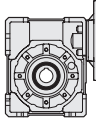
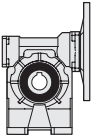
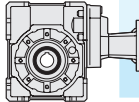
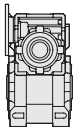
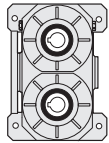
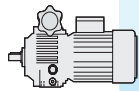
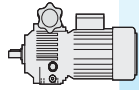
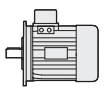


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1.0 Generalità

TRAMEC si presenta oggi sul mercato con la nuova gamma di riduttori a vite senza fine con le seguenti serie:

Serie X

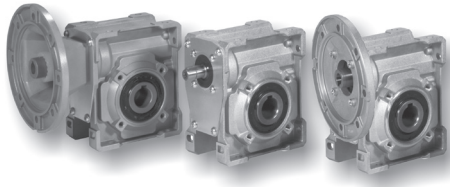
Riduttore a vite senza fine con corpo monolitico caratterizzato da una alta modularità di fissaggio grazie alla lavorazione in tolleranza di tutti i piani di appoggio.

1.0 General information

TRAMEC has introduced on the market a new range of worm gearboxes available as follows:

Series X

Worm gearbox with monolithic body. Thanks to tolerance machining of all faces, the X series stands out for its high modularity of fastening options.



1.0 Allgemeines

TRAMEC hat auf dem Markt eine neue Auswahl an Schneckengetriebe aufgebracht:

Serie X

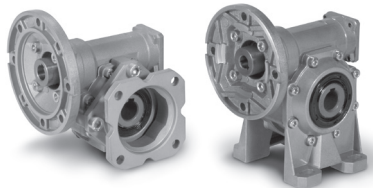
Schneckengetriebe mit monolithischem Gehäuse. Dank der Bearbeitung mit Toleranz der Ablageflächen ist die X Serie durch die umfangreiche Modularität der Befestigungsmöglichkeiten gekennzeichnet.

Serie K

Riduttori a vite senza fine con forma rotonda che consente ingombri e pesi inferiori. Svariate possibilità di versioni sono facilmente ottenibili anche grazie ai suoi particolari di collegamento (piedi e flange) che sono separati.

Series K

Worm gearboxes with round shape are light in weight and require reduced space. The coupling parts (feet and flanges) are separated and therefore offer the possibility to obtain countless versions.



Serie K

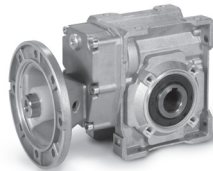
Schneckengetriebe in rundem Gehäuse weisen ein geringes Gewicht auf und benötigen weniger Platz. Die Anbauteile (Fuesse und Flansche) sind modular aufgebaut, wodurch viele unterschiedliche Versionen möglich sind.

Serie H

Riduttore a vite senza fine con precoppia cilindrica con corpo monolitico. Si ottengono così rapporti più elevati conservando un buon rendimento.

Series H

Worm gearbox with cylindrical pre-stage module and single piece body. It offers higher ratios by maintaining a good efficiency.



Serie H

Schneckengetriebe mit zylindrischem Vorstufen-Modul und einteiligem Gehäuse. Es bietet höhere Untersetzungen bei gleichzeitig guter Effizienz.

Serie KX - XX - KK

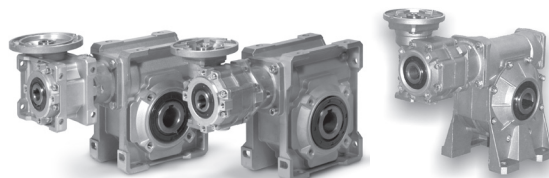
Riduttore combinato a doppia vite senza fine caratterizzato da elevate riduzioni di velocità.

KX - XX - KK Series

Worm gearbox with cylindrical pre-stage Combined worm gearbox with double worm shaft, it offers high speed reductions.

Serie KX - XX - KK

Kombinierte Doppelschneckengetriebe ermöglichen eine hohe Anzahl an Untersetzungsmöglichkeiten.



1.1 Unità di misura

1.1 Measurement units

1.1 Masseinheiten

| Simbolo Symbol Symbol | Unita' di misura Measurement unit Maßeinheit | Definizione | Definition | Beschreibung |
|-----------------------------|---|--|---|---|
| FS' | | Fattore di servizio riduttore | <i>Gearbox service factor</i> | Betriebsfaktor des Getriebes |
| FS | | Fattore di servizio dell'applicazione | <i>Application service factor</i> | Betriebsfaktor der Anwendung |
| i_1 | | Rapporto di riduzione del 1° riduttore | <i>Ratio of 1st gearbox</i> | Untersetungsverhältnis des 1. Getriebes |
| i_2 | | Rapporto di riduzione del 2° riduttore | <i>Ratio of 2nd gearbox</i> | Untersetungsverhältnis des 2. Getriebes |
| i_n | | Rapporto di riduzione | <i>Reduction ratio</i> | Untersetungsverhältnis |
| M_{2S} | [Nm] | Coppia di slittamento | <i>Slipping torque</i> | Rutschmoment |
| n_1 | [min ⁻¹] | Giri in entrata | <i>Input speed</i> | Antriebsdrehzahl |
| n_2 | [min ⁻¹] | Giri in uscita | <i>Output speed</i> | Abtriebsdrehzahl |
| P | [kW] | Potenza riduttore | <i>Gearbox capacity</i> | Getriebeleistung |
| P' | [kW] | Potenza richiesta in entrata | <i>Power required at input</i> | Erforderliche Leistung am Antrieb |
| P_1 | [kW] | Potenza motoriduttore | <i>Gear motor power</i> | Getriebemotor Leistung |
| P_2 | [kW] | Potenza in uscita | <i>Output power</i> | Abtriebsleistung |
| P_{1c} | [kW] | Potenza termica corretta | <i>Corrected thermal power</i> | verbesserte thermische Leistung |
| P_{10} | [kW] | Potenza termica nominale | <i>Thermal power</i> | Thermische Nennleistung |
| F_{r1} | [N] | Carico radiale albero entrata | <i>Input shaft radial load</i> | Radiallast an Antriebswelle |
| F_{r2} | [N] | Carico radiale albero uscita | <i>Output shaft radial load</i> | Radiallast an Abtriebswelle |
| F_{a1} | [N] | Carico assiale albero entrata | <i>Input shaft axial load</i> | Axiallast an Abtriebswelle |
| F_{a2} | [N] | Carico assiale albero uscita | <i>Output shaft axial load</i> | Axiallast an Antriebswelle |
| Rd | | Rendimento dinamico | <i>Dynamic efficiency</i> | dinamischer Wirkungsgrad |
| Rs | | Rendimento statico | <i>Static efficiency</i> | statischer Wirkungsgrad |
| Ta | [°C] | Temperatura ambiente | <i>Ambient temperature</i> | Umgebungstemperatur |
| T_{2M} | [Nm] | Momento torcente riduttore | <i>Gearbox torque</i> | Getriebe Drehmoment |
| T_2 | [Nm] | Momento torcente motoriduttore | <i>Gear motor torque</i> | Getriebemotor Drehmoment |
| T_C | [Nm] | Momento torcente da utilizzare per la scelta del riduttore | <i>Torque to be used for the selection of the gearbox</i> | Drehmoment, das zur Wahl des Getriebe zu benutzen ist |
| T_2' | [Nm] | Momento torcente richiesto | <i>Required Torque</i> | benötigtes Drehmoment |

1.2 Potenza

P = Potenza massima applicabile in entrata con vite ad albero maschio riferita alla velocità n_1 con un fattore di servizio FS = 1 e a un servizio continuo S1.

P_1 = Potenza motore consigliata riferita alla velocità n_1 con il fattore di servizio FS riportato in tabella a pag. 4 e a servizio continuo S1.

E' possibile determinare la potenza necessaria in entrata P' in base alla coppia T_2' richiesta all'applicazione secondo la seguente formula:

1.2 Power

P = max. power applicable at input with male worm shaft, referred to n_1 speed, service factor FS=1, on S1 continuous duty.

P_1 = recommended motor power, referred to n_1 speed, service factor FS as reported in the table on page 4, on S1 continuous duty.

The necessary input power with regard to T_2 torque required by the application, is to be calculated with the following formula:

$$P' = \frac{T_2' \cdot n_2}{9550 \cdot Rd} \quad [kW]$$

1.2 Leistung

P = am Antrieb max. anwendbare Leistung, mit Schneckenwellenzapfen bez. n_1 Antriebsdrehzahl, Betriebsfaktor FS=1 und S1 Dauerbetrieb.

P_1 = beratene Motorleistung bez. n_1 Drehzahl, FS Betriebsfaktor (wie es in der Tabelle auf Seite 4 angegeben wird) und S1 Dauerbetrieb.

Die am Antrieb erforderliche Leistung P' (auf Grund des von der Anwendung verlangten T_2 Drehmoments) kann wie folgt kalkuliert werden:

1.3 Rapporto di riduzione

i_n = È il rapporto di riduzione della velocità, definito come:

1.3 Reduction Ratio

i_n = speed reduction ratio, defined as follows:

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

1.3 Untersetungsverhältnis

i_n = Drehzahluntersetungsverhältnis, wird wie folgt definiert:

1.4 Momento torcente

T_{2M} = È la massima coppia trasmissibile in uscita del riduttore con carico uniforme riferito alla velocità n_1 con un fattore di servizio FS = 1 e a servizio continuo S1.

T_2 = È la coppia in uscita del motoriduttore riferita alla velocità n_1 alla potenza P_1 , con il fattore di servizio FS riportato in tabella e a servizio continuo S1.

1.4 Torque

T_{2M} = max. torque transmissible at gearbox output with uniform load, referred to n_1 speed, service factor FS = 1, on S1 continuous duty.

T_2 = output torque transmissible to the geared motor, referred to n_1 speed, P_1 power, FS service factor as reported in the table, on S1 continuous duty.

1.4 Drehmoment

T_{2M} = am Getriebeabtrieb max. übertragbaren Drehmoment, bei gleichmäßiger Last bez. n_1 Drehzahl, Betriebsfaktor FS = 1 und S1 Dauerbetrieb.

T_2 = übertragbares Abtriebsdrehmoment, bezogen auf die Antriebsdrehzahl n_1 , die Leistung P_1 und dem in der Tabelle angegebenen Betriebsfaktor FS bei Dauerbetrieb S1.

$$T_{2M} = \frac{9550 \cdot P_1 \cdot Rd}{n_2} \quad [Nm]$$

1.5 Fattore di servizio FS

È il valore che tiene in considerazione le varie condizioni di funzionamento:

- tipologia di applicazione ovvero natura del carico (A-B-C)
- durata di funzionamento (ore giornaliere h/gg)
- numero di avviamenti/ora

Il coefficiente così trovato (FS) dovrà essere uguale o inferiore al fattore di servizio del riduttore da adottare FS' dato dal rapporto tra la coppia T_{2M} indicata a catalogo e la coppia T_2 richiesta dall'applicazione.

1.5 FS Service factor

Value which takes the different operating conditions into consideration:

- type of application or type of load (A-B-C)
- length of operation (hours per day h/d)
- number of start-ups/hour

This coefficient (FS) will have to be equal or lower than the FS of selected gearbox FS' given by the ratio between T_{2M} torque mentioned in the catalogue and the T_2 torque required by the application.

1.5 Betriebsfaktor FS

Wert, der die verschiedenen Betriebsbedingungen in Betracht zieht:

- Art der Anwendung oder Art der Last (A-B-C)
- Betriebsdauer (Stunden pro Tag)
- Zahl der Starten pro Stunde

Der so berechnete Koeffizient (FS) muss kleiner oder gleich dem Betriebsfaktor FS' des Getriebes sein, welcher sich aus dem Verhältnis zwischen dem im Katalog angegebenen maximalen Drehmoment T_{2M} und dem von der Anwendung benötigten Drehmoment T_2 ergibt.

$$FS' = \frac{T_{2M}}{T_2} > FS$$

I valori di FS indicati in tabella sono relativi all'azionamento del motore elettrico; se utilizzato un motore a scoppio, si dovrà tenere conto di un fattore di moltiplicazione 1.3 se a più cilindri e 1.5 se monocilindrico. Se il motore elettrico applicato è autofrenante occorre considerare un numero di avviamenti doppio di quello effettivamente richiesto.

FS values reported in the table refer to the electric motor operation; should a combustion motor be used, consider a multiplication factor of 1.3 for a multicylinder motor, of 1.5 for a single-cylinder one. If an electric brake motor is used, consider a number of start-ups which is twice as much the number actually required.

Die in der Tabelle angegebenen FS Werte beziehen sich auf Anwendung eines Elektromotors. Falls einen Verbrennungsmotor verwendet wird, dann soll einen Multiplikationsfaktor von 1.3 für Mehrzylindermotor oder von 1.5 für Einzylindermotor in Betracht gezogen werden. Falls es sich um einen Elektro-Bremsmotor handelt, dann ist die Zahl der Starten doppelt zu zählen.

| Classe di carico Load class Lastklasse | h/gg h/d St./Tag | N. AVVIAMENTI/ORA / N. START-UP/HOUR / ANZAHL DER STARTVORGÄNGE PRO STUNDE | | | | | | | | |
|---|---|--|--|-----|-----|--|-----|-----|-----|-----|
| | | 2 | 4 | 8 | 16 | 32 | 63 | 125 | 250 | 500 |
| A | 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 |
| | APPLICAZIONI / APPLICATIONS / ANWENDUNGEN | | | | | | | | | |
| Agitatori per liquidi puri Alimentatori per fornaci Alimentatori a disco Filtri di lavaggio con aria Generatori Pompe centrifughe Trasportatori con carico uniforme | | | Pure liquid agitators Furnace feeders Disc feeders Air laundry filters Generators Centrifugal pumps Uniform load conveyors | | | Rührwerke für reine Flüssigkeiten Beschickungsvorrichtungen für Brennöfen Telleraufgeber Spülluftfilter Generatoren Kreiselpumpen Förderer mit gleichmäßig verteilter Last | | | | |
| Carico uniforme <i>Uniform load</i> Gleichmäßig verteilte Last | | | | | | | | | | |
| B | 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 |
| | APPLICAZIONI / APPLICATIONS / ANWENDUNGEN | | | | | | | | | |
| Agitatori per liquidi e solidi Alimentatori a nastro Argani con medio servizio Filtri con pietre e ghiaia Viti per espulsione acqua Flocculatori Filtri a vuoto Elevatori a tazze Gru | | | Liquid and solid agitators Belt conveyors Medium service winches Stone and gravel filters Dewatering screws Flocculator Vacuum filters Bucket elevators Cranes | | | Rührwerke für Flüssigkeiten und Feststoffe Bandförderer Mittlere Winden Filter mit Steinen/Kies Abwasserschnecken Flockvorrichtungen Vakuumfilter Becherwerke Kräne | | | | |
| Carico con urti moderati <i>Moderate shock load</i> Last mit mäßigen Stößen | | | | | | | | | | |
| C | 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 |
| | APPLICAZIONI / APPLICATIONS / ANWENDUNGEN | | | | | | | | | |
| Argani per servizio pesante Estrusori Calandre per gomma Pressa per mattoni Piallatrici Mulini a sfera | | | Heavy duty hoists Extruders Crusher rubber calenders Brick presses Planing machine Ball mills | | | Winden für schwere Lasten Extruder Gummikalander Ziegelpressen Hobelmaschinen Kugelmühle | | | | |
| Carico con urti forti <i>Heavy shock load</i> Last mit starken Stößen | | | | | | | | | | |

1.6 Rendimento

Rd - È il rendimento dinamico, definito come rapporto tra la potenza in uscita P_2 e quella in entrata P_1 . Dipende principalmente dalla velocità di strisciamento, dal tipo di lubrificante e dall'angolo d'elica. I valori indicati nelle tabelle sono validi se si applica la corrispondente coppia in uscita. In fase di rodaggio, circa le prime 300 ore di funzionamento sotto carico, il valore deve essere considerato inferiore del 30% rispetto a quello indicato in tabella.

Rs - È il rendimento statico che si ha al momento dell'avviamento del riduttore e varia in base al rapporto di riduzione. Risulta importante, per una corretta valutazione del riduttore da impiegare, nelle applicazioni in cui non si raggiungono mai le condizioni di regime come nei funzionamenti intermittenti. Analogamente al caso dinamico, anche il rendimento statico durante il rodaggio risulta inferiore del 30% rispetto al valore indicato in tabella.

1.6 Efficiency

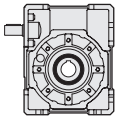
Rd - dynamic efficiency, defined as the ratio between P_2 output power and P_1 input power. It mainly depends on the slipping speed, the type of lubricant and the lead angle. The values reported in the table are valid when the corresponding output torque is applied. During the first 300 operating hours under load, the value to be considered is 30% lower than that reported in the table.

Rs - static efficiency at gearbox start-up; it changes depending on the reduction ratio. Rs value is important for selecting the right gearbox for applications where a steady state is never achieved, as for intermittent duty applications. Same as dynamic efficiency, static efficiency too during the running-in period will be 30% lower than the value reported in the table.

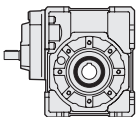
1.6 Wirkungsgrad

Rd - dynamischer Wirkungsgrad, ist das Verhältnis zwischen P_2 Abtriebsleistung und P_1 Antriebsleistung. Rd Wert wird durch Gleitgeschwindigkeit, Art des Schmiermittels und Steigungswinkel beeinflusst. Die Tabellen zeigen die Werte die gültig sind wenn das entsprechende Abtriebsdrehmoment gegeben ist. Während der Einlaufzeit in den ersten 300 Betriebsstunden unter Belastung, ist dieser Wert 30% niedriger als der in der Leistungstabelle angegebenen Wert.

Rs - statischer Wirkungsgrad beim Getriebebestart und in Abhängigkeit zur Unterersetzung. Der Wert Rs ist wichtig für die Auswahl des richtigen Getriebes für Anwendungen wo ein stetiger Betrieb nicht auftritt, wie bei Anwendungen mit Aussetzbetrieb. Der statischer Wirkungsgrad auch während der Einlaufzeit wird 30% niedriger als der in der Tabelle angegebenen Wert.



| X - K | Rs | | | | | | | | | | | |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 65 | 80 | 100 |
| 30 | 0.70 | 0.67 | 0.62 | 0.55 | 0.47 | 0.43 | 0.39 | 0.30 | 0.27 | 0.25 | 0.22 | 0.21 |
| 40 | 0.69 | 0.67 | 0.63 | 0.55 | 0.52 | 0.45 | 0.40 | 0.35 | 0.29 | 0.26 | 0.25 | 0.23 |
| 50 | 0.69 | 0.68 | 0.65 | 0.58 | 0.53 | 0.47 | 0.41 | 0.37 | 0.32 | 0.28 | 0.25 | 0.23 |
| 63 | 0.70 | 0.68 | 0.65 | 0.57 | 0.55 | 0.50 | 0.47 | 0.38 | 0.33 | 0.29 | 0.28 | 0.23 |
| 75 | / | 0.68 | 0.65 | 0.58 | 0.55 | 0.51 | 0.43 | 0.39 | 0.35 | 0.31 | 0.28 | 0.24 |
| 90 | / | 0.68 | 0.65 | 0.58 | 0.55 | 0.52 | 0.45 | 0.39 | 0.36 | 0.32 | 0.29 | 0.25 |
| 110 | / | 0.68 | 0.66 | 0.59 | 0.56 | 0.53 | 0.44 | 0.40 | 0.38 | 0.33 | 0.30 | 0.26 |
| 130 | / | 0.69 | 0.66 | 0.60 | 0.57 | 0.55 | 0.44 | 0.42 | 0.39 | 0.35 | 0.32 | 0.28 |

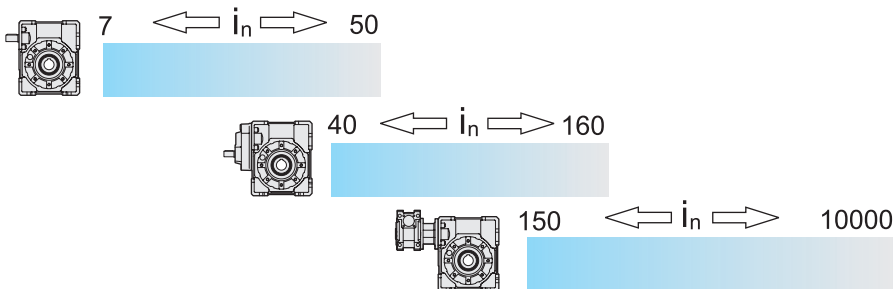


| H | Rs | | | | | | | | | | |
|-----|------|------|------|------|------|------|------|------|------|------|------|
| | 30 | 40 | 60 | 80 | 100 | 120 | 160 | 200 | 260 | 320 | 400 |
| 40 | 0.66 | 0.62 | 0.54 | 0.51 | 0.44 | 0.39 | 0.34 | 0.28 | 0.25 | 0.24 | 0.22 |
| 50 | 0.66 | 0.64 | 0.57 | 0.52 | 0.46 | 0.40 | 0.36 | 0.31 | 0.27 | 0.24 | 0.22 |
| 63 | 0.67 | 0.64 | 0.56 | 0.54 | 0.49 | 0.46 | 0.37 | 0.32 | 0.28 | 0.27 | 0.22 |
| 75 | 0.67 | 0.64 | 0.57 | 0.54 | 0.50 | 0.42 | 0.38 | 0.34 | 0.30 | 0.27 | 0.23 |
| 90 | 0.67 | 0.64 | 0.57 | 0.54 | 0.51 | 0.44 | 0.38 | 0.35 | 0.31 | 0.28 | 0.24 |
| 110 | 0.67 | 0.65 | 0.58 | 0.55 | 0.52 | 0.43 | 0.39 | 0.37 | 0.32 | 0.30 | 0.25 |
| 130 | 0.68 | 0.65 | 0.59 | 0.56 | 0.54 | 0.43 | 0.41 | 0.38 | 0.34 | 0.31 | 0.27 |

Stabilito il rapporto di riduzione necessario all'applicazione, dove è possibile, è consigliabile utilizzare i diversi tipi di riduttori che offrono, a parità di rapporto, un migliore rendimento dinamico.

Once the reduction ratio required by the application has been established, it is advisable to select a type of gearbox which, ratio being equal, offers better dynamic efficiency.

Nachdem das für die Anwendung erforderliche Untersetzungsverhältnis festgestellt worden ist, wählen Sie bei gleichem Untersetzungsverhältnis einen Getriebetyp, den einen besseren dynamischen Wirkungsgrad aufweist.



1.7 Irreversibilità

Nelle applicazioni dove è necessario evitare la trasmissione del moto retrogrado o sostenere il carico, in assenza di alimentazione elettrica, è consigliabile adottare freni esterni.

Nei riduttori a vite senza fine emerge questa caratteristica naturale, denominata grado di irreversibilità, che cresce con l'aumentare del rapporto di riduzione in quanto strettamente legata al relativo rendimento.

Per ottenere alti gradi di irreversibilità occorre quindi adottare i rapporti di riduzione più elevati, senza dimenticare che, il rendimento, tende a crescere durante le prime 500 ore di funzionamento per poi stabilizzarsi sui valori riportati a catalogo.

Irreversibilità statica

Condizione di impedimento alla rotazione comandata dall'albero lento senza escludere possibili ritorni lenti nel caso in cui il carico sia sottoposto a vibrazioni.

$R_s < 0.45$ si ha irreversibilità

$R_s = 0.45 \div 0.55$ irreversibilità incerta

$R_s > 0.55$ si ha reversibilità

Irreversibilità dinamica

Condizione di arresto e quindi di sostegno del carico nel momento in cui cessa l'azione di comando. La condizione è più difficile da ottenere in quanto viene influenzata dal rendimento dinamico, dalla velocità di rotazione, da eventuali vibrazioni che il carico può generare e dalla direzione del movimento rispetto al carico.

Quest'ultima condizione è molto evidente nei sollevamenti:

un carico in salita, cessando l'azione di comando, deve arrestarsi e quindi assumere velocità zero (rendimento statico) prima di invertire il moto e cadere per gravità.

Un carico in discesa tende invece a proseguire nel suo moto ostacolato, nella caduta, dal solo rendimento dinamico.

$R_d < 0.45$ si ha irreversibilità

$R_d = 0.45 \div 0.55$ irreversibilità incerta

$R_d > 0.55$ si ha reversibilità

1.7 Irreversibility

The use of external brakes is advised in case of applications where backwards motion must be hindered and the load must be held should the feed be cut off.

Some worm gearboxes feature natural irreversibility. The higher the ratio, the higher is the irreversibility, since it is strictly dependent on the relative efficiency.

In order to achieve high irreversibility it is therefore necessary to select higher efficiency reduction ratios not to forget that the efficiency is growing during the first 500 hours life until it stabilizes to the values mentioned in the catalogue.

Static irreversibility

Static irreversibility occurs when the rotation controlled by the output shaft is hindered; possible slow returns cannot be excluded should the load be subject to vibrations.

$R_s < 0.45$ provides irreversibility

$R_s = 0.45 \div 0.55$ irreversibility is uncertain

$R_s > 0.55$ reversibility is possible

Dynamic irreversibility

Dynamic irreversibility is characterized by stillstand and hold of the load when the drive stops.

It is more difficult to achieve this condition because it is influenced by dynamic efficiency, speed of rotation and possible vibrations generated by the motion direction with regard to the load.

This last condition is much more evident during the lifting: if the drive stops during the lifting of the load this has to come to a speed equals to zero (static irreversibility) before the reversal of motion rotation and its drop for gravity.

On the contrary the load during its descent gets its motion obstructed by its dynamic efficiency.

$R_d < 0.45$ provides irreversibility

$R_d = 0.45 \div 0.55$ irreversibility is uncertain

$R_d > 0.55$ reversibility is possible

1.7 Selbsthemmung

Aussenbremsen sind bei Anwendungen zu benutzen, bei denen Rückbewegung vermeiden werden muss oder die Last auch im Falle von Fehlen an Speisung gehalten werden muss.

Einige Schneckengetriebe sind selbsthemmend. Je höher die Untersetzung ist, desto höher ist die Selbsthemmung, da diese stark vom jeweiligen Wirkungsgrad abhängig ist. Um eine höhere Selbsthemmung zu erreichen, wählen Sie bitte höhere Untersetzungsverhältnisse.

Bitte beachten Sie, dass der Wirkungsgrad der Getriebe in den ersten 500 Betriebsstunden ansteigt und sich erst anschließend auf die im Katalog angegebenen Werte stabilisiert.

Statische Selbsthemmung

Statische Selbsthemmung liegt vor, wenn die von Abtriebswelle gesteuerten Drehung gehindert wird. Langsamer Rücklauf ist möglich, falls die Last Schwingungen ausgesetzt wird.

$R_s < 0.45$ es liegt Selbsthemmung vor

$R_s = 0.45 \div 0.55$ ungewisse Selbsthemmung

$R_s > 0.55$ es liegt Reversibilität vor

Dynamische Selbsthemmung

Stillstand und Stütze der Last beim Aussetzen der Steuerung.

Diese Bedingung ist schwieriger zu erreichen, da sie vom dynamischen Wirkungsgrad, der Drehzahl und von der Last verursachten möglichen Vibrationen abhängig ist

Dieser letzte Fall kommt bei Hubanwendungen stark zu tragen. Wenn der Antrieb während dem Hub stoppt, muss die Last eine Geschwindigkeit von annähernd null erreichen (statische Irreversibilität), bevor die Rotation sich umkehrt und die Last durch die Gravitation nach unten fährt. Dem entgegengesetzt bekommt die Last durch die Abwärtsbewegung Ihre dynamische Effizienz.

$R_d < 0.45$ es liegt Selbsthemmung vor

$R_d = 0.45 \div 0.55$ ungewisse Selbsthemmung

$R_d > 0.55$ es liegt Reversibilität vor

1.8 Gioco angolare

1.8 Backlash

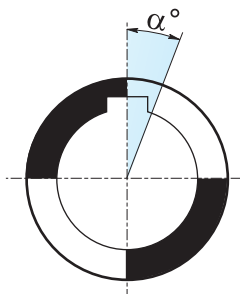
1.8 Winkelspiel

X - K

| i _n | 30 | | 40 | | 50 | | 63 | | 75 | | 90 | | 110 | | 130 | |
|----------------|------|-------|------|-------|------|-------|------|------|------|------|------|------|------|-----|-----|-----|
| | min | max | min | max | min | max | min | max | min | max | min | max | min | max | min | max |
| 5 | 10' | 16' | 9' | 13.5' | 7.5' | 10.5' | 7' | 10' | / | / | / | / | / | / | / | / |
| 7.5 | 10' | 16' | 9' | 13.5' | 7.5' | 10.5' | 7' | 10' | 7' | 10' | 6.5' | 9.5' | 6' | 8' | 6' | 8' |
| 10 | 10' | 16' | 9' | 13.5' | 7' | 10.5' | 7' | 10' | 7' | 10' | 6.5' | 9' | 6' | 8' | 6' | 8' |
| 15 | 10' | 16' | 9' | 13.5' | 7.5' | 10.5' | 7' | 10' | 7' | 10' | 6.5' | 9' | 6' | 8' | 6' | 8' |
| 20 | 9' | 14.5' | 7.5' | 12' | 6.5' | 9.5' | 6.5' | 8.5' | 6.5' | 8.5' | 6' | 8.5' | 6' | 7' | 6' | 8' |
| 25 | 9' | 14.5' | 7.5' | 12' | 6' | 9.5' | 6' | 8.5' | 6' | 8.5' | 6' | 8.5' | 5.5' | 7' | 5' | 7' |
| 30 | 9' | 14.5' | 7.5' | 12' | 6' | 8.5' | 6' | 8.5' | 6' | 8.5' | 6' | 8.5' | 5.5' | 7' | 5' | 7' |
| 40 | 9' | 14.5' | 7.5' | 12' | 6' | 9.5' | 6' | 8.5' | 6' | 8.5' | 6' | 8' | 5.5' | 7' | 5' | 7' |
| 50 | 8.5' | 14' | 7.5' | 12' | 6' | 9.5' | 6' | 8.5' | 6' | 8.5' | 6' | 8' | 5.5' | 7' | 5' | 7' |
| 65 | 8.5' | 14' | 7.5' | 12' | 6' | 9' | 6' | 8' | 6' | 8' | 6' | 8' | 5.5' | 7' | 5' | 7' |
| 80 | 8' | 13.5' | 7' | 11.5' | 6' | 9' | 5.5' | 7.5' | 5.5' | 7.5' | 5.5' | 7.5' | 5.5' | 7' | 5' | 7' |
| 100 | 8' | 13' | 7' | 11' | 6' | 9' | 5.5' | 7.5' | 5.5' | 7.5' | 5.5' | 7.5' | 5.5' | 7' | 5' | 7' |

H

| i _n | 40 | | 50 | | 63 | | 75 | | 90 | | 110 | | 130 | |
|----------------|-------|-------|-------|-------|------|-------|------|-------|------|-------|------|-----|------|-----|
| | min | max | min | max | min | max | min | max | min | max | min | max | min | max |
| 30 | 12' | 16.5' | 10' | 13.5' | 9' | 12' | 9' | 12' | 8.5' | 11.5' | 7' | 9' | 7' | 9' |
| 40 | 12' | 16.5' | 10' | 13.5' | 9' | 12' | 9' | 12' | 8.5' | 11' | 7' | 9' | 7' | 9' |
| 60 | 12' | 16.5' | 10.5' | 13.5' | 9' | 12' | 9' | 12' | 8.5' | 11' | 7' | 9' | 7' | 9' |
| 80 | 10.5' | 15' | 9.5' | 12.5' | 8.5' | 10.5' | 8.5' | 10.5' | 8.5' | 10.5' | 7' | 8' | 7' | 8' |
| 100 | 10.5' | 15' | 9' | 12.5' | 8' | 10.5' | 8' | 10.5' | 8' | 10.5' | 6.5' | 8' | 6.5' | 8' |
| 120 | 12' | 16.5' | 10' | 14.5' | 8' | 11.5' | 9.5' | 12' | 8.5' | 11' | 7.5' | 9' | 6.5' | 8' |
| 160 | 10.5' | 15' | 9' | 12.5' | 8' | 10.5' | 8' | 10.5' | 8' | 10.5' | 6.5' | 8' | 6.5' | 8' |
| 200 | 10.5' | 15' | 9' | 12.5' | 8' | 10.5' | 8' | 10.5' | 8' | 10' | 6.5' | 8' | 6.5' | 8' |
| 260 | 10.5' | 15' | 9' | 12.5' | 8' | 10.5' | 8' | 10.5' | 8' | 10' | 6.5' | 8' | 6.5' | 8' |
| 320 | 10' | 14.5' | 9' | 12' | 7.5' | 9.5' | 7.5' | 9.5' | 7.5' | 9.5' | 6.5' | 8' | 6.5' | 8' |
| 400 | 10' | 14' | 9' | 12' | 7.5' | 9.5' | 7.5' | 9.5' | 7.5' | 9.5' | 6.5' | 8' | 6.5' | 8' |



Misurato bloccando l'albero entrata, e ruotando l'albero uscita nelle due direzioni applicando la coppia strettamente necessaria a creare il contatto tra i denti degli ingranaggi, al massimo pari al 2% della coppia nominale (T_{2M}).

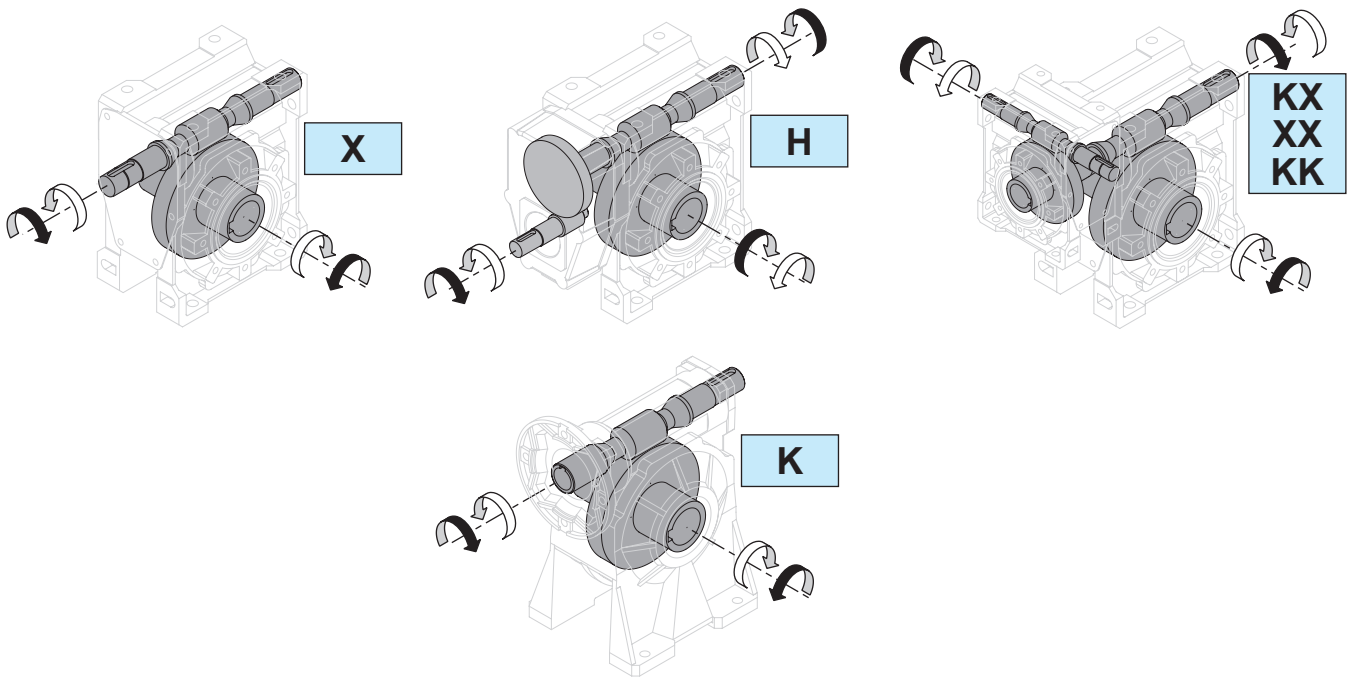
Angular backlash measured after having blocked the input shaft by rotating output shaft in both directions and applying the torque which is strictly necessary to create a contact between the teeth of the gears. The applied torque should be at most 2% of the max. torque (T_{2M}).

Nachdem die Antriebswelle blockiert worden ist, darf das Winkelspiel auf die Abtriebswelle bemessen werden. Dabei soll die Antriebswelle in beiden Richtungen gedreht werden und ein Drehmoment ausgeübt werden, das zur Entstehen eines Kontaktes zwischen den Zahnen genuegt. Das ausgeübte Drehmoment soll höchstens 2% des max. von Getrieben garantierten Drehmoment (T_{2M}) sein.

1.9 Senso di rotazione

1.9 Direction of rotation

1.9 Drehrichtung



1.10 Carichi radiali

Ogni tipo di organo di trasmissione che viene collegato o sull'albero in entrata o in quello di uscita determina carichi radiali rispettivamente Fr_1 e Fr_2 .

I valori riportati in tabella in funzione delle varie velocità in entrata e in uscita sono da considerarsi applicabili come forza agente a metà della sporgenza; per un posizionamento a 1/3 della lunghezza occorre aumentare i valori di tabella del 25% mentre per un posizionamento a 2/3 della lunghezza occorre diminuire gli stessi valori del 25%.

I valori dei carichi assiali applicabili in entrata Fa_1 e in uscita Fa_2 sono indicati nelle tabelle.

Negli alberi bisporgenti, ogni estremità può sopportare un carico radiale pari ai 3/5 dei valori riportati in tabella purché agiscano nello stesso senso e siano di pari intensità

1.10 Radial load

Any transmission device coupled to either the input or to the output shaft generates radial loads, Fr_1 and Fr_2 respectively.

The load values reported in the table, depending on input and output speed, are to be considered as acting at the half-way point of the projection; if the load is applied at 1/3 of the projection, increase the values in the table by 25%; if the load is applied at 2/3, reduce the values by 25%.

Axial loads applicable at input Fa_1 and at output Fa_2 are reported in the tables.

With regard to double projecting shafts, each end can sustain a radial load which equals 3/5 of the values listed in the table, on condition that they act in the same direction and have the same intensity.

1.10 Radial Load

Antriebsorgane, die mit der Antriebs- oder Abtriebswelle verbunden werden, bewirken Radialbelastungen (Fr_1 und Fr_2 beziehungsweise).

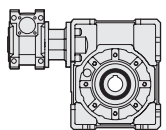
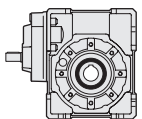
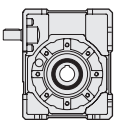
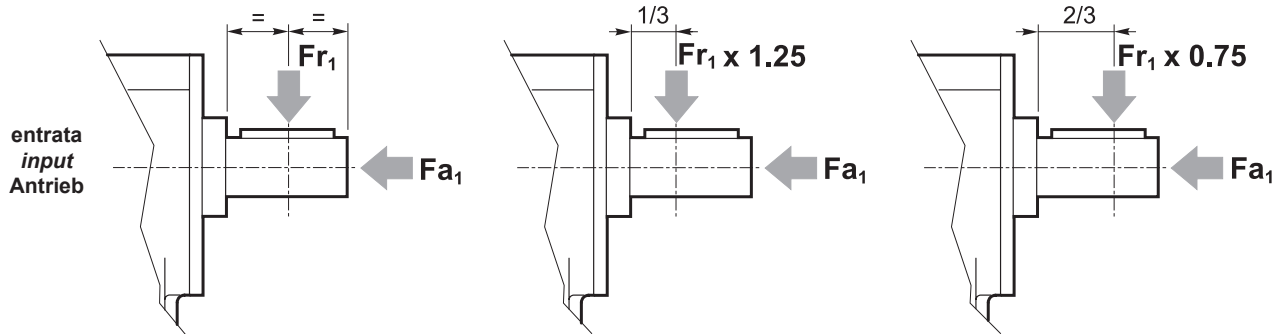
Die in der Tabelle nach Antriebs- und Abtriebsdrehzahl angegebenen Werte beziehen sich auf Belastungen, die in der Mitte der herausragenden Welle wirken; falls die Belastungen auf 1/3 der Länge wirken, sollen die in der Tabelle angegebenen Werte um 25% erhöht werden; falls sie auf 2/3 der Länge wirken, sollen die Werte der Tabelle um 25% reduziert werden.

Die Werte der anwendbaren Axialbelastungen (Fa_1 am Antrieb und Fa_2 am Abtrieb) werden in den Tabellen angegeben. Bei doppelseitig herausragenden Wellen darf die Radialbelastung auf jedes Ende 3/5 der nachstehenden Werte betragen, unter die Bedingung dass Stärke und Richtung gleich sind.

Carichi radiali Fr_1 e assiali Fa_1 sull'albero entrata [N]

Fr_1 radial loads and Fa_1 axial loads on the input shaft [N]

Fr_1 Radialbelastungen und Fa_1 Axialbelastungen auf die Antriebswelle [N]

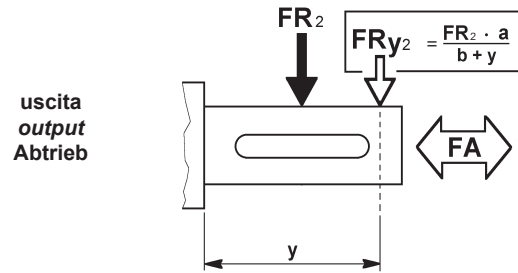


| n_1 [min ⁻¹] | XA30 | | XA40 | | XA50 | | XA63 | | XA75 | | XA90 | | XA110 | | XA130 | |
|-------------------------------|--------|--------|--|--------|----------------------------------|--------|-----------------------------------|--------|-----------|--------|-----------|--------|--------|--------|--------|--------|
| | Fr_1 | Fa_1 | Fr_1 | Fa_1 | Fr_1 | Fa_1 | Fr_1 | Fa_1 | Fr_1 | Fa_1 | Fr_1 | Fa_1 | Fr_1 | Fa_1 | Fr_1 | Fa_1 |
| 1400 | 100 | 20 | 220 | 44 | 400 | 80 | 480 | 96 | 750 | 150 | 850 | 170 | 1200 | 240 | 1500 | 300 |
| | | | HA40 | | HA50 | | HA63 | | HA75 | | HA90 | | HA110 | | HA130 | |
| 1400 | | | Fr_1 | Fa_1 | Fr_1 | Fa_1 | Fr_1 | Fa_1 | Fr_1 | Fa_1 | Fr_1 | Fa_1 | Fr_1 | Fa_1 | Fr_1 | Fa_1 |
| | | | 150 | 30 | 250 | 50 | 320 | 64 | 570 | 114 | 570 | 114 | 800 | 160 | 1000 | 200 |
| | | | XXA30/30 XXA30/40 XXA30/50 XXA30/63 | | XXA40/63 XXA40/75 XXA40/90 | | XXA50/75 XXA50/90 XXA50/110 | | XXA63/110 | | XXA63/130 | | - | | | |
| 1400 | | | Fr_1 | Fa_1 | Fr_1 | Fa_1 | Fr_1 | Fa_1 | Fr_1 | Fa_1 | Fr_1 | Fa_1 | | | | |
| | | | 100 | 20 | 220 | 44 | 400 | 80 | 480 | 96 | 480 | 96 | | | | |

Carichi radiali Fr_2 e assiali Fa_2 sull'albero uscita [N]

Fr_2 radial loads and Fa_2 axial loads on the output shaft [N]

Fr_2 Radialbelastungen und Fa_2 Axialbelastungen auf die Abtriebswelle [N]



| CUSCINETTI RADIALI A SFERE / RADIAL BALL BEARINGS / SCHRÄGKUGELLAGER | | | | | | | | | | | | | | | | | |
|--|----------------|-----------------|--------|-------------------|--------|------------------|--------|--------------------|--------|-----------------|--------|-----------------|--------|---------------------|--------|-----------------|--------|
| $n_1=1400$ rpm | | 30 | | 40 | | 50 | | 63 | | 75 | | 90 | | 110 | | 130 | |
| | | 30/30 | | 30/40 | | 30/50 | | 30/63 40/63 | | 40/75 50/75 | | 40/90 50/90 | | 50/110 63/110 | | 63/130 | |
| i_n | n_2 [rpm] | a = 66.5 b = 49 | | a = 83.5 b = 60.5 | | a = 102 b = 73.5 | | a = 122.5 b = 93.5 | | a = 134 b = 100 | | a = 163 b = 118 | | a = 179.5 b = 131.5 | | a = 190 b = 145 | |
| | | Fr_2 | Fa_2 | Fr_2 | Fa_2 | Fr_2 | Fa_2 | Fr_2 | Fa_2 | Fr_2 | Fa_2 | Fr_2 | Fa_2 | Fr_2 | Fa_2 | Fr_2 | Fa_2 |
| 5 | 280 | 700 | 140 | 1400 | 280 | 1400 | 300 | 1800 | 360 | / | / | / | / | / | / | / | / |
| 7.5 | 187 | 750 | 150 | 1500 | 300 | 1650 | 330 | 2100 | 420 | 2500 | 500 | 2600 | 520 | 3500 | 700 | 5100 | 1020 |
| 10 | 140 | 800 | 160 | 1600 | 320 | 1800 | 360 | 2300 | 460 | 2800 | 560 | 3000 | 600 | 3800 | 760 | 5600 | 1120 |
| 15 | 93 | 850 | 170 | 1700 | 340 | 1950 | 390 | 2600 | 520 | 3000 | 600 | 3400 | 680 | 4200 | 840 | 6400 | 1280 |
| 20 | 70 | 900 | 180 | 1800 | 360 | 2200 | 440 | 2800 | 560 | 3300 | 660 | 3800 | 760 | 4600 | 920 | 7000 | 1400 |
| 25 | 56 | 950 | 190 | 1900 | 380 | 2400 | 480 | 3100 | 620 | 3700 | 740 | 4100 | 820 | 5100 | 1020 | 7600 | 1520 |
| 30 | 47 | 1000 | 200 | 2000 | 400 | 2600 | 520 | 3400 | 680 | 4000 | 800 | 4500 | 900 | 5600 | 1120 | 8050 | 1610 |
| 40 | 35 | 1050 | 210 | 2100 | 420 | 2850 | 570 | 3700 | 740 | 4400 | 880 | 4900 | 980 | 6100 | 1220 | 8800 | 1760 |
| 50 | 28 | 1100 | 220 | 2200 | 440 | 3100 | 620 | 4000 | 800 | 4850 | 970 | 5300 | 1060 | 6700 | 1340 | 9500 | 1900 |
| 60 | 23 | 1150 | 230 | 2400 | 480 | 3200 | 640 | 4200 | 840 | 5000 | 1000 | 5600 | 1120 | 7100 | 1420 | 9800 | 2000 |
| 63 | 22 | 1250 | 250 | 2500 | 500 | 3400 | 680 | 4450 | 890 | 5300 | 1060 | 5900 | 1180 | 7400 | 1480 | 10100 | 2020 |
| 80 | 17.5 | 1350 | 270 | 2700 | 540 | 3800 | 760 | 4900 | 980 | 5800 | 1160 | 6500 | 1300 | 8100 | 1620 | 11200 | 2240 |
| 100 | 14 | 1500 | 300 | 3000 | 600 | 4000 | 800 | 5400 | 1080 | 6500 | 1300 | 7000 | 1400 | 8500 | 1700 | 12050 | 2410 |
| 120 | 11.7 | 1520 | 304 | 3100 | 620 | 4100 | 820 | 5500 | 1100 | 6550 | 1310 | 7100 | 1420 | 8800 | 1760 | 12200 | 2500 |
| 150 | 9.3 | 1550 | 310 | 3150 | 630 | 4250 | 850 | 5600 | 1120 | 6600 | 1320 | 7300 | 1460 | 9100 | 1820 | 12500 | 2600 |
| 160 | 8.8 | 1570 | 314 | 3200 | 640 | 4300 | 860 | 5700 | 1140 | 6700 | 1340 | 7400 | 1480 | 9200 | 1840 | 12800 | 2650 |
| ≥ 200 | ≤ 7.0 | 1600 | 320 | 3300 | 660 | 4500 | 900 | 6000 | 1200 | 7100 | 1420 | 7900 | 1580 | 10000 | 2000 | 13000 | 2800 |

Versioni rinforzate

A richiesta vengono fornite versioni rinforzate con cuscinetti a rulli conici sulla corona in grado di sopportare carichi superiori rispetto a quelli ammessi nelle versioni normali con cuscinetti radiali a sfere. Essendo tali valori calcolati in funzione della durata dei cuscinetti, occorre valutare attentamente il tipo di versione più idoneo in modo da evitare problemi di tipo strutturale. In particolare, il carico assiale deve agire in modo da comprimere la flangia uscita.

I carichi assiali e radiali riportati in tabella non possono agire contemporaneamente nei loro valori massimi.

Nel caso di eventuale concorrenza delle due forze, queste devono essere limitate in rapporto al tipo di carico prevalente:

1. condizione di prevalenza del carico radiale:

$Fr_2 =$ come a tabella
 $Fa_2 = Fr_2 \cdot 0.37$

Reinforced versions

The versions reinforced with tapered roller bearings on the worm wheel are available on request. They can bear higher loads compared to standard versions with radial ball bearings. These values are calculated in relation of the life of bearings therefore it is necessary to select the most suitable version in order to avoid any structural problem. In particular the axial load must compress the output flange.

The axial and radial loads shown in the table do not have to act simultaneously according to the max. values.

In case of concurrency of both forces these have to be reduced with regard to the prevailing type of load:

1. prevalence of radial load:

$Fr_2 =$ as per table
 $Fa_2 = Fr_2 \cdot 0.37$

Versionen mit Kegelrollenlager

Auf Wunsch können Versionen mit Kegelrollenlager auf dem Schneckenrad geliefert werden. Sie erlauben höheren Lasten in Vergleich zu den Standardprodukten mit Schrägkugellagern. Diese Werte sind entsprechend der Lebensdauer der Lager berechnet. Daher ist es erforderlich, die am besten passende Ausführung zu wählen, um Probleme zu vermeiden. Auf alle Fälle muss die Axialbelastung den Abtriebsflansch zusammendrücken.

Die in der Tabelle angegebenen Maximalwerte der Axial- und Radialbelastung sollten nicht gleichzeitig auftreten.

Falls Axial- und Radialbelastungen auftreten, sollte jene Belastungsrichtung zur Auswahl herangezogen werden, die vom Anteil überwiegt:

1. radialbelastungen überwiegen:

$Fr_2 =$ siehe Tabelle
 $Fa_2 = Fr_2 \cdot 0.37$

2. condizione di prevalenza del carico assiale:

$$Fa_2' = Fa_2 \cdot 0.6$$

$$Fr_2' = Fa_2 \cdot 0.4$$

2. prevalence of axial load:

$$Fa_2' = Fa_2 \cdot 0.6$$

$$Fr_2' = Fa_2 \cdot 0.4$$

2. Axialbelastungen überwiegen

$$Fa_2' = Fa_2 \cdot 0.6$$

$$Fr_2' = Fa_2 \cdot 0.4$$

| CUSCINETTI A RULLI CONICI / TAPERED ROLLER BEARINGS / KEGELROLLENLAGER | | | | | | | | | | | | | | | | | |
|--|-------------------------|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|--------------------|-----------------|--------------------|-----------------|---------------------|-----------------|---------------------|-----------------|---------------------|-----------------|
| n ₁ =1400 rpm | | 30 | | 40 | | 50 | | 63 | | 75 | | 90 | | 110 | | 130 | |
| | | 30/30 | | 30/40 | | 30/50 | | 30/63 40/63 | | 40/75 50/75 | | 40/90 50/90 | | 50/110 63/110 | | 63/130 | |
| i _n | n ₂ [rpm] | a = 61.4 b = 43.9 | | a = 77 b = 54 | | a = 94.5 b = 66 | | a = 114.8 b = 85.8 | | a = 123.8 b = 89.8 | | a = 152.8 b = 107.8 | | a = 167.3 b = 119.3 | | a = 174.8 b = 129.8 | |
| | | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ |
| 5 | 280 | 800 | 1100 | 1800 | 2300 | 4000 | 5000 | 4000 | 5000 | / | / | / | / | / | / | / | / |
| 7.5 | 187 | 900 | 1200 | 1900 | 2400 | 4500 | 5500 | 4500 | 5500 | 5300 | 6500 | 6000 | 8000 | 8000 | 10500 | 9500 | 11000 |
| 10 | 140 | 1000 | 1300 | 2000 | 2500 | 5000 | 6000 | 5000 | 6000 | 5500 | 6700 | 7000 | 9200 | 8300 | 11000 | 10500 | 12500 |
| 15 | 93 | 1100 | 1400 | 2100 | 2600 | 5800 | 7000 | 5800 | 7000 | 5700 | 6900 | 7400 | 9800 | 8800 | 11500 | 11000 | 13000 |
| 20 | 70 | 1250 | 1650 | 2300 | 2800 | 6000 | 7200 | 6100 | 7300 | 6400 | 7600 | 7800 | 10300 | 9300 | 12000 | 15000 | 13500 |
| 25 | 56 | 1450 | 1900 | 2500 | 3000 | 6200 | 7500 | 6500 | 7700 | 7400 | 9400 | 8500 | 11000 | 9800 | 12500 | 12000 | 14000 |
| 30 | 47 | 1700 | 2200 | 2800 | 3300 | 6500 | 7800 | 6800 | 8000 | 8000 | 10000 | 9500 | 12000 | 10500 | 13200 | 12500 | 14000 |
| 40 | 35 | 1800 | 2300 | 3000 | 3500 | 6600 | 8000 | 7000 | 8200 | 8500 | 10500 | 10000 | 12500 | 11000 | 14000 | 14000 | 16000 |
| 50 | 28 | 1900 | 2400 | 3200 | 3700 | 6800 | 8200 | 7100 | 8400 | 9000 | 11000 | 10500 | 13000 | 12000 | 15000 | 14500 | 17000 |
| 60 | 23 | 1900 | 2400 | 3200 | 3700 | 6800 | 8200 | 7100 | 8400 | 9000 | 11000 | 10500 | 13000 | 12000 | 15000 | 15000 | 17000 |
| 63 | 22 | 1900 | 2400 | 3200 | 3700 | 6800 | 8200 | 7100 | 8400 | 9000 | 11000 | 10500 | 13000 | 12000 | 15000 | 15000 | 17000 |
| 80 | 17.5 | 1900 | 2400 | 3200 | 3700 | 6800 | 8200 | 7100 | 8400 | 9000 | 11000 | 10500 | 13000 | 12000 | 15000 | 15000 | 17000 |
| 100 | 14 | 1900 | 2400 | 3200 | 3700 | 6800 | 8200 | 7100 | 8400 | 9000 | 11000 | 10500 | 13000 | 12000 | 15000 | 15000 | 17000 |
| 120 | 11.7 | 1900 | 2400 | 3200 | 3700 | 6800 | 8200 | 7100 | 8400 | 9000 | 11000 | 10500 | 13000 | 12000 | 15000 | 15000 | 17000 |
| 150 | 9.3 | 1900 | 2400 | 3200 | 3700 | 6800 | 8200 | 7100 | 8400 | 9000 | 11000 | 10500 | 13000 | 12000 | 15000 | 15000 | 17000 |
| 160 | 8.8 | 1900 | 2400 | 3200 | 3700 | 6800 | 8200 | 7100 | 8400 | 9000 | 11000 | 10500 | 13000 | 12000 | 15000 | 15000 | 17000 |
| ≥ 200 | ≤ 7.0 | 1900 | 2400 | 3200 | 3700 | 6800 | 8200 | 7100 | 8400 | 9000 | 11000 | 10500 | 13000 | 12000 | 15000 | 15000 | 17000 |
| Cuscinetto Bearing Lager | | 32005 25x47x15 | | 32006 30x55x17 | | 32008 40x68x19 | | 32008 40x68x19 | | 32010 50x80x20 | | 32010 50x80x20 | | 32012 60x95x23 | | 32015 75x115x25 | |

1.11 Potenza termica

Nelle tabelle riportate nelle sezioni relative ad ogni tipologia di riduttore sono indicati i valori della potenza termica nominale P_{t0} [kW]. Tale valore rappresenta la potenza massima applicabile all'entrata del riduttore, in servizio continuo a temperatura massima ambiente di 30°C, così che la temperatura dell'olio non oltrepassi il valore di 95°C.

Il valore di P_{t0} non deve essere preso in considerazione se il funzionamento è continuo per un massimo di 1 - 2 ore seguito da pause di durata sufficiente (circa 2 ore) a ristabilire nel riduttore la temperatura ambiente.

I valori di P_{t0} devono essere corretti tramite i seguenti coefficienti, così da considerare le reali condizioni di funzionamento, ottenendo i valori di potenza termica corretta P_{tc}.

1.11 Thermal power

The sections dedicated to each type of gearbox contain tables reporting the values of P_{t0} rated thermal power (kW). Listed values represent the max. power applicable at gearbox input, on continuous duty and at an ambient temperature of max. 30°C, so that oil temperature does not exceed 95°C.

P_{t0} value is not to be taken into account if duty is continuous for max. 1 - 2 hours and followed by breaks which are long enough to bring the gearbox back to ambient temperature (roughly 2 hours). *In order to take the actual operating conditions into account, P_{t0} values have to be corrected with the following coefficients, thus obtaining the values of P_{tc} corrected thermal power.*

1.11 Thermische Leistung

Für jeden Getriebetyp werden in den relativen Kapiteln die Nennwerte der P_{t0} thermischen Leistung angegeben [kW]. Diese Werte entsprechen der max. übertragbaren Antriebsleistung am Getriebe in Dauerbetrieb mit max. Umgebungstemperatur von 30°C, sodass die Öltemperatur unter 95°C bleibt.

P_{t0} Wert ist nicht zu beachten, falls Dauerbetrieb max. 1 - 2 Stunden dauert und von Unterbrechungen gefolgt wird, die lang genug sind, damit das Getriebe-temperatur zurück zur Umgebungstemperatur sinkt (ungefähr 2 Stunden).

P_{t0} Werte sollen durch die folgenden Koeffizienten verbessert werden, damit die reelle Betriebsbedingungen wirklich in Betracht gezogen werden. Mit der folgenden Formel erhält man die Werte der korrekte thermische Leistung P_{tc}.

$$P_{tc} = P_{t0} \cdot ft \cdot fv \cdot fu \quad [kW]$$

Dove:
ft = coefficiente di temperatura ambiente
fv = coefficiente di ventilazione
fu = coefficiente di utilizzo

Where:
ft = environment temperature coefficient
fv = ventilation coefficient
fu = utilization coefficient

Dabei ist:
ft = Umwelt Temperaturkoeffizient
fv = Luftkühlungskoeffizient
fu = Anwendungskoeffizient

I coefficienti di correzione sono ricavabili dalle seguenti tabelle:

Corrective coefficients are shown in the following tables:

Verbesserungskoeffizienten sind aus der nachstehenden Tabelle zu entnehmen:

| Ta (°C) | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
|-----------|------|------|------|------|------|-----|-----|------|------|------|------|
| ft | 1.46 | 1.38 | 1.31 | 1.23 | 1.15 | 1.1 | 1.0 | 0.92 | 0.85 | 0.77 | 0.69 |

Ta = Temperatura ambiente (°C)

Ta = ambient temperature (°C)

Ta = Umgebungstemperatur (°C)

fv = 1.45 con ventilazione forzata efficace con ventola dedicata

fv = 1.45 for forced ventilation with specific fan

fv = 1.45 bei Drucklüftung mit spezifischem Lüfterrad

fv = 1.25 con ventilazione forzata secondaria ad altri dispositivi (pulegge, ventole, motore, ecc.)

fv = 1.25 for forced ventilation secondary to other devices (pulleys, fans, motor, etc.)

fv = 1.25 bei Drucklüftung nebensächlich anderen Vorrichtungen (Scheiben, Lüfterräder, Motor, usw.)

fv = 1 refrigerazione naturale (situazione standard)

fv = 1 for natural cooling (standard situation)

fv = 1 natürliche Belüftung (Standard)

fv = 0.5 in ambiente chiuso e ristretto (carter)

fv = 0.5 in a close and narrow environment (case)

fv = 0.5 in engem und geschlossenem Raum (Gehäuse)

| Dt (min) | 10 | 20 | 30 | 40 | 50 | 60 |
|-----------|-----|------|-----|-----|------|----|
| fu | 1.6 | 1.35 | 1.2 | 1.1 | 1.05 | 1 |

Dt = minuti di funzionamento in un'ora

Dt = minutes of operation per hour

Dt = Betriebsminuten pro Stunde

1.12 Selezione

1.12 Selection

1.12 Wahl

Scelta del riduttore

Selecting a gearbox

Wahl des Getriebes

A) n₁ = 1400, 2800, 900, 500 min⁻¹

Si sceglierà nelle tabelle delle prestazioni dei riduttori un gruppo che in corrispondenza di un rapporto prossimo a quello calcolato ammetta una potenza:

A) n₁ = 1400, 2800, 900, 500 min⁻¹

Consult the gearbox unit efficiency table; select a group whose ratio is close to the calculated ratio and which permits power:

A) n₁ = 1400, 2800, 900, 500 min⁻¹

Aus der Leistungstabellen ist eine Gruppe von Getrieben zu wählen, deren Übersetzungsverhältnis nahe zu dem berechneten Wert ist und die die folgende Leistung erlaubt:

$$P \geq P' \cdot FS'$$

Scelta del motoriduttore

Selecting a gearmotor

Wahl des Getriebemotors

B) FS =1

Si cercherà nelle tabelle delle prestazioni dei motoriduttori un gruppo la cui potenza P1 corrisponda alla P' calcolata.

B) FS =1

Consult the gear motor efficiency table and select a group having power P1 corresponding to calculated P'.

B) FS =1

Wählen Sie aus der Leistungstabelle der motoren eine Gruppe, deren Leistung P1 der berechneten Leistung P' entspricht.

C) FS ≠1

La scelta dovrà essere effettuata come al punto A) verificando che la grandezza del motore da installare sia compatibile con quelle ammesse dal riduttore (IEC); ovviamente la potenza installata dovrà corrispondere al valore P' richiesto.

C) FS ≠1

Follow the instructions at point A), checking that the size of the motor to be installed is compatible with the gearbox unit (IEC); obviously, installed power must correspond to the required P' value.

C) FS ≠1

Folgen Sie die Weisungen unter A). Es ist zu prüfen, dass die Größe des zu installierenden Motor mit dem Getriebe kompatibel ist (IEC); die installierte Leistung soll dem erforderlichen P' Wert entsprechen.

Determinato il riduttore idoneo è necessario verificare che anche gli eventuali carichi aggiuntivi (radiali ed assiali) agenti sugli alberi in uscita e/o entrata rientrino nei valori ammissibili dati a catalogo.

In determinate condizioni applicative può diventare necessario verificare che la potenza assorbita dal riduttore non superi quella del limite termico riportata a catalogo, secondo quanto riportato al punto 1.10 relativamente alla potenza termica.

After having selected the proper gearbox, it is necessary to check out that possible additional loads (radial or axial) on the input and/or output shafts fall within the values reported in the catalogue.

Depending on the application, it might be necessary to check that the power absorbed by the gearbox does not exceed the thermal power limit reported in the catalogue as per paragraph 1.10.

Nachdem das geeignete Getriebe gewählt worden ist, muss es sichergestellt werden, dass zusätzlichen Radial-oder Axialbelastungen auf die Antriebs-oder Abtriebswelle unter den im Katalog gegebenen Werten fallen.

Abhängig von der Art der Anwendung ist es manchmal zu prüfen, dass die von Getriebe absorbierten Leistung unter der Wert der thermischen Leistung liegt, wie es in dem Katalog angegeben wird (Abschnitt 1.10).

1.13 Lubrificazione

Tutti i riduttori, eccetto X130 e K130, sono forniti completi di lubrificante sintetico a base PAG con indice di viscosità ISO VG320.

I cuscinetti dell'albero veloce vengono sempre lubrificati con grasso a base sintetica; altri cuscinetti vengono lubrificati solo se la posizione di montaggio non ne garantisce la corretta lubrificazione.

Una scelta oculata del tipo di lubrificante, in funzione delle condizioni operative e ambientali, consente ai riduttori di raggiungere le prestazioni ottimali.

Le prestazioni dei riduttori indicate nelle tabelle dei dati tecnici sono state calcolate considerando l'impiego di olio sintetico.

VISCOSITA'

E'uno dei parametri più importanti da considerare nella scelta di un olio ed è influenzabile da diversi parametri quali velocità, temperatura. Riportiamo sinteticamente le valutazioni generali per la scelta della giusta viscosità:

Viscosità alta

Usare per basse velocità di rotazione e/o temperature alte.
(Una viscosità troppo bassa in queste condizioni operative causa una usura precoce).

Viscosità bassa

Usare per alte velocità di rotazione e/o temperature basse.
(Una viscosità troppo elevata provoca diminuzione del rendimento e surriscaldamento).

ADDITIVI

In tutti gli oli minerali sono contenuti degli additivi antiusura, EP (più o meno energici), antiossidanti ed antischiuma. E' opportuno assicurarsi che essi siano blandi e non aggressivi nei confronti delle guarnizioni.

BASE DELL'OLIO

Può essere minerale o sintetica.
L'olio sintetico, compensa il costo più elevato con una serie di vantaggi:

- minor coefficiente d'attrito (quindi migliore rendimento)
- migliore stabilità nel tempo (possibile lubrificazione a vita)
- migliore indice di viscosità (migliore adattabilità alle varie temperature).

L'olio a base minerale come vantaggi ha il minore costo e un migliore comportamento in rodaggio.

1.13 Lubrication

All worm gearboxes, except for the type X130 and K130, are supplied with synthetic lubricant, PAG base, viscosity index ISO VG 320.

The bearings mounted on the input shaft are supplied with grease, synthetic base; the other bearings are lubricated only if the mounting position does not assure a correct lubrication.

Choose the lubricant according to operating and ambient conditions in order to ensure high gear unit performance.

Performance data, as shown in the specifications tables, refer to utilization of synthetic oil.

VISCOSITY

It is one of the most important parameters to be considered when selecting an oil; it depends on various factors such as speed and temperature. Following are general guidelines for choosing the correct viscosity:

High viscosity

*To be used for low rotation speed and/or high temperatures.
(Under these operating conditions a low viscosity causes premature wear).*

Low viscosity

*To be used for high rotation speed and/or low temperatures.
(High viscosity reduces efficiency and causes overheating).*

ADDITIVES

All mineral oils contain additives to protect against wear, EP (more or less strong), anti-oxidizing and anti-frothing. It is advisable to make sure that the action of such additives is bland and not too aggressive on the seals.

OIL BASE

*May be mineral or synthetic.
Synthetic oil compensates for the higher cost with a series of advantages :*

- lower friction coefficient (consequently improved efficiency)*
- better stability over time (possible life lubrication)*
- better viscosity index (more adaptable to various temperatures).*

Mineral-base oils offer the advantages of costing less and performing better during the running-in period.

1.13 Schmierung

Alle Schneckenradgetriebe mit Ausnahme der Ausführung X130 und K130, werden mit synthetischem Schmiermittel auf PAG Basis und Viskosität Index ISO VG 320 geliefert.

Die Kugellager auf der Eingangswelle sind immer mit synthetischem Fett geliefert. Falls die Montage keine korrekte Schmierung versichert, dann sind die restlichen Lager mit Schmiermittel geliefert.

Das Untersetzungsgetriebe wird optimal arbeiten, wenn das richtige Schmiermittel je nach Betriebs- und Umgebungsbedingungen sorgfältig ausgewählt wird.

Daten über Getriebeleistung, wie es in den Tabellen der technischen Daten angegeben wird, beziehen sich auf Schmierung mit synthetischem Öl.

VISKOSITÄT

Die Viskosität ist eins der wichtigsten Merkmale, die bei der Auswahl des richtigen Öls zu beachten sind; sie wird von verschiedenen Parametern wie Geschwindigkeit und Temperatur beeinflusst. Im folgenden fassen wir die wichtigsten allgemeinen Hinweise für die Wahl der richtigen Viskosität zusammen:

Hohe Viskosität

Geeignet für niedrige Drehzahlen bzw. hohe Temperaturen. (Eine zu geringe Viskosität verursacht unter diesen Betriebsbedingungen frühen Verschleiß).

Geringe Viskosität

Geeignet für hohe Drehzahlen bzw. niedrige Temperaturen.
(Eine zu geringe Viskosität verursacht unter diesem Fall zu einer Verringerung des Wirkungsgrades und zur Überhitzung).

ZUSÄTZE















Alle Mineralöle enthalten Antiverschleißzusätze, EP (mehr oder weniger stark), Oxydationsschutzmittel und Schaumverhinderungs-Wirkstoffe. Es soll sichergestellt werden, daß diese Zusätze schwach sind und die Dichtungen nicht angreifen.

ÖLGRUNDLAGE

Es kann sich dabei um Mineralöl oder synthetisches Öl handeln.
Synthetisches Öl ist zwar teurer, bietet jedoch eine Reihe von Vorteilen:

- geringerer Reibungskoeffizient (demnach besserer Wirkungsgrad)
- bessere Stabilität über lange Zeit (lebenslange Schmierung möglich)
- besserer Viskositätsindex (paßt sich besser an verschiedene Temperaturen an).

Die Vorteile von Mineralöl sind die geringeren Kosten und das bessere Einfahrverhalten.

| ISO VG | OLIO MINERALE / MINERAL OIL / MINERALE | | | OLIO SINTETICO / SYNTHETIC OIL / SYNTETISCHES ÖL | | | | | |
|---|---|---|------------------|--|------------------|---------------------|---------------------|---------------------|---------------------|
| | 460 | 320 | 220 | 460 | 320 | 220 | 150 | | |
| Temperatura ambiente Amb. Temp. Ta (°C) Umgebungstemperatur | 5° a 45° | 0° a 40° | -5° a 35° | -15° a 100° | -20 a 90° | -25° a 80° | -30° a 70° | | |
| FORNITORE / MANUFACTURER / HERSTELLER | MINERALE / MINERAL / MINERAL | | | | | | | | |
| | SHELL |  | Omala OIL 460 | Omala OIL 320 | Omala OIL 220 | | | | |
| | BP |  | Energol GRXP 460 | Energol GRXP 320 | Energol GRXP 220 | | | | |
| | TEXACO |  | Meropa 460 | Meropa 320 | Meropa 220 | | | | |
| | CASTROL |  | Alpha SP 460 | Alpha SP 320 | Alpha SP 220 | | | | |
| | KLUBER |  | Lamora 460 | Lamora 320 | Lamora 220 | | | | |
| | MOBIL |  | Mobilgear 634 | Mobilgear 632 | Mobilgear 630 | | | | |
| | Tecnologia PAG (polialcoliglicoli) / PAG Technology (polyalkyleneglycol) / PAG (Polyalkylglykole) | | | | | | | | |
| | SHELL |  | | | | Omala S4 WE 460 | Omala S4 WE 320 | Omala S4 WE 220 | Omala S4 WE 150 |
| | BP |  | | | | Energol SGXP460 | Energol SGXP320 | Energol SGXP220 | Energol SG 150 |
| | TEXACO |  | | | | Synlube CLP 460 | Synlube CLP 320 | Synlube CLP 220 | |
| | AGIP |  | | | | | Agip Blasias S 320 | Agip Blasias S 220 | Agip Blasias S 150 |
| | Tecnologia PAO (polialcoliolefini) / PAO Technology (polyalphaolefin) / PAO (Polyalphaolefine) | | | | | | | | |
| | SHELL |  | | | | Omala OIL RL/HD 460 | Omala OIL RL/HD 320 | Omala OIL RL/HD 220 | Omala OIL RL/HD 150 |
| | CASTROL |  | | | | Alpha Synt 460 | Alpha Synt 320 | Alpha Synt 220 | Alpha Synt 150 |
| | KLUBER |  | | | | Synteso D460 EP | Synteso D320 EP | Synteso D220 EP | Synteso D150 EP |
| MOBIL |  | | | | SHC 634 | SHC 632 | SHC 630 | SHC 629 | |

1.14 Installazione

Fissare il riduttore in modo tale da evitare qualsiasi vibrazione e curare l'allineamento del riduttore con il motore e l'utenza utilizzando, quando è possibile, giunti di accoppiamento.

Assicurarsi che gli organi da montare sui riduttori abbiano le tolleranze ISO h6 per gli alberi e ISO H7 per i fori.

Se il riduttore viene installato all'aperto si consiglia l'utilizzo del tappo di sfiato con valvola, tranne le grandezze 30-40-50-63-75.

Tutti i riduttori e motoriduttori citati nel presente manuale sono destinati ad un impiego industriale con temperatura ambiente da -20°C a +40°C ad una altitudine max di 1000 m slm.

Per tutte le altre avvertenze consultare il manuale di "uso e manutenzione" scaricabile dal sito www.tramec.it

1.14 Installation

The gearbox has to be mounted to prevent any vibration. Check carefully the alignment gearbox / motor / machine and use couplings whenever possible. Check that devices to be mounted on the gearbox feature ISO h6 tolerance for the shafts and ISO H7 for the holes.

If the gearbox is installed outdoors, we recommend the use of the breather plug with valve, except size 30-40-50-63-75.

All reducers and gear motors mentioned in this catalog are intended for industrial use and operation at a ambient temperature between -20°C and +40°C, at an altitude of max. 1000 m above sea level.

For all other instructions check the "Use and Maintenance Manual" which can be downloaded from our web site www.tramec.it

1.14 Installation

Das Getriebe ist so zu installieren, dass allerart Schwingung vorbeugt wird. Auf die Fluchtung Getriebe / Motor / Maschine ist es besonders achtzugeben. Dabei sind Kupplungen womöglich zu benutzen. Die auf dem Getriebe montierten Elemente sollen die folgende Toleranz aufweisen: ISO h6 für die Wellen und ISO h7 für die Bohrungen.

Abgesehen von Größen 30-40-50-63-75, die Anwendung einer Entlüftungsschraube mit Ventil wird empfohlen, wenn das Getriebe im Freien eingebaut wird.

Alle im vorliegenden Katalog angegebenen Getriebe und Getriebemotoren sind für industriellen Einsatz in einer Umgebungstemperatur von -20°C bis +40°C und in einer max. Höhe von 1000 m über dem Meeresspiegel vorgesehen.

Für weitere Anweisungen laden Sie die "Betriebs- und Instandhaltungsanweisung" aus unsere Webseite www.tramec.it herunter.

1.15 Manutenzione

Tutti i riduttori a vite senza fine, eccetto X130 e K130, sono lubrificati a vita con olio sintetico tipo SHELL OMALA S4 WE 320.

Non necessitano quindi di particolari manutenzioni se non il mantenimento della pulizia esterna, evitando l'uso di solventi per non danneggiare guarnizioni o anelli di tenuta, ed il rispetto di tutte le indicazioni e della eventuale sostituzione dell'olio negli intervalli programmati e riportati nel manuale di "uso e manutenzione" scaricabile dal sito www.tramec.it

1.15 Maintenance

All worm gearboxes, except for the type X130 and K130, are lubricated for life with synthetic oil SHELL OMALA S4 WE 320. For this reason they do not require any particular maintenance, except for external cleaning (avoid the use of solvents which might damage gaskets and oil seals) and observance of the schedules for oil change as reported in the "Use and Maintenance Manual" which can be downloaded from our web site www.tramec.it

1.15 Wartung

Alle Schneckengetriebe mit Ausnahme der Ausführung X130 und K130 sind mit synthetischem Öl SHELL OMALA S4 WE 320 lebenslang geschmiert.

Deshalb brauchen sie kein besonderes Instandhalten außer Aussenreinigung und Befolgung der Zeitabstände für Ölwechsel, wie es in der "Betriebs- und Instandhaltungsanweisung" auf unsere Webseite www.tramec.it angegeben wird. Bei der Aussenreinigung benutzen Sie keine Lösemittel, weil sie die Dichtungen beschädigen.

1.16 Verniciatura

Le carcasse in ghisa e le flange delle grandezze 90, 110 e 130 sono verniciate di colore BLU RAL 5010 mentre quelle in alluminio delle grandezze 75, 63, 50, 40 e 30 sono sabbiato.

1.16 Painting

Size 90, 110 and 130 have cast iron housings and flanges painted BLUE RAL 5010. The housings of sizes 75, 63, 50, 40 and 30 are made in aluminium and sandblasted.

1.16 Lackierung

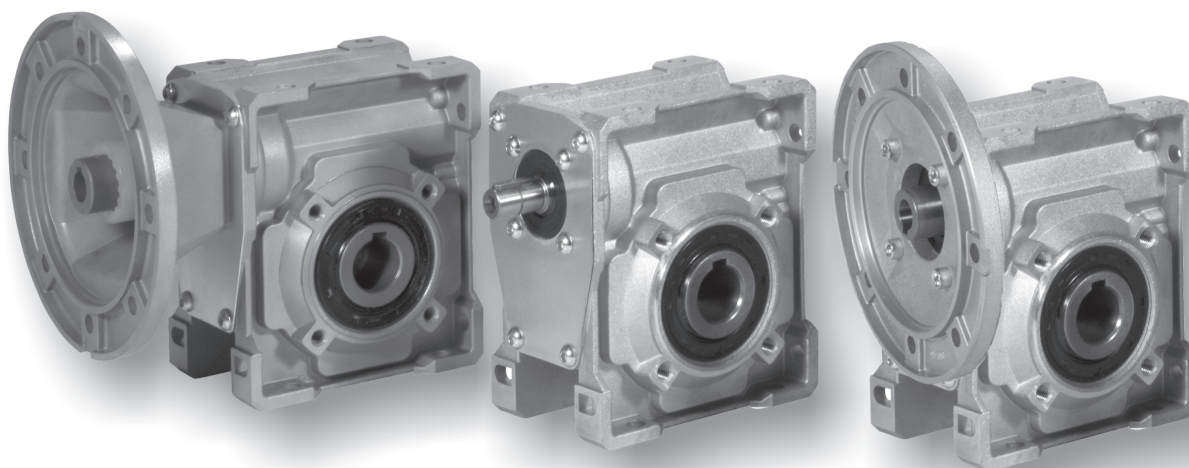
Die Gehäuse der Größen 90, 110 und 130 bestehen aus Gusseisen und sind BLAU RAL 5010 lackiert.

Für Größen 75, 63, 50, 40 und 30 ist das Gehäuse aus Aluminium und sandgestrahlt.



2.0 **RIDUTTORI A VITE SENZA FINE X** **X WORM GEARBOXES** **SCHNECKENGETRIEBE X**

| | | | | |
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| 2.7 | Dimensioni | <i>Dimensions</i> | Abmessungen | 30 |
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| 2.11 | Lista parti di ricambio | <i>Spare parts list</i> | Ersatzteilliste | 38 |



XF

XA

XC



2.1 Caratteristiche

- I riduttori a vite senza fine della serie X sono disponibili nelle versioni alberata XA e con predisposizione per attacco motore XF-XC.
- La versione XF (campana + giunto), caratterizzata da una più ampia versatilità ai diversi tipi di applicazioni, presenta un più elevato rendimento rispetto a quello della serie compatta XC la quale, a sua volta, presenta il vantaggio di un ingombro più ridotto.
- La carcassa monoblocco è in ghisa nelle grandezze 90, 110 e 130, in alluminio pressofuso per le grandezze inferiori.
- La vite senza fine è in acciaio legato cementato-temprato ed è rettificata.
- La corona ha il mozzo in ghisa con riporto di fusione dell'anello in bronzo.
- Le carcasse in ghisa sono verniciate BLU RAL5010 mentre quelle in alluminio sono sabbiate.
- Viene fornito l'albero uscita cavo di serie ed esiste un'ampia disponibilità di accessori: seconda entrata, cuscinetti conici sulla corona, flangia uscita, albero lento con 1 o 2 sporgenze, limitatore di coppia con cavo passante, braccio di reazione, kit protezione albero cavo, kit protezione limitatore di coppia.

2.1 Characteristics

- *X series worm gearboxes are available in the following versions : XA with shaft, XF and XC suitable for motor mounting assembling.*
- *The XF version (bell + joint) suits a wider range of applications and provides higher efficiency than the XC compact version, which actually offers reduced space requirement.*
- *The enbloc housing is in cast-iron for sizes 90, 110 and 130, in die-cast aluminium for smaller sizes.*
- *The worm shaft is in case-and quench-hardened alloy steel and ground.*
- *The worm wheel has a cast-iron hub provided with inserted cast-bronze ring.*
- *The housings in cast iron are painted BLUE RAL 5010, those in aluminium are sandblasted.*
- *The hollow output shaft is supplied as standard. A broad range of accessories is available: second input, tapered roller bearings on the worm wheel, output flange, single or double-extended output shaft, torque limiter with through hollow shaft, torque arm, hollow shaft protection kit, torque limiter protection kit.*

2.1 Merkmale





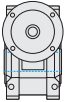


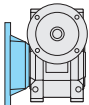
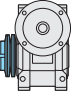
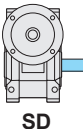

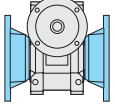
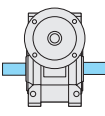
- Die Schneckengetriebe der Serie X sind in die Version XA mit Welle und XF / XC mit Motoranschluß lieferbar.
- Die Version XF (Glocke + Kupplung), die sich durch ihre zahlreichen Anwendungsmöglichkeiten auszeichnet, bietet höhere Leistung als die Kompaktserie XC, die wiederum Vorteile im Sinne der Platzersparnis mit sich bringt.
- Das Blockgehäuse ist aus Gusseisen für die Baugrößen 90, 110 und 130, aus Aluminiumdruckguß für die kleineren Versionen.
- Die Schnecke ist aus einsatzgehärtetem/abgeschrecktem und daraufhin geschliffenen Legierungsstahl.
- Das Schneckenrad besteht aus einer Nabe aus Gusseisen und einem aufgeschleuderten Gussbronze -Ring.
- Das Schneckenrad aus Gusseisen werden mit BLAU RAL 5010 lackiert, die aus Aluminium werden sandgestrahlt.
- Die Hohlwelle gehört zur serienmäßigen Ausstattung. Zahlreiches Zubehör ist lieferbar: zweiter Antrieb, Kegellager auf das Schneckenrad, Abtriebsflansch, Standard oder doppelseitig herausragende Abtriebswelle, Drehmomentbegrenzer mit durchgehender Hohlwelle, Drehmomentstütze, Schutzvorrichtung für Hohlwelle, Schutzvorrichtung für Drehmomentbegrenzer.



2.2 Designazione

2.2 Designation

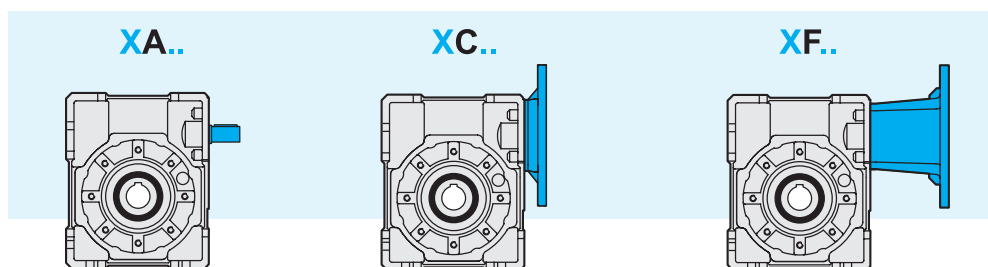
2.2 Bezeichnung

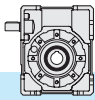
| Riduttore Gearbox Getriebe | Tipo entrata Input type Antriebsart | Grandezza Size Größe | Rapporto rid. Ratio Untersetzung | Predispos. att. mot. Motor coupling Motorschluss | Posizione di mont. Mounting position Einbaulage | Flangia in uscita. Output flange Abtriebsflansch | Limitatore di coppia. Torque limiter Drehmomentbegrenzer | Seconda entrata Additional input Zusatzantrieb | Albero uscita Output shaft Abtriebswelle | Braccio di reazione Torque arm Drehmomentstütze | |
|---|---|--|---|--|---|---|---|--|---|---|---|
| X | A | 50 | 10/1 | P.A.M | B3 | F1S | LD | SeA | H | BR | |
| Riduttore a vite senza fine Wormgearbox Schneckengetriebe |  A | 30 40 50 63 75 90 110 130 | 5 7.5 10 15 20 25 30 40 50 65 80 100 | 56 63 71 80 90 100 112 132 | B3, B6 B7, B8 V5, V6 |  F1D-F2D-F3D |  LD |  SeA |  H |  BR | |
| |  C | | | | |  F1S-F2S-F3S | | |  LS | |  SD |
| |  F | | | | |  F12-F22-F32 | | |  DD | | |

Tipo entrata

Input type

Antriebstyp





2.3 Lubrificazione

I riduttori a vite senza fine serie X, tranne la grandezza 130, sono forniti completi di lubrificante sintetico a base PAG con indice di viscosità ISO VG320. Si raccomanda di precisare sempre, in fase di ordine, la posizione di lavoro desiderata.

Posizioni di montaggio

2.3 Lubrication

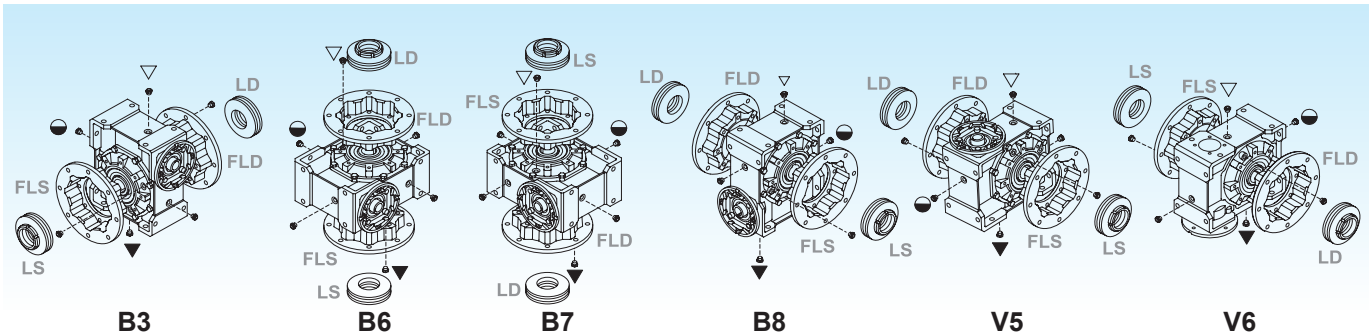
X series worm gearboxes, except for the size 130, are supplied with synthetic lubricant, PAG base, viscosity index ISO VG320. Mounting position always to be specified when ordering.

Mounting positions

2.3 Schmierung

Schneckengetriebe der Serie X, außer Größe 130, werden mit synthetischem Schmiermittel auf PAG Basis und Viskosität Index ISO VG320 geliefert. Im Auftrag bitte immer die gewünschte Einbaulage angeben.

Einbaulagen



| | | Q.tà olio / Oil quantity / Schmiermittelmenge [lt] | | | |
|---|-----|---|---------|-------|---------|
| | | Posizione di montaggio / Mounting position / Einbaulage | | | |
| | | B3 | B6 - B7 | B8 | V5 - V6 |
| X | 30 | | | 0.015 | |
| | 40 | | | 0.040 | |
| | 50 | | | 0.080 | |
| | 63 | | | 0.160 | |
| | 75 | | | 0.260 | |
| | 90 | 1.1 | 0.9 | 1 | 1.5 |
| | 110 | 2.2 | 1.8 | 1.6 | 2.6 |
| | 130 | 3.6 | 3 | 2.5 | 3.8 |

- ▽ Carico e sfiato / Filling and breather
Einfüll und Entlüftung
- Livello / Level / Ölstand
- ▼ Scarico / Drain / Ablass

Nei corpi in alluminio 30, 40, 50, 63,75 è presente un solo tappo di riempimento olio.

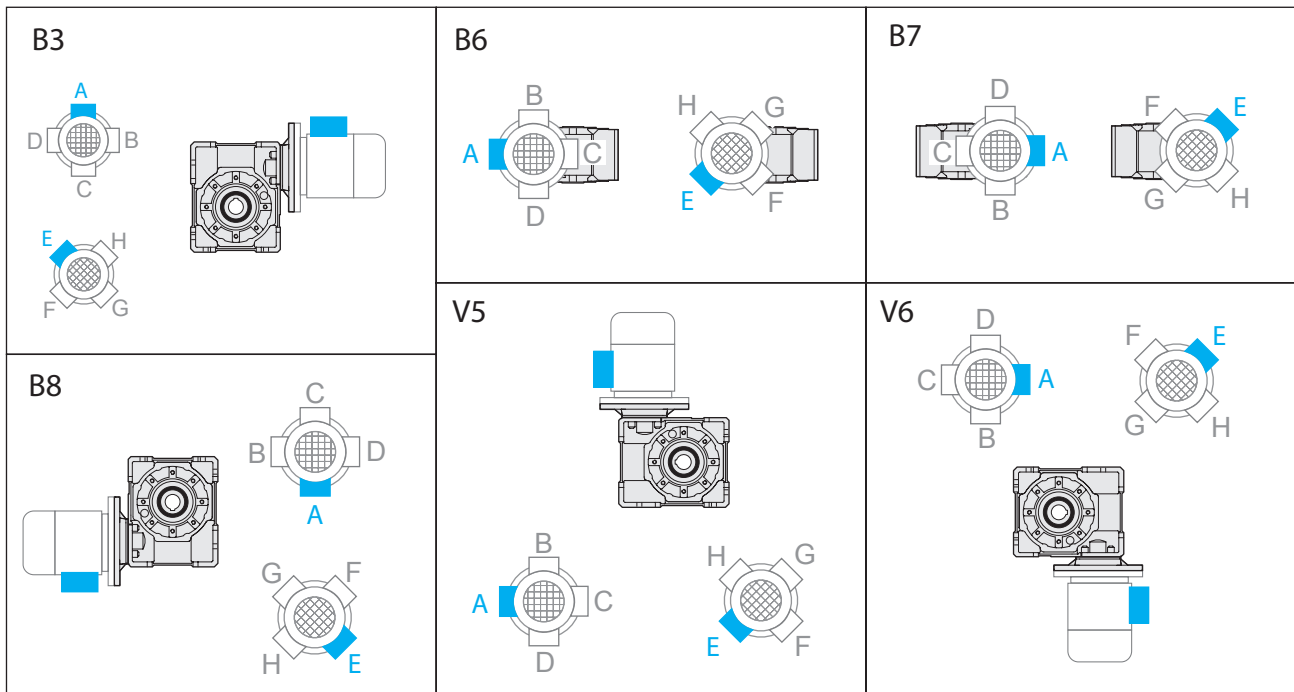
30, 40, 50, 63 and 75 aluminium housings have one oil filling plug only.

30, 40, 50, 63 and 75 Aluminiumgehäuse verfügen über 1 Einfüllschraube.

2.4 Posizione morsettiera

2.4 Terminal board position

2.4 Lage der Klemmenkaste



Specificare sempre in fase di ordinazione la posizione di montaggio e la forma costruttiva.
Posizione morsettiera v. pag. 33-34 (PM=1; PM=2)

Mounting position always to be specified when ordering.
Terminal board position see page 33-34 (PM=1; PM=2)

Bei der Bestellung immer die gewünschte Montageposition und Bauform angeben.
Lage der Klemmenkaste Seite 33-34 (PM=1; PM=2)



2.5 Dati tecnici

2.5 Technical data

2.5 Technische Daten

| 30 | $n_1 = 2800$ | | | | XA | | XC - XF | | | | | | | | |
|-----------|--------------|-------------------------------|------|----------|------------------|-----------|---------------|---------------|-----|-------------|----|----|----|----|----|
| | i_n | n_2 [min ⁻¹] | Rd | P_{t0} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | |
| | | | | | | | | | | XC | XF | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Kg 1.4 | 5 | 560 | 0.89 | — | 14 | 0.92 | 5.6 | 0.37 | 2.5 | 63 | 56 | 63 | 56 | 63 | 56 |
| | 7.5 | 373 | 0.86 | | 16 | 0.72 | 8 | 0.37 | 2.0 | | | | | | |
| | 10 | 280 | 0.84 | | 16 | 0.56 | 11 | 0.37 | 1.5 | | | | | | |
| | 15 | 187 | 0.81 | | 17 | 0.41 | 15 | 0.37 | 1.1 | | | | | | |
| | 20 | 140 | 0.76 | | 15 | 0.29 | 13 | 0.25 | 1.2 | | | | | | |
| | 25 | 112 | 0.74 | | 16 | 0.25 | 16 | 0.25 | 1.0 | | | | | | |
| | 30 | 93 | 0.71 | | 13 | 0.18 | 13 | 0.18 | 1.0 | | | | | | |
| | 40 | 70 | 0.65 | | 16 | 0.18 | 16 | 0.18 | 1.0 | | | | | | |
| | 50 | 56 | 0.62 | | 15 | 0.14 | 14 | 0.13 | 1.1 | | | | | | |
| | 65 | 43 | 0.57 | | 17 | 0.13 | 17 | 0.13 | 1.0 | | | | | | |
| | 80 | 35 | 0.54 | | 13 | 0.09 | 13 | 0.09 | 1.0 | | | | | | |
| 100 | 28 | 0.52 | 12 | 0.07 | 16 | 0.09 | 0.8 | | | | | | | | |

| 30 | $n_1 = 1400$ | | | | XA | | XC - XF | | | | | | | | |
|-----------|--------------|-------------------------------|------|----------|------------------|-----------|---------------|---------------|-----|-------------|----|----|----|----|----|
| | i_n | n_2 [min ⁻¹] | Rd | P_{t0} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | |
| | | | | | | | | | | XC | XF | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Kg 1.4 | 5 | 280 | 0.87 | 0.40 | 19 | 0.64 | 6.5 | 0.22 | 2.9 | 63 | 56 | 63 | 56 | 63 | 56 |
| | 7.5 | 187 | 0.84 | 0.40 | 21 | 0.49 | 9 | 0.22 | 2.2 | | | | | | |
| | 10 | 140 | 0.82 | 0.40 | 22 | 0.40 | 12 | 0.22 | 1.8 | | | | | | |
| | 15 | 93 | 0.77 | 0.30 | 22 | 0.28 | 17 | 0.22 | 1.3 | | | | | | |
| | 20 | 70 | 0.72 | 0.20 | 19 | 0.19 | 18 | 0.18 | 1.1 | | | | | | |
| | 25 | 56 | 0.69 | 0.20 | 21 | 0.18 | 21 | 0.18 | 1.0 | | | | | | |
| | 30 | 47 | 0.66 | 0.20 | 20 | 0.15 | 18 | 0.13 | 1.1 | | | | | | |
| | 40 | 35 | 0.59 | 0.20 | 21 | 0.13 | 21 | 0.13 | 1.0 | | | | | | |
| | 50 | 28 | 0.55 | 0.20 | 19 | 0.10 | 17 | 0.09 | 1.1 | | | | | | |
| | 65 | 22 | 0.51 | 0.10 | 20 | 0.09 | 20 | 0.09 | 1.0 | | | | | | |
| | 80 | 18 | 0.48 | 0.10 | 17 | 0.06 | 16 | 0.06 | 1.0 | | | | | | |
| 100 | 14 | 0.45 | 0.10 | 14 | 0.05 | 18 | 0.06 | 0.8 | | | | | | | |

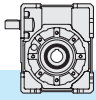
| 30 | $n_1 = 900$ | | | | XA | | XC - XF | | | | | | | | |
|-----------|-------------|-------------------------------|------|----------|------------------|-----------|---------------|---------------|-----|-------------|----|----|----|----|----|
| | i_n | n_2 [min ⁻¹] | Rd | P_{t0} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | |
| | | | | | | | | | | XC | XF | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Kg 1.4 | 5 | 180 | 0.85 | — | 23 | 0.51 | 5.9 | 0.13 | 3.9 | 63 | 56 | 63 | 56 | 63 | 56 |
| | 7.5 | 120 | 0.82 | | 25 | 0.38 | 9 | 0.13 | 2.9 | | | | | | |
| | 10 | 90 | 0.80 | | 25 | 0.30 | 11 | 0.13 | 2.3 | | | | | | |
| | 15 | 60 | 0.75 | | 25 | 0.21 | 15 | 0.13 | 1.6 | | | | | | |
| | 20 | 45 | 0.69 | | 22 | 0.15 | 19 | 0.13 | 1.2 | | | | | | |
| | 25 | 36 | 0.66 | | 24 | 0.14 | 23 | 0.13 | 1.1 | | | | | | |
| | 30 | 30 | 0.63 | | 21 | 0.10 | 18 | 0.09 | 1.2 | | | | | | |
| | 40 | 23 | 0.55 | | 24 | 0.10 | 21 | 0.09 | 1.1 | | | | | | |
| | 50 | 18 | 0.52 | | 21 | 0.08 | 16 | 0.06 | 1.1 | | | | | | |
| | 65 | 14 | 0.48 | | 22 | 0.07 | 20 | 0.06 | 1.1 | | | | | | |
| | 80 | 11 | 0.44 | | 19 | 0.05 | 11 | 0.03 | 1.7 | | | | | | |
| 100 | 9 | 0.42 | 15 | 0.03 | 13 | 0.03 | 1.1 | | | | | | | | |

| 30 | $n_1 = 500$ | | | | XA | | XC - XF | | | | | | | | |
|-----------|-------------|-------------------------------|------|----------|------------------|-----------|---------------|---------------|-----|-------------|----|----|----|----|----|
| | i_n | n_2 [min ⁻¹] | Rd | P_{t0} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | |
| | | | | | | | | | | XC | XF | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Kg 1.4 | 5 | 100 | 0.83 | — | 29 | 0.36 | — | — | — | 63 | 56 | 63 | 56 | 63 | 56 |
| | 7.5 | 67 | 0.80 | | 31 | 0.27 | — | — | — | | | | | | |
| | 10 | 50 | 0.77 | | 31 | 0.21 | — | — | — | | | | | | |
| | 15 | 33 | 0.72 | | 31 | 0.15 | — | — | — | | | | | | |
| | 20 | 25 | 0.66 | | 26 | 0.10 | — | — | — | | | | | | |
| | 25 | 20 | 0.62 | | 27 | 0.09 | — | — | — | | | | | | |
| | 30 | 17 | 0.59 | | 25 | 0.07 | — | — | — | | | | | | |
| | 40 | 13 | 0.51 | | 28 | 0.07 | — | — | — | | | | | | |
| | 50 | 10 | 0.48 | | 25 | 0.06 | — | — | — | | | | | | |
| | 65 | 8 | 0.43 | | 25 | 0.05 | — | — | — | | | | | | |
| | 80 | 6 | 0.40 | | 20 | 0.03 | — | — | — | | | | | | |
| 100 | 5 | 0.38 | 16 | 0.02 | — | — | — | | | | | | | | |

* **ATTENZIONE:** la coppia massima utilizzabile $[T_{2M}]$ deve essere calcolata utilizzando il fattore di servizio: $T_{2M} = T_2 \times FS'$

* **WARNING:** Maximum allowable torque $[T_{2M}]$ must be calculated using the following service factor: $T_{2M} = T_2 \times FS'$

* **ACHTUNG:** das max. anwendbare Drehmoment $[T_{2M}]$ muss mit folgendem Betriebsfaktor berechnet werden: $T_{2M} = T_2 \times FS'$



2.5 Dati tecnici

2.5 Technical data

2.5 Technische Daten

| 40 | n ₁ = 2800 | | | XA | | XC - XF | | | | | | | | | | | | |
|-----------|-----------------------|--|------|-----------------|-------------------------|-----------|------------------------|------------------------|-----|-------------|----|---|----|----|----|----|----|---|
| | i _n | n ₂ [min ⁻¹] | Rd | P ₁₀ | T _{2M} [Nm] | P [kW] | T ₂ [Nm] | P ₁ [kW] | FS' | Input - IEC | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | |
| | | | | B5/B14 | | | B5 | | | B14 | | | | | | | | |
| Kg 2.4 | 5 | 560 | 0.88 | — | 25 | 1.67 | 11.3 | 0.75 | 2.2 | 71 | 63 | — | 71 | 63 | 56 | 71 | 63 | — |
| | 7.5 | 373 | 0.87 | | 30 | 1.3 | 17 | 0.75 | 1.8 | | | | | | | | | |
| | 10 | 280 | 0.86 | | 31 | 1.1 | 22 | 0.75 | 1.4 | | | | | | | | | |
| | 15 | 187 | 0.82 | | 32 | 0.76 | 32 | 0.75 | 1.0 | | | | | | | | | |
| | 20 | 140 | 0.80 | | 31 | 0.57 | 30 | 0.55 | 1.0 | | | | | | | | | |
| | 25 | 112 | 0.76 | | 27 | 0.41 | 24 | 0.37 | 1.1 | | | | | | | | | |
| | 30 | 93 | 0.73 | | 35 | 0.47 | 28 | 0.37 | 1.3 | | | | | | | | | |
| | 40 | 70 | 0.70 | | 33 | 0.35 | 24 | 0.25 | 1.4 | | | | | | | | | |
| | 50 | 56 | 0.65 | | 30 | 0.27 | 28 | 0.25 | 1.1 | | | | | | | | | |
| | 65 | 43 | 0.61 | | 28 | 0.21 | 24 | 0.18 | 1.2 | | | | | | | | | |
| | 80 | 35 | 0.58 | | 26 | 0.16 | 21 | 0.13 | 1.3 | | | | | | | | | |
| | 100 | 28 | 0.55 | | 25 | 0.13 | 24 | 0.13 | 1.0 | | | | | | | | | |

| 40 | n ₁ = 1400 | | | XA | | XC - XF | | | | | | | | | | | | |
|-----------|-----------------------|--|------|-----------------|-------------------------|-----------|------------------------|------------------------|-----|-------------|----|---|----|----|----|----|----|---|
| | i _n | n ₂ [min ⁻¹] | Rd | P ₁₀ | T _{2M} [Nm] | P [kW] | T ₂ [Nm] | P ₁ [kW] | FS' | Input - IEC | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | |
| | | | | B5/B14 | | | B5 | | | B14 | | | | | | | | |
| Kg 2.4 | 5 | 280 | 0.87 | 0.80 | 34 | 1.14 | 16.3 | 0.55 | 2.1 | 71 | 63 | — | 71 | 63 | 56 | 71 | 63 | — |
| | 7.5 | 187 | 0.85 | 0.80 | 40 | 0.92 | 24 | 0.55 | 1.7 | | | | | | | | | |
| | 10 | 140 | 0.83 | 0.70 | 41 | 0.73 | 31 | 0.55 | 1.3 | | | | | | | | | |
| | 15 | 93 | 0.79 | 0.50 | 42 | 0.52 | 30 | 0.37 | 1.4 | | | | | | | | | |
| | 20 | 70 | 0.76 | 0.50 | 40 | 0.39 | 38 | 0.37 | 1.0 | | | | | | | | | |
| | 25 | 56 | 0.72 | 0.40 | 35 | 0.29 | 31 | 0.25 | 1.1 | | | | | | | | | |
| | 30 | 47 | 0.68 | 0.40 | 41 | 0.29 | 35 | 0.25 | 1.2 | | | | | | | | | |
| | 40 | 35 | 0.64 | 0.30 | 38 | 0.22 | 38 | 0.22 | 1.0 | | | | | | | | | |
| | 50 | 28 | 0.59 | 0.30 | 38 | 0.19 | 36 | 0.18 | 1.1 | | | | | | | | | |
| | 65 | 22 | 0.54 | 0.20 | 35 | 0.15 | 31 | 0.13 | 1.1 | | | | | | | | | |
| | 80 | 18 | 0.52 | 0.20 | 33 | 0.12 | 31 | 0.11 | 1.1 | | | | | | | | | |
| | 100 | 14 | 0.49 | 0.20 | 28 | 0.08 | 30 | 0.09 | 0.9 | | | | | | | | | |

| 40 | n ₁ = 900 | | | XA | | XC - XF | | | | | | | | | | | | |
|-----------|----------------------|--|------|-----------------|-------------------------|-----------|------------------------|------------------------|-----|-------------|----|---|----|----|----|----|----|---|
| | i _n | n ₂ [min ⁻¹] | Rd | P ₁₀ | T _{2M} [Nm] | P [kW] | T ₂ [Nm] | P ₁ [kW] | FS' | Input - IEC | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | |
| | | | | B5/B14 | | | B5 | | | B14 | | | | | | | | |
| Kg 2.4 | 5 | 180 | 0.85 | — | 42 | 0.93 | 16.7 | 0.37 | 2.5 | 71 | 63 | — | 71 | 63 | 56 | 71 | 63 | — |
| | 7.5 | 120 | 0.83 | | 48 | 0.72 | 25 | 0.37 | 2.0 | | | | | | | | | |
| | 10 | 90 | 0.81 | | 48 | 0.56 | 32 | 0.37 | 1.5 | | | | | | | | | |
| | 15 | 60 | 0.76 | | 49 | 0.40 | 45 | 0.37 | 1.1 | | | | | | | | | |
| | 20 | 45 | 0.74 | | 46 | 0.29 | 39 | 0.25 | 1.2 | | | | | | | | | |
| | 25 | 36 | 0.69 | | 42 | 0.23 | 33 | 0.18 | 1.3 | | | | | | | | | |
| | 30 | 30 | 0.65 | | 48 | 0.23 | 37 | 0.18 | 1.3 | | | | | | | | | |
| | 40 | 23 | 0.61 | | 42 | 0.16 | 33 | 0.13 | 1.3 | | | | | | | | | |
| | 50 | 18 | 0.55 | | 42 | 0.14 | 38 | 0.13 | 1.1 | | | | | | | | | |
| | 65 | 14 | 0.51 | | 39 | 0.11 | 32 | 0.09 | 1.2 | | | | | | | | | |
| | 80 | 11 | 0.48 | | 37 | 0.09 | 37 | 0.09 | 1.0 | | | | | | | | | |
| | 100 | 9 | 0.45 | | 30 | 0.06 | 29 | 0.06 | 1.0 | | | | | | | | | |

| 40 | n ₁ = 500 | | | XA | | XC - XF | | | | | | | | | | | | |
|-----------|----------------------|--|------|-----------------|-------------------------|-----------|------------------------|------------------------|------|-------------|----|---|----|----|----|----|----|---|
| | i _n | n ₂ [min ⁻¹] | Rd | P ₁₀ | T _{2M} [Nm] | P [kW] | T ₂ [Nm] | P ₁ [kW] | FS' | Input - IEC | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | |
| | | | | B5/B14 | | | B5 | | | B14 | | | | | | | | |
| Kg 2.4 | 5 | 100 | 0.83 | — | 51 | 0.64 | 7.1 | 0.09 | 7.1 | 71 | 63 | — | 71 | 63 | 56 | 71 | 63 | — |
| | 7.5 | 67 | 0.81 | | 58 | 0.50 | 10 | 0.09 | 5.5 | | | | | | | | | |
| | 10 | 50 | 0.79 | | 59 | 0.39 | 14 | 0.09 | 4.4 | | | | | | | | | |
| | 15 | 33 | 0.73 | | 59 | 0.28 | 19 | 0.09 | 3.1 | | | | | | | | | |
| | 20 | 25 | 0.70 | | 55 | 0.20 | 24 | 0.09 | 2.3 | | | | | | | | | |
| | 25 | 20 | 0.65 | | 48 | 0.15 | 28 | 0.09 | 1.7 | | | | | | | | | |
| | 30 | 17 | 0.61 | | 58 | 0.17 | 31 | 0.09 | 1.8 | | | | | | | | | |
| | 40 | 13 | 0.57 | | 52 | 0.12 | 39 | 0.09 | 1.3 | | | | | | | | | |
| | 50 | 10 | 0.51 | | 51 | 0.11 | 44 | 0.09 | 1.2 | | | | | | | | | |
| | 65 | 8 | 0.46 | | 45 | 0.08 | 52 | 0.09 | 0.9 | | | | | | | | | |
| | 80 | 6 | 0.44 | | 42 | 0.06 | 61* | 0.09 | 0.7* | | | | | | | | | |
| | 100 | 5 | 0.41 | | 32 | 0.04 | 71* | 0.09 | 0.4* | | | | | | | | | |

* **ATTENZIONE:** la coppia massima utilizzabile [T_{2M}] deve essere calcolata utilizzando il fattore di servizio: T_{2M} = T₂ x FS'

* **WARNING:** Maximum allowable torque [T_{2M}] must be calculated using the following service factor: T_{2M} = T₂ x FS'

* **ACHTUNG:** das max. anwendbare Drehmoment [T_{2M}] muss mit folgendem Betriebsfaktor berechnet werden: T_{2M} = T₂ x FS'



2.5 Dati tecnici

2.5 Technical data

2.5 Technische Daten

| 50 | n ₁ = 2800 | | | XA | | XC - XF | | | | | | | | | | | | |
|-----------|-----------------------|--|------|-----------------|-------------------------|-----------|------------------------|------------------------|-----|-------------|----|---|-----|----|----|----|----|---|
| | i _n | n ₂ [min ⁻¹] | Rd | P ₁₀ | T _{2M} [Nm] | P [kW] | T ₂ [Nm] | P ₁ [kW] | FS' | Input - IEC | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | |
| | | | | | | | B5/B14 | | | B5 | | | B14 | | | | | |
| Kg 4.0 | 5 | 560 | 0.89 | — | 44 | 2.9 | 22.8 | 1.5 | 1.9 | 80 | 71 | — | 80 | 71 | 63 | 80 | 71 | — |
| | 7.5 | 373 | 0.88 | | 51 | 2.3 | 34 | 1.5 | 1.5 | | | | | | | | | |
| | 10 | 280 | 0.86 | | 54 | 1.8 | 44 | 1.5 | 1.2 | | | | | | | | | |
| | 15 | 187 | 0.84 | | 57 | 1.3 | 47 | 1.1 | 1.2 | | | | | | | | | |
| | 20 | 140 | 0.81 | | 58 | 1.0 | 42 | 0.75 | 1.4 | | | | | | | | | |
| | 25 | 112 | 0.78 | | 50 | 0.75 | 50 | 0.75 | 1.0 | | | | | | | | | |
| | 30 | 93 | 0.75 | | 55 | 0.71 | 42 | 0.55 | 1.3 | | | | | | | | | |
| | 40 | 70 | 0.72 | | 54 | 0.63 | 54 | 0.55 | 1.0 | | | | | | | | | |
| | 50 | 56 | 0.68 | | 56 | 0.48 | 43 | 0.37 | 1.3 | | | | | | | | | |
| | 65 | 43 | 0.64 | | 53 | 0.37 | 53 | 0.37 | 1.0 | | | | | | | | | |
| | 80 | 35 | 0.61 | | 48 | 0.29 | 41 | 0.25 | 1.2 | | | | | | | | | |
| | 100 | 28 | 0.58 | | 45 | 0.23 | 35 | 0.18 | 1.3 | | | | | | | | | |

| 50 | n ₁ = 1400 | | | XA | | XC - XF | | | | | | | | | | | | |
|-----------|-----------------------|--|------|-----------------|-------------------------|-----------|------------------------|------------------------|-----|-------------|----|---|-----|----|----|----|----|---|
| | i _n | n ₂ [min ⁻¹] | Rd | P ₁₀ | T _{2M} [Nm] | P [kW] | T ₂ [Nm] | P ₁ [kW] | FS' | Input - IEC | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | |
| | | | | | | | B5/B14 | | | B5 | | | B14 | | | | | |
| Kg 4.0 | 5 | 280 | 0.87 | 1.2 | 62 | 2.1 | 26.7 | 0.9 | 2.3 | 80 | 71 | — | 80 | 71 | 63 | 80 | 71 | — |
| | 7.5 | 187 | 0.86 | 1.2 | 70 | 1.6 | 40 | 0.9 | 1.8 | | | | | | | | | |
| | 10 | 140 | 0.84 | 1.0 | 73 | 1.3 | 52 | 0.9 | 1.4 | | | | | | | | | |
| | 15 | 93 | 0.80 | 0.80 | 74 | 0.90 | 74 | 0.9 | 1.0 | | | | | | | | | |
| | 20 | 70 | 0.78 | 0.70 | 75 | 0.71 | 58 | 0.55 | 1.3 | | | | | | | | | |
| | 25 | 56 | 0.74 | 0.60 | 65 | 0.51 | 47 | 0.37 | 1.4 | | | | | | | | | |
| | 30 | 47 | 0.71 | 0.60 | 66 | 0.46 | 53 | 0.37 | 1.2 | | | | | | | | | |
| | 40 | 35 | 0.67 | 0.50 | 69 | 0.38 | 68 | 0.37 | 1.0 | | | | | | | | | |
| | 50 | 28 | 0.62 | 0.40 | 70 | 0.33 | 53 | 0.25 | 1.3 | | | | | | | | | |
| | 65 | 22 | 0.58 | 0.40 | 64 | 0.25 | 64 | 0.25 | 1.0 | | | | | | | | | |
| | 80 | 18 | 0.54 | 0.40 | 60 | 0.20 | 53 | 0.18 | 1.1 | | | | | | | | | |
| | 100 | 14 | 0.51 | 0.30 | 55 | 0.16 | 45 | 0.13 | 1.2 | | | | | | | | | |

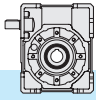
| 50 | n ₁ = 900 | | | XA | | XC - XF | | | | | | | | | | | | |
|-----------|----------------------|--|------|-----------------|-------------------------|-----------|------------------------|------------------------|-----|-------------|----|---|-----|----|----|----|----|---|
| | i _n | n ₂ [min ⁻¹] | Rd | P ₁₀ | T _{2M} [Nm] | P [kW] | T ₂ [Nm] | P ₁ [kW] | FS' | Input - IEC | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | |
| | | | | | | | B5/B14 | | | B5 | | | B14 | | | | | |
| Kg 4.0 | 5 | 180 | 0.85 | — | 75 | 1.66 | 33.8 | 0.75 | 2.2 | 80 | 71 | — | 80 | 71 | 63 | 80 | 71 | — |
| | 7.5 | 120 | 0.84 | | 83 | 1.23 | 50 | 0.75 | 1.6 | | | | | | | | | |
| | 10 | 90 | 0.82 | | 86 | 0.98 | 66 | 0.75 | 1.3 | | | | | | | | | |
| | 15 | 60 | 0.78 | | 88 | 0.71 | 68 | 0.55 | 1.3 | | | | | | | | | |
| | 20 | 45 | 0.75 | | 87 | 0.54 | 59 | 0.37 | 1.5 | | | | | | | | | |
| | 25 | 36 | 0.71 | | 75 | 0.40 | 70 | 0.37 | 1.1 | | | | | | | | | |
| | 30 | 30 | 0.67 | | 79 | 0.37 | 79 | 0.37 | 1.0 | | | | | | | | | |
| | 40 | 23 | 0.63 | | 75 | 0.28 | 67 | 0.25 | 1.1 | | | | | | | | | |
| | 50 | 18 | 0.59 | | 80 | 0.26 | 78 | 0.25 | 1.0 | | | | | | | | | |
| | 65 | 14 | 0.54 | | 74 | 0.20 | 67 | 0.18 | 1.1 | | | | | | | | | |
| | 80 | 11 | 0.51 | | 67 | 0.16 | 56 | 0.13 | 1.2 | | | | | | | | | |
| | 100 | 9 | 0.47 | | 58 | 0.12 | 45 | 0.09 | 1.3 | | | | | | | | | |

| 50 | n ₁ = 500 | | | XA | | XC - XF | | | | | | | | | | | | |
|-----------|----------------------|--|------|-----------------|-------------------------|-----------|------------------------|------------------------|-----|-------------|----|---|-----|----|----|----|----|---|
| | i _n | n ₂ [min ⁻¹] | Rd | P ₁₀ | T _{2M} [Nm] | P [kW] | T ₂ [Nm] | P ₁ [kW] | FS' | Input - IEC | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | |
| | | | | | | | B5/B14 | | | B5 | | | B14 | | | | | |
| Kg 4.0 | 5 | 100 | 0.84 | — | 92 | 1.15 | 14.3 | 0.18 | 6.4 | 80 | 71 | — | 80 | 71 | 63 | 80 | 71 | — |
| | 7.5 | 67 | 0.82 | | 100 | 0.85 | 21 | 0.18 | 4.7 | | | | | | | | | |
| | 10 | 50 | 0.80 | | 104 | 0.68 | 28 | 0.18 | 3.8 | | | | | | | | | |
| | 15 | 33 | 0.75 | | 106 | 0.49 | 39 | 0.18 | 2.7 | | | | | | | | | |
| | 20 | 25 | 0.72 | | 104 | 0.38 | 50 | 0.18 | 2.1 | | | | | | | | | |
| | 25 | 20 | 0.68 | | 88 | 0.27 | 58 | 0.18 | 1.5 | | | | | | | | | |
| | 30 | 17 | 0.63 | | 98 | 0.27 | 65 | 0.18 | 1.5 | | | | | | | | | |
| | 40 | 13 | 0.59 | | 95 | 0.21 | 81 | 0.18 | 1.2 | | | | | | | | | |
| | 50 | 10 | 0.54 | | 94 | 0.18 | 93 | 0.18 | 1.0 | | | | | | | | | |
| | 65 | 8 | 0.50 | | 86 | 0.14 | 56 | 0.09 | 1.5 | | | | | | | | | |
| | 80 | 6 | 0.46 | | 77 | 0.11 | 63 | 0.09 | 1.2 | | | | | | | | | |
| | 100 | 5 | 0.43 | | 61 | 0.07 | 74 | 0.09 | 0.8 | | | | | | | | | |

* **ATTENZIONE:** la coppia massima utilizzabile [T_{2M}] deve essere calcolata utilizzando il fattore di servizio: T_{2M} = T₂ x FS'

* **WARNING:** Maximum allowable torque [T_{2M}] must be calculated using the following service factor : T_{2M} = T₂ x FS'

* **ACHTUNG:** das max. anwendbare Drehmoment [T_{2M}] muss mit folgendem Betriebsfaktor berechnet werden: T_{2M} = T₂ x FS'



2.5 Dati tecnici

2.5 Technical data

2.5 Technische Daten

| 63 | $n_1 = 2800$ | | | | XA | | XC - XF | | | | | | | | | | |
|-----|--------------|-------------------------------|----|----------|------------------|-----------|---------------|---------------|-----|-------------|---|----|----|----|----|----|---|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | |
| | B5/B14 | | | B5 | | | B14 | | | | | | | | | | |
| 5 | 560 | 0.89 | — | 79 | 5.2 | 45.5 | 3 | 1.7 | 90 | 80 | — | 90 | 80 | 71 | 90 | 80 | — |
| 7.5 | 373 | 0.88 | | 88 | 3.9 | 68 | 3 | 1.3 | | | | | | | | | |
| 10 | 280 | 0.87 | | 94 | 3.2 | 89 | 3 | 1.1 | | | | | | | | | |
| 15 | 187 | 0.84 | | 98 | 2.3 | 95 | 2.2 | 1.0 | | | | | | | | | |
| 20 | 140 | 0.83 | | 110 | 1.9 | 85 | 1.5 | 1.3 | | | | | | | | | |
| 25 | 112 | 0.81 | | 93 | 1.4 | 76 | 1.1 | 1.2 | | | | | | | | | |
| 30 | 93 | 0.77 | | 110 | 1.4 | 87 | 1.1 | 1.3 | | | | | | | | | |
| 40 | 70 | 0.74 | | 117 | 1.2 | 111 | 1.1 | 1.1 | | | | | | | | | |
| 50 | 56 | 0.70 | | 97 | 0.81 | 90 | 0.75 | 1.1 | | | | | | | | | |
| 65 | 43 | 0.67 | | 98 | 0.66 | 81 | 0.55 | 1.2 | | | | | | | | | |
| 80 | 35 | 0.64 | | 91 | 0.52 | 65 | 0.37 | 1.4 | | | | | | | | | |
| 100 | 28 | 0.60 | | 83 | 0.41 | 75 | 0.37 | 1.1 | | | | | | | | | |

| 63 | $n_1 = 1400$ | | | | XA | | XC - XF | | | | | | | | | | |
|-----|--------------|-------------------------------|------|----------|------------------|-----------|---------------|---------------|-----|-------------|---|----|----|----|----|----|---|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | |
| | B5/B14 | | | B5 | | | B14 | | | | | | | | | | |
| 5 | 280 | 0.88 | 1.8 | 111 | 3.7 | 54 | 1.8 | 2.0 | 90 | 80 | — | 90 | 80 | 71 | 90 | 80 | — |
| 7.5 | 187 | 0.87 | 1.8 | 120 | 2.7 | 80 | 1.8 | 1.5 | | | | | | | | | |
| 10 | 140 | 0.85 | 1.6 | 127 | 2.2 | 105 | 1.8 | 1.2 | | | | | | | | | |
| 15 | 93 | 0.81 | 1.2 | 130 | 1.6 | 125 | 1.5 | 1.1 | | | | | | | | | |
| 20 | 70 | 0.80 | 1.2 | 144 | 1.3 | 120 | 1.1 | 1.2 | | | | | | | | | |
| 25 | 56 | 0.77 | 1.0 | 118 | 0.90 | 118 | 0.9 | 1.0 | | | | | | | | | |
| 30 | 47 | 0.73 | 0.90 | 142 | 0.95 | 134 | 0.9 | 1.1 | | | | | | | | | |
| 40 | 35 | 0.69 | 0.80 | 150 | 0.79 | 142 | 0.75 | 1.1 | | | | | | | | | |
| 50 | 28 | 0.65 | 0.70 | 122 | 0.55 | 122 | 0.55 | 1.0 | | | | | | | | | |
| 65 | 22 | 0.61 | 0.60 | 122 | 0.45 | 100 | 0.37 | 1.2 | | | | | | | | | |
| 80 | 18 | 0.58 | 0.60 | 113 | 0.36 | 79 | 0.25 | 1.4 | | | | | | | | | |
| 100 | 14 | 0.53 | 0.50 | 102 | 0.28 | 91 | 0.25 | 1.1 | | | | | | | | | |

| 63 | $n_1 = 900$ | | | | XA | | XC - XF | | | | | | | | | | |
|-----|-------------|-------------------------------|----|----------|------------------|-----------|---------------|---------------|-----|-------------|---|----|----|----|----|----|---|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | |
| | B5/B14 | | | B5 | | | B14 | | | | | | | | | | |
| 5 | 180 | 0.87 | — | 135 | 2.9 | 69 | 1.5 | 1.9 | 90 | 80 | — | 90 | 80 | 71 | 90 | 80 | — |
| 7.5 | 120 | 0.85 | | 144 | 2.1 | 102 | 1.5 | 1.4 | | | | | | | | | |
| 10 | 90 | 0.83 | | 150 | 1.7 | 133 | 1.5 | 1.1 | | | | | | | | | |
| 15 | 60 | 0.79 | | 152 | 1.2 | 139 | 1.1 | 1.1 | | | | | | | | | |
| 20 | 45 | 0.77 | | 167 | 1.0 | 123 | 0.75 | 1.4 | | | | | | | | | |
| 25 | 36 | 0.74 | | 140 | 0.71 | 109 | 0.55 | 1.3 | | | | | | | | | |
| 30 | 30 | 0.70 | | 164 | 0.74 | 122 | 0.55 | 1.3 | | | | | | | | | |
| 40 | 23 | 0.66 | | 171 | 0.61 | 154 | 0.55 | 1.1 | | | | | | | | | |
| 50 | 18 | 0.61 | | 141 | 0.44 | 120 | 0.37 | 1.2 | | | | | | | | | |
| 65 | 14 | 0.57 | | 139 | 0.35 | 98 | 0.25 | 1.4 | | | | | | | | | |
| 80 | 11 | 0.54 | | 128 | 0.28 | 115 | 0.25 | 1.1 | | | | | | | | | |
| 100 | 9 | 0.50 | | 115 | 0.22 | 95 | 0.18 | 1.2 | | | | | | | | | |

| 63 | $n_1 = 500$ | | | | XA | | XC - XF | | | | | | | | | | |
|-----|-------------|-------------------------------|----|----------|------------------|-----------|---------------|---------------|-----|-------------|---|----|----|----|----|----|---|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | |
| | B5/B14 | | | B5 | | | B14 | | | | | | | | | | |
| 5 | 100 | 0.85 | — | 169 | 2.08 | 20 | 0.25 | 8.3 | 90 | 80 | — | 90 | 80 | 71 | 90 | 80 | — |
| 7.5 | 67 | 0.83 | | 177 | 1.5 | 30 | 0.25 | 5.9 | | | | | | | | | |
| 10 | 50 | 0.81 | | 182 | 1.2 | 39 | 0.25 | 4.7 | | | | | | | | | |
| 15 | 33 | 0.76 | | 184 | 0.84 | 55 | 0.25 | 3.4 | | | | | | | | | |
| 20 | 25 | 0.74 | | 200 | 0.70 | 71 | 0.25 | 2.8 | | | | | | | | | |
| 25 | 20 | 0.71 | | 165 | 0.49 | 85 | 0.25 | 1.9 | | | | | | | | | |
| 30 | 17 | 0.65 | | 195 | 0.52 | 94 | 0.25 | 2.1 | | | | | | | | | |
| 40 | 13 | 0.62 | | 201 | 0.43 | 118 | 0.25 | 1.7 | | | | | | | | | |
| 50 | 10 | 0.56 | | 165 | 0.31 | 135 | 0.25 | 1.2 | | | | | | | | | |
| 65 | 8 | 0.52 | | 161 | 0.25 | 163 | 0.25 | 1.0 | | | | | | | | | |
| 80 | 6 | 0.50 | | 148 | 0.19 | 137 | 0.18 | 1.1 | | | | | | | | | |
| 100 | 5 | 0.45 | | 122 | 0.14 | 77 | 0.09 | 1.6 | | | | | | | | | |

* **ATTENZIONE:** la coppia massima utilizzabile $[T_{2M}]$ deve essere calcolata utilizzando il fattore di servizio: $T_{2M} = T_2 \times FS'$

* **WARNING:** Maximum allowable torque $[T_{2M}]$ must be calculated using the following service factor: $T_{2M} = T_2 \times FS'$

* **ACHTUNG:** das max. anwendbare Drehmoment $[T_{2M}]$ muss mit folgendem Betriebsfaktor berechnet werden: $T_{2M} = T_2 \times FS'$



2.5 Dati tecnici

2.5 Technical data

2.5 Technische Daten

| 75 | $n_1 = 2800$ | | | XA | | XC - XF | | | | | | | | | | | | | |
|-----|--------------|-------------------------------|-----|----------|------------------|-----------|---------------|---------------|------------|-------------|---|------------|----|----|------------|----|---|--|--|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | | |
| | B5/B14 | | | B5 | | B14 | | | | | | | | | | | | | |
| 7.5 | 373 | 0.89 | — | 131 | 5.8 | 125 | 5.5 | 1.0 | 112 100 | 90 | — | 112 100 | 90 | 80 | 112 100 | 90 | — | | |
| 10 | 280 | 0.88 | | 143 | 4.8 | 120 | 4 | 1.2 | | | | | | | | | | | |
| 15 | 187 | 0.85 | | 152 | 3.5 | 131 | 3 | 1.2 | | | | | | | | | | | |
| 20 | 140 | 0.84 | | 172 | 3.0 | 171 | 3 | 1.0 | | | | | | | | | | | |
| 25 | 112 | 0.82 | | 155 | 2.2 | 154 | 2.2 | 1.0 | | | | | | | | | | | |
| 30 | 93 | 0.78 | | 170 | 2.1 | 120 | 1.5 | 1.4 | | | | | | | | | | | |
| 40 | 70 | 0.75 | | 183 | 1.8 | 154 | 1.5 | 1.2 | | | | | | | | | | | |
| 50 | 56 | 0.73 | | 166 | 1.3 | 136 | 1.1 | 1.2 | | | | | | | | | | | |
| 65 | 43 | 0.69 | | 155 | 1.0 | 114 | 0.75 | 1.4 | | | | | | | | | | | |
| 80 | 35 | 0.66 | | 145 | 0.80 | 135 | 0.75 | 1.1 | | | | | | | | | | | |
| 100 | 28 | 0.62 | 131 | 0.62 | 159 | 0.75 | 0.8 | — | 80 | — | — | — | — | — | — | — | | | |

Kg
11.0

| 75 | $n_1 = 1400$ | | | XA | | XC - XF | | | | | | | | | | | | | |
|-----|--------------|-------------------------------|------|----------|------------------|-----------|---------------|---------------|------------|-------------|---|------------|----|----|------------|----|---|--|--|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | | |
| | B5/B14 | | | B5 | | B14 | | | | | | | | | | | | | |
| 7.5 | 187 | 0.87 | 2.5 | 180 | 4.0 | 178 | 4 | 1.0 | 112 100 | 90 | — | 112 100 | 90 | 80 | 112 100 | 90 | — | | |
| 10 | 140 | 0.86 | 2.3 | 193 | 3.3 | 176 | 3 | 1.1 | | | | | | | | | | | |
| 15 | 93 | 0.83 | 1.9 | 202 | 2.4 | 187 | 2.2 | 1.1 | | | | | | | | | | | |
| 20 | 70 | 0.81 | 1.7 | 226 | 2.0 | 199 | 1.8 | 1.1 | | | | | | | | | | | |
| 25 | 56 | 0.78 | 1.5 | 202 | 1.5 | 200 | 1.5 | 1.0 | | | | | | | | | | | |
| 30 | 47 | 0.74 | 1.2 | 220 | 1.5 | 167 | 1.1 | 1.3 | | | | | | | | | | | |
| 40 | 35 | 0.71 | 1.1 | 235 | 1.2 | 213 | 1.1 | 1.1 | | | | | | | | | | | |
| 50 | 28 | 0.67 | 1.0 | 211 | 0.92 | 206 | 0.9 | 1.0 | | | | | | | | | | | |
| 65 | 22 | 0.63 | 0.90 | 195 | 0.70 | 154 | 0.55 | 1.3 | | | | | | | | | | | |
| 80 | 18 | 0.60 | 0.80 | 182 | 0.55 | 180 | 0.55 | 1.0 | | | | | | | | | | | |
| 100 | 14 | 0.56 | 0.70 | 162 | 0.43 | 210 | 0.55 | 0.8 | — | 80 | — | — | — | — | — | — | | | |

Kg
11.0

| 75 | $n_1 = 900$ | | | XA | | XC - XF | | | | | | | | | | | | | |
|-----|-------------|-------------------------------|-----|----------|------------------|-----------|---------------|---------------|------------|-------------|---|------------|----|----|------------|----|---|--|--|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | | |
| | B5/B14 | | | B5 | | B14 | | | | | | | | | | | | | |
| 7.5 | 120 | 0.86 | — | 215 | 3.1 | 205 | 3 | 1.0 | 112 100 | 90 | — | 112 100 | 90 | 80 | 112 100 | 90 | — | | |
| 10 | 90 | 0.84 | | 229 | 2.6 | 197 | 2.2 | 1.2 | | | | | | | | | | | |
| 15 | 60 | 0.81 | | 237 | 1.9 | 231 | 1.8 | 1.0 | | | | | | | | | | | |
| 20 | 45 | 0.78 | | 263 | 1.6 | 250 | 1.5 | 1.1 | | | | | | | | | | | |
| 25 | 36 | 0.76 | | 233 | 1.2 | 221 | 1.1 | 1.1 | | | | | | | | | | | |
| 30 | 30 | 0.71 | | 254 | 1.1 | 249 | 1.1 | 1.0 | | | | | | | | | | | |
| 40 | 23 | 0.67 | | 270 | 0.94 | 214 | 0.75 | 1.3 | | | | | | | | | | | |
| 50 | 18 | 0.64 | | 241 | 0.71 | 186 | 0.55 | 1.3 | | | | | | | | | | | |
| 65 | 14 | 0.59 | | 221 | 0.54 | 151 | 0.37 | 1.5 | | | | | | | | | | | |
| 80 | 11 | 0.56 | | 205 | 0.43 | 177 | 0.37 | 1.2 | | | | | | | | | | | |
| 100 | 9 | 0.52 | 184 | 0.34 | 203 | 0.37 | 0.9 | — | 80 | — | — | — | — | — | — | — | | | |

Kg
11.0

| 75 | $n_1 = 500$ | | | XA | | XC - XF | | | | | | | | | | | | | |
|-----|-------------|-------------------------------|-----|----------|------------------|-----------|---------------|---------------|------------|-------------|---|------------|----|----|------------|----|---|--|--|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | | |
| | B5/B14 | | | B5 | | B14 | | | | | | | | | | | | | |
| 7.5 | 67 | 0.84 | — | 265 | 2.2 | 90 | 0.75 | 2.9 | 112 100 | 90 | — | 112 100 | 90 | 80 | 112 100 | 90 | — | | |
| 10 | 50 | 0.82 | | 279 | 1.8 | 118 | 0.75 | 2.4 | | | | | | | | | | | |
| 15 | 33 | 0.78 | | 286 | 1.3 | 167 | 0.75 | 1.7 | | | | | | | | | | | |
| 20 | 25 | 0.75 | | 315 | 1.1 | 216 | 0.75 | 1.5 | | | | | | | | | | | |
| 25 | 20 | 0.72 | | 278 | 0.80 | 260 | 0.75 | 1.1 | | | | | | | | | | | |
| 30 | 17 | 0.67 | | 302 | 0.79 | 288 | 0.75 | 1.1 | | | | | | | | | | | |
| 40 | 13 | 0.63 | | 317 | 0.66 | 265 | 0.55 | 1.2 | | | | | | | | | | | |
| 50 | 10 | 0.59 | | 282 | 0.50 | 210 | 0.37 | 1.3 | | | | | | | | | | | |
| 65 | 8 | 0.55 | | 257 | 0.38 | 251 | 0.37 | 1.0 | | | | | | | | | | | |
| 80 | 6 | 0.52 | | 238 | 0.30 | 197 | 0.25 | 1.2 | | | | | | | | | | | |
| 100 | 5 | 0.47 | 206 | 0.23 | 161 | 0.18 | 1.3 | — | 80 | — | — | — | — | — | — | — | | | |

Kg
11.0

* **ATTENZIONE:** la coppia massima utilizzabile $[T_{2M}]$ deve essere calcolata utilizzando il fattore di servizio: $T_{2M} = T_2 \times FS'$

* **WARNING:** Maximum allowable torque $[T_{2M}]$ must be calculated using the following service factor: $T_{2M} = T_2 \times FS'$

* **ACHTUNG:** das max. anwendbare Drehmoment $[T_{2M}]$ muss mit folgendem Betriebsfaktor berechnet werden: $T_{2M} = T_2 \times FS'$



2.5 Dati tecnici

2.5 Technical data

2.5 Technische Daten

| 90 | $n_1 = 2800$ | | | XA | | XC - XF | | | | | | | | | | | | | |
|-----|--------------|-------------------------------|-----|----------|------------------|-----------|---------------|---------------|------------|-------------|---|------------|----|----|------------|----|---|--|--|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | | |
| | B5/B14 | | | B5 | | | | B14 | | | | | | | | | | | |
| 7.5 | 373 | 0.89 | — | 209 | 9.2 | 171 | 7.5 | 1.2 | 112 100 | 90 | — | 112 100 | 90 | 80 | 112 100 | 90 | — | | |
| 10 | 280 | 0.88 | | 223 | 7.4 | 165 | 5.5 | 1.3 | | | | | | | | | | | |
| 15 | 187 | 0.86 | | 241 | 5.5 | 241 | 5.5 | 1.0 | | | | | | | | | | | |
| 20 | 140 | 0.84 | | 272 | 4.7 | 230 | 4 | 1.2 | | | | | | | | | | | |
| 25 | 112 | 0.83 | | 255 | 3.6 | 212 | 3 | 1.2 | | | | | | | | | | | |
| 30 | 93 | 0.79 | | 270 | 3.3 | 243 | 3 | 1.1 | | | | | | | | | | | |
| 40 | 70 | 0.77 | | 293 | 2.8 | 230 | 2.2 | 1.3 | | | | | | | | | | | |
| 50 | 56 | 0.74 | | 278 | 2.2 | 278 | 2.2 | 1.0 | | | | | | | | | | | |
| 65 | 43 | 0.71 | | 250 | 1.6 | 235 | 1.5 | 1.1 | | | | | | | | | | | |
| | 35 | 0.68 | | 238 | 1.3 | 205 | 1.1 | 1.2 | | | | | | | | | | | |
| 100 | 28 | 0.64 | 212 | 0.97 | 163 | 0.75 | 1.3 | — | 80 | | | | | | | | | | |

Kg
23.6

| 90 | $n_1 = 1400$ | | | XA | | XC - XF | | | | | | | | | | | | | |
|-----|--------------|-------------------------------|------|----------|------------------|-----------|---------------|---------------|------------|-------------|---|------------|----|----|------------|----|---|--|--|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | | |
| | B5/B14 | | | B5 | | | | B14 | | | | | | | | | | | |
| 7.5 | 187 | 0.88 | 3.0 | 290 | 6.5 | 247 | 5.5 | 1.2 | 112 100 | 90 | — | 112 100 | 90 | 80 | 112 100 | 90 | — | | |
| 10 | 140 | 0.86 | 2.5 | 305 | 5.2 | 236 | 4 | 1.3 | | | | | | | | | | | |
| 15 | 93 | 0.84 | 2.2 | 320 | 3.7 | 256 | 3 | 1.2 | | | | | | | | | | | |
| 20 | 70 | 0.82 | 2.0 | 360 | 3.2 | 334 | 3 | 1.1 | | | | | | | | | | | |
| 25 | 56 | 0.80 | 1.8 | 332 | 2.4 | 299 | 2.2 | 1.1 | | | | | | | | | | | |
| 30 | 47 | 0.76 | 1.5 | 350 | 2.3 | 340 | 2.2 | 1.0 | | | | | | | | | | | |
| 40 | 35 | 0.72 | 1.3 | 377 | 1.9 | 355 | 1.8 | 1.1 | | | | | | | | | | | |
| 50 | 28 | 0.69 | 1.1 | 353 | 1.5 | 353 | 1.5 | 1.0 | | | | | | | | | | | |
| 65 | 22 | 0.65 | 1.0 | 317 | 1.1 | 317 | 1.1 | 1.0 | | | | | | | | | | | |
| 80 | 18 | 0.63 | 1.0 | 309 | 0.90 | 309 | 0.9 | 1.0 | | | | | | | | | | | |
| 100 | 14 | 0.58 | 0.80 | 264 | 0.67 | 217 | 0.55 | 1.2 | — | 80 | | | | | | | | | |

Kg
23.6

| 90 | $n_1 = 900$ | | | XA | | XC - XF | | | | | | | | | | | | | |
|-----|-------------|-------------------------------|-----|----------|------------------|-----------|---------------|---------------|------------|-------------|---|------------|----|----|------------|----|---|--|--|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | | |
| | B5/B14 | | | B5 | | | | B14 | | | | | | | | | | | |
| 7.5 | 120 | 0.86 | — | 345 | 5.0 | 206 | 3 | 1.7 | 112 100 | 90 | — | 112 100 | 90 | 80 | 112 100 | 90 | — | | |
| 10 | 90 | 0.85 | | 362 | 4.0 | 270 | 3 | 1.3 | | | | | | | | | | | |
| 15 | 60 | 0.82 | | 377 | 2.9 | 286 | 2.2 | 1.3 | | | | | | | | | | | |
| 20 | 45 | 0.79 | | 419 | 2.5 | 371 | 2.2 | 1.1 | | | | | | | | | | | |
| 25 | 36 | 0.77 | | 385 | 1.9 | 369 | 1.8 | 1.0 | | | | | | | | | | | |
| 30 | 30 | 0.73 | | 416 | 1.8 | 416 | 1.8 | 1.0 | | | | | | | | | | | |
| 40 | 23 | 0.69 | | 440 | 1.5 | 440 | 1.5 | 1.0 | | | | | | | | | | | |
| 50 | 18 | 0.66 | | 398 | 1.1 | 384 | 1.1 | 1.0 | | | | | | | | | | | |
| 65 | 14 | 0.62 | | 358 | 0.84 | 319 | 0.75 | 1.1 | | | | | | | | | | | |
| | 11 | 0.59 | | 337 | 0.68 | 274 | 0.55 | 1.2 | | | | | | | | | | | |
| 100 | 9 | 0.54 | 313 | 0.55 | 313 | 0.55 | 1.0 | — | 80 | | | | | | | | | | |

Kg
23.6

| 90 | $n_1 = 500$ | | | XA | | XC - XF | | | | | | | | | | | | | |
|-----|-------------|-------------------------------|-----|----------|------------------|-----------|---------------|---------------|------------|-------------|---|------------|----|----|------------|----|---|--|--|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | | |
| | B5/B14 | | | B5 | | | | B14 | | | | | | | | | | | |
| 7.5 | 67 | 0.84 | — | 430 | 3.6 | 91 | 0.75 | 4.7 | 112 100 | 90 | — | 112 100 | 90 | 80 | 112 100 | 90 | — | | |
| 10 | 50 | 0.83 | | 443 | 2.8 | 118 | 0.75 | 3.7 | | | | | | | | | | | |
| 15 | 33 | 0.79 | | 456 | 2.0 | 169 | 0.75 | 2.7 | | | | | | | | | | | |
| 20 | 25 | 0.76 | | 502 | 1.7 | 219 | 0.75 | 2.3 | | | | | | | | | | | |
| 25 | 20 | 0.74 | | 459 | 1.3 | 265 | 0.75 | 1.7 | | | | | | | | | | | |
| 30 | 17 | 0.68 | | 483 | 1.2 | 294 | 0.75 | 1.6 | | | | | | | | | | | |
| 40 | 13 | 0.65 | | 512 | 1.0 | 371 | 0.75 | 1.4 | | | | | | | | | | | |
| 50 | 10 | 0.61 | | 467 | 0.80 | 439 | 0.75 | 1.1 | | | | | | | | | | | |
| 65 | 8 | 0.57 | | 417 | 0.59 | 388 | 0.55 | 1.1 | | | | | | | | | | | |
| | 6 | 0.54 | | 391 | 0.48 | 305 | 0.37 | 1.3 | | | | | | | | | | | |
| 100 | 5 | 0.49 | 345 | 0.37 | 344 | 0.37 | 1.0 | — | 80 | | | | | | | | | | |

Kg
23.6

* **ATTENZIONE:** la coppia massima utilizzabile $[T_{2M}]$ deve essere calcolata utilizzando il fattore di servizio: $T_{2M} = T_2 \times FS'$

* **WARNING:** Maximum allowable torque $[T_{2M}]$ must be calculated using the following service factor: $T_{2M} = T_2 \times FS'$

* **ACHTUNG:** das max. anwendbare Drehmoment $[T_{2M}]$ muss mit folgendem Betriebsfaktor berechnet werden: $T_{2M} = T_2 \times FS'$



2.5 Dati tecnici

2.5 Technical data

2.5 Technische Daten

| 110 | $n_1 = 2800$ | | | XA | | XC - XF | | | | | | | | | | | | |
|------------|--------------|-------------------------------|------|----------|------------------|-----------|---------------|---------------|-----|-------------|------------|---|-----|------------|----|-----|---|---|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | |
| | B5/B14 | | | B5 | | | B14 | | | | | | | | | | | |
| Kg 44.0 | 7.5 | 373 | 0.89 | — | 345 | 15.1 | 343 | 15 | 1.0 | 132 | 112 100 | — | 132 | 112 100 | 90 | 132 | — | — |
| | 10 | 280 | 0.88 | | 368 | 12.2 | 332 | 11 | 1.1 | | | | | | | | | |
| | 15 | 187 | 0.86 | | 404 | 9.2 | 331 | 7.5 | 1.2 | | | | | | | | | |
| | 20 | 140 | 0.85 | | 465 | 8.0 | 435 | 7.5 | 1.1 | | | | | | | | | |
| | 25 | 112 | 0.84 | | 441 | 6.2 | 393 | 5.5 | 1.1 | | | | | | | | | |
| | 30 | 93 | 0.80 | | 459 | 5.6 | 450 | 5.5 | 1.0 | | | | | | | | | |
| | 40 | 70 | 0.78 | | 503 | 4.7 | 424 | 4 | 1.2 | | | | | | | | | |
| | 50 | 56 | 0.76 | | 476 | 3.7 | 388 | 3 | 1.2 | | | | | | | | | |
| | 65 | 43 | 0.73 | | 417 | 2.6 | 354 | 2.2 | 1.2 | | | | | | | | | |
| | 100 | 28 | 0.66 | | 400 | 2.1 | 287 | 1.5 | 1.4 | | | | | | | | | |
| | | | 364 | 1.6 | 339 | 1.5 | 1.1 | | | | | | | | | | | |

| 110 | $n_1 = 1400$ | | | XA | | XC - XF | | | | | | | | | | | | |
|------------|--------------|-------------------------------|------|----------|------------------|-----------|---------------|---------------|-----|-------------|------------|---|-----|------------|----|-----|---|---|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | |
| | B5/B14 | | | B5 | | | B14 | | | | | | | | | | | |
| Kg 44.0 | 7.5 | 187 | 0.88 | 4.3 | 480 | 10.6 | 415 | 9.2 | 1.2 | 132 | 112 100 | — | 132 | 112 100 | 90 | 132 | — | — |
| | 10 | 140 | 0.87 | 4.0 | 504 | 8.5 | 446 | 7.5 | 1.1 | | | | | | | | | |
| | 15 | 93 | 0.84 | 3.2 | 543 | 6.3 | 475 | 5.5 | 1.1 | | | | | | | | | |
| | 20 | 70 | 0.83 | 3.0 | 623 | 5.5 | 623 | 5.5 | 1.0 | | | | | | | | | |
| | 25 | 56 | 0.81 | 2.7 | 578 | 4.2 | 554 | 4 | 1.0 | | | | | | | | | |
| | 30 | 47 | 0.77 | 2.2 | 601 | 3.8 | 472 | 3 | 1.3 | | | | | | | | | |
| | 40 | 35 | 0.74 | 2.0 | 650 | 3.2 | 606 | 3 | 1.1 | | | | | | | | | |
| | 50 | 28 | 0.72 | 1.8 | 608 | 2.5 | 538 | 2.2 | 1.1 | | | | | | | | | |
| | 65 | 22 | 0.68 | 1.6 | 528 | 1.8 | 451 | 1.5 | 1.2 | | | | | | | | | |
| | 100 | 14 | 0.61 | 1.3 | 458 | 1.1 | 458 | 1.1 | 1.0 | | | | | | | | | |

| 110 | $n_1 = 900$ | | | XA | | XC - XF | | | | | | | | | | | | |
|------------|-------------|-------------------------------|------|----------|------------------|-----------|---------------|---------------|-----|-------------|------------|---|-----|------------|----|-----|---|---|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | |
| | B5/B14 | | | B5 | | | B14 | | | | | | | | | | | |
| Kg 44.0 | 7.5 | 120 | 0.87 | — | 578 | 8.3 | 381 | 5.5 | 1.5 | 132 | 112 100 | — | 132 | 112 100 | 90 | 132 | — | — |
| | 10 | 90 | 0.86 | | 600 | 6.6 | 500 | 5.5 | 1.2 | | | | | | | | | |
| | 15 | 60 | 0.83 | | 641 | 4.9 | 526 | 4 | 1.2 | | | | | | | | | |
| | 20 | 45 | 0.81 | | 720 | 4.2 | 685 | 4 | 1.1 | | | | | | | | | |
| | 25 | 36 | 0.79 | | 672 | 3.2 | 628 | 3 | 1.1 | | | | | | | | | |
| | 30 | 30 | 0.74 | | 697 | 2.9 | 520 | 2.2 | 1.3 | | | | | | | | | |
| | 40 | 23 | 0.71 | | 749 | 2.5 | 664 | 2.2 | 1.1 | | | | | | | | | |
| | 50 | 18 | 0.68 | | 697 | 1.9 | 653 | 1.8 | 1.1 | | | | | | | | | |
| | 65 | 14 | 0.64 | | 603 | 1.4 | 487 | 1.1 | 1.2 | | | | | | | | | |
| | 100 | 9 | 0.57 | | 571 | 1.1 | 570 | 1.1 | 1.0 | | | | | | | | | |
| | | | 513 | 0.85 | 450 | 0.75 | 1.1 | | | | | | | | | | | |

| 110 | $n_1 = 500$ | | | XA | | XC - XF | | | | | | | | | | | | |
|------------|-------------|-------------------------------|------|----------|------------------|-----------|---------------|---------------|-----|-------------|------------|---|-----|------------|----|-----|---|---|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | | | | |
| | | | | | | | | | | XC | | | XF | | | | | |
| | B5/B14 | | | B5 | | | B14 | | | | | | | | | | | |
| Kg 44.0 | 7.5 | 67 | 0.85 | — | 718 | 5.9 | 183 | 1.5 | 3.9 | 132 | 112 100 | — | 132 | 112 100 | 90 | 132 | — | — |
| | 10 | 50 | 0.84 | | 738 | 4.6 | 240 | 1.5 | 3.1 | | | | | | | | | |
| | 15 | 33 | 0.80 | | 778 | 3.4 | 344 | 1.5 | 2.3 | | | | | | | | | |
| | 20 | 25 | 0.78 | | 866 | 2.9 | 446 | 1.5 | 1.9 | | | | | | | | | |
| | 25 | 20 | 0.76 | | 802 | 2.2 | 542 | 1.5 | 1.5 | | | | | | | | | |
| | 30 | 17 | 0.70 | | 832 | 2.1 | 603 | 1.5 | 1.4 | | | | | | | | | |
| | 40 | 13 | 0.67 | | 886 | 1.7 | 765 | 1.5 | 1.2 | | | | | | | | | |
| | 50 | 10 | 0.64 | | 820 | 1.3 | 671 | 1.1 | 1.2 | | | | | | | | | |
| | 65 | 8 | 0.59 | | 705 | 0.96 | 553 | 0.75 | 1.3 | | | | | | | | | |
| | 100 | 5 | 0.52 | | 664 | 0.77 | 643 | 0.75 | 1.0 | | | | | | | | | |
| | | | 594 | 0.60 | 542 | 0.55 | 1.1 | | | | | | | | | | | |

* **ATTENZIONE:** la coppia massima utilizzabile $[T_{2M}]$ deve essere calcolata utilizzando il fattore di servizio: $T_{2M} = T_2 \times FS'$

* **WARNING:** Maximum allowable torque $[T_{2M}]$ must be calculated using the following service factor: $T_{2M} = T_2 \times FS'$

* **ACHTUNG:** das max. anwendbare Drehmoment $[T_{2M}]$ muss mit folgendem Betriebsfaktor berechnet werden: $T_{2M} = T_2 \times FS'$



2.5 Dati tecnici

2.5 Technical data

2.5 Technische Daten

| 130 | $n_1 = 2800$ | | | XA | | XC - XF | | | | | | | | | |
|-----|--------------|-------------------------------|----|----------|------------------|-----------|---------------|---------------|-----|-------------|---|-----|------------|----|---|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | |
| | | | | | | | | | | XC | | | XF | | |
| | B5/B14 | | | B5 | | | B14 | | | | | | | | |
| 7.5 | 373 | 0.90 | — | 530 | 23 | 345 | 15 | 1.5 | 132 | 112 100 | — | 132 | 112 100 | 90 | — |
| 10 | 280 | 0.89 | | 549 | 18.1 | 455 | 15 | 1.2 | | | | | | | |
| 15 | 187 | 0.87 | | 636 | 14.3 | 490 | 11 | 1.3 | | | | | | | |
| 20 | 140 | 0.86 | | 733 | 12.5 | 645 | 11 | 1.1 | | | | | | | |
| 25 | 112 | 0.85 | | 710 | 9.8 | 667 | 9.2 | 1.1 | | | | | | | |
| 30 | 93 | 0.81 | | 729 | 8.8 | 622 | 7.5 | 1.2 | | | | | | | |
| 40 | 70 | 0.80 | | 819 | 7.5 | 819 | 7.5 | 1.0 | | | | | | | |
| 50 | 56 | 0.78 | | 758 | 5.7 | 732 | 5.5 | 1.0 | | | | | | | |
| 65 | 43 | 0.75 | | 648 | 3.9 | 499 | 3 | 1.3 | | | | | | | |
| 100 | 28 | 0.70 | | 637 | 3.2 | 598 | 3 | 1.1 | | | | | | | |
| | | | | 597 | 2.5 | 525 | 2.2 | 1.1 | — | 90 | | | | | |



55.0

| 130 | $n_1 = 1400$ | | | XA | | XC - XF | | | | | | | | | |
|-----|--------------|-------------------------------|-----|----------|------------------|-----------|---------------|---------------|-----|-------------|---|-----|------------|----|---|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | |
| | | | | | | | | | | XC | | | XF | | |
| | B5/B14 | | | B5 | | | B14 | | | | | | | | |
| 7.5 | 187 | 0.89 | 6.0 | 736 | 16.2 | 418 | 9.2 | 1.8 | 132 | 112 100 | — | 132 | 112 100 | 90 | — |
| 10 | 140 | 0.88 | 5.5 | 756 | 12.6 | 552 | 9.2 | 1.4 | | | | | | | |
| 15 | 93 | 0.85 | 4.4 | 855 | 9.8 | 803 | 9.2 | 1.1 | | | | | | | |
| 20 | 70 | 0.84 | 4.1 | 974 | 8.5 | 860 | 7.5 | 1.1 | | | | | | | |
| 25 | 56 | 0.83 | 3.9 | 920 | 6.5 | 778 | 5.5 | 1.2 | | | | | | | |
| 30 | 47 | 0.79 | 3.2 | 947 | 5.9 | 883 | 5.5 | 1.1 | | | | | | | |
| 40 | 35 | 0.76 | 2.8 | 1037 | 5.0 | 829 | 4 | 1.3 | | | | | | | |
| 50 | 28 | 0.74 | 2.6 | 959 | 3.8 | 757 | 3 | 1.3 | | | | | | | |
| 65 | 22 | 0.71 | 2.3 | 801 | 2.6 | 678 | 2.2 | 1.2 | | | | | | | |
| 80 | 18 | 0.68 | 2.1 | 758 | 2.1 | 649 | 1.8 | 1.2 | | | | | | | |
| 100 | 14 | 0.64 | 1.8 | 699 | 1.6 | 655 | 1.5 | 1.1 | | | | | | | |



55.0

| 130 | $n_1 = 900$ | | | XA | | XC - XF | | | | | | | | | |
|-----|-------------|-------------------------------|----|----------|------------------|-----------|---------------|---------------|-----|-------------|---|-----|------------|----|---|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | |
| | | | | | | | | | | XC | | | XF | | |
| | B5/B14 | | | B5 | | | B14 | | | | | | | | |
| 7.5 | 120 | 0.88 | — | 889 | 12.7 | 385 | 5.5 | 2.3 | 132 | 112 100 | — | 132 | 112 100 | 90 | — |
| 10 | 90 | 0.87 | | 905 | 9.8 | 508 | 5.5 | 1.8 | | | | | | | |
| 15 | 60 | 0.84 | | 1016 | 7.6 | 735 | 5.5 | 1.4 | | | | | | | |
| 20 | 45 | 0.82 | | 1149 | 6.6 | 957 | 5.5 | 1.2 | | | | | | | |
| 25 | 36 | 0.81 | | 1074 | 5.0 | 860 | 4 | 1.3 | | | | | | | |
| 30 | 30 | 0.76 | | 1113 | 4.6 | 968 | 4 | 1.2 | | | | | | | |
| 40 | 23 | 0.73 | | 1208 | 3.9 | 930 | 3 | 1.3 | | | | | | | |
| 50 | 18 | 0.70 | | 1077 | 2.9 | 817 | 2.2 | 1.3 | | | | | | | |
| 65 | 14 | 0.67 | | 924 | 2.0 | 832 | 1.8 | 1.1 | | | | | | | |
| 100 | 9 | 0.60 | | 869 | 1.6 | 815 | 1.5 | 1.1 | | | | | | | |
| | | | | 828 | 1.3 | 700 | 1.1 | 1.2 | — | 90 | | | | | |



55.0

| 130 | $n_1 = 500$ | | | XA | | XC - XF | | | | | | | | | |
|-----|-------------|-------------------------------|----|----------|------------------|-----------|---------------|---------------|-----|-------------|---|-----|------------|----|---|
| | i_n | n_2 [min ⁻¹] | Rd | P_{10} | T_{2M} [Nm] | P [kW] | T_2 [Nm] | P_1 [kW] | FS' | Input - IEC | | | | | |
| | | | | | | | | | | XC | | | XF | | |
| | B5/B14 | | | B5 | | | B14 | | | | | | | | |
| 7.5 | 67 | 0.86 | — | 1109 | 9.0 | 228 | 1.85 | 4.9 | 132 | 112 100 | — | 132 | 112 100 | 90 | — |
| 10 | 50 | 0.84 | | 1107 | 6.9 | 297 | 1.85 | 3.7 | | | | | | | |
| 15 | 33 | 0.81 | | 1230 | 5.3 | 429 | 1.85 | 2.9 | | | | | | | |
| 20 | 25 | 0.79 | | 1388 | 4.6 | 558 | 1.85 | 2.5 | | | | | | | |
| 25 | 20 | 0.78 | | 1266 | 3.4 | 689 | 1.85 | 1.8 | | | | | | | |
| 30 | 17 | 0.72 | | 1320 | 3.2 | 763 | 1.85 | 1.7 | | | | | | | |
| 40 | 13 | 0.69 | | 1423 | 2.7 | 975 | 1.85 | 1.5 | | | | | | | |
| 50 | 10 | 0.66 | | 1261 | 2.0 | 1166 | 1.85 | 1.1 | | | | | | | |
| 65 | 8 | 0.63 | | 1095 | 1.4 | 860 | 1.10 | 1.3 | | | | | | | |
| 100 | 5 | 0.55 | | 1082 | 1.2 | 992 | 1.10 | 1.1 | | | | | | | |
| | | | | 945 | 0.9 | 788 | 0.75 | 1.2 | — | 90 | | | | | |



55.0

* **ATTENZIONE:** la coppia massima utilizzabile $[T_{2M}]$ deve essere calcolata utilizzando il fattore di servizio: $T_{2M} = T_2 \times FS'$

* **WARNING:** Maximum allowable torque $[T_{2M}]$ must be calculated using the following service factor: $T_{2M} = T_2 \times FS'$

* **ACHTUNG:** das max. anwendbare Drehmoment $[T_{2M}]$ muss mit folgendem Betriebsfaktor berechnet werden: $T_{2M} = T_2 \times FS'$














2.6 **Momenti d'inerzia** [Kg·cm²]
(riferiti all'albero veloce in entrata)

2.6 **Moments of inertia** [Kg·cm²]
(referred to input shaft)

2.6 **Trägheitsmoment** [Kg·cm²]
(bez. Antriebswelle)

| X30 | i_n | XA  | XC  | | XF  | | |
|-----|-------|--|--|--------|--|----------|--|
| | | | B5 - B14 | | | B5 - B14 | |
| | | | IEC 56 | IEC 63 | IEC 56 | IEC 63 | |
| 5 | 0.077 | 0.130 | 0.127 | 0.122 | 0.123 | | |
| 7.5 | 0.058 | 0.112 | 0.109 | 0.102 | 0.103 | | |
| 10 | 0.049 | 0.103 | 0.100 | 0.093 | 0.094 | | |
| 15 | 0.042 | 0.097 | 0.094 | 0.087 | 0.087 | | |
| 20 | 0.039 | 0.095 | 0.092 | 0.084 | 0.084 | | |
| 25 | 0.038 | 0.094 | 0.091 | 0.083 | 0.083 | | |
| 30 | 0.038 | 0.093 | 0.090 | 0.083 | 0.084 | | |
| 40 | 0.037 | 0.093 | 0.090 | 0.082 | 0.082 | | |
| 50 | 0.037 | 0.092 | 0.089 | 0.081 | 0.082 | | |
| 65 | 0.024 | 0.079 | - | 0.069 | 0.069 | | |
| 80 | 0.024 | 0.079 | - | 0.069 | 0.069 | | |
| 100 | 0.024 | 0.078 | - | 0.069 | 0.069 | | |

| X40 | i_n | XA  | XC  | | | XF  | | |
|-----|-------|--|--|--------|--------|--|----------|--------|
| | | | B5 - B14 | | | B5 | B5 - B14 | |
| | | | IEC 56 | IEC 63 | IEC 71 | IEC 56 | IEC 63 | IEC 71 |
| 5 | 0.242 | - | 0.391 | 0.463 | 0.289 | 0.447 | 0.464 | |
| 7.5 | 0.170 | - | 0.321 | 0.356 | 0.217 | 0.375 | 0.391 | |
| 10 | 0.144 | - | 0.272 | 0.347 | 0.190 | 0.348 | 0.365 | |
| 15 | 0.125 | - | 0.266 | 0.340 | 0.171 | 0.329 | 0.346 | |
| 20 | 0.094 | - | 0.263 | 0.338 | 0.141 | 0.298 | 0.315 | |
| 25 | 0.091 | - | 0.262 | 0.337 | 0.137 | 0.295 | 0.312 | |
| 30 | 0.113 | - | 0.262 | 0.337 | 0.160 | 0.318 | 0.335 | |
| 40 | 0.087 | - | 0.261 | - | 0.134 | 0.292 | 0.309 | |
| 50 | 0.087 | 0.182 | 0.261 | - | 0.133 | 0.291 | 0.308 | |
| 65 | 0.069 | 0.182 | 0.261 | - | 0.116 | 0.274 | 0.290 | |
| 80 | 0.069 | 0.182 | 0.261 | - | 0.115 | 0.273 | 0.290 | |
| 100 | 0.068 | 0.182 | 0.261 | - | 0.115 | 0.273 | 0.290 | |




| X50 | i_n | XA  | XC  | | | XF  | | |
|-----|-------|--|--|--------|--------|--|----------|--------|
| | | | B5 - B14 | | | B5 | B5 - B14 | |
| | | | IEC 63 | IEC 71 | IEC 80 | IEC 63 | IEC 71 | IEC 80 |
| 5 | 0.744 | - | 0.922 | 1.046 | 0.978 | 0.955 | 1.558 | |
| 7.5 | 0.499 | - | 0.684 | 0.935 | 0.733 | 0.750 | 1.313 | |
| 10 | 0.417 | - | 0.602 | 0.853 | 0.651 | 0.668 | 1.231 | |
| 15 | 0.358 | - | 0.543 | 0.794 | 0.593 | 0.609 | 1.173 | |
| 20 | 0.281 | - | 0.523 | 0.774 | 0.516 | 0.532 | 1.096 | |
| 25 | 0.272 | - | 0.513 | 0.764 | 0.506 | 0.523 | 1.086 | |
| 30 | 0.323 | - | 0.508 | 0.759 | 0.557 | 0.574 | 1.137 | |
| 40 | 0.262 | 0.315 | 0.503 | - | 0.496 | 0.513 | 1.076 | |
| 50 | 0.183 | 0.313 | 0.501 | - | 0.417 | 0.434 | 0.997 | |
| 65 | 0.136 | 0.311 | 0.499 | - | 0.370 | 0.387 | 0.950 | |
| 80 | 0.136 | 0.310 | 0.498 | - | 0.370 | 0.387 | 0.950 | |
| 100 | 0.135 | 0.309 | 0.498 | - | 0.370 | 0.386 | 0.950 | |









2.6 **Momenti d'inerzia [Kg·cm²]**
(riferiti all'albero veloce in entrata)

2.6 **Moments of inertia [Kg·cm²]**
(referred to input shaft)

2.6 **Trägheitsmoment [Kg·cm²]**
(bez. Antriebswelle)

| X63 | i_n | XA  | XC  | | | XF  | | |
|-----|-------|--|--|--------|--------|--|----------|--------|
| | | | B5 - B14 | | | B5 | B5 - B14 | |
| | | | IEC 71 | IEC 80 | IEC 90 | IEC 71 | IEC 80 | IEC 90 |
| 5 | 1.853 | - | 2.431 | 2.671 | 2.632 | 2.766 | 3.844 | |
| 7.5 | 1.363 | - | 1.949 | 2.269 | 2.142 | 2.276 | 3.354 | |
| 10 | 1.158 | - | 1.744 | 2.063 | 1.936 | 2.070 | 3.148 | |
| 15 | 1.011 | - | 1.597 | 1.916 | 1.789 | 1.924 | 3.001 | |
| 20 | 0.710 | - | 1.545 | 1.864 | 1.489 | 1.623 | 2.701 | |
| 25 | 0.679 | - | 1.514 | 1.833 | 1.458 | 1.592 | 2.670 | |
| 30 | 0.922 | - | 1.508 | 1.828 | 1.701 | 1.835 | 2.913 | |
| 40 | 0.660 | 0.966 | 1.495 | - | 1.439 | 1.573 | 2.651 | |
| 50 | 0.653 | 0.959 | 1.488 | - | 1.431 | 1.565 | 2.643 | |
| 65 | 0.552 | 0.955 | 1.484 | - | 1.330 | 1.465 | 2.542 | |
| 80 | 0.550 | 0.953 | 1.482 | - | 1.329 | 1.463 | 2.541 | |
| 100 | 0.549 | 0.952 | 1.481 | - | 1.327 | 1.462 | 2.539 | |

| X75 | i_n | XA  | XC  | | | XF  | | |
|-----|-------|--|--|--------|-------------|--|----------|-------------|
| | | | B5 - B14 | | | B5 | B5 - B14 | |
| | | | IEC 80 | IEC 90 | IEC 100-112 | IEC 80 | IEC 90 | IEC 100-112 |
| 7.5 | 2.970 | - | 3.712 | 4.462 | 5.138 | 5.066 | 6.837 | |
| 10 | 2.492 | - | 3.234 | 3.984 | 4.661 | 4.588 | 6.359 | |
| 15 | 2.151 | - | 2.893 | 3.643 | 4.320 | 4.247 | 6.018 | |
| 20 | 1.567 | - | 2.774 | 3.523 | 3.735 | 3.662 | 5.433 | |
| 25 | 1.501 | - | 2.709 | 3.458 | 3.670 | 3.597 | 5.368 | |
| 30 | 1.946 | - | 2.689 | 3.438 | 4.115 | 4.042 | 5.813 | |
| 40 | 1.451 | 1.595 | 2.659 | - | 3.620 | 3.547 | 5.318 | |
| 50 | 1.435 | 1.578 | 2.642 | - | 3.603 | 3.531 | 5.302 | |
| 65 | 1.158 | 1.569 | 2.633 | - | 3.326 | 3.253 | 5.024 | |
| 80 | 1.153 | 1.565 | 2.629 | - | 3.322 | 3.249 | 5.020 | |
| 100 | 1.150 | 1.562 | 2.626 | - | 3.318 | 3.246 | 5.017 | |




| X90 | i_n | XA  | XC  | | | XF  | | |
|-----|-------|--|--|--------|-------------|--|----------|-------------|
| | | | B5 - B14 | | | B5 | B5 - B14 | |
| | | | IEC 80 | IEC 90 | IEC 100-112 | IEC 80 | IEC 90 | IEC 100-112 |
| 7.5 | 6.167 | - | 6.898 | 7.671 | 8.335 | 8.263 | 10.033 | |
| 10 | 5.143 | - | 5.875 | 6.648 | 7.312 | 7.239 | 9.010 | |
| 15 | 4.413 | - | 5.144 | 5.917 | 6.581 | 6.508 | 8.279 | |
| 20 | 2.653 | - | 3.398 | 5.661 | 4.821 | 4.749 | 6.519 | |
| 25 | 2.511 | - | 3.256 | 5.520 | 4.680 | 4.607 | 6.378 | |
| 30 | 3.974 | - | 3.215 | 5.479 | 6.142 | 6.070 | 7.841 | |
| 40 | 2.406 | - | 3.151 | - | 4.574 | 4.502 | 6.273 | |
| 50 | 2.371 | - | 3.115 | - | 4.539 | 4.467 | 6.237 | |
| 65 | 1.672 | 2.024 | 3.096 | - | 3.841 | 3.768 | 5.539 | |
| 80 | 1.663 | 2.014 | 3.087 | - | 3.831 | 3.759 | 5.530 | |
| 100 | 1.656 | 2.008 | 3.080 | - | 3.825 | 3.752 | 5.523 | |






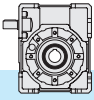
2.6 **Momenti d'inerzia [Kg·cm²]**
(riferiti all'albero veloce in entrata)

2.6 **Moments of inertia [Kg·cm²]**
(referred to input shaft)

2.6 **Trägheitsmoment [Kg·cm²]**
(bez. Antriebswelle)

| X110 | i_n | XA  | XC  | | | XF  | | | |
|------|--------|--|--|-------------|---------|--|--------|-------------|----------|
| | | | B5 - B14 | | | B5 | | | B5 - B14 |
| | | | IEC 90 | IEC 100-112 | IEC 132 | IEC 80 | IEC 90 | IEC 100-112 | IEC 132 |
| | | | 7.5 | 16.247 | - | 17.980 | 20.038 | 20.584 | 20.535 |
| 10 | 13.386 | - | 15.119 | 17.177 | 17.723 | 17.674 | 17.851 | 19.843 | |
| 15 | 11.343 | - | 13.076 | 15.134 | 15.679 | 15.631 | 15.807 | 17.799 | |
| 20 | 6.655 | - | 8.367 | 14.418 | 10.992 | 10.943 | 11.120 | 13.112 | |
| 25 | 6.257 | - | 7.969 | 14.020 | 10.594 | 10.545 | 10.722 | 12.714 | |
| 30 | 10.117 | - | 11.850 | 13.908 | 14.453 | 14.405 | 14.581 | 16.573 | |
| 40 | 5.965 | - | 7.677 | - | 10.302 | 10.254 | 10.430 | 12.422 | |
| 50 | 5.866 | - | 7.578 | - | 10.203 | 10.154 | 10.330 | 12.323 | |
| 65 | 3.792 | 5.592 | 7.510 | - | 8.128 | 8.080 | 8.256 | 10.248 | |
| 80 | 3.770 | 5.570 | 7.489 | - | 8.107 | 8.059 | 8.235 | 10.227 | |
| 100 | 3.755 | 5.555 | 7.474 | - | 8.092 | 8.044 | 8.220 | 10.212 | |

| X130 | i_n | XA  | XC  | | | XF  | | |
|------|-------|--|--|-------------|---------|--|-------------|---------|
| | | | B5 - B14 | | | B5 | | |
| | | | IEC 90 | IEC 100-112 | IEC 132 | IEC 90 | IEC 100-112 | IEC 132 |
| | | | 7.5 | 42.80 | - | 40.70 | 42.78 | 48.92 |
| 10 | 35.06 | - | 32.96 | 35.04 | 41.18 | 41.48 | 42.27 | |
| 15 | 29.53 | - | 27.43 | 29.51 | 35.66 | 35.96 | 36.74 | |
| 20 | 18.95 | - | 16.68 | 27.58 | 25.07 | 25.37 | 26.16 | |
| 25 | 17.80 | - | 15.52 | 26.42 | 23.92 | 24.22 | 25.00 | |
| 30 | 26.22 | - | 24.12 | 26.20 | 32.34 | 32.64 | 33.42 | |
| 40 | 17.09 | - | 14.81 | 25.71 | 23.21 | 23.51 | 24.29 | |
| 50 | 16.80 | - | 12.57 | - | 22.92 | 23.22 | 24.00 | |
| 65 | 12.53 | 10.46 | 14.35 | - | 18.66 | 18.96 | 19.74 | |
| 80 | 12.48 | 10.41 | 14.30 | - | 18.60 | 18.90 | 19.68 | |
| 100 | 12.44 | 10.37 | 14.26 | - | 18.56 | 18.86 | 19.65 | |

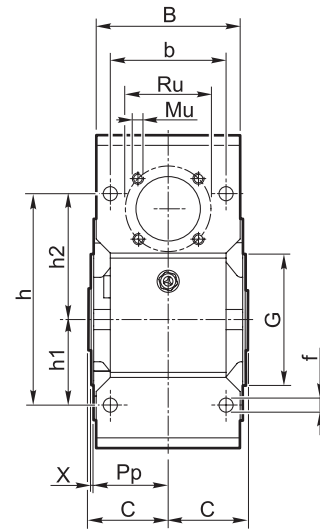
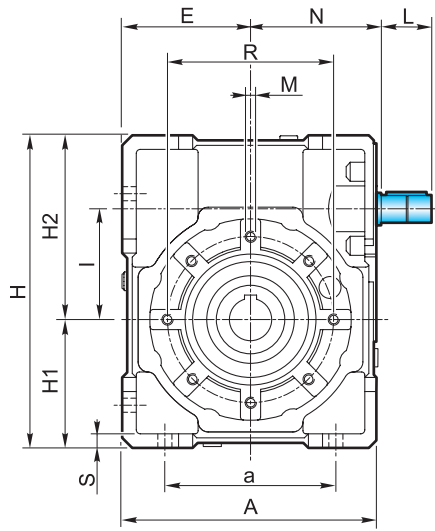


2.7 Dimensioni

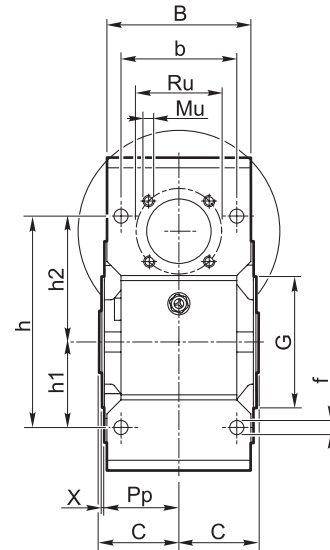
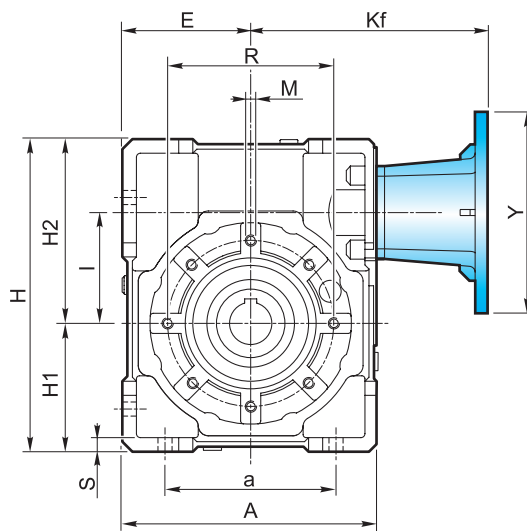
2.7 Dimensions

2.7 Abmessungen

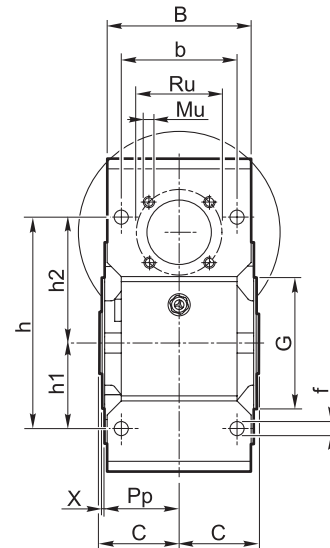
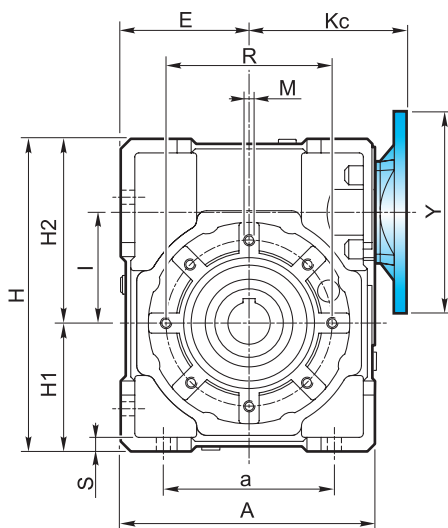
XA



XF



XC



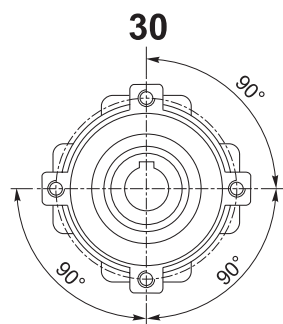


2.7 Dimensioni

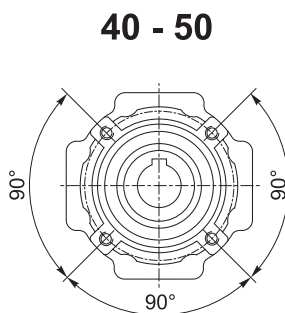
2.7 Dimensions

2.7 Abmessungen

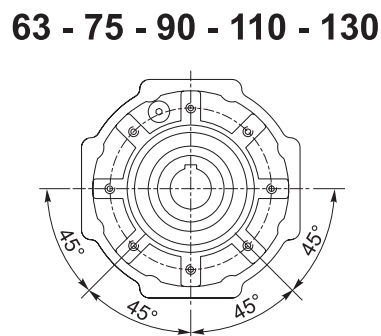
Flangia pendolare / Shaft-mounted flange / Aufsteckflansch



4 Fori / Holes / Bohrungen

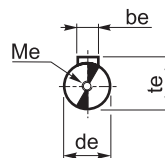
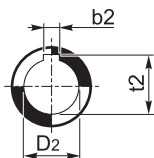


4 Fori / Holes / Bohrungen



8 Fori / Holes / Bohrungen

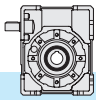
Albero uscita cavo
Output hollow shaft
Abtriebshohlwelle



Albero entrata
Input shaft
Antriebswelle

| X | A | a | B | b | b _e | b ₂ | C | d _e j ₆ | D ₂ H ₈ | E | f | G h ₈ | H | H ₁ | H ₂ | h | h ₁ | h ₂ | | |
|-----|-------|-----|-----|-----|----------------|----------------|----|----------------------------------|----------------------------------|----|----|---------------------|-----|----------------|----------------|-------|----------------|----------------|-----|-----|
| 30 | 80 | 54 | 56 | 44 | 3 | 5 | — | 31.5 | 9 | 14 | — | 40 | 6.5 | 55 | 97 | 40 | 57 | 71 | 27 | 44 |
| 40 | 105 | 70 | 71 | 60 | 4 | 6 | 6 | 39 | 11 | 18 | 19 | 50 | 6.5 | 60 | 125 | 50 | 75 | 90 | 35 | 55 |
| 50 | 125 | 80 | 85 | 70 | 5 | 8 | 8 | 46 | 14 | 25 | 24 | 60 | 8.5 | 70 | 150 | 60 | 90 | 104 | 40 | 64 |
| 63 | 147 | 100 | 103 | 85 | 6 | 8 | — | 56 | 19 | 25 | — | 72 | 9 | 80 | 182 | 72 | 110 | 130 | 50 | 80 |
| 75 | 176 | 120 | 112 | 90 | 8 | 8 | 8 | 60 | 24 | 28 | 30 | 86 | 11 | 95 | 219.5 | 86 | 133.5 | 153 | 60 | 93 |
| 90 | 203 | 140 | 130 | 100 | 8 | 10 | — | 70 | 24 | 35 | — | 103 | 13 | 110 | 248.5 | 103 | 145.5 | 172 | 70 | 102 |
| 110 | 252.5 | 170 | 143 | 115 | 8 | 12 | — | 77.5 | 28 | 42 | — | 127.5 | 14 | 130 | 310.5 | 127.5 | 183 | 210 | 85 | 125 |
| 130 | 292.5 | 200 | 155 | 120 | 10 | 14 | 14 | 85 | 38 | 45 | 48 | 147.5 | 15 | 180 | 355 | 147.5 | 207.5 | 240 | 100 | 140 |

| X | I | K _c | K _f | L | M | M _e | M _u | N | P _p | R | Ru | S | t _e | t ₂ | X | |
|-----|------|----------------|---|----|--------|----------------|----------------|------|----------------|-----|------|-----|----------------|----------------|------|-----|
| 30 | 31.5 | 57 | vedi pag. see page siehe S. 34 | 15 | M6x8 | M4x10 | M5x7.5 | 44.5 | 29 | 65 | 35.4 | 5.5 | 10.2 | 16.3 | — | 1.5 |
| 40 | 40 | 75 | | 20 | M6x10 | M4x12 | M5x10 | 57.5 | 36.5 | 75 | 42.4 | 6 | 12.5 | 20.8 | 21.8 | 1.5 |
| 50 | 50 | 82 | | 25 | M8x10 | M5x13 | M6x10 | 67.5 | 43.5 | 85 | 53.7 | 7 | 16 | 28.3 | 27.3 | 1.5 |
| 63 | 63 | 95 | | 30 | M8x14 | M8x20 | M6x12 | 77.5 | 53 | 95 | 60.8 | 8 | 21.5 | 28.3 | — | 2 |
| 75 | 75 | 112 | | 40 | M8x14 | M8x20 | M8x12 | 95 | 57 | 115 | 70.7 | 10 | 27 | 31.3 | 33.3 | 2 |
| 90 | 90 | 122 | | 40 | M10x18 | M8x20 | M8x14 | 105 | 67 | 130 | 70.7 | 12 | 27 | 38.3 | — | 2 |
| 110 | 110 | 153 | | 50 | M10x18 | M8x20 | M10x18 | 130 | 74 | 165 | 85.0 | 14 | 31 | 45.3 | — | 2.5 |
| 130 | 130 | 173 | | 70 | M12x20 | M10x25 | M10x16 | 152 | 81 | 215 | 104 | 15 | 41 | 48.8 | 51.8 | 3 |

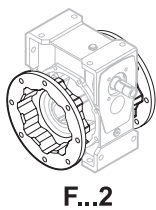
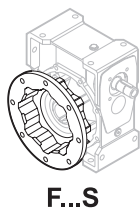
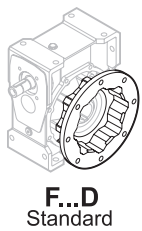
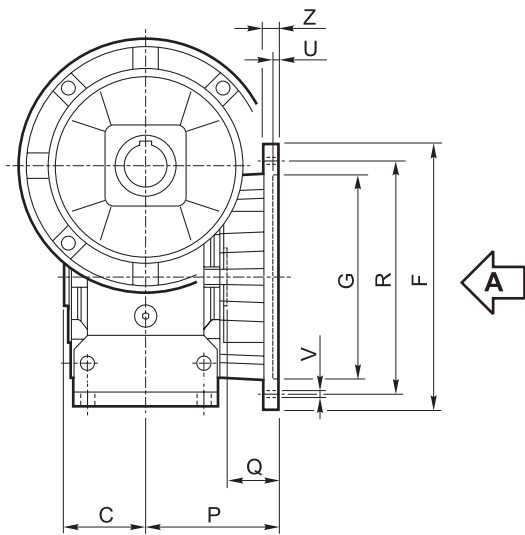


2.7 Dimensioni

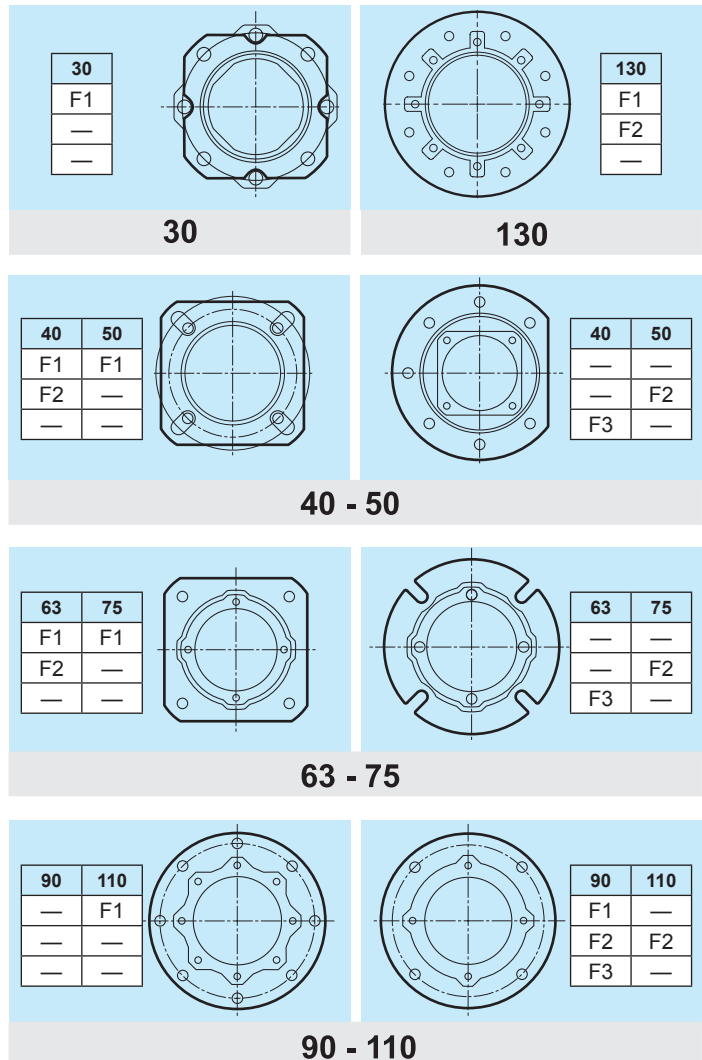
2.7 Dimensions

2.7 Abmessungen

Flangia uscita / Output flange / Abtriebsflansch



Vista da A / View from A / Ansicht von A



| Tipo Type Typ | C | F | | G H8 | P | Q | R | U | V | | | Z |
|---------------------|------|----|-----|---------|------|------|--------|---|------|------|-----|----|
| | | | | | | | | | | | | |
| 30 | 31.5 | | 66 | 50 | 54.5 | 23 | 68 | 4 | n° 4 | | 6.5 | 6 |
| | | F1 | | | | | | | | | | |
| | | F2 | | | | | | | | | | |
| 40 | 39 | | 85 | 60 | 67 | 28 | 75-90 | 4 | n° 4 | | 9 | 8 |
| | | F1 | | | | | | | | | | |
| | | F2 | | | | | | | | | | |
| 50 | 46 | | 94 | 70 | 90 | 44 | 85-100 | 5 | n° 4 | | 11 | 10 |
| | | F1 | | | | | | | | | | |
| | | F2 | | | | | | | | | | |
| 63 | 56 | | 142 | 115 | 82 | 26 | 150 | 5 | n° 4 | | 11 | 11 |
| | | F1 | | | | | | | | | | |
| | | F2 | | | | | | | | | | |
| 75 | 60 | | 160 | 130 | 111 | 51 | 165 | 5 | n° 4 | | 13 | 12 |
| | | F1 | | | | | | | | | | |
| | | F2 | | | | | | | | | | |
| 90 | 70 | | 200 | 152 | 111 | 41 | 175 | 5 | n° 4 | | 13 | 12 |
| | | F1 | | | | | | | | | | |
| | | F2 | | | | | | | | | | |
| 110 | 77.5 | | 260 | 170 | 131 | 53.5 | 230 | 6 | | n° 8 | 13 | 15 |
| | | F1 | | | | | | | | | | |
| | | F2 | | | | | | | | | | |
| 130 | 85 | | 320 | 180 | 140 | 55 | 255 | 7 | | | 16 | 16 |
| | | F1 | | | | | | | | | | |
| | | F2 | | | | | | | | | | |

* Foratura ruotata di 22.5°

* Drilling turned of 22.5°

* Durchbohrung 22.5° versetzt

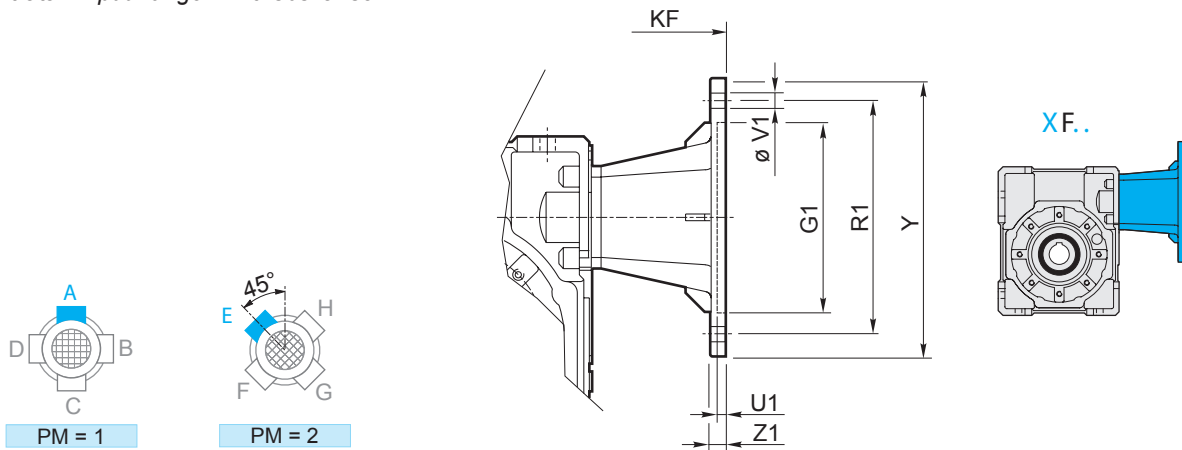


2.7 Dimensioni

2.7 Dimensions

2.7 Abmessungen

Flangia entrata / Input flange / Antriebsflansch



| XF | IEC | PM | | G ₁ | K _F | V ₁ | | | | | | Y | Z ₁ |
|-----|-------------|----|---|----------------|----------------|----------------|----------------|-----|---|--|---|-----|----------------|
| | | 1 | 2 | | | R ₁ | U ₁ | ∅ | | | | | |
| 30 | 56 B5 | • | • | 80 | 82.5 | 100 | 3.5 | 7 | | | 8 | 120 | 8 |
| | 56 B14 | | • | 50 | 82.5 | 65 | 3.5 | 6 | | | 4 | 80 | 8 |
| | 63 B5 | • | • | 95 | 85.5 | 115 | 4 | 9 | | | 8 | 140 | 10 |
| | 63 B14 | • | • | 60 | 85.5 | 75 | 3.5 | 6 | | | 8 | 90 | 8 |
| 40 | 56 B5 | • | • | 80 | 101.5 | 100 | 3.5 | 7 | | | 8 | 120 | 8 |
| | 63 B5 | • | • | 95 | 104.5 | 115 | 4 | 9 | | | 8 | 140 | 10 |
| | 63 B14 | • | • | 60 | 104.5 | 75 | 3.5 | 6 | | | 8 | 90 | 8 |
| | 71 B5 | • | • | 110 | 111.5 | 130 | 4.5 | 9 | | | 8 | 160 | 10 |
| | 71 B14 | • | • | 70 | 111.5 | 85 | 4 | 7 | | | 8 | 105 | 10 |
| 50 | 63 B5 | • | • | 95 | 119.5 | 115 | 4 | 9 | | | 8 | 140 | 10 |
| | 71 B5 | • | • | 110 | 126.5 | 130 | 4.5 | 9 | | | 8 | 160 | 10 |
| | 71 B14 | | • | 70 | 126.5 | 85 | 3.5 | 7 | | | 4 | 105 | 10 |
| | 80 B5 | • | • | 130 | 136.5 | 165 | 4.5 | 11 | | | 8 | 200 | 10 |
| | 80 B14 | • | • | 80 | 136.5 | 100 | 4 | 7 | | | 8 | 120 | 10 |
| 63 | 71 B5 | • | • | 110 | 141.5 | 130 | 4.5 | 9 | | | 8 | 160 | 10 |
| | 80/90 B5 | • | • | 130 | 161.5 | 165 | 4.5 | 11 | | | 8 | 200 | 10 |
| | 80 B14 | • | • | 80 | 151.5 | 100 | 4 | 7 | | | 8 | 120 | 10 |
| | 90 B14 | • | • | 95 | 161.5 | 115 | 4 | 9 | | | 8 | 140 | 10 |
| 75 | 80/90 B5 | • | • | 130 | 190 | 165 | 4.5 | 11 | | | 8 | 200 | 10 |
| | 90 B14 | | • | 95 | 190 | 115 | 4 | 9 | | | 4 | 140 | 10 |
| | 100/112 B5 | • | • | 180 | 200 | 215 | 5 | 14 | | | 8 | 250 | 14 |
| | 100/112 B14 | • | • | 110 | 200 | 130 | 4.5 | 9 | | | 8 | 160 | 10 |
| 90 | 80/90 B5 | • | • | 130 | 200 | 165 | 4.5 | 11 | | | 8 | 200 | 10 |
| | 90 B14 | | • | 95 | 200 | 115 | 4 | 9 | | | 4 | 140 | 10 |
| | 100/112 B5 | • | • | 180 | 210 | 215 | 5 | 14 | | | 8 | 250 | 14 |
| | 100/112 B14 | • | • | 110 | 210 | 130 | 4.5 | 9 | | | 8 | 160 | 10 |
| 110 | 80/90 B5 | • | | 130 | 235 | 165 | 4.5 | 11 | 4 | | | 200 | 12 |
| | 100/112 B5 | • | | 180 | 245 | 215 | 5 | 14 | 4 | | | 250 | 14 |
| | 132 B5 | • | | 230 | 266 | 265 | 5 | 14 | 4 | | | 300 | 16 |
| | 132 B14 | • | | 130 | 266 | 165 | 4.5 | 11 | 4 | | | 200 | 12 |
| 130 | 90 B5 | • | | 130 | 281 | 165 | 4.5 | M10 | 4 | | | 200 | 12 |
| | 100/112 B5 | • | | 180 | 289 | 215 | 5 | 13 | 4 | | | 250 | 16 |
| | 132 B5 | • | | 230 | 310 | 265 | 5 | 13 | 4 | | | 300 | 20 |

N.B.: Il montaggio STD di P_M=2 solo quando non è possibile il montaggio STD di P_M=1.

N.B.: STD mounting of P_M=2 only if STD mounting of P_M=1 is not possible.

ANMERKUNG: STD Montage von P_M=2 nur wenn STD Montage von P_M=1 unmöglich ist.

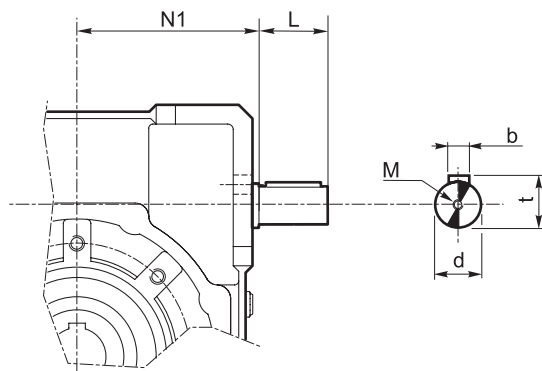


2.8 Entrata supplementare
(vite bisporgente)

2.8 Additional input
(double extended shaft)

2.8 Zusatzantrieb
(beidseitig Welle)

S.e.A.



| X | d j6 | L | M | N1 | b | t |
|-----|---------|----|--------|-------|----|------|
| 30 | 9 | 15 | M4x10 | 42.5 | 3 | 10.2 |
| 40 | 11 | 20 | M4x12 | 52.5 | 4 | 12.5 |
| 50 | 14 | 25 | M5x13 | 62.5 | 5 | 16 |
| 63 | 19 | 30 | M8x20 | 74.5 | 6 | 21.5 |
| 75 | 24 | 40 | M8x20 | 91 | 8 | 27 |
| 90 | 24 | 40 | M8x20 | 108 | 8 | 27 |
| 110 | 28 | 50 | M8x20 | 132.5 | 8 | 31 |
| 130 | 38 | 70 | M10x25 | 152 | 10 | 41 |

2.9 Limitatore di coppia
cavo passante

2.9 Torque limiter with through
hollow shaft

2.9 Drehmomentbegrenzer
mit durchgehender Hohlwelle

Il limitatore di coppia viene consigliato in tutte quelle applicazioni che richiedono una limitazione sulla coppia trasmissibile per proteggere l'impianto e/o preservare il riduttore evitando sovraccarichi o urti indesiderati quanto inaspettati.

È un dispositivo con albero dotato di cavo passante, con funzionamento a frizione, ed è integrato al riduttore, presentando un ingombro limitato.

Concepito per lavorare a bagno d'olio, il dispositivo risulta affidabile nel tempo ed è esente da usura se non viene mantenuto in condizioni prolungate di slittamento (condizione che si verifica quando la coppia presenta valori superiori a quelli di taratura).

La taratura è facilmente regolabile dall'esterno attraverso il serraggio di una ghiera autobloccante che porta a compressione le 4 molle a tazza disposte tra loro in serie.

Il dispositivo non consente:

- l'impiego di cuscinetti a rulli conici in uscita
- funzionamento prolungato in condizioni di slittamento.

Nella tabella seguente vengono riportati i valori delle coppie di slittamento M_{2S} in funzione del n° di giri della ghiera.

I valori di taratura presentano una tolleranza del $\pm 10\%$ e si riferiscono ad una condizione statica.

In condizioni dinamiche è da notare che la coppia di slittamento assume valori diversi a seconda del tipo e/o modalità in cui si verifica il sovraccarico: con valori maggiori in caso di carico uniformemente crescente rispetto a valori più contenuti in seguito al verificarsi di picchi improvvisi di carico.

NOTA: quando si supera il valore di taratura si ha slittamento.

Il coefficiente di attrito tra le superfici di contatto da statico diventa dinamico e la coppia trasmessa cala del 30% circa.

E' quindi opportuno prevedere uno stop per poter ripartire al valore di taratura iniziale.

The use of a torque limiter is advised when the application requires the limitation of the transmissible torque to safeguard the plant and/or to prevent from unexpected and undesired overloads or shocks which might damage the gearbox.

The torque limiter is a device equipped with through hollow shaft and a friction clutch. It is integrated with the gearbox, therefore the space requirement is limited.

Designed to work in oil bath, the device is reliable over time and is not subject to wear unless kept under conditions of prolonged slipping (it occurs when the torque values are higher than the calibration values).

Calibration can be easily adjusted from outside by tightening the self-locking ring nut which causes the compression of the 4 Belleville washers arranged in series.

The device does not go together with:

- the use of tapered roller bearings at output
- Prolonged operation under slipping conditions.

The following table shows the values of M_{2S} slipping torques depending on the number of revolutions of the ring nut.

Calibration values feature a $\pm 10\%$ tolerance and refer to static conditions.

Under dynamic conditions, the values of the slipping torque differ depending to the type of overload: the values are higher if the load increase is uniform, the values are lower if sudden load peaks occur.

NOTE: *Slipping occurs when the setting values are exceeded.*

The friction coefficient between the contact surfaces from static becomes dynamic and the transmitted torque is approx. 30% lower.

It is advisable to have a stop first in order to have a restart based on the initial setting value.

Die Anwendung eines Drehmomentbegrenzers wird empfohlen, um die Anlage und/oder das Getriebe gegen ungewünschte und unerwartete Überbelastungen oder Stoßen zu schützen.

Der Begrenzer verfügt über eine Welle mit durchgehende Hohlwelle und eine Kupplung. Er ist in dem Getriebe integriert, d.h. der Raumbedarf ist klein.

Der Drehmomentbegrenzer wurde für Betrieb in einem Ölbad entworfen. Er ist zuverlässig über Zeit und verschleissfest (außer wenn Rutschen für lange Zeit besteht: das passiert, wenn das Drehmoment höher als der Eichwert ist).

Die Einstellung darf mühelos von außen durch das Anziehen einer selbstsperrenden Mutter ausgeführt werden.

Das Anziehen verursacht die Zusammendrückung der 4 wechelsinnigeschichteten Tellerfeder.

Der Begrenzer sieht das folgende nicht vor:

- die Verwendung von Kegelrollenlager am Abtrieb
- Längerer Rutschbetrieb.

Die nachstehende Tabelle zeigt die Werte der Rutschmomente M_{2S} abhängig von der Zahl der Umdrehungen der Mutter.

Die Eichwerte weisen $\pm 10\%$ Toleranz auf und beziehen sich auf statische Bedingungen.

Unter dynamischen Bedingungen hat das Rutschmoment verschiedene Werte je nach Art der Überbelastung. Die Werte sind höher, wenn die Belastung gleichmäßig zunimmt; sie sind niedriger im Falle von plötzlichen Belastungsspitzen.

BEMERKUNG: Rutschen tritt auf, wenn die eingestellten Werte überschritten werden. Der Reibungsfaktor zwischen den Berührungsflächen wird dynamisch anstatt statisch und das übertragene Drehmoment sinkt um ca. 30%.

Es ist daher ratsam, vor dem erneuten Anfahren anzuhalten, um die ursprünglichen Drehmomentwerte zu erreichen.



E' importante notare che la coppia di slittamento non resta sempre la medesima durante tutta la vita del limitatore.

Tende infatti a diminuire in rapporto al numero e alla durata degli slittamenti che, rodando le superfici di contatto, ne aumentano il rendimento.

È quindi opportuno verificare periodicamente, soprattutto durante la fase di rodaggio, la taratura del dispositivo.

Là dove sia richiesto un errore più contenuto nella taratura, è necessario testare la coppia trasmissibile sull' impianto.

Il dispositivo viene consegnato tarato alla coppia riportata a catalogo T_{2M} salvo diversa indicazione espressa in fase di ordinazione.

It is important to note that the slipping torque is not the same for the entire life of the torque limiter. It usually decreases in connection with the number and the duration of slippings, this is due to the surface of the torque limiter becoming more engaged, therefore increasing the efficiency.

For this reason it is advisable to check the calibration of the device at regular intervals, specially during the running-in period. Should a smaller calibration error be required, it is necessary to test the transmissible torque on the plant.

The torque limiter is supplied already calibrated at the torque value T_{2M} , unless otherwise specified in the order.

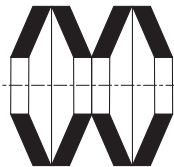
Es ist wichtig zu beachten, dass das Rutschmoment der Rutschkupplung über die gesamte Lebensdauer nicht konstant bleibt, sondern üblicherweise in Verbindung mit längeren Rutschzyklen aufgrund der eingelaufenen Berührungsflächen abnimmt.

Deswegen ist es ratsam, die Einstellung der Vorrichtung besonders während der Einlaufzeit in regelmäßigen Zeitabständen zu prüfen.

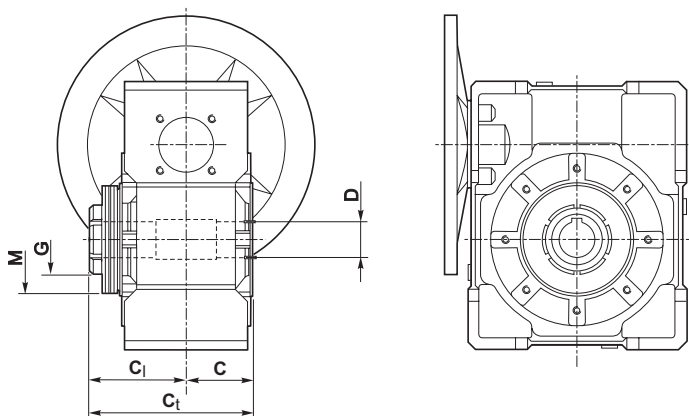
Wenn der Drehmomentbegrenzer geliefert wird, ist dieser schon auf dem im Katalog unter T_{2M} angegebenen Wert eingestellt, außer wenn es in der Bestellung anders angegeben wird.

| X | N°. giri della ghiera di regolazione / N°. revolutions of ring nut / Nr. Umdrehungen der Mutter | | | | | | | | | | | | | | | |
|-----|---|-----|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|
| | 3/4 | 1 | 1 1/4 | 1 1/2 | 1 3/4 | 2 | 2 1/4 | 2 1/2 | 2 3/4 | 3 | 3 1/4 | 3 1/2 | 3 3/4 | 4 | 4 1/4 | 4 1/2 |
| | M_{2S} [Nm] | | | | | | | | | | | | | | | |
| 30 | | 15 | 18 | 22 | 27 | 32 | | | | | | | | | | |
| 40 | 23 | 30 | 35 | 40 | 45 | 50 | 60 | | | | | | | | | |
| 50 | | 45 | 60 | 70 | 80 | 90 | 100 | 110 | | | | | | | | |
| 63 | | | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 | 190 | 200 | |
| 75 | | 140 | 160 | 180 | 200 | 220 | 240 | 260 | 280 | 300 | | | | | | |
| 90 | | | | | | 230 | 280 | 310 | 330 | 350 | 380 | 410 | 435 | 460 | 490 | 510 |
| 110 | | 420 | 500 | 560 | 670 | 730 | 810 | 910 | | | | | | | | |
| 130 | | | | | | | | | | | | | | | | |

Disposizione delle molle
Washers' arrangement
Lage der Feder

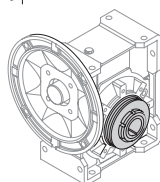


IN SERIE (min. coppia, max. sensibilità)
SERIES (min. torque, max sensitivity)
SERIE (min. Moment, max. Empfindlichkeit)

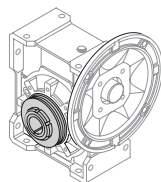


| X | C | C ₁ | C _t | D _{H8} | M | G |
|-----|------|----------------|----------------|-----------------|--------------|---------|
| 30 | 31.5 | 55.5 | 87 | 14 | 50x25.4x1.25 | M25x1.5 |
| 40 | 39 | 65 | 104 | 18 (19) | 56x30.5x1.5 | M30x1.5 |
| 50 | 46 | 76 | 122 | 25 (24) | 63x40.5x1.8 | M40x1.5 |
| 63 | 56 | 91 | 147 | 25 | 71x40.5x2 | M40x1.5 |
| 75 | 60 | 100 | 160 | 28 (30) | 90x50.5x2.5 | M50x1.5 |
| 90 | 70 | 109 | 179 | 35 (32) | 100x51x2.7 | M50x1.5 |
| 110 | 77.5 | 127.5 | 205 | 42 | 125x61x4 | M60x2.0 |
| 130 | | | | | | |

() A richiesta / On request / Auf Anfrage



LD



LS

Nella versione con limitatore non è prevista la fornitura degli alberi lenti.

The version with torque limiter is supplied without output shafts.

Die Version mit Drehmomentbegrenzer wird ohne Abtriebswellen geliefert.



2.10 Accessori

2.10 Accessories

2.10 Accessories

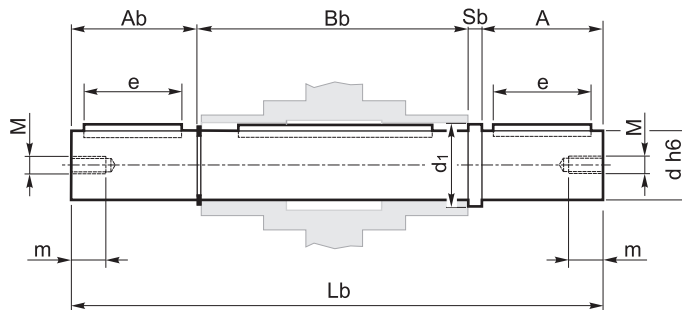
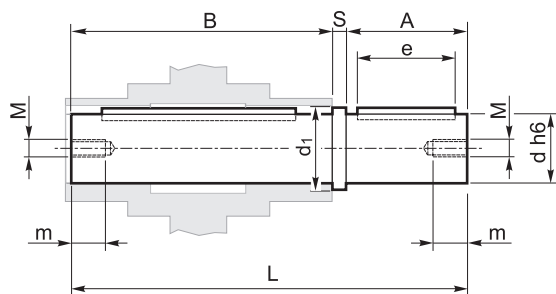
Albero lento

Output shaft

Abtriebswelle

Albero lento semplice
Single output shaft
Standard Abtriebswelle

Albero lento doppio
Double output shaft
Doppelte Abtriebswelle



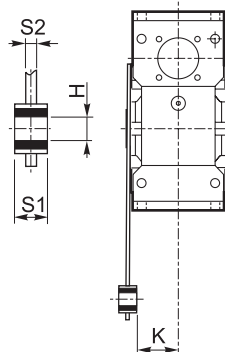
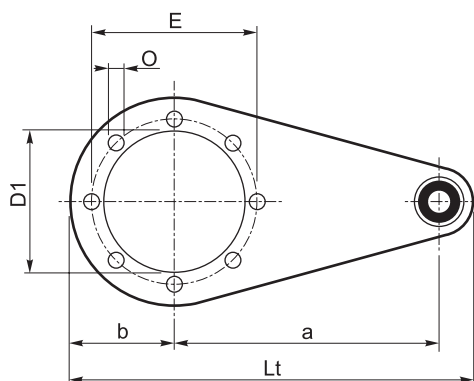
| X | A | B | d _{h6} | d ₁ | e | L | M | m | S |
|-----|----|-------|-----------------|----------------|------|-------|-----|----|-----|
| 30 | 30 | 62 | 14 | 18.5 | 20 | 94.5 | M6 | 16 | 2.5 |
| 40 | 40 | 77 | 18 | 19 | 23.5 | 120 | M6 | 16 | 3 |
| 50 | 50 | 90 | 25 | 24 | 31.5 | 143.5 | M8 | 22 | 3.5 |
| 63 | 50 | 111 | 25 | 31.5 | 40 | 165 | M8 | 22 | 4 |
| 75 | 60 | 119 | 28 | 30 | 34.5 | 183 | M8 | 22 | 4 |
| 90 | 80 | 139 | 35 | 41.5 | 60 | 224 | M10 | 28 | 5 |
| 110 | 80 | 154.5 | 42 | 49.5 | 60 | 242.5 | M10 | 28 | 8 |
| 130 | 80 | 168 | 45 | 54.5 | 70 | 253 | M16 | 36 | 5 |

| A | A _b | B _b | d _{h6} | d ₁ | e | L _b | S _b |
|----|----------------|----------------|-----------------|----------------|----|----------------|----------------|
| 30 | 29 | 64 | 14 | 18.5 | 20 | 126 | 2.5 |
| 40 | 39 | 79 | 18 | 23.5 | 30 | 161 | 3 |
| 50 | 49 | 93 | 25 | 31.5 | 40 | 195.5 | 3.5 |
| 50 | 49 | 113 | 25 | 31.5 | 40 | 216 | 4 |
| 60 | 59 | 121 | 28 | 34.5 | 50 | 244 | 4 |
| 80 | 78.5 | 141.5 | 35 | 41.5 | 60 | 305 | 5 |
| 80 | 77.5 | 157 | 42 | 49.5 | 60 | 322.5 | 8 |
| 80 | 78 | 172 | 45 | 54.5 | 70 | 335 | 5 |

Braccio di reazione

Torque arm

Drehmomentstütze



| X | a | b | D ₁ | E | H | K | L _t | O | S ₁ | S ₂ |
|-----|-----|------|----------------|-----|----|------|----------------|----|----------------|----------------|
| 30 | 85 | 37.5 | 55 | 65 | 8 | 24 | 141.5 | 7 | 14 | 4 |
| 40 | 100 | 45 | 60 | 75 | 10 | 31.5 | 167 | 7 | 14 | 4 |
| 50 | 100 | 50 | 70 | 85 | 10 | 39 | 172 | 9 | 14 | 5 |
| 63 | 150 | 55 | 80 | 95 | 10 | 49 | 227 | 9 | 14 | 6 |
| 75 | 200 | 70 | 95 | 115 | 20 | 47.5 | 302 | 9 | 25 | 6 |
| 90 | 200 | 80 | 110 | 130 | 20 | 57.5 | 312 | 11 | 25 | 6 |
| 110 | 250 | 100 | 130 | 165 | 25 | 62 | 390 | 11 | 30 | 6 |
| 130 | 250 | 125 | 180 | 215 | 25 | 69 | 415 | 13 | 30 | 6 |

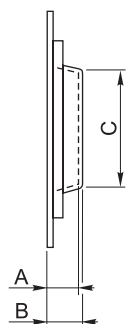
Kit di protezione:

Protection Kit:

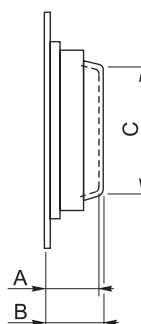
Schutzvorrichtung

Albero cavo / Hollow shaft / Hohlwelle

Limitatore di coppia / Torque limiter / Drehmomentbegrenzer



| X | A | B | C |
|-----|------|------|------|
| 30 | 12 | 13 | 39 |
| 40 | 14 | 15.5 | 44.5 |
| 50 | 15 | 16.5 | 54 |
| 63 | 17 | 19 | 60 |
| 75 | 17.5 | 20 | 70 |
| 90 | 21.5 | 24 | 80 |
| 110 | 22 | 25 | 96 |
| 130 | 22 | 25 | 130 |



| X | A | B | C |
|-----|------|------|----|
| 30 | 36 | 37 | 36 |
| 40 | 40 | 41.5 | 44 |
| 50 | 47 | 48.5 | 53 |
| 63 | 52 | 54 | 55 |
| 75 | 58 | 60 | 68 |
| 90 | 60.5 | 63 | 70 |
| 110 | 72 | 75 | 85 |
| 130 | | | |

Opzioni disponibili:

Available options:

Auf Anfrage ist folgendes Zubehör erhältlich:

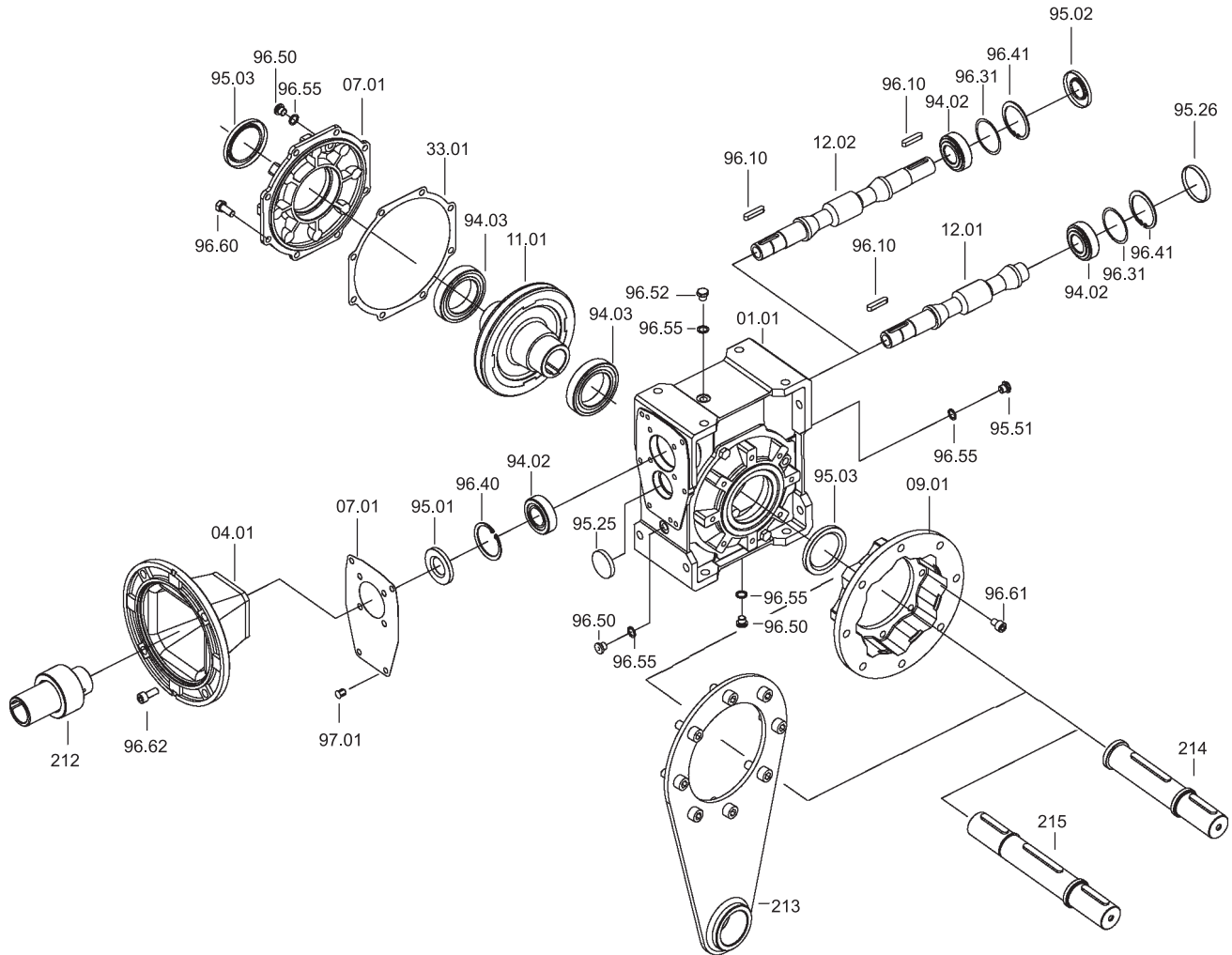
Cuscinetti a rulli conici corona

Tapered roller bearing on wormgear

Kegelrollenlager auf Schneckenrad



XA - XF

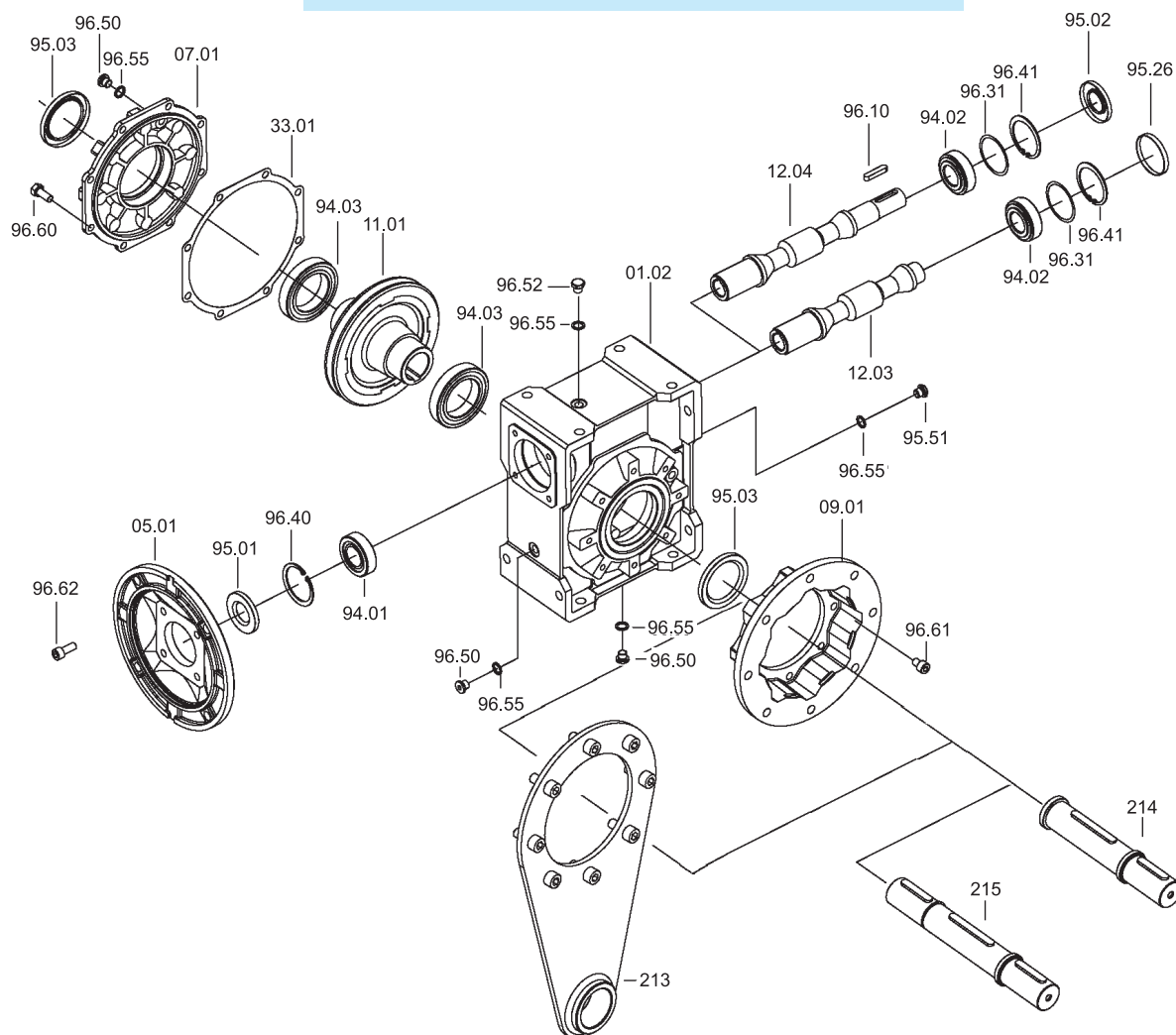


| X | Cuscinetti / Bearings / Lager | | | Anelli di tenuta / Oilseals Öldichtungen | | | Cappello / Closed oil seal Geschlossene Öldichtung | |
|------------|-------------------------------|--------------------------|----------------------------|---|----------|-----------|---|---------|
| | 94.02 | 94.03 | | 95.01 | 95.02 | 95.03 | 95.25 | 95.26 |
| 30 | 6000 10x26x8 | 6005 25x47x12 | *32005 25x47x15 | 10/26/5.5 | 10/26/7 | 25/40/7 | — | ø 6x7 |
| 40 | 6201 12x32x10 | 6006 30x55x13 | *32006 30x55x17 | 12/32/7 | 12/32/7 | 30/47/7 | — | ø 32x7 |
| 50 | 6203 17x40x12 | 6008 40x68x15 | *32008 40x68x19 | 17/40/7 | 17/40/7 | 40/62/8 | — | ø 40x7 |
| 63 | 30204 20x47x15.25 | 6008 40x68x15 | *32008 40x68x19 | 20/47/7 | 20/47/7 | 40/62/8 | — | ø 47x7 |
| 75 | 30205 25x52x16.25 | 6010 50x80x16 | *32010 50x80x20 | 25/52/7 | 25/52/7 | 50/72/8 | — | ø 52x7 |
| 90 | 32205 25x52x19.25 | 6010 50x80x16 | *32010 50x80x20 | 25/52/7 | 25/52/7 | 50/72/8 | ø 35x5 | ø 52x7 |
| 110 | 32206B 30x62x21.25 | 6012 60x95x18 | *32012 60x95x23 | 30/62/7 | 30/62/7 | 60/85/8 | ø 47x7 | ø 62x7 |
| 130 | 33208 40x80x32 | 6015 75x115x20 | *32015 75x115x25 | 40/80/10 | 40/80/10 | 75/100/10 | ø 52x7 | ø 80x10 |

* Cuscinetti a rulli conici a richiesta - Tapered roller bearings on request - Auf Wunsch Kegelrollenlager



XC



| X | IEC | Cuscinetti / Bearings / Lager | | | Anelli di tenuta / Oilseals Öldichtungen | | | Cappellotto / Closed oil seal Geschlossene Öldichtung | |
|-----|---------|-------------------------------|------------------------------|--------------------------|---|----------|----------|--|---------|
| | | 94.01 | 94.02 | 94.03 | 95.01 | 95.02 | 95.03 | 95.26 | |
| 30 | 56 | 61804 (20x32x7) | 6000 10x26x8 | 6005 25x47x12 | *32005 25x47x15 | 20/32/5 | 10/26/7 | 25/40/7 | ø 26x7 |
| | 63 | 61804 (20x32x7) | | 20/32/5 | | | | | |
| 40 | 56 | 6303 (17x47x14) | 6201 12x32x10 | 6006 30x55x13 | *32006 30x55x17 | 17/47/7 | 12/32/7 | 30/47/7 | ø 32x7 |
| | 71 | 6204 (20x47x14) | | | | 20/47/7 | | | |
| | 63 | 6005 (25x47x12) | | | | 25/47/7 | | | |
| 50 | 63 | 6204 (20x47x14) | 6203 17x40x12 | 6008 40x68x15 | *32008 40x68x19 | 20/47/7 | 17/40/7 | 40/62/8 | ø 40x7 |
| | 80 | 6005 (25x47x12) | | | | 25/47/7 | | | |
| | 71 | 6006 (30x55x13) | | | | 30/55/7 | | | |
| 63 | 71 | 30305 (25x62x18.25) | 30204 20x47x15.25 | 6008 40x68x15 | *32008 40x68x19 | 25/62/7 | 20/47/7 | 40/62/8 | ø 47x7 |
| | 90 | 30206 (30x62x17.25) | | | | 30/62/7 | | | |
| | 80 | 32007 (35x62x18) | | | | 35/62/7 | | | |
| 75 | 80 | 30206 (30x62x17.25) | 30205 25x52x16.25 | 6010 50x80x16 | *32010 50x80x20 | 30/62/7 | 25/52/7 | 50/72/8 | ø 52x7 |
| | 100/112 | 32008 (40x68x19) | | | | 35/62/7 | | | |
| | | | | | | 40/68/10 | | | |
| 90 | 80 | 30206 (30x62x17.25) | 32205B 25x52x19.25 | 6010 50x80x16 | *32010 50x80x20 | 30/62/7 | 25/52/7 | 50/72/8 | ø 52x7 |
| | 100/112 | 32008 (40x68x19) | | | | 35/62/7 | | | |
| | | | | | | 40/68/10 | | | |
| 110 | 90 | 30208 (40x80x19.75) | 32206B 30x62x21.25 | 6012 60x95x18 | *32012 60x95x23 | 40/80/10 | 30/62/7 | 60/85/8 | ø 62x7 |
| | 132 | 32010 (50x80x20) | | | | 40/80/10 | | | |
| | | | | | | 50/80/10 | | | |
| 130 | 90 | 30208 (40x80x19.75) | 33208 40x80x32 | 6015 75x115x20 | *32015 75x115x25 | 40/80/10 | 40/80/10 | 75/100/10 | ø 80x10 |
| | 132 | 30208 (40x80x19.75) | | | | 40/80/10 | | | |
| | | 32010 (50x80x20) | | | | 50/80/10 | | | |

* Cuscinetti a rulli conici a richiesta - Tapered roller bearings on request - Auf Wunsch Kegelrollenlager



