FI050071B5 |
| | 71B14 | FI050071B14 |
| | 63B5 | FI050063B5 |
| **063** | 90B5 | FI063080B5 |
| | 90B14 | FI063090B14 |
| | 80B5 | FI063080B5 |
| | 80B14 | FI063080B14 |
| | 71B5 | FI063071B5 |
| | 71B14 | FI063071B14 |
| **075** | 100/112B5 | FI075100B5 |
| | 100/112B14 | FI075100B14 |
| | 90B5 | FI075080B5 |
| | 90B14 | FI075090B14 |
| | 80B5 | FI075080B5 |
| | 80B14 | FI075080B14 |
| | 71B5 | FI075071B5 |
| **090** | 100/112B5 | FI075100B5 |
| | 100/112B14 | FI075100B14 |
| | 90B5 | FI075080B5 |
| | 90B14 | FI075090B14 |
| | 80B5 | FI075080B5 |
| | 80B14 | FI075080B14 |
| **110** | 132B5 | FI110132B5 |
| | 132 B14 | FI110132B14 |
| | 100/112B5 | FI110100B5 |
| | 100/112B14 | FI110100B14 |
| | 90B5 | FI110080B5 |
| | 90B14 | FI110090B14 |
| | 80B5 | FI110080B5 |
| **130** | 132B5 | FI110132B5 |
| | 132 B14 | FI110132B14 |
| | 100/112B5 | FI110100B5 |
| | 100/112B14 | FI110100B14 |
| | 90B5 | FI110080B5 |
| **150** | 160B5 | FI150160B5 |
| | 132B5 | FI150132B5 |
| | 100/112B5 | FI150100B5 |

## Kit assemblaggio - Accessori / *Assembly Kit - Accessories*

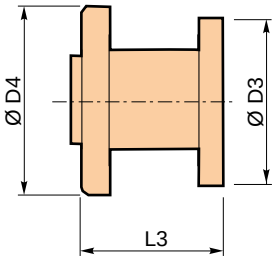
### KIT COMBINAZIONE VITE SENZA FINE/ *KIT* COMBINATION *WORMGEARBOXES*



*Albero di combinazione / Combination shaft*

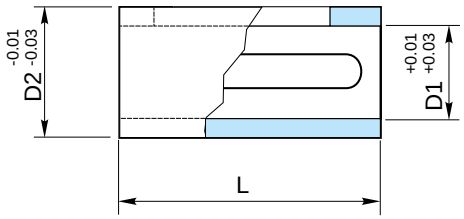



*Flangia di combinazione / Combination flange*



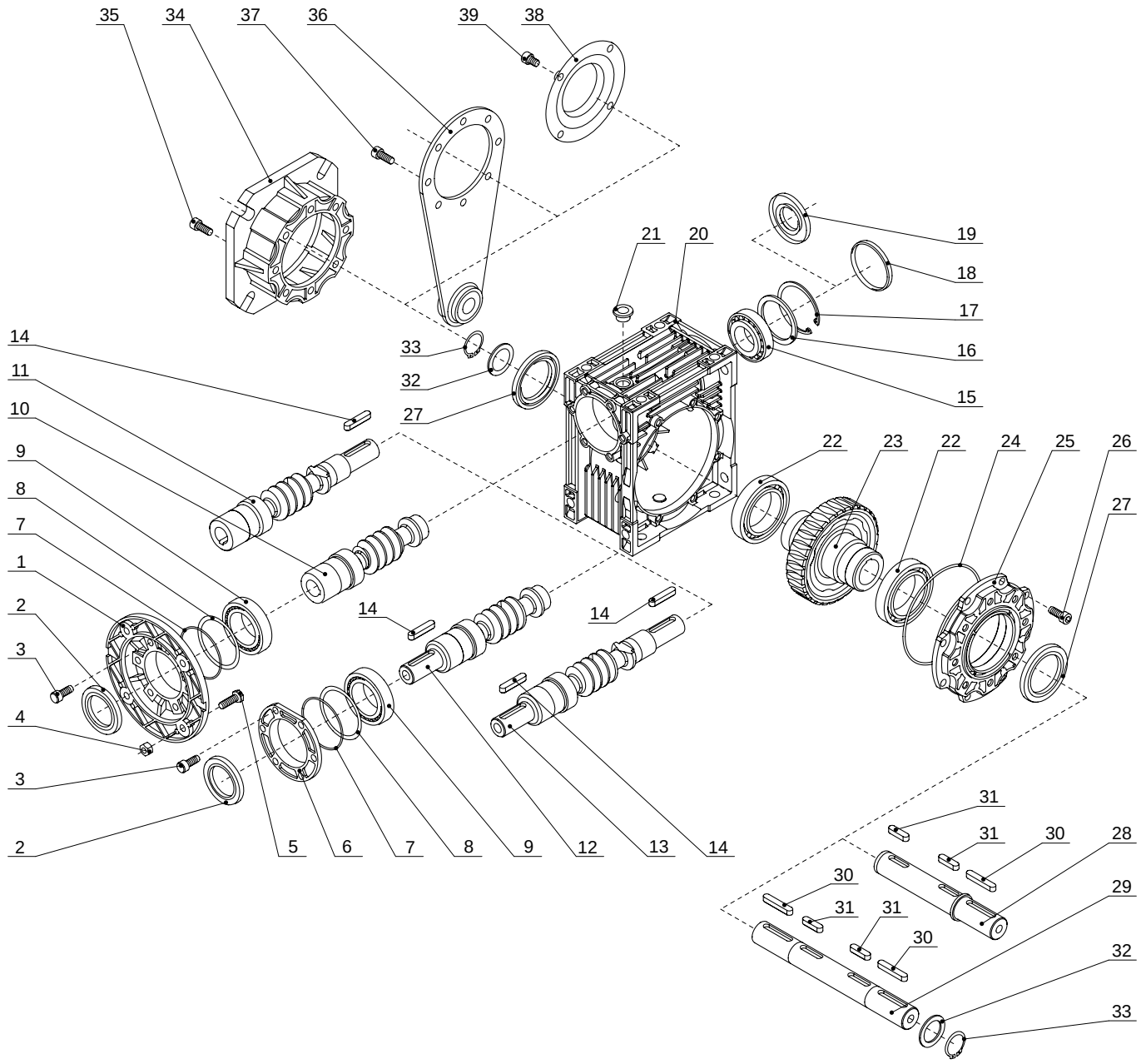

| VR | CODICE / *CODE* | Albero di combinazione / *Combination shaft* | | | | | Flangia di combinazione / *Combination flange* | | |
|---|---|---|---|---|---|---|---|---|---|
| | | D1 | D2 | L1 | L2 | L | D3 | D4 | L3 |
| **025/030** | KC025030 | 11 | 9 | 32 | 16 | 71.5 | 70 | 58 | 36.5 |
| **025/040** | KC025040 | 11 | 11 | 32 | 18 | 75.5 | 70 | 75 | 41.5 |
| **030/040** | KC030040 | 14 | 11 | 35 | 18 | 77 | 75 | 75 | 40 |
| **030/050** | KC030050 | 14 | 14 | 37.5 | 24 | 82.5 | 75 | 89 | 40 |
| **030/063** | KC030063 | 14 | 14 | 37.5 | 24 | 86.5 | 75 | 89 | 42 |
| **040/075** | KC040075 | 18 | 19 | 40 | 33.5 | 96 | 87 | 96 | 41 |
| **040/090** | KC040090 | 18 | 24 | 40 | 43.5 | 106 | 87 | 96 | 41 |
| **050/110** | KC050110 | 25 | 28 | 53.5 | 50 | 134 | 100 | 115 | 56.5 |
| **063/130** | KC063130 | 25 | 28 | 57.5 | 48 | 127 | 110 | 115 | 47 |
| **063/150** | KC063150 | 25 | 38 | 105 | 70 | 193 | 110 | 155 | 52 |

### BC Boccola di riduzione in acciaio / *Metal shaft sleeves*



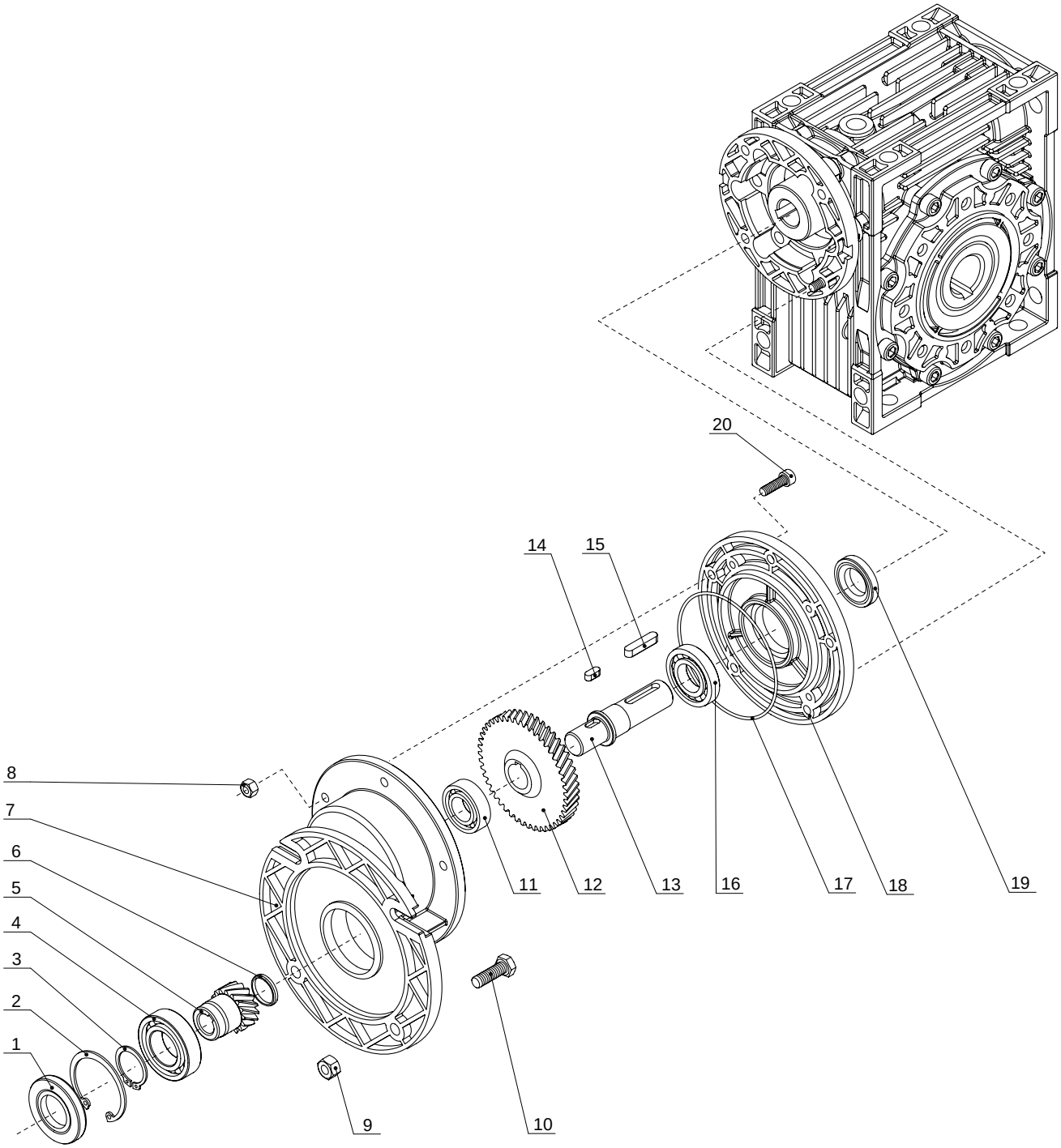

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **D2** | 11 | 14 | 19 | 19 | 24 | 24 | 28 | 28 | 38 | 38 | 42 |
| **D1** | 9 | 11 | 11 | 14 | 14 | 19 | 19 | 24 | 24 | 28 | 38 |
| **CODICE / CODE** | BC1109 | BC1411 | BC1911 | BC1914 | BC2414 | BC2419 | BC2819 | BC2824 | BC3824 | BC3828 | BC4238 |

## Disegno esploso / *Exploded view*




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | Flangia Motore<br>*Flange PAM* | 11 | Vite PAM seconda entrata<br>*Double ext. PAM worm* | 21 | Tappo<br>*Plug cock* | 31 | Linguetta<br>*Parallel key* |
| 2 | Paraolio<br>*Oil seal* | 12 | Vite sporgente<br>*RV worm* | 22 | Cuscinetto<br>*Bearing* | 32 | Rondella<br>*Washer* |
| 3 | Vite<br>*Hexagon socket head cap screw* | 13 | Vite sporgente seconda entrata<br>*Double ext. RV worm* | 23 | Corona<br>*Worm wheel* | 33 | Seeger<br>*Circlips* |
| 4 | Grano<br>*Hexagon nuts* | 14 | Linguetta entrata<br>*Parallel key* | 24 | O-ring<br>*O-ring* | 34 | Flangia uscita<br>*Output flange* |
| 5 | Vite<br>*Hexagon bolt* | 15 | Cuscinetto<br>*Bearing* | 25 | Coperchio pendolare<br>*Bearing support cover* | 35 | Vite<br>*Hexagon socket head cap screw* |
| 6 | Coperchio<br>*Gear unit cover* | 16 | Distanziale<br>*Washer* | 26 | Vite<br>*Hexagon socket head cap screw* | 36 | Braccio reazione<br>*Torque arm* |
| 7 | O-ring<br>*O-ring* | 17 | Seeger<br>*Circlips* | 27 | Paraolio<br>*Oil seal* | 37 | Vite<br>*Hexagon socket head cap screw* |
| 8 | Rasamento<br>*Spacer shim* | 18 | Cappellotto<br>*Cap* | 28 | Albero lento semplice<br>*Single output Shaft* | 38 | Coperchio protezione<br>*Protection cap* |
| 9 | Cuscinetto<br>*Bearing* | 19 | Paraolio<br>*Oil seal* | 29 | Albero lento doppio<br>*Double output Shaft* | 39 | Vite<br>*Hexagon socket head cap screw* |
| 10 | Vite PAM<br>*PAM worm* | 20 | Carcassa<br>*Housing* | 30 | Linguetta<br>*Parallel key* | | |

**Disegno esploso / *Exploded view***




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | Paraolio<br>*Oil seal* | 6 | Cappellotto<br>*Cap* | 11 | Cuscinetto<br>*Bearing* | 16 | Cuscinetto<br>*Bearing* |
| 2 | Seeger<br>*Circlips* | 7 | Cassa precoppia<br>*Pre-stage housing* | 12 | Ingranaggio<br>*Gear* | 17 | O-ring<br>*O-ring* |
| 3 | Seeger<br>*Circlips* | 8 | Grano<br>*Hexagon nuts* | 13 | Albero<br>*Low speed shaft* | 18 | Coperchio uscita<br>*Output cover* |
| 4 | Cuscinetto<br>*Bearing* | 9 | Grano<br>*Hexagon nuts* | 14 | Linguetta<br>*Parallel key* | 19 | Paraolio<br>*Oil seal* |
| 5 | Pinion<br>*Hollow pinion* | 10 | Vite<br>*Hexagon bolt* | 15 | Linguetta<br>*Parallel key* | 20 | Vite<br>*Hexagon socket head cap screw* |