1.0 Generalita'

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

1.0 General information

TRAMEC has introduced on the market a new range of wom gearboxes available in series:

1.0 Allgemeines

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

Serie X

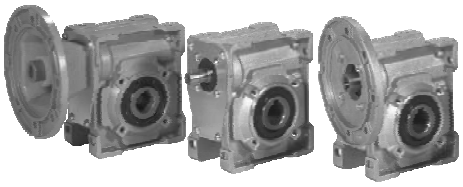
Riduttore a vite senza fine con corpo monolitico caratterizzato da una alta modularità di fissaggio grazie alla lavorazione in tolleranza di tutti i piani di appoggio.

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.

Serie X

Schneckengetriebe mit monolitischem 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 ottenebili 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

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 Masseinhaiten

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

1.2 Potenza — *1.2 Power*

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

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

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.

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.

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

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

The power necessary at input on the basis of T_2 torque required by the application can be calculated with the following formula:

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

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

1.3 Rapporto di riduzione — *1.3 Reduction Ratio* — 1.3 Untersetzungsverhältnis

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

i_n= speed reduction ratio, defined as follows:

i_n= Drehzahluntersetzungsverhältnis, wird wie folgt definiert:

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

1.4 Momento torcente — *1.4 Torque* — 1.4 Drehmoment

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.

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.

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/d)
- 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.

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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 monocilindro. Se il motore elettrico applicato è autofrenante occorre considerare un numero di avviamenti doppio di quello effettivamente richiesto.

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.

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

FS values reported in the table refer to employment of an electric motor; 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.

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.

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									
Carico uniforme ***Uniform load*** **Gleichmäßig verteilte Last**	Agitatori per liquidi puri	*Pure liquid agitators*	Rührwerke für reine Flüssigkeiten							
	Alimentatori per fornaci	*Fournace feeders*	Beschickungsvorrichtungen für Brennöfen							
	Alimentatori a disco	*Disc feeders*	Telleraufgeber							
	Filtri di lavaggio con aria	*Air laundry filters*	Spülluftfilter							
	Generatori	*Generators*	Generatoren							
	Pompe centrifughe	*Centrifugal pumps*	Kreiselpumpen							
	Trasportatori con carico uniforme	*Uniform load conveyors*	Förderer mit gleichmäßig verteilter Last							

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**
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									
Carico con urti moderati ***Moderate shock load*** **Last mit mäßigen Stößen**	Agitatori per liquidi e solidi	*Liquid and solid agitators*	Rührwerke für Flüssigkeiten und Feststoffe							
	Alimentatori a nastro	*Belt conveyors*	Bandförderer							
	Argani con medio serviziol	*Medium service winches*	Mittlere Winden							
	Filtri con pietre e ghiaia	*Stone and gravel filters*	Filter mit Steinen/Kies							
	Viti per espulsione acqua	*Dewatering screws*	Abwasserschnecken							
	Flocculatori	*Flocculator*	Flockvorrichtungen							
	Filtri a vuoto	*Vacuum filters*	Vakuumfilter							
	Elevatori a tazze	*Bucket elevators*	Becherwerke							
	Gru	*Cranes*	*Kräne*							

Classe di carico *Load class* Lastklasse	h/gg h/d St./Tag	N. AVVIAMENTI/ORA / *N. START-UPS/HOUR* / ANZAHL DER STARTVORGÄNGE PRO STUNDE								
		2	**4**	**8**	**16**	**32**	**63**	**125**	**250**	**500**
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									
Carico con urti forti ***Heavy shock load*** **Last mit starken Stößen**	Argani per servizio pesante	*Heavy duty hoists*	Winden für schwere Lasten							
	Estrusori	*Extruders*	Extruder							
	Calandre per gomma	*Crusher rubber calenders*	Gummikalander							
	Presse per mattoni	*Brick presses*	Ziegelpressen							
	Piallatrici	*Planing machine*	Hobelmaschinen							
	Mulini a sfera	*Ball mills*	Kugelmühlen							

1.6 Rendimento

Rd - È il rendimento dinamico, definito come rapporto tra la potenza in uscita P_2 e quella in entrata P_1. Questo dipende principalmente dalla velocità di strisciamento, dal tipo di lubrificante e dall' angolo d'elica; durante la fase di rodaggio il suo valore risulta essere sensibilmente inferiore rispetto a quello riportato nelle tabelle delle prestazioni.

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.

Analogalmente al caso dinamico, anche il rendimento statico tende ad aumentare durante la fase di rodaggio e tiene conto della resistenza al moto sviluppata nell' ingranamento vite /corona, nei paraoli e nei cuscinetti.

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. During the running-in period its value is sensibly inferior compared to that reported in the table of performance.*

***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.

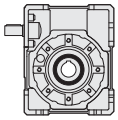
Same as dynamic efficiency, static efficiency too tends to grow during the running-in period; it is influenced by the resistance to motion developed in the mesh worm shaft / wheel, in the oil seals and in the bearings.

1.6 Wirkungsgrad

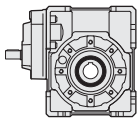
Rd - dynamischer Wirkungsgrad, ist das Verhältnis zwischen P2 Abtriebsleistung und P1 Antriebsleistung. Rd Wert wird durch Gleitgeschwindigkeit, Art des Schmiermittels und Steigungswinkel beeinflußt. Während der Einlaufszeit ist dieser Wert erheblich niedriger als der in der Leistungstabelle angegebenen Wert.

Rs - statischer Wirkungsgrad beim Getriebestart.
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 neigt zur Steigerung während der Einlaufszeit und wird durch den Bewegungswiderstand, den sich in dem Schnecke/Zahnrad Ineinandergreifen, in den Dichtungen und in den Lager entwickelt, beeinflusst.



X - K	Rs										
	7.5	10	15	20	25	30	40	50	65	80	100
30	0.76	0.70	0.62	0.54	0.48	0.46	0.38	0.33	0.31	0.29	0.27
40	0.77	0.71	0.63	0.57	0.50	0.48	0.42	0.35	0.32	0.31	0.29
50	0.77	0.71	0.64	0.59	0.52	0.50	0.44	0.37	0.35	0.32	0.31
63	0.78	0.72	0.65	0.60	0.54	0.51	0.45	0.39	0.37	0.35	0.32
75	0.78	0.73	0.66	0.61	0.55	0.52	0.46	0.40	0.38	0.36	0.34
90	0.79	0.73	0.67	0.62	0.56	0.53	0.47	0.41	0.39	0.38	0.35
110	0.79	0.74	0.67	0.62	0.57	0.54	0.48	0.43	0.41	0.39	0.37

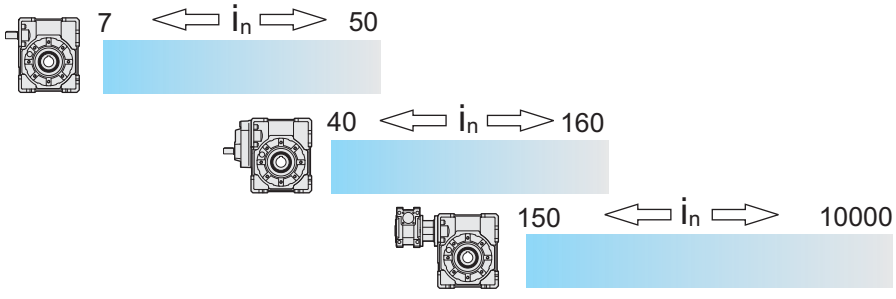


H	Rs										
	30	40	60	80	100	120	160	200	260	320	400
40	0.69	0.64	0.55	0.50	0.43	0.40	0.34	0.28	0.26	0.25	0.23
50	0.71	0.65	0.57	0.51	0.44	0.41	0.36	0.30	0.28	0.25	0.24
63	0.71	0.65	0.58	0.53	0.47	0.43	0.37	0.31	0.29	0.28	0.25
75	0.72	0.66	0.58	0.53	0.48	0.43	0.38	0.33	0.30	0.28	0.26
90	0.73	0.67	0.60	0.54	0.49	0.45	0.39	0.34	0.32	0.30	0.27
110	0.74	0.68	0.61	0.56	0.50	0.46	0.40	0.36	0.33	0.31	0.28

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.

Rs < 0.45 si ha irreversibilità
Rs = 0.45 ÷ 0.55 irreversibilità incerta
Rs > 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.

Rd < 0.45 si ha irreversibilità
Rd = 0.45 ÷ 0.55 irreversibilità incerta
Rd > 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.

***Rs < 0.45** provides irreversibility*
***Rs = 0.45 ÷ 0.55** irreversibility is uncertain*
***Rs > 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.

***Rd < 0.45** provides irreversibility*
***Rd = 0.45 ÷ 0.55** irreversibility is uncertain*
***Rd > 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.

Rs < 0.45 es liegt Selbsthemmung vor
Rs = 0.45÷0.55 ungewisse Selbsthemmung
Rs > 0.55 es liegt Reversibilität vor

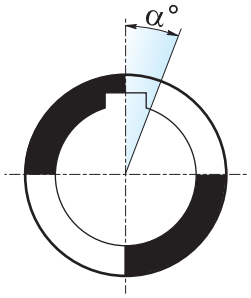
Dynamische Selbsthemmung

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 O 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.

Rd < 0.45 es liegt Selbsthemmung vor
Rd = 0.45÷0.55 ungewisse Selbsthemmung
Rd > 0.55 es liegt Reversibilität vor

1.8 Gioco angolare — *1.8 Backlash* — 1.8 Winkelspiel



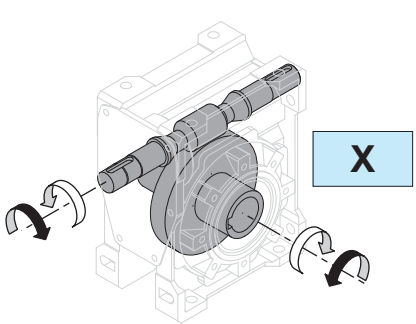
X - K

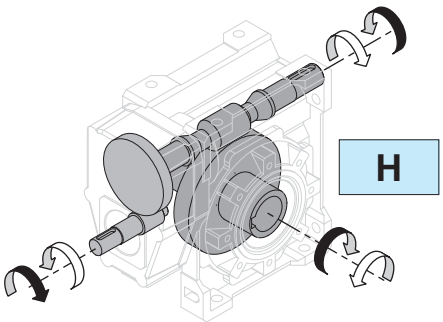
i_n	30		40		50		63		75		90		110	
	α °													
	min	max	min	max	min	max	min	max	min	max	min	max	min	max
7.5	10'	16'	9'	13.5'	7.5'	10.5'	7'	10'	7'	10'	6.5'	9.5'	6'	8'
10	10'	16'	9'	13.5'	7'	10.5'	7'	10'	7'	10'	6.5'	9'	6'	8'
15	10'	16'	9'	13.5'	7.5'	10.5'	7'	10'	7'	10'	6.5'	9'	6'	8'
20	9'	14.5'	7.5'	12'	6.5'	9.5'	6.5'	8.5'	6.5'	8.5'	6'	8.5'	6'	7'
25	9'	14.5'	7.5'	12'	6'	9.5'	6'	8.5'	6'	8.5'	6'	8.5'	5.5'	7'
30	9'	14.5'	7.5'	12'	6'	8.5'	6'	8.5'	6'	8.5'	6'	8.5'	5.5'	7'
40	9'	14.5'	7.5'	12'	6'	9.5'	6'	8.5'	6'	8.5'	6'	8'	5.5'	7'
50	8.5'	14'	7.5'	12'	6'	9.5'	6'	8.5'	6'	8.5'	6'	8'	5.5'	7'
65	8.5'	14'	7.5'	12'	6'	9'	6'	8'	6'	8'	6'	8'	5.5'	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'
100	8'	13'	7'	11'	6'	9'	5.5'	7.5'	5.5'	7.5'	5.5'	7.5'	5.5'	7'

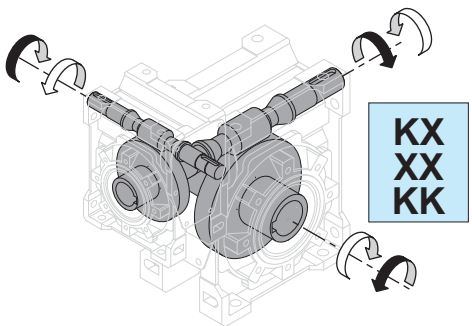
H

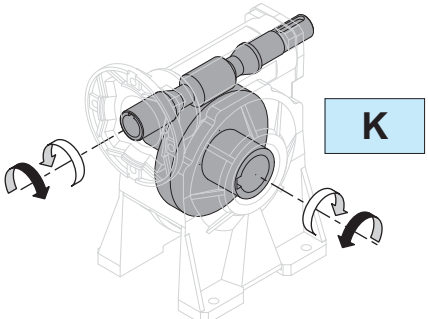
i_n	40		50		63		75		90		110	
	min	max	min	max	min	max	min	max	min	max	min	max
30	12'	16.5'	10'	13.5'	9'	12'	9'	12'	8.5'	11.5'	7'	9'
40	12'	16.5'	10'	13.5'	9'	12'	9'	12'	8.5'	11'	7'	9'
60	12'	16.5'	10.5'	13.5'	9'	12'	9'	12'	8.5'	11'	7'	9'
80	10.5'	15'	9.5'	12.5'	8.5'	10.5'	8.5'	10.5'	8.5'	10.5'	7'	8'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

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 purchè agiscano nello stesso senso e siano di pari intensità

1.10 Radial load

Any transmission device coupled to either the input or 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.

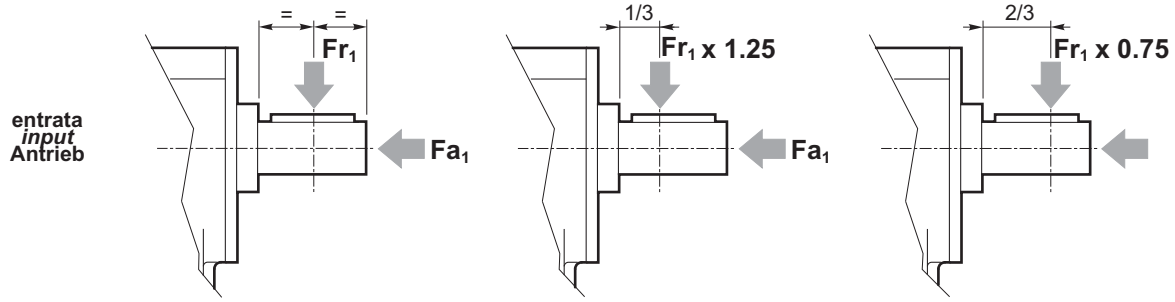
1.10 Radialbelastungen

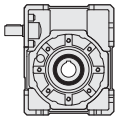
Antriebsorgane, die mit der Antriebs- oder Abtriebswelle verbindet werden, bewirken Radialbelastungen (Fr_1 und Fr_2 beziehungsweise).
Die in der Tabelle nach Antriebs-und Abtriebsdrehzahl angegebenen Werte beziehen sich auf Belastungen, die in der Mitte der herausragenden Welle wirken; falls die Belastungen 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]

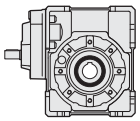
Fr_1 radial loads and Fa_1 axial loads on the input shaft *[N]*

Fr_1 Radialbelastungen und Fa_1 Axialbelastungen auf die Antriebswelle [N]

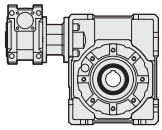




n_1 [min^{-1}]	XA30		XA40		XA50		XA63		XA75		XA90		XA110	
	Fr_1	Fa_1	Fr_1	Fa_1	Fr_1	Fa_1	Fr_1	Fa_1	Fr_1	Fa_1	Fr_1	Fa_1	Fr_1	Fa_1
1400	100	20	220	44	400	80	480	96	750	150	850	170	1200	240



		HA40		HA50		HA63		HA75		HA90		HA110	
		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		150	30	250	50	320	64	570	114	570	114	800	160

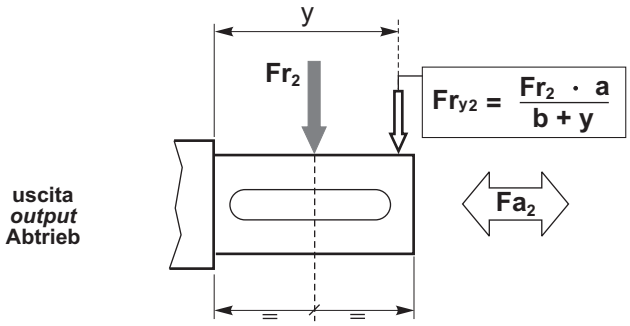


	XXA30/30 XXA30/40 XXA30/50 XXA30/63		XXA40/63 XXA40/75 XXA40/90		XXA50/75 XXA50/90 XXA50/110		XXA63/110		—
	Fr_1	Fa_1	Fr_1	Fa_1	Fr_1	Fa_1	Fr_1	Fa_1	
1400	100	20	220	44	400	80	480	96	

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 [min^{-1}]	n_2 [min^{-1}]	30		40		50		63		75		90		110	
		30/30		30/40		30/50		30/63 40/63		40/75 50/75		40/90 50/90		50/110 63/110	
		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
		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
1400	**187**	750	150	1500	300	1650	330	2100	420	2500	500	2600	520	3500	700
	140	800	160	1600	320	1800	360	2300	460	2800	560	3000	600	3800	760
	93	850	170	1700	340	1950	390	2600	520	3000	600	3400	680	4200	840
	70	900	180	1800	360	2200	440	2800	560	3300	660	3800	760	4600	920
	56	950	190	1900	380	2400	480	3100	620	3700	740	4100	820	5100	1020
	47	1000	200	2000	400	2600	520	3400	680	4000	800	4500	900	5600	1120
	35	1050	210	2100	420	2850	570	3700	740	4400	880	4900	980	6100	1220
	28	1100	220	2200	440	3100	620	4000	800	4850	970	5300	1060	6700	1340
	23	1150	230	2400	480	3200	640	4200	840	5000	1000	5600	1120	7100	1420
	22	1250	250	2500	500	3400	680	4450	890	5300	1060	5900	1180	7400	1480
	18	1350	270	2700	540	3800	760	4900	980	5800	1160	6500	1300	8100	1620
	14	1500	300	3000	600	4000	800	5400	1080	6500	1300	7000	1400	8500	1700
	12	1520	304	3100	620	4100	820	5500	1100	6550	1310	7100	1420	8800	1760
	9.3	1550	310	3150	630	4250	850	5600	1120	6600	1320	7300	1460	9100	1820
	8.8	1570	314	3200	640	4300	860	5700	1140	6700	1340	7400	1480	9200	1840
	≤ 7.0	1600	320	3300	660	4500	900	6000	1200	7100	1420	7900	1580	10000	2000

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:

F_{r2} = come a tabella
$F_{a2} = F_{r2} \cdot 0.37$

Reinforced versions

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 has not to 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:

F_{r2} = *as per table*
$F_{a2} = F_{r2} \cdot 0.37$

Versionen mit Kegelrollenrager

Auf Wunsch werden Versionen mit Kegelrollenlager auf dem Schneckenrad geliefert. Sie erlauben höheren Lasten in Vergleich zu Standardprodukten mit Schrägkugellager.
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 die Axialbelastung muss den Abtriebsflansch zusammendrücken. Die in der Tabelle angegebenen Maximalwerte der Axial -und Radialbelastung sollten nicht gleichzeitig dazwischenkommen.
Falls Axial-und Radialbelastungen auftreten, sollte jene Belastungsrichtung zur Auswahl herangezogen werden, die vom Anteil überwiegt:

1. Radialbelastungen überwiegen:

F_{r2} = siehe Tabelle
$F_{a2} = F_{r2} \cdot 0.37$

2. condizione di prevalenza del carico assiale:

$F_{a2}' = F_{a2} \cdot 0.6$
$F_{r2}' = F_{a2} \cdot 0.4$

2. prevalence of axial load:

$F_{a2}' = F_{a2} \cdot 0.6$
$F_{r2}' = F_{a2} \cdot 0.4$

2. Axialbelastungen überwiegen

$F_{a2}' = F_{a2} \cdot 0.6$
$F_{r2}' = F_{a2} \cdot 0.4$

CUSCINETTI A RULLI CONICI / *TAPERED ROLLER BEARINGS* / KEGELROLLENLAGER															
n_1 [min^{-1}]	n_2 [min^{-1}]	30		40		50		63		75		90		110	
		30/30		30/40		30/50		30/63 40/63		40/75 50/75		40/90 50/90		50/110 63/110	
		a = 61.4	b = 43.9	a = 77	b = 54	a = 94.5	b = 66	a = 120.3	b = 91.3	a = 131.9	b = 97.9	a = 160.8	b = 115.8	a = 176.8	b = 128.8
		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
1400	**187**	900	1200	1900	2400	4500	5500	4500	5500	5300	6500	6000	8000	8000	10500
	140	1000	1300	2000	2500	5000	6000	5000	6000	5500	6700	7000	9200	8300	11000
	93	1100	1400	2100	2600	5800	7000	5800	7000	5700	6900	7400	9800	8800	11500
	70	1250	1650	2300	2800	6000	7200	6100	7300	6400	7600	7800	10300	9300	12000
	56	1450	1900	2500	3000	6200	7500	6500	7700	7400	9400	8500	11000	9800	12500
	47	1700	2200	2800	3300	6500	7800	6800	8000	8000	10000	9500	12000	10500	13200
	35	1800	2300	3000	3500	6600	8000	7000	8200	8500	10500	10000	12500	11000	14000
	28	1900	2400	3200	3700	6800	8200	7100	8400	9000	11000	10500	13000	12000	15000
	23	1900	2400	3200	3700	6800	8200	7100	8400	9000	11000	10500	13000	12000	15000
	22	1900	2400	3200	3700	6800	8200	7100	8400	9000	11000	10500	13000	12000	15000
	18	1900	2400	3200	3700	6800	8200	7100	8400	9000	11000	10500	13000	12000	15000
	14	1900	2400	3200	3700	6800	8200	7100	8400	9000	11000	10500	13000	12000	15000
	12	1900	2400	3200	3700	6800	8200	7100	8400	9000	11000	10500	13000	12000	15000
	9.3	1900	2400	3200	3700	6800	8200	7100	8400	9000	11000	10500	13000	12000	15000
	8.8	1900	2400	3200	3700	6800	8200	7100	8400	9000	11000	10500	13000	12000	15000
	≤ 7.0	1900	2400	3200	3700	6800	8200	7100	8400	9000	11000	10500	13000	12000	15000

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_{to} non deve essere preso in considerazione se il funzionamento è continuo per un massimo di 1.5 ore seguito da pause di durata sufficiente (circa 1 - 2 ore) a ristabilire nel riduttore la temperatura ambiente.
I valori di P_{to} devono essere corretti tramite i seguenti coefficienti, così da considerare le reali condizioni di funzionamento, ottenendo i valori di potenza termica corretta P_{tc}.

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

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. 1.5 hours and followed by breaks which are long enough to bring the gearbox back to ambient temperature (roughly 1 - 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.

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

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. 1.5 Stunden dauert und von Unterbrechungen gefolgt wird, die lang genug sind, damit das Getriebetemperatur zurück zur Umgebungstemperatur sinkt (ungefähr 1 - 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 korrekten termischen Leistung P_{tc}.

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

Dabei ist:
ft = 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 = 1.25 con ventilazione forzata secondaria ad altri dispositivi (pulegge, ventole, motore, ecc.)
fv = 1 refrigerazione naturale (situazione standard)
fv = 0.5 in ambiente chiuso e ristretto (carter)

fv = 1.45 for forced ventilation with specific fan
fv = 1.25 for forced ventilation secondary to other devices (pulleys, fans, motor, etc.)
fv = 1 for natural cooling (standard situation)
fv = 0.5 in a close and narrow environment (case)

fv = 1.45 bei Drucklüftung mit spezifischem Lüfterrad
fv = 1.25 bei Drucklüftung nebensächlich anderen Vorrichtungen (Scheiben, Lüfterräder, Motor, usw.)
fv = 1 natürliche Belüftung (Standard)
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

Scelta del riduttore

A) n_1 = 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:

1.12 Selection

Selecting a gearbox

A) n_1 = 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:

1.12 Wahl

Wahl des Getriebes

A) n_1 = 1400, 2800, 900, 500 min^{-1}
Aus der Leistungstabellen ist eine Gruppe von Getrieben zu wählen, deren Untersetzungsverhältnis nahe zu dem berechneten Wert ist und die die folgende Leistung erlaubt:

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

Scelta del motoriduttore

B) FS =1
Si cercherà nelle tabelle delle prestazioni dei motoriduttori un gruppo la cui potenza P1 corrisponda alla P' calcolata.

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.

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.

Selecting a gearmotor

B) FS =1
Consult the gear motor efficiency table and select a group having power P1 corresponding to calculated P'.

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.

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.

Wahl des Getriebemotors

B) FS =1
Wählen Sie aus der Leistungstabelle der motoren eine Gruppe, deren Leistung P1 der berechneten Leistung P' entspricht.

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.

Nachdem das geeignete Getriebe gewählt worden ist, muss es sichergestellt werden, das 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 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.
Per tutte le altre avvertenze consultare il manuale di "uso e manutenzione" scaricabile dal sito www.tramec.it

1.13 Installation

Mount the gearbox in such a way that any vibrations are prevented. Check carefully the allignment 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.
For all other instructions check the "Use and Maintenance Manual" which can be downloaded from our web site www.tramec.it

1.13 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.
Für weitere Anweisungen laden Sie die "Betriebs- und Instandhaltungsanweisung" aus unsere Webseite www.tramec.it herunter.

1.14 Manutenzione

Tutti i riduttori a vite senza fine sono lubrificati a vita con olio sintetico tipo SHELL TIVELA OIL S 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

1.14 Maintenance

All worm gearboxes are lubricated for life with synthetic oil SHELL TIVELA OIL S 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

1.14 Wartung

Alle Schneckengetriebe sind mit synthetischem Öl SHELL TIVELA OIL S 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.

1.15 Verniciatura

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

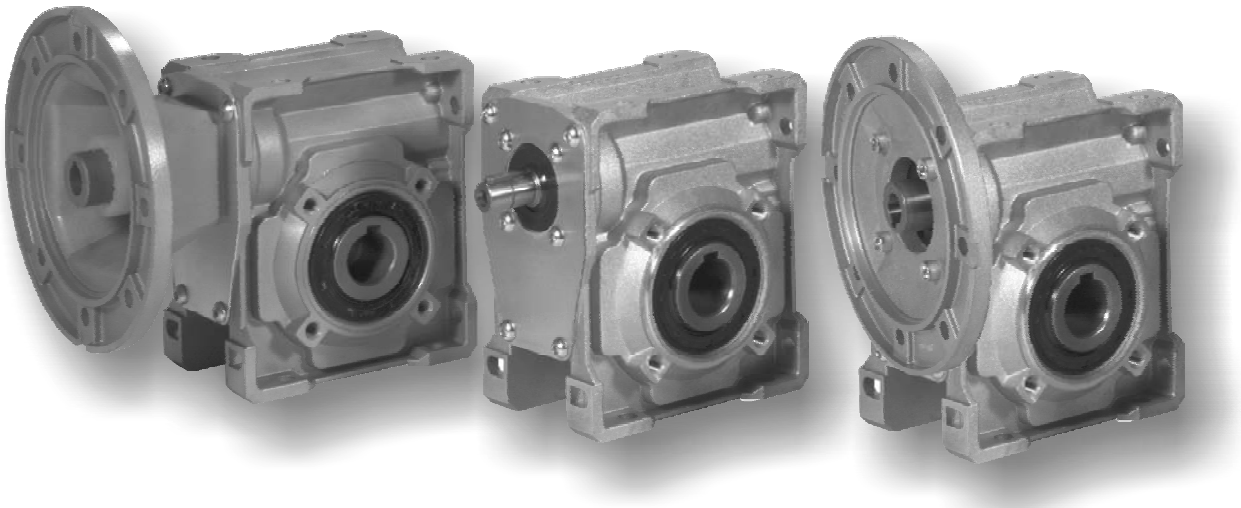
1.15 Painting

Size 90 and 110 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 sand-blasted.

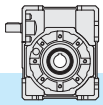
1.15 Lackierung

Die Gehäuse der Größen 90 und 110 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 RIDUTTORE A VITE SENZA FINE X — *X WORM GEARBOXES* — SCHNECKENGETRIEBE X



XF **XA** **XC**



2.1 Caratteristiche

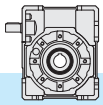
- I riduttori a vite senza fine della serie X sono disponibili nelle versioni alberata XA e con predisposizione per attacco motore XF-XC.
- La versione XF (campana + giunto), caratterizzata da una più ampia versatilità ai diversi tipi di applicazioni, presenta un più elevato rendimento rispetto a quello 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 e 110 e 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

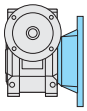
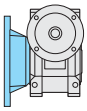
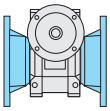
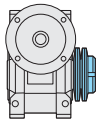
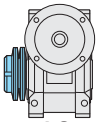
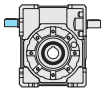
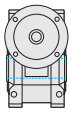
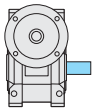
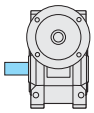
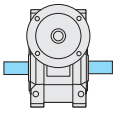
- *X series worm gearboxes are available in the following versions : XA with shaft, XF and XC suitable for motor mounting assembling.*
- *The XF version (bell + joint) suits a wider range of applications and provides higher efficiency than the XC compact version, which actually offers reduced space requirement.*
- *The enbloc housing is in cast-iron for sizes 90 and 110, in die-cast aluminium for smaller sizes.*
- *The worm shaft is in case-and quenchhardened 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 den Versionen 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 und 110, 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.

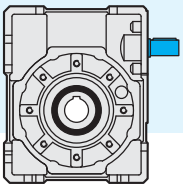


2.2 Designazione — 2.2 *Designation* — 2.2 Bezeichnung

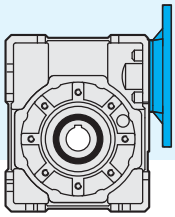
Riduttore *Gearbox* Getriebe	Tipo entrata *Input type* Antriebsart	Grandezza *Size* Größe	Rapporto rid. *Ratio* Untersetzung	Predispos.att. mot. *Motor coupling* Motoranschluss	Posizione di mont. *Mounting position* Einbaulage	Flangia in uscita. *Output flange* Abtriebsflansch	Limitatore di coppia. *Torque limiter* Drehmoment-begrenzer	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** **C** **F**	**30** **40** **50** **63** **75** **90** **110**	**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**  **F1S-F2S-F3S**  **F12-F22-F32**	 **LD**  **LS**	 **SeA**	 **H**  **SD**  **SS**  **DD**	 **BR**

Tipo entrata — ***Input type*** — **Antriebstyp**

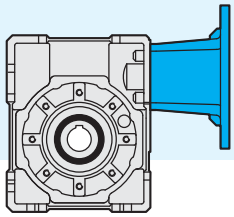
XA..



XC..



XF..



2.3 Lubrificazione

I riduttori a vite senza fine serie X 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.

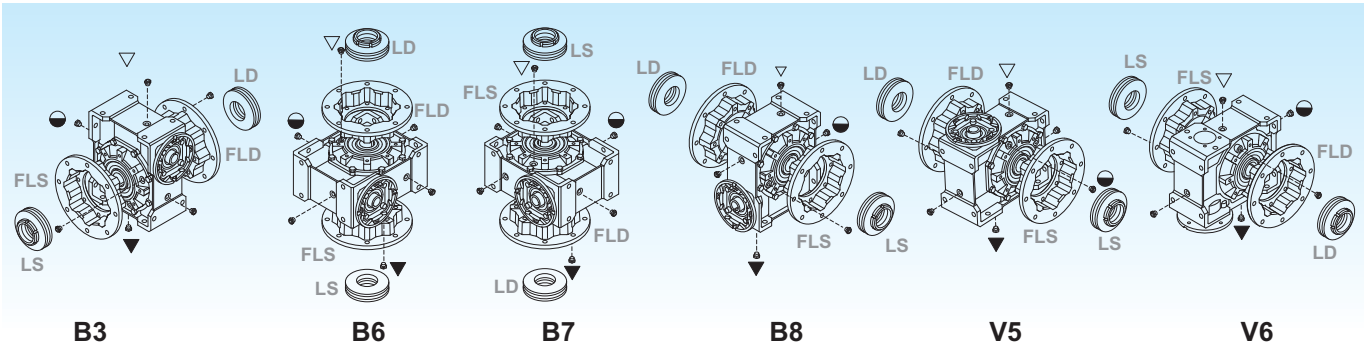
2.3 *Lubrication*

X series worm gearboxes are supplied with synthetic lubricant, PAG base, viscosity index ISO VG320.
Always specify the required mounting position when ordering the gearbox.

2.3 Schmierung

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

Posizioni di montaggio | ***Mounting positions*** | **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	0.8	1.2
	110	2.2	1.8	1.6	2.4

▽ 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.

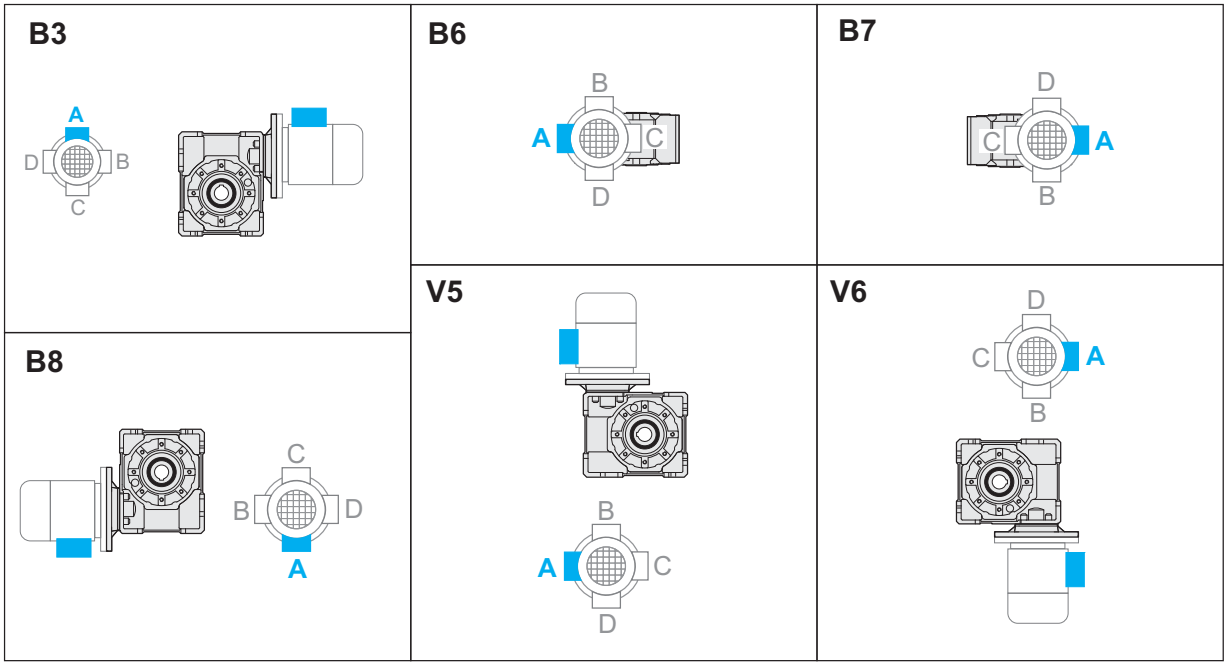
30, 40, 50, 63 and 75 aluminium housings have one oil filling plug only.

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

2.4 Posizione morsettiera

2.4 *Terminal board position*

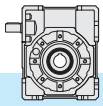
2.4 Lage der Klemmenkaste



Specificare sempre in fase di ordinazione la posizione di montaggio e la forma costruttiva.

Specify the version and the mounting position when ordering.

Bei der Bestellung immer die gewünschte Montageposition und Bauform angeben.



2.5 **Dati tecnici** *2.5* ***Technical data*** 2.5 **Technische Daten**

30

Kg 1.4

n_1 = 2800					XC - XF						XA			
					Input - IEC									
					XC		XF							
					B5/B14		B5		B14					
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'							T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	373	8	**0.37**	2.0	63	56	63	56	63	56	**16**	0.72	0.86	—
10	280	11	**0.37**	1.5							**16**	0.56	0.84	
15	187	15	**0.37**	1.1							**17**	0.41	0.81	
20	140	13	**0.25**	1.2							**15**	0.29	0.76	
25	112	16	**0.25**	1.0							**16**	0.25	0.74	
30	93	13	**0.18**	1.0							**13**	0.18	0.71	
40	70	16	**0.18**	1.0							**16**	0.18	0.65	
50	56	14	**0.13**	1.1							**15**	0.14	0.62	
65	43	17	**0.13**	1.0							**17**	0.13	0.57	
80	35	13	**0.09**	1.0	—						**13**	0.09	0.54	
100	28	16	**0.09**	0.8							**12**	0.07	0.52	

30

Kg 1.4

n_1 = 1400					XC - XF						XA			
					Input - IEC									
					XC		XF							
					B5/B14		B5		B14					
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'							T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	187	9	**0.22**	2.2	63	56	63	56	63	56	**21**	0.49	0.84	0.40
10	140	12	**0.22**	1.8							**22**	0.40	0.82	0.40
15	93	17	**0.22**	1.3							**22**	0.28	0.77	0.30
20	70	18	**0.18**	1.1							**19**	0.19	0.72	0.20
25	56	21	**0.18**	1.0							**21**	0.18	0.69	0.20
30	47	18	**0.13**	1.1							**20**	0.15	0.66	0.20
40	35	21	**0.13**	1.0							**21**	0.13	0.59	0.20
50	28	17	**0.09**	1.1							**19**	0.10	0.55	0.20
65	22	20	**0.09**	1.0							**20**	0.09	0.51	0.10
80	18	16	**0.06**	1.0	—						**17**	0.06	0.48	0.10
100	14	18	**0.06**	0.8							**14**	0.05	0.45	0.10

30

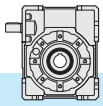
Kg 1.4

n_1 = 900					XC - XF						XA			
					Input - IEC									
					XC		XF							
					B5/B14		B5		B14					
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'							T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	120	9	**0.13**	2.9	63	56	63	56	63	56	**25**	0.38	0.82	—
10	90	11	**0.13**	2.3							**25**	0.30	0.80	
15	60	15	**0.13**	1.6							**25**	0.21	0.75	
20	45	19	**0.13**	1.2							**22**	0.15	0.69	
25	36	23	**0.13**	1.1							**24**	0.14	0.66	
30	30	18	**0.09**	1.2							**21**	0.10	0.63	
40	23	21	**0.09**	1.1							**24**	0.10	0.55	
50	18	16	**0.06**	1.1							**21**	0.08	0.52	
65	14	20	**0.06**	1.1							**22**	0.07	0.48	
80	11	11	**0.03**	1.7	—						**19**	0.05	0.44	
100	9	13	**0.03**	1.1							**15**	0.03	0.42	

30

Kg 1.4

n_1 = 500					XC - XF						XA			
					Input - IEC									
					XC		XF							
					B5/B14		B5		B14					
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'							T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	67	—	—	—	63	56	63	56	63	56	**31**	0.27	0.80	—
10	50	—	—	—							**31**	0.21	0.77	
15	33	—	—	—							**31**	0.15	0.72	
20	25	—	—	—							**26**	0.10	0.66	
25	20	—	—	—							**27**	0.09	0.62	
30	17	—	—	—							**25**	0.07	0.59	
40	13	—	—	—							**28**	0.07	0.51	
50	10	—	—	—							**25**	0.06	0.48	
65	8	—	—	—							**25**	0.05	0.43	
80	6	—	—	—	—						**20**	0.03	0.40	
100	5	—	—	—							**16**	0.02	0.38	



2.5 **Dati tecnici** | *2.5* ***Technical data*** | 2.5 **Technische Daten**

40 — Kg 2.4

n_1 = 2800					XC - XF								XA			
					Input - IEC											
					XC			XF								
					B5/B14			B5			B14					
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'									T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	373	17	**0.75**	1.8									**30**	1.3	0.87	
10	280	22	**0.75**	1.4									**31**	1.1	0.86	
15	187	32	**0.75**	1.0									**32**	0.76	0.82	
20	140	30	**0.55**	1.0	**71**		—						**31**	0.57	0.80	
25	112	24	**0.37**	1.1									**27**	0.41	0.76	
30	93	28	**0.37**	1.3		**63**		**71**	**63**	**56**	**71**	**63**	**35**	0.47	0.73	—
40	70	24	**0.25**	1.4									**33**	0.35	0.70	
50	56	28	**0.25**	1.1									**30**	0.27	0.65	
65	43	24	**0.18**	1.2	—		**56**						**28**	0.21	0.61	
80	35	21	**0.13**	1.3									**26**	0.16	0.58	
100	28	24	**0.13**	1.0									**25**	0.13	0.55	

40 — Kg 2.4

n_1 = 1400					XC - XF								XA			
					Input - IEC											
					XC			XF								
					B5/B14			B5			B14					
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'									T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	187	24	**0.55**	1.7									**40**	0.92	0.85	0.80
10	140	31	**0.55**	1.3									**41**	0.73	0.83	0.70
15	93	30	**0.37**	1.4									**42**	0.52	0.79	0.50
20	70	38	**0.37**	1.0	**71**		—						**40**	0.39	0.76	0.50
25	56	31	**0.25**	1.1									**35**	0.29	0.72	0.40
30	47	35	**0.25**	1.2		**63**		**71**	**63**	**56**	**71**	**63**	**41**	0.29	0.68	0.40
40	35	38	**0.22**	1.0									**38**	0.22	0.64	0.30
50	28	36	**0.18**	1.1									**38**	0.19	0.59	0.30
65	22	31	**0.13**	1.1	—		**56**						**35**	0.15	0.54	0.20
80	18	31	**0.11**	1.1									**33**	0.12	0.52	0.20
100	14	30	**0.09**	0.9									**28**	0.08	0.49	0.20

40 — Kg 2.4

n_1 = 900					XC - XF								XA			
					Input - IEC											
					XC			XF								
					B5/B14			B5			B14					
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'									T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	120	25	**0.37**	2.0									**48**	0.72	0.83	
10	90	32	**0.37**	1.5									**48**	0.56	0.81	
15	60	45	**0.37**	1.1									**49**	0.40	0.76	
20	45	39	**0.25**	1.2	**71**		—						**46**	0.29	0.74	
25	36	33	**0.18**	1.3									**42**	0.23	0.69	
30	30	37	**0.18**	1.3		**63**		**71**	**63**	**56**	**71**	**63**	**48**	0.23	0.65	—
40	23	33	**0.13**	1.3									**42**	0.16	0.61	
50	18	38	**0.13**	1.1									**42**	0.14	0.55	
65	14	32	**0.09**	1.2	—		**56**						**39**	0.11	0.51	
80	11	37	**0.09**	1.0									**37**	0.09	0.48	
100	9	29	**0.06**	1.0									**30**	0.06	0.45	

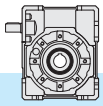
40 — Kg 2.4

n_1 = 500					XC - XF								XA			
					Input - IEC											
					XC			XF								
					B5/B14			B5			B14					
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'									T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	67	10	**0.09**	5.5									**58**	0.50	0.81	
10	50	14	**0.09**	4.4									**59**	0.39	0.79	
15	33	19	**0.09**	3.1									**59**	0.28	0.73	
20	25	24	**0.09**	2.3	**71**		—						**55**	0.20	0.70	
25	20	28	**0.09**	1.7									**48**	0.15	0.65	
30	17	31	**0.09**	1.8		**63**		**71**	**63**	**56**	**71**	**63**	**58**	0.17	0.61	—
40	13	39	**0.09**	1.3									**52**	0.12	0.57	
50	10	44	**0.09**	1.2									**51**	0.11	0.51	
65	8	52	**0.09**	0.9	—		**56**						**45**	0.08	0.46	
80	6	61*	**0.09**	0.7*									**42**	0.06	0.44	
100	5	71*	**0.09**	0.4*									**32**	0.04	0.41	

*** 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

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Kg 4.0

$n_1 = 2800$

i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	XC - XF Input - IEC: XC B5/B14	XC - XF Input - IEC: XF B5	XC - XF Input - IEC: XF B14	XA T_{2M} [Nm]	XA P [kW]	XA Rd	XA P_{t0}
7.5	373	34	**1.5**	1.5				**51**	2.3	0.88	
10	280	44	**1.5**	1.2				**54**	1.8	0.86	
15	187	47	**1.1**	1.2				**57**	1.3	0.84	
20	140	42	**0.75**	1.4	**80**	—		**58**	1.0	0.81	
25	112	50	**0.75**	1.0				**50**	0.75	0.78	
30	93	42	**0.55**	1.3	**71**	**80**	—	**55**	0.71	0.75	—
40	70	54	**0.55**	1.0		**71**		**54**	0.63	0.72	
50	56	43	**0.37**	1.3		**63**	**63**	**56**	0.48	0.68	
65	43	53	**0.37**	1.0	—			**53**	0.37	0.64	
80	35	41	**0.25**	1.2		**80**	**80**	**48**	0.29	0.61	
100	28	35	**0.18**	1.3		**71**	**71**	**45**	0.23	0.58	

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Kg 4.0

$n_1 = 1400$

i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	XC - XF Input - IEC: XC B5/B14	XC - XF Input - IEC: XF B5	XC - XF Input - IEC: XF B14	XA T_{2M} [Nm]	XA P [kW]	XA Rd	XA P_{t0}
7.5	187	40	**0.9**	1.8				**70**	1.6	0.86	1.2
10	140	52	**0.9**	1.4				**73**	1.3	0.84	1.0
15	93	74	**0.9**	1.0				**74**	0.90	0.80	0.80
20	70	58	**0.55**	1.3	**80**	—		**75**	0.71	0.78	0.70
25	56	47	**0.37**	1.4				**65**	0.51	0.74	0.60
30	47	53	**0.37**	1.2	**71**	**80**	—	**66**	0.46	0.71	0.60
40	35	68	**0.37**	1.0		**71**		**69**	0.38	0.67	0.50
50	28	53	**0.25**	1.3		**63**	**63**	**70**	0.33	0.62	0.40
65	22	64	**0.25**	1.0	—			**64**	0.25	0.58	0.40
80	18	53	**0.18**	1.1		**80**	**80**	**60**	0.20	0.54	0.40
100	14	45	**0.13**	1.2		**71**	**71**	**55**	0.16	0.51	0.30

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Kg 4.0

$n_1 = 900$

i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	XC - XF Input - IEC: XC B5/B14	XC - XF Input - IEC: XF B5	XC - XF Input - IEC: XF B14	XA T_{2M} [Nm]	XA P [kW]	XA Rd	XA P_{t0}
7.5	120	50	**0.75**	1.6				**83**	1.23	0.84	
10	90	66	**0.75**	1.3				**86**	0.98	0.82	
15	60	68	**0.55**	1.3				**88**	0.71	0.78	
20	45	59	**0.37**	1.5	**80**	—		**87**	0.54	0.75	
25	36	70	**0.37**	1.1				**75**	0.40	0.71	
30	30	79	**0.37**	1.0	**71**	**80**	—	**79**	0.37	0.67	—
40	23	67	**0.25**	1.1		**71**		**75**	0.28	0.63	
50	18	78	**0.25**	1.0		**63**	**63**	**80**	0.26	0.59	
65	14	67	**0.18**	1.1	—			**74**	0.20	0.54	
80	11	56	**0.13**	1.2		**80**	**80**	**67**	0.16	0.51	
100	9	45	**0.09**	1.3		**71**	**71**	**58**	0.12	0.47	

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Kg 4.0

$n_1 = 500$

i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	XC - XF Input - IEC: XC B5/B14	XC - XF Input - IEC: XF B5	XC - XF Input - IEC: XF B14	XA T_{2M} [Nm]	XA P [kW]	XA Rd	XA P_{t0}
7.5	67	21	**0.18**	4.7				**100**	0.85	0.82	
10	50	28	**0.18**	3.8				**104**	0.68	0.80	
15	33	39	**0.18**	2.7				**106**	0.49	0.75	
20	25	50	**0.18**	2.1	**80**	—		**104**	0.38	0.72	
25	20	58	**0.18**	1.5				**88**	0.27	0.68	
30	17	65	**0.18**	1.5	**71**	**80**	—	**98**	0.27	0.63	—
40	13	81	**0.18**	1.2		**71**		**95**	0.21	0.59	
50	10	93	**0.18**	1.0		**63**	**63**	**94**	0.18	0.54	
65	8	56	**0.09**	1.5	—			**86**	0.14	0.50	
80	6	63	**0.09**	1.2		**80**	**80**	**77**	0.11	0.46	
100	5	74	**0.09**	0.8		**71**	**71**	**61**	0.07	0.43	

2.5 **Dati tecnici** *2.5* ***Technical data*** 2.5 **Technische Daten**

63 — Kg 6.6

n_1 = 2800					XC - XF								XA			
					Input - IEC											
					XC			XF								
					B5/B14			B5			B14					
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'									T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	373	68	**3**	1.3									**88**	3.9	0.88	
10	280	89	**3**	1.1									**94**	3.2	0.87	
15	187	95	**2.2**	1.0									**98**	2.3	0.84	
20	140	85	**1.5**	1.3	**90**		—						**110**	1.9	0.83	
25	112	76	**1.1**	1.2									**93**	1.4	0.81	
30	93	87	**1.1**	1.3		**80**		**90**	**80**	**71**	**90**	**80**	**110**	1.4	0.77	—
40	70	111	**1.1**	1.1									**117**	1.2	0.74	
50	56	90	**0.75**	1.1									**97**	0.81	0.70	
65	43	81	**0.55**	1.2	—								**98**	0.66	0.67	
80	35	65	**0.37**	1.4			**71**						**91**	0.52	0.64	
100	28	75	**0.37**	1.1									**83**	0.41	0.60	

63 — Kg 6.6

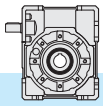
n_1 = 1400					XC - XF								XA			
					Input - IEC											
					XC			XF								
					B5/B14			B5			B14					
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'									T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	187	80	**1.8**	1.5									**120**	2.7	0.87	1.8
10	140	105	**1.8**	1.2									**127**	2.2	0.85	1.6
15	93	125	**1.5**	1.1									**130**	1.6	0.81	1.2
20	70	120	**1.1**	1.2	**90**		—						**144**	1.3	0.80	1.2
25	56	118	**0.9**	1.0									**118**	0.90	0.77	1.0
30	47	134	**0.9**	1.1		**80**		**90**	**80**	**71**	**90**	**80**	**142**	0.95	0.73	0.90
40	35	142	**0.75**	1.1									**150**	0.79	0.69	0.80
50	28	122	**0.55**	1.0									**122**	0.55	0.65	0.70
65	22	100	**0.37**	1.2	—								**122**	0.45	0.61	0.60
80	18	79	**0.25**	1.4			**71**						**113**	0.36	0.58	0.60
100	14	91	**0.25**	1.1									**102**	0.28	0.53	0.50

63 — Kg 6.6

n_1 = 900					XC - XF								XA			
					Input - IEC											
					XC			XF								
					B5/B14			B5			B14					
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'									T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	120	102	**1.5**	1.4									**144**	2.1	0.85	
10	90	133	**1.5**	1.1									**150**	1.7	0.83	
15	60	139	**1.1**	1.1	**90**		—						**152**	1.2	0.79	
20	45	123	**0.75**	1.4									**167**	1.0	0.77	
25	36	109	**0.55**	1.3									**140**	0.71	0.74	
30	30	122	**0.55**	1.3		**80**		**90**	**80**	**71**	**90**	**80**	**164**	0.74	0.70	—
40	23	154	**0.55**	1.1									**171**	0.61	0.66	
50	18	120	**0.37**	1.2									**141**	0.44	0.61	
65	14	98	**0.25**	1.4	—								**139**	0.35	0.57	
80	11	115	**0.25**	1.1			**71**						**128**	0.28	0.54	
100	9	95	**0.18**	1.2									**115**	0.22	0.50	

63 — Kg 6.6

n_1 = 500					XC - XF								XA			
					Input - IEC											
					XC			XF								
					B5/B14			B5			B14					
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'									T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	67	30	**0.25**	5.9									**177**	1.5	0.83	
10	50	39	**0.25**	4.7									**182**	1.2	0.81	
15	33	55	**0.25**	3.4	**90**		—						**184**	0.84	0.76	
20	25	71	**0.25**	2.8									**200**	0.70	0.74	
25	20	85	**0.25**	1.9									**165**	0.49	0.71	
30	17	94	**0.25**	2.1		**80**		**90**	**80**	**71**	**90**	**80**	**195**	0.52	0.65	—
40	13	118	**0.25**	1.7									**201**	0.43	0.62	
50	10	135	**0.25**	1.2									**165**	0.31	0.56	
65	8	163	**0.25**	1.0	—								**161**	0.25	0.52	
80	6	137	**0.18**	1.1			**71**						**148**	0.19	0.50	
100	5	77	**0.09**	1.6									**122**	0.14	0.45	



2.5 Dati tecnici — *2.5 Technical data* — 2.5 Technische Daten

75 — Kg 11.0

n_1 = 2800					XC - XF									XA			
					Input - IEC												
					XC			XF									
					B5/B14			B5			B14						
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'										T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	373	125	**5.5**	1.0	**112 100**	**90**	—	**112 100**	**90**	**80**	**112 100**	**90**	—	**131**	5.8	0.89	—
10	280	120	**4**	1.2										**143**	4.8	0.88	
15	187	131	**3**	1.2										**152**	3.5	0.85	
20	140	171	**3**	1.0										**172**	3.0	0.84	
25	112	154	**2.2**	1.0										**155**	2.2	0.82	
30	93	120	**1.5**	1.4										**170**	2.1	0.78	
40	70	154	**1.5**	1.2										**183**	1.8	0.75	
50	56	136	**1.1**	1.2										**166**	1.3	0.73	
65	43	114	**0.75**	1.4	—		**80**							**155**	1.0	0.69	
80	35	135	**0.75**	1.1										**145**	0.80	0.66	
100	28	159	**0.75**	0.8										**131**	0.62	0.62	

75 — Kg 11.0

n_1 = 1400					XC - XF									XA			
					Input - IEC												
					XC			XF									
					B5/B14			B5			B14						
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'										T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	187	178	**4**	1.0	**112 100**	**90**	—	**112 100**	**90**	**80**	**112 100**	**90**	—	**180**	4.0	0.87	2.5
10	140	176	**3**	1.1										**193**	3.3	0.86	2.3
15	93	187	**2.2**	1.1										**202**	2.4	0.83	1.9
20	70	199	**1.8**	1.1										**226**	2.0	0.81	1.7
25	56	200	**1.5**	1.0										**202**	1.5	0.78	1.5
30	47	167	**1.1**	1.3										**220**	1.5	0.74	1.2
40	35	213	**1.1**	1.1										**235**	1.2	0.71	1.1
50	28	206	**0.9**	1.0										**211**	0.92	0.67	1.0
65	22	154	**0.55**	1.3	—		**80**							**195**	0.70	0.63	0.90
80	18	180	**0.55**	1.0										**182**	0.55	0.60	0.80
100	14	210	**0.55**	0.8										**162**	0.43	0.56	0.70

75 — Kg 11.0

n_1 = 900					XC - XF									XA			
					Input - IEC												
					XC			XF									
					B5/B14			B5			B14						
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'										T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	120	205	**3**	1.0	**112 100**	**90**	—	**112 100**	**90**	**80**	**112 100**	**90**	—	**215**	3.1	0.86	—
10	90	197	**2.2**	1.2										**229**	2.6	0.84	
15	60	231	**1.8**	1.0										**237**	1.9	0.81	
20	45	250	**1.5**	1.1										**263**	1.6	0.78	
25	36	221	**1.1**	1.1										**233**	1.2	0.76	
30	30	249	**1.1**	1.0										**254**	1.1	0.71	
40	23	214	**0.75**	1.3										**270**	0.94	0.67	
50	18	186	**0.55**	1.3										**241**	0.71	0.64	
65	14	151	**0.37**	1.5	—		**80**							**221**	0.54	0.59	
80	11	177	**0.37**	1.2										**205**	0.43	0.56	
100	9	203	**0.37**	0.9										**184**	0.34	0.52	

75 — Kg 11.0

n_1 = 500					XC - XF									XA			
					Input - IEC												
					XC			XF									
					B5/B14			B5			B14						
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'										T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	67	90	**0.75**	2.9	**112 100**	**90**	—	**112 100**	**90**	**80**	**112 100**	**90**	—	**265**	2.2	0.84	—
10	50	118	**0.75**	2.4										**279**	1.8	0.82	
15	33	167	**0.75**	1.7										**286**	1.3	0.78	
20	25	216	**0.75**	1.5										**315**	1.1	0.75	
25	20	260	**0.75**	1.1										**278**	0.80	0.72	
30	17	288	**0.75**	1.1										**302**	0.79	0.67	
40	13	265	**0.55**	1.2										**317**	0.66	0.63	
50	10	210	**0.37**	1.3										**282**	0.50	0.59	
65	8	251	**0.37**	1.0	—		**80**							**257**	0.38	0.55	
80	6	197	**0.25**	1.2										**238**	0.30	0.52	
100	5	161	**0.18**	1.3										**206**	0.23	0.47	

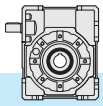
2.5 Dati tecnici — *2.5 Technical data* — 2.5 Technische Daten

	n_1 = 2800		XC - XF											XA			
						Input - IEC								T_{2M}	P	Rd	P_{t0}
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	XC			XF					[Nm]	[kW]		
						B5/B14			B5			B14					
90	7.5	373	171	7.5	1.2	112 100	90	—	112 100	90	80	112 100	90	—	209	9.2	0.89	—
	10	280	165	5.5	1.3										223	7.4	0.88	
	15	187	241	5.5	1.0										241	5.5	0.86	
	20	140	230	4	1.2										272	4.7	0.84	
	25	112	212	3	1.2										255	3.6	0.83	
	30	93	243	3	1.1										270	3.3	0.79	
Kg	40	70	230	2.2	1.3										293	2.8	0.77	
	50	56	278	2.2	1.0										278	2.2	0.74	
23.6	65	43	235	1.5	1.1	—									250	1.6	0.71	
	80	35	205	1.1	1.2			80							238	1.3	0.68	
	100	28	163	0.75	1.3										212	0.97	0.64	

	n_1 = 1400		XC - XF											XA			
						Input - IEC								T_{2M}	P	Rd	P_{t0}
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	XC			XF					[Nm]	[kW]		
						B5/B14			B5			B14					
90	7.5	187	247	5.5	1.2	112 100	90	—	112 100	90	80	112 100	90	—	290	6.5	0.88	3.0
	10	140	236	4	1.3										305	5.2	0.86	2.5
	15	93	256	3	1.2										320	3.7	0.84	2.2
	20	70	334	3	1.1										360	3.2	0.82	2.0
	25	56	299	2.2	1.1										332	2.4	0.80	1.8
	30	47	340	2.2	1.0										350	2.3	0.76	1.5
Kg	40	35	355	1.8	1.1										377	1.9	0.72	1.3
	50	28	353	1.5	1.0										353	1.5	0.69	1.1
23.6	65	22	317	1.1	1.0	—									317	1.1	0.65	1.0
	80	18	309	0.9	1.0			80							309	0.90	0.63	1.0
	100	14	217	0.55	1.2										264	0.67	0.58	0.80

	n_1 = 900		XC - XF											XA			
						Input - IEC								T_{2M}	P	Rd	P_{t0}
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	XC			XF					[Nm]	[kW]		
						B5/B14			B5			B14					
90	7.5	120	206	3	1.7	112 100	90	—	112 100	90	80	112 100	90	—	345	5.0	0.86	—
	10	90	270	3	1.3										362	4.0	0.85	
	15	60	286	2.2	1.3										377	2.9	0.82	
	20	45	371	2.2	1.1										419	2.5	0.79	
	25	36	369	1.8	1.0										385	1.9	0.77	
	30	30	416	1.8	1.0										416	1.8	0.73	
Kg	40	23	440	1.5	1.0										440	1.5	0.69	
	50	18	384	1.1	1.0										398	1.1	0.66	
23.6	65	14	319	0.75	1.1	—									358	0.84	0.62	
	80	11	274	0.55	1.2			80							337	0.68	0.59	
	100	9	313	0.55	1.0										313	0.55	0.54	

	n_1 = 500		XC - XF											XA			
						Input - IEC								T_{2M}	P	Rd	P_{t0}
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	XC			XF					[Nm]	[kW]		
						B5/B14			B5			B14					
90	7.5	67	91	0.75	4.7	112 100	90	—	112 100	90	80	112 100	90	—	430	3.6	0.84	—
	10	50	118	0.75	3.7										443	2.8	0.83	
	15	33	169	0.75	2.7										456	2.0	0.79	
	20	25	219	0.75	2.3										502	1.7	0.76	
	25	20	265	0.75	1.7										459	1.3	0.74	
	30	17	294	0.75	1.6										483	1.2	0.68	
Kg	40	13	371	0.75	1.4										512	1.0	0.65	
	50	10	439	0.75	1.1										467	0.80	0.61	
23.6	65	8	388	0.55	1.1	—									417	0.59	0.57	
	80	6	305	0.37	1.3			80							391	0.48	0.54	
	100	5	344	0.37	1.0										345	0.37	0.49	



2.5 Dati tecnici — *2.5 Technical data* — 2.5 Technische Daten

110 — Kg 44.0

n_1 = 2800					XC - XF								XA			
					Input - IEC											
					XC			XF								
					B5/B14			B5			B14					
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'									T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	373	343	**15**	1.0	132	112 100	—	132	112 100	90	132	—	—	**345**	15.1	0.89	—
10	280	332	**11**	1.1										**368**	12.2	0.88	
15	187	331	**7.5**	1.2										**404**	9.2	0.86	
20	140	435	**7.5**	1.1										**465**	8.0	0.85	
25	112	393	**5.5**	1.1										**441**	6.2	0.84	
30	93	450	**5.5**	1.0										**459**	5.6	0.80	
40	70	424	**4**	1.2			90							**503**	4.7	0.78	
50	56	388	**3**	1.2			—							**476**	3.7	0.76	
65	43	354	**2.2**	1.2	—		90							**417**	2.6	0.73	
80	35	287	**1.5**	1.4										**400**	2.1	0.70	
100	28	339	**1.5**	1.1										**364**	1.6	0.66	

110 — Kg 44.0

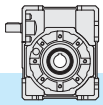
n_1 = 1400					XC - XF								XA			
					Input - IEC											
					XC			XF								
					B5/B14			B5			B14					
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'									T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	187	415	**9.2**	1.2	132	112 100	—	132	112 100	90	132	—	**480**	10.6	0.88	4.3
10	140	446	**7.5**	1.1									**504**	8.5	0.87	4.0
15	93	475	**5.5**	1.1									**543**	6.3	0.84	3.2
20	70	623	**5.5**	1.0									**623**	5.5	0.83	3.0
25	56	554	**4**	1.0									**578**	4.2	0.81	2.7
30	47	472	**3**	1.3									**601**	3.8	0.77	2.2
40	35	606	**3**	1.1			90						**650**	3.2	0.74	2.0
50	28	538	**2.2**	1.1			—						**608**	2.5	0.72	1.8
65	22	451	**1.5**	1.2	—		90						**528**	1.8	0.68	1.6
80	18	390	**1.1**	1.3									**503**	1.4	0.65	1.5
100	14	458	**1.1**	1.0									**458**	1.1	0.61	1.3

110 — Kg 44.0

n_1 = 900					XC - XF								XA			
					Input - IEC											
					XC			XF								
					B5/B14			B5			B14					
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'									T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	120	381	**5.5**	1.5	132	112 100	—	132	112 100	90	132	—	**578**	8.3	0.87	—
10	90	500	**5.5**	1.2									**600**	6.6	0.86	
15	60	526	**4**	1.2									**641**	4.9	0.83	
20	45	685	**4**	1.1									**720**	4.2	0.81	
25	36	628	**3**	1.1									**672**	3.2	0.79	
30	30	520	**2.2**	1.3									**697**	2.9	0.74	
40	23	664	**2.2**	1.1			90						**749**	2.5	0.71	
50	18	653	**1.8**	1.1			—						**697**	1.9	0.68	
65	14	487	**1.1**	1.2	—		90						**603**	1.4	0.64	
80	11	570	**1.1**	1.0									**571**	1.1	0.61	
100	9	450	**0.75**	1.1									**513**	0.85	0.57	

110 — Kg 44.0

n_1 = 500					XC - XF								XA			
					Input - IEC											
					XC			XF								
					B5/B14			B5			B14					
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'									T_{2M} [Nm]	P [kW]	Rd	P_{t0}
7.5	67	183	**1.5**	3.9	132	112 100	—	132	112 100	90	132	—	**718**	5.9	0.85	—
10	50	240	**1.5**	3.1									**738**	4.6	0.84	
15	33	344	**1.5**	2.3									**778**	3.4	0.80	
20	25	446	**1.5**	1.9									**866**	2.9	0.78	
25	20	542	**1.5**	1.5									**802**	2.2	0.76	
30	17	603	**1.5**	1.4									**832**	2.1	0.70	
40	13	765	**1.5**	1.2			90						**886**	1.7	0.67	
50	10	671	**1.1**	1.2			—						**820**	1.3	0.64	
65	8	553	**0.75**	1.3	—		90						**705**	0.96	0.59	
80	6	643	**0.75**	1.0									**664**	0.77	0.56	
100	5	542	**0.55**	1.1									**594**	0.60	0.52	



2.6 **Momenti d' inerzia** [Kg·cm^2]
(riferiti all'albero veloce in entrata)

2.6 ***Moments of inertia*** *[Kg·cm^2]*
(referred to input shaft)

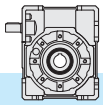
2.6 **Trägheitsmoment** [Kg·cm^2]
((bez. Antriebswelle)

	i_n	XA	XC			XF		
			B5 - B14			B5 - B14		
			IEC 56	IEC 63		IEC 56	IEC 63	
X30	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	

	i_n	XA	XC			XF		
			B5 - B14			B5	B5 - B14	
			IEC 56	IEC 63	IEC 71	IEC 56	IEC 63	IEC 71
X40	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	-	0.261	-	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

	i_n	XA	XC			XF		
			B5 - B14			B5	B5 - B14	
			IEC 63	IEC 71	IEC 80	IEC 63	IEC 71	IEC 80
X50	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	-	0.503	-	0.496	0.513	1.076
	50	0.183	-	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

	i_n	XA	XC			XF		
			B5 - B14			B5	B5 - B14	
			IEC 71	IEC 80	IEC 90	IEC 71	IEC 80	IEC 90
X63	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	-	1.495	-	1.439	1.573	2.651
	50	0.653	-	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



2.6 **Momenti d' inerzia** [Kg·cm^2]
(riferiti all'albero veloce in entrata)

2.6 ***Moments of inertia*** *[Kg·cm^2]*
(referred to input shaft)

2.6 **Trägheitsmoment** [Kg·cm^2]
((bez. Antriebswelle)

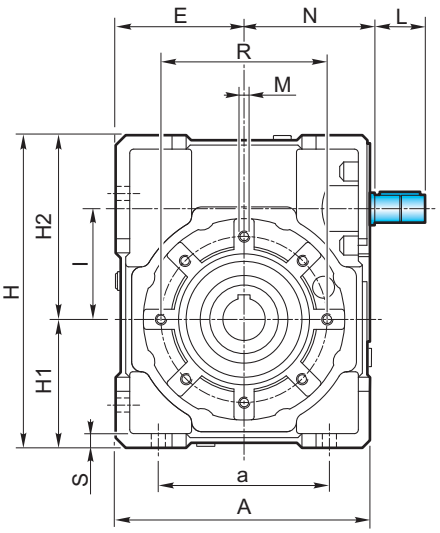
	i_n	XA	XC			XF		
			B5 - B14			B5	B5 - B14	
			IEC 80	IEC 90	IEC 100-112	IEC 80	IEC 90	IEC 100-112
X75	**7.5**	2.970	-	3.712	4.462	5.138	5.066	6.837
	10	2.492	-	3.234	3.984	4.661	4.588	6.359
	15	2.151	-	2.893	3.643	4.320	4.247	6.018
	20	1.567	-	2.774	3.523	3.735	3.662	5.433
	25	1.501	-	2.709	3.458	3.670	3.597	5.368
	30	1.946	-	2.689	3.438	4.115	4.042	5.813
	40	1.451	-	2.659	-	3.620	3.547	5.318
	50	1.435	-	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

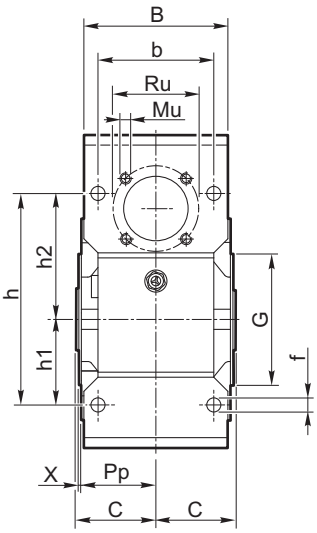
	i_n	XA	XC			XF		
			B5 - B14			B5	B5 - B14	
			IEC 80	IEC 90	IEC 100-112	IEC 80	IEC 90	IEC 100-112
X90	**7.5**	6.167	-	6.898	7.671	8.335	8.263	10.033
	10	5.143	-	5.875	6.648	7.312	7.239	9.010
	15	4.413	-	5.144	5.917	6.581	6.508	8.279
	20	2.653	-	3.398	5.661	4.821	4.749	6.519
	25	2.511	-	3.256	5.520	4.680	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

	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
X110	**7.5**	16.247	-	17.980	20.038	20.584	20.535	20.711	22.704
	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

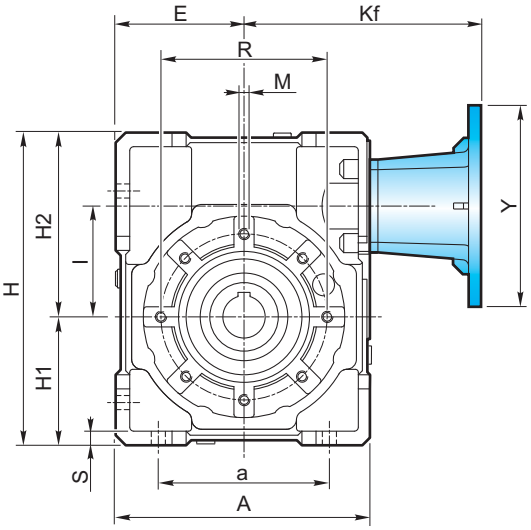
2.7 **Dimensioni** 2.7 ***Dimensions*** 2.7 **Abmessungen**

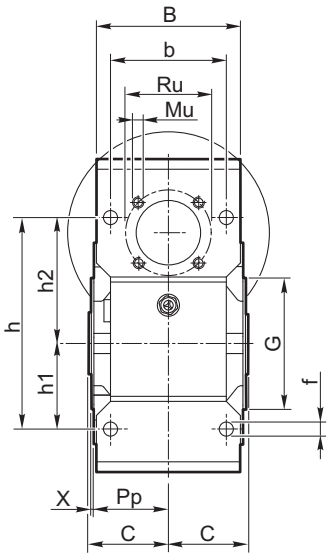
XA



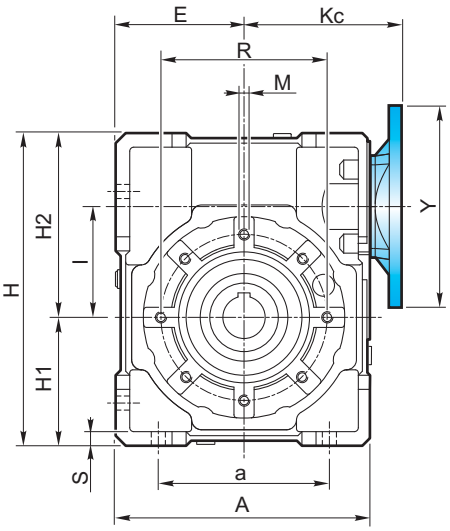


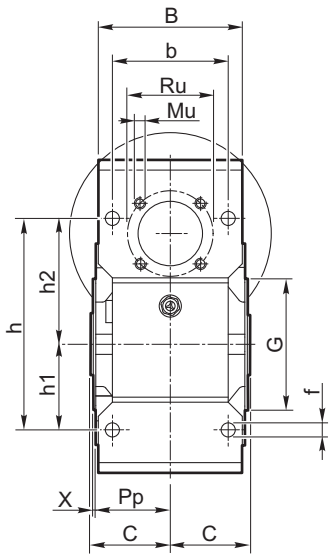
XF





XC

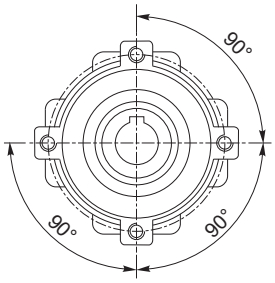




2.7 Dimensioni — *2.7 Dimensions* — 2.7 Abmessungen

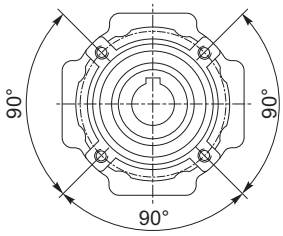
Flangia pendolare / *Shaft-mounted flange* / Aufsteckflansch

30



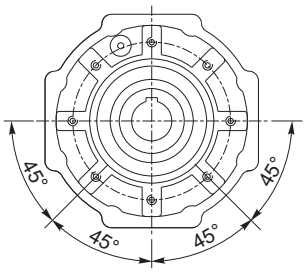
4 Fori / *Holes* / Bohrungen

40 - 50



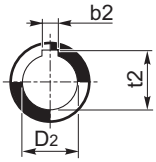
4 Fori / *Holes* / Bohrungen

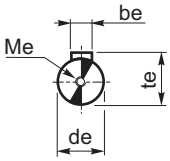
63 - 75 - 90 - 110



8 Fori / *Holes* / Bohrungen

Albero uscita cavo
Output hollow shaft
Abtriebshohlwelle



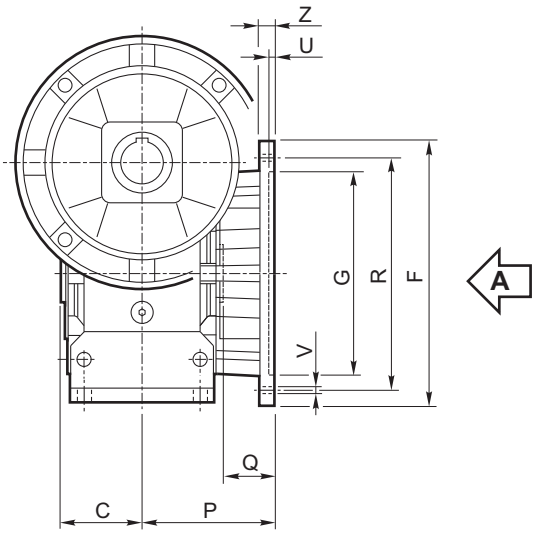


Albero entrata
Input shaft
Antriebswelle

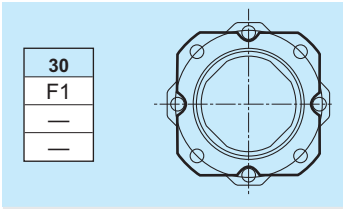
X	A	a	B	b	b_e	b_2		C	d_e j6	D_2 H7		E	f	G h8	H	H_1	H_2	h	h_1	h_2
30	80	54	56	44	3	**5**	—	31.5	9	**14**	—	40	6.5	55	97	40	57	71	27	44
40	105	70	71	60	4	**6**	6	39	11	**18**	19	50	6.5	60	125	50	75	90	35	55
50	125	80	85	70	5	**8**	8	46	14	**25**	24	60	8.5	70	150	60	90	104	40	64
63	147	100	103	85	6	**8**	—	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

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. 30	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

Flangia uscita | ***Output flange*** | **Abtriebsflansch**

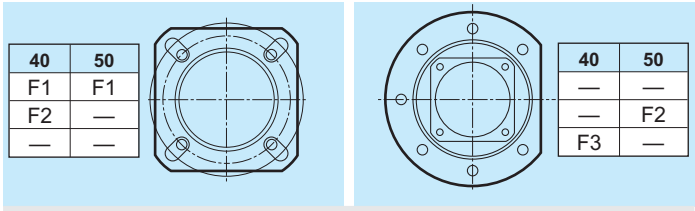


Vista da A / *View from A* / Ansicht von A



30
F1
—
—

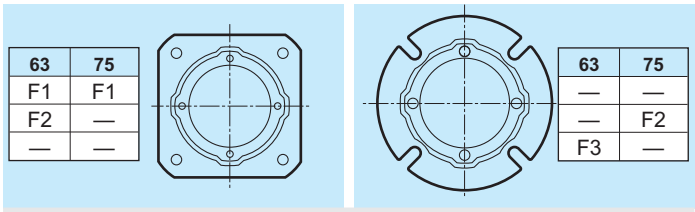
30



40	50
F1	F1
F2	—
—	—

40	50
—	—
—	F2
F3	—

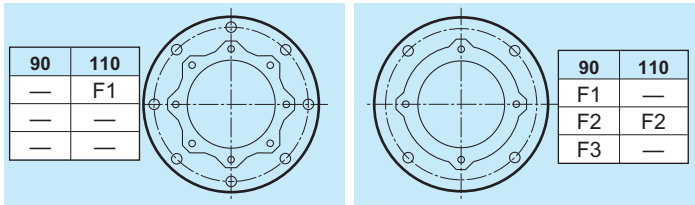
40 - 50



63	75
F1	F1
F2	—
—	—

63	75
—	—
—	F2
F3	—

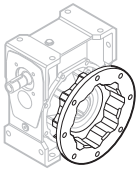
63 - 75



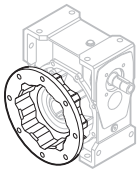
90	110
—	F1
—	—
—	—

90	110
F1	—
F2	F2
F3	—

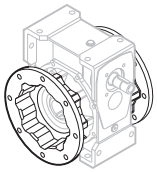
90 - 110



F...D
Standard



F...S



F...2

Tipo *Type* Typ		C	F		G H8	P	Q	R	U	V			Z
												Ø	
30	F1	31.5		66	50	54.5	23	68	4	n* 4		6.5	6
	F2												
	F3												
40	F1	39		85	60	67	28	75-90	4	n* 4		9	8
	F2			85	60	97	58	75-90	4	n* 4		9	8
	F3		140		95	80	41	115	5		n* 7	9	10
50	F1	46		94	70	90	44	85-100	5	n* 4		11	10
	F2		160		110	89	43	130	5		n* 7	11	11
	F3												
63	F1	56		142	115	82	26	150	5	n* 4		11	11
	F2			142	115	112	56	150	5	n* 4		11	11
	F3		160		110	80.5	24.5	130	5	n* 4		11	12
75	F1	60		160	130	111	51	165	5	n* 4		13	12
	F2		160		110	90	30	130	6	n* 4		11	13
	F3												
90	F1	70	200		152	111	41	175	5	n* 4		13	12
	F2		200		152	151	81	175	5	n* 4		13	13
	F3		200		130	110	40	165	6	n* 4		11	11
110	F1	77.5	260		170	131	53.5	230	6		n* 8	13	15
	F2		250		180	150	72.5	215	5	n* 4		15	16
	F3												

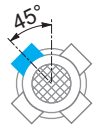
2.7 Dimensioni

2.7 *Dimensions*

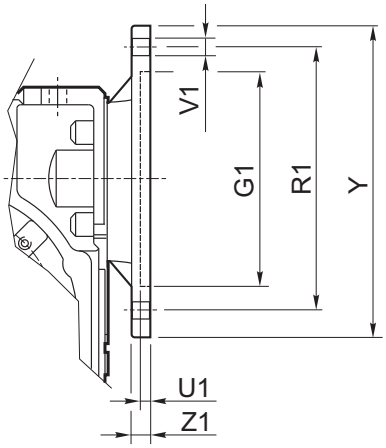
2.7 Abmessungen

Flangia entrata / *Input flange* / Antriebsflansch

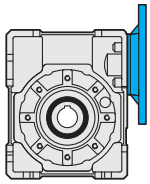
PM = 1



PM = 2



XC..



XC	IEC	G_1 H7	PM 1	PM 2	R_1	U_1	V_1 ∅	V_1	V_1	Y	Z_1	Diametro fori PAM / *Holes diameter IEC* / IEC Durchmesser 7.5	10	15	20	25	30	40	50	65	80	100
30	56 B5	80	•	•	100	4	7	8		120	8	9	9	9	9	9	9	9	9	9	9	9
	56 B14	50		•	65	3.5	6		4	80	8	9	9	9	9	9	9	9	9	9	9	9
	63 B5	95	•	•	115	4	9	8		140	8	11	11	11	11	11	11	11	11	/	/	/
	63 B14	60	•	•	75	4	6	8		90	8	11	11	11	11	11	11	11	11	/	/	/
40	56 B5	80	•	•	100	4	7	8		120	9	/	/	/	/	/	/	/	/	9	9	9
	56 B14	50		•	65	3.5	6		4	80	8	/	/	/	/	/	/	/	/	9	9	9
	63 B5	95	•	•	115	4	9	8		140	9	11	11	11	11	11	11	11	11	11	11	11
	63 B14	60		•	75	3.5	6		4	90	8	11	11	11	11	11	11	11	11	11	11	11
	71 B5	110	•	•	130	4.5	9	8		160	10	14	14	14	14	14	14	14	/	/	/	/
	71 B14	70		•	85	3.5	7		4	105	8	14	14	14	14	14	14	14	/	/	/	/
50	63 B5	95	•	•	115	4	9	8		140	9	/	/	/	/	/	/	/	/	11	11	11
	63 B14	60		•	75	3.5	6		4	90	8	/	/	/	/	/	/	/	/	11	11	11
	71 B5	110	•	•	130	4.5	9	8		160	10	14	14	14	14	14	14	14	14	14	14	14
	71 B14	70		•	85	3.5	7		4	105	8	14	14	14	14	14	14	14	14	14	14	14
	80 B5	130	•	•	165	4.5	11	8		200	10	19	19	19	19	19	19	19	/	/	/	/
	80 B14	80	•	•	100	4	7	8		120	10	19	19	19	19	19	19	19	/	/	/	/
63	71 B5	110	•	•	130	4.5	9	8		160	10	/	/	/	/	/	/	/	/	14	14	14
	71 B14	70		•	85	3.5	7		4	105	10	/	/	/	/	/	/	/	/	14	14	14
	80 B5	130	•	•	165	4.5	11	8		200	10	19	19	19	19	19	19	19	19	19	19	19
	80 B14	80		•	100	4	7		4	120	10	19	19	19	19	19	19	19	19	19	19	19
	90 B5	130	•	•	165	4.5	11	8		200	10	24	24	24	24	24	24	/	/	/	/	/
	90 B14	95	•	•	115	4	8.5	8		140	10	24	24	24	24	24	24	/	/	/	/	/
75	80 B5	130	•	•	165	4.5	11	8		200	10	/	/	/	/	/	/	/	/	19	19	19
	80 B14	80		•	100	4	7		4	120	11	/	/	/	/	/	/	/	/	19	19	19
	90 B5	130	•	•	165	4.5	11	8		200	10	24	24	24	24	24	24	24	24	24	24	24
	90 B14	95		•	115	4	9		4	140	11	24	24	24	24	24	24	24	24	24	24	24
	100/112 B5	180	•	•	215	5	14	8		250	13	28	28	28	28	28	28	/	/	/	/	/
	100/112 B14	110	•	•	130	4.5	9	8		160	11	28	28	28	28	28	28	/	/	/	/	/
90	80 B5	130	•	•	165	4.5	11	8		200	10	/	/	/	/	/	/	/	/	19	19	19
	80 B14	80		•	100	4	7		4	120	11	/	/	/	/	/	/	/	/	19	19	19
	90 B5	130	•	•	165	4.5	11	8		200	10	24	24	24	24	24	24	24	24	24	24	24
	90 B14	95		•	115	4	9		4	140	11	24	24	24	24	24	24	24	24	24	24	24
	100/112 B5	180	•	•	215	5	14	8		250	13	28	28	28	28	28	28	/	/	/	/	/
	100/112 B14	110	•	•	130	4.5	9	8		160	11	28	28	28	28	28	28	/	/	/	/	/
110	90 B5	130	•		165	5	11	4		200	12	/	/	/	/	/	/	24	/	24	24	24
	90 B14	95		•	115	5	9		4	140	12	/	/	/	/	/	/	24	/	24	24	24
	100/112 B5	180	•		215	5	14	4		250	14	28	28	28	28	28	28	28	28	28	28	28
	100/112 B14	110		•	130	5	9		4	160	12	28	28	28	28	28	28	28	28	28	28	28
	132 B5	230	•		265	5	14	4		300	14	38	38	38	38	38	38	/	/	/	/	/
	132 B14	130	•		165	5	11	4		200	12	38	38	38	38	38	38	/	/	/	/	/

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

N.B.: E' possibile realizzare anche tutte le composizioni ibride ottenibili dalle flange esistenti.

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

N.B.: it is possible to create hybrid combinations with the existing flanges.

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

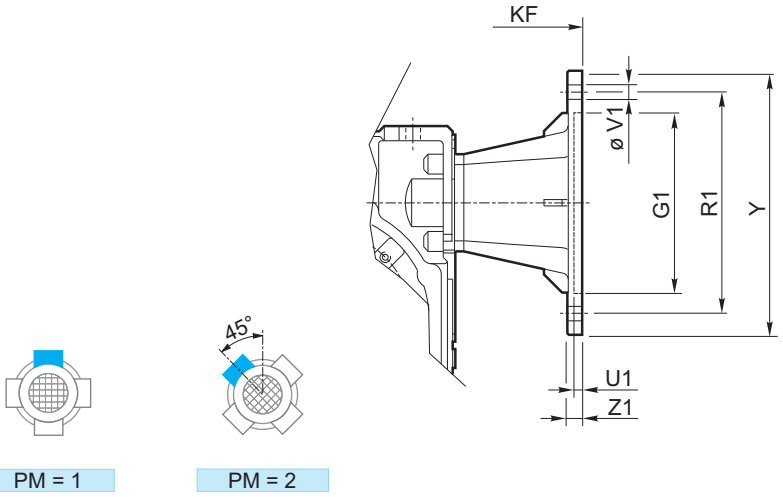
ANMERKUNG: Mischkombinationen mit der verfügbaren Flanschen sind möglich.

2.7 Dimensioni

2.7 *Dimensions*

2.7 Abmessungen

Flangia entrata / *Input flange* / Antriebsflansch



PM = 1 PM = 2

XF	IEC	PM 1	PM 2	G_1 H7	K_F	R_1	U_1	V_1 ∅	V_1	V_1	V_1	Y	Z_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

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.

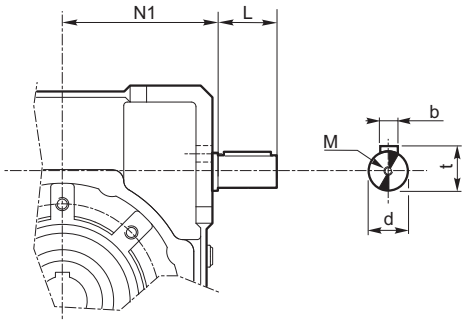
ANMERKUNG: STD Montage von P_M=2 nur wenn STD Montage von P_M=1 unmöglich ist.

2.8 Entrata supplementare (vite bisporgente)

2.8 *Additional input (double extended shaft)*

2.8 Zusatzantrieb (beidseitige 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

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 ±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 volori 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 the prevention of 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 ±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.
Die Vorrichtung verfügt über eine Welle mit durchgehender 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 hoher als der Eichwert ist).
Die Eichung darf mühelos von aussen durch das Anziehen einer selbstsperrenden Mutter ausgeführt werden.
Das Anziehen verursacht die Zusammedrückung der 4 wechelsinniggeschichteten 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 ±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 hoher, 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.

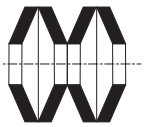
E' importante notare che la coppia di slittamento non resta sempre la medesima durante tutta la vita del limitatore.
Tende infatti a diminuire in rapporto al numero e alla durata degli slittamenti che, rodando le superfici di contatto, ne aumentano il rendimento.
È quindi opportuno verificare periodicamente, 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 whole life of the torque limiter. It usually decreases in connection with the numbers and the duration of the slipping which because of the surfaces' lapping will increase 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 device is supplied already calibrated at the torque reported in the catalogue T_{2M}, unless otherwise specified in the order.

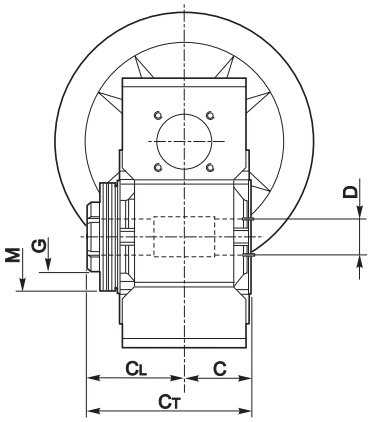
Es ist wichtig zu beachten, dass das Rutschmoment über die gesamte Lebensdauer der Rutschkupplung nicht konstant bleibt, sondern üblicherweise in Verbindung mit längeren Rutschzyklen aufgrund der eingelaufenen Berührungs flächen abnimmt.
Deswegen ist es ratsam, die Eichung der Vorrichtung besonders während der Einlaufzeit zu prüfen.
Falls ein niedriger Eichfehler verlangt wird, ist das übersetzbare Drehmoment auf der Anlage zu testen.
Wenn die Vorrichtung geliefert wird, ist sie schon auf dem im Katalog T_{2M} angegebenen Drehmoment geeicht, ausser wenn es in der Bestellung anders angegeben wird.

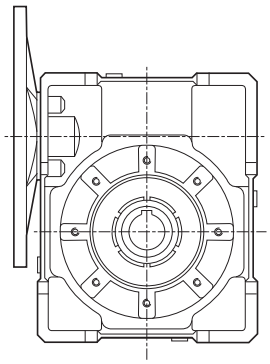
X	N°. giri della ghiera di regolazione / *N°. revolutions of ring nut* / Nr. Umdrehungen der Mutter										
	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4
	M_{2S} [Nm]										
30	15	20	23	25							
40	37	45									
50	45	55	63	70	77						
63			85	95	110	125	137	150			
75					147	165	177	190	205	220	230
90			193	220	247	275	297	320	350	380	
110	425	550	600	700							

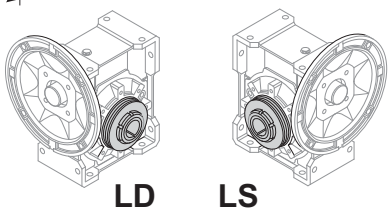
Disposizione delle molle
Washers' arrangement
Lage der Feder



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







LD **LS**

X	C	C_L	C_t	D H7	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

( ) A richiesta / *On request* / Auf Anfrage

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

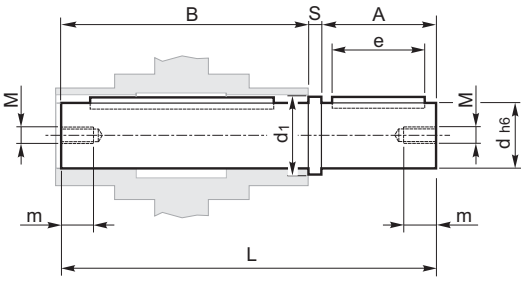
2.10 Zubehör

Albero lento

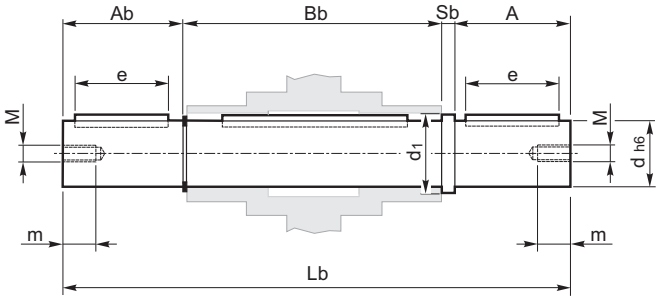
Output shaft

Abtriebswelle

Albero lento semplice
Single output shaft
Standard Abtriebswelle



Albero lento doppio
Double output shaft
Doppelte Abtriebswelle

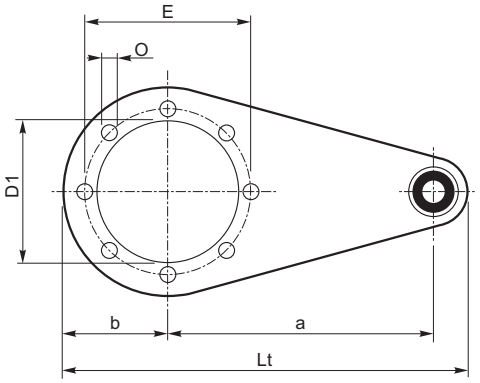


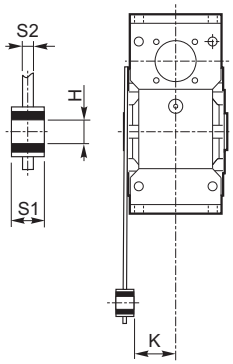
X	A	A_b	B	B_b	d h6	d_1	e	L	L_b	M	m	S	S_b
30	30	29	62	64	14	18.5	20	94.5	126	M6	16	2.5	2.5
40	40	39	77	79	18	23.5	30	120	161	M6	16	3	3
50	50	49	90	93	25	31.5	40	143.5	195.5	M8	22	3.5	3.5
63	50	49	111	113	25	31.5	40	165	216	M8	22	4	4
75	60	59	119	121	28	34.5	50	183	244	M8	22	4	4
90	80	78.5	139	141.5	35	41.5	60	224	305	M10	28	5	5
110	80	77.5	154.5	157	42	49.5	60	242.5	322.5	M10	28	8	8

Braccio di reazione

Torque arm

Drehmomentstütze





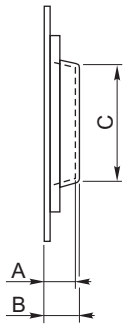
X	a	b	D_1	E	H	K	L_t	O	S1	S2
30	85	37.5	55	65	8	24	141.5	7	14	4
40	100	45	60	75	10	31.5	167	7	14	4
50	100	50	70	85	10	39	172	9	14	5
63	150	55	80	95	10	49	227	9	14	6
75	200	70	95	115	20	47.5	302	9	25	6
90	200	80	110	130	20	57.5	312	11	25	6
110	250	100	130	165	25	62	390	11	30	6

Kit di protezione:

Protection Kit:

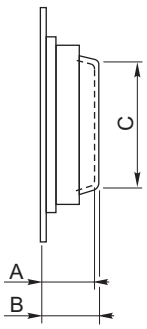
Schutzvorrichtung

Albero cavo / *Hollow shaft* / Hohlwelle



X	A	B	C
30	12	13	39
40	14	15.5	44
50	15	16.5	54
63	17	19	60
75	18	20	70
90	21.5	24	80
110	22	25	96

Limitatore di coppia / *Torque limiter* / Drehmomentbegrenzer



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

Opzioni disponibili:

Cuscinetti a rulli conici corona

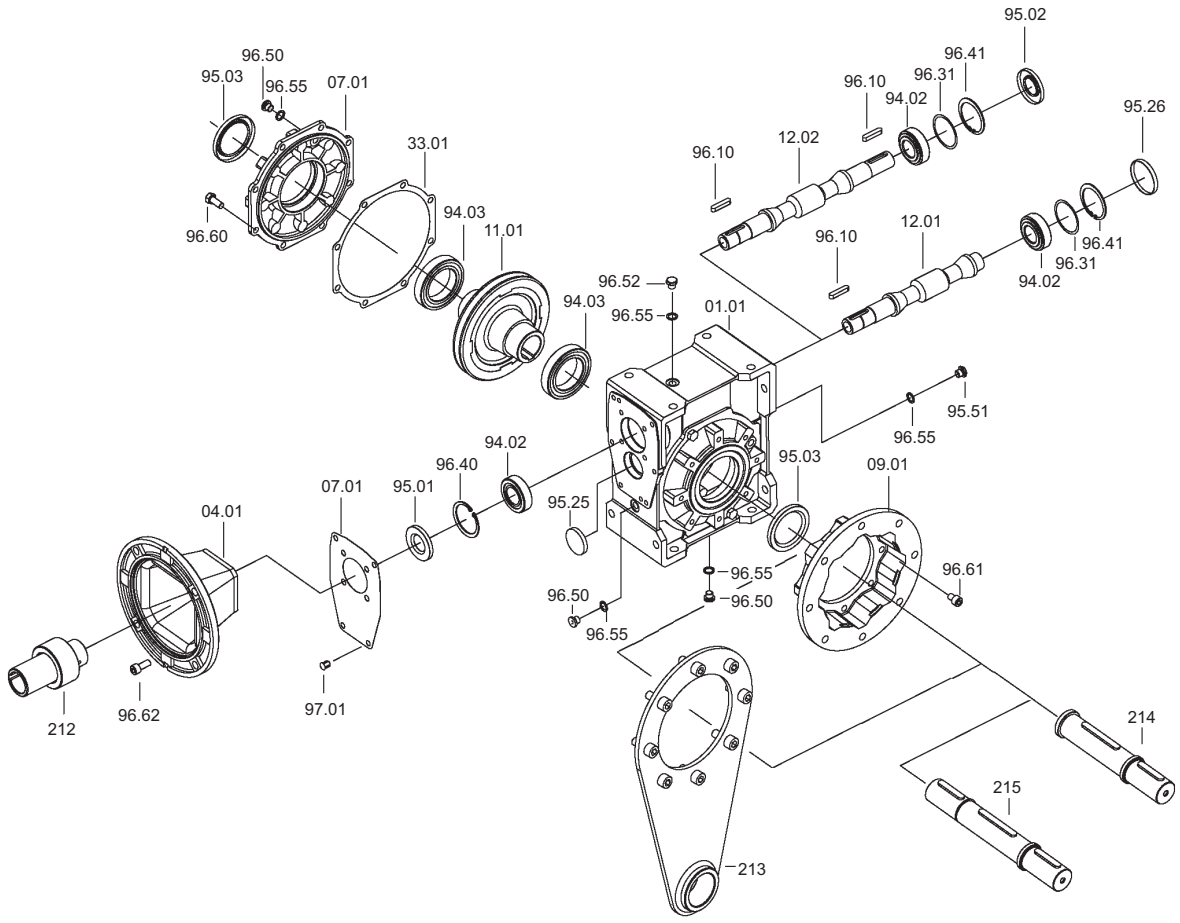
Available options:

Tapered roller bearing for worm wheel

Auf Anfrage ist folgendes Zubehör erhältlich:

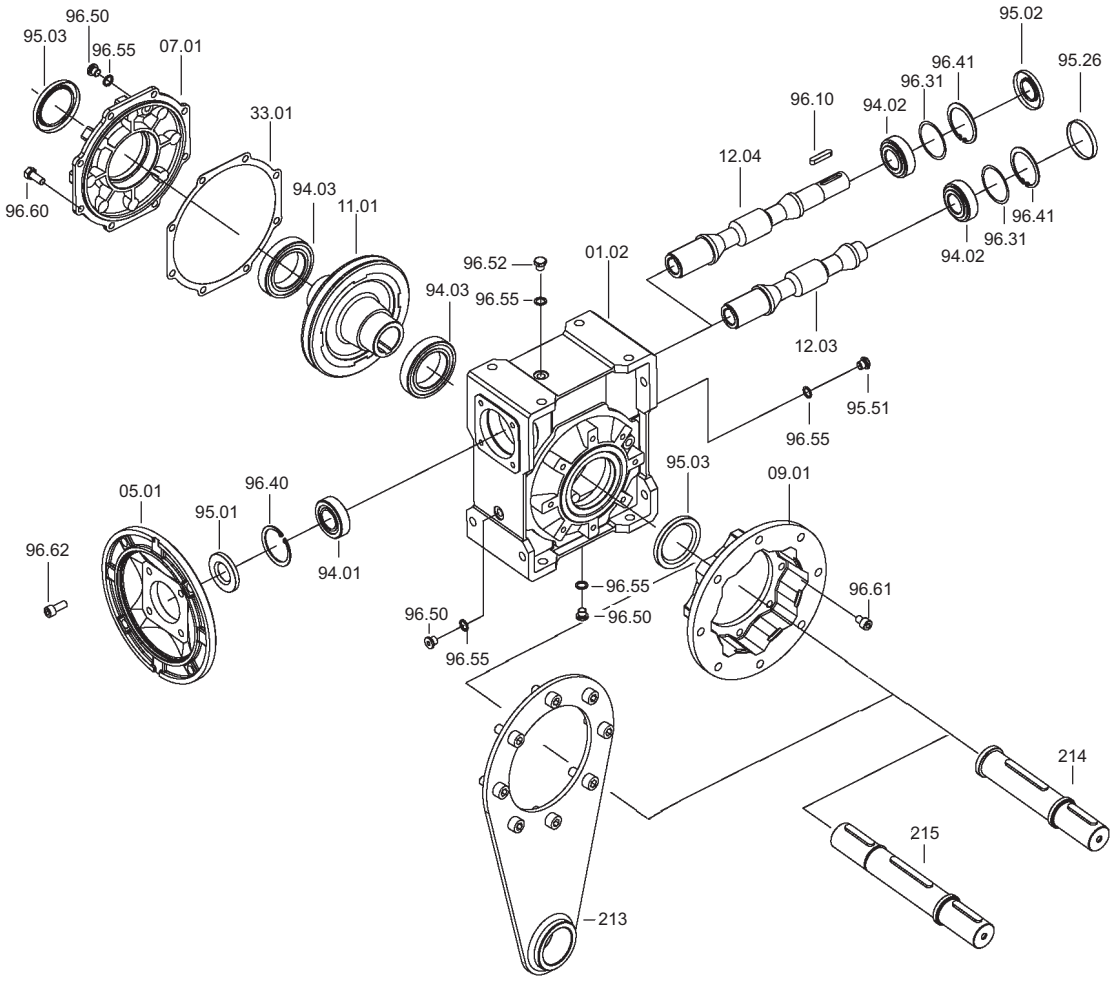
Kegelrollenlager für Schneckenrad

XA - XF



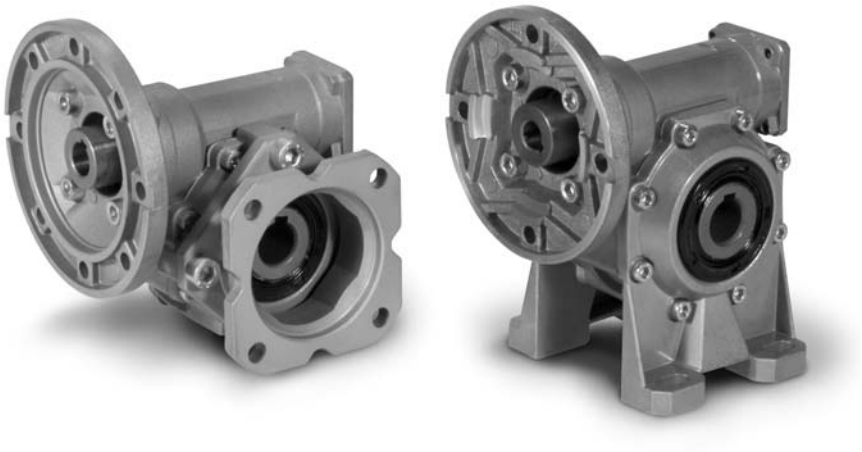
X	Cuscinetti / *Bearings* / Lager		Anelli di tenuta / *Oilseals* Öldichtungen			Cappellotto / *Closed oil seal* Geschlossene Öldichtung	
	94.02	**94.03**	**95.01**	**95.02**	**95.03**	**95.25**	**95.26**
30	**6000** 10x26x8	**6005** 25x47x12	10/26/7	10/26/7	25/40/7	—	ø 6x7
40	**6201** 12x32x10	**6006** 30x55x13	12/32/7	12/32/7	30/47/7	—	ø 32x7
50	**6203** 17x40x12	**6008** 40x68x15	17/40/7	17/40/7	40/62/8	—	ø 40x7
63	**30204** 20x47x15.25	**6008** 40x68x15	20/47/7	20/47/7	40/62/8	—	ø 47x7
75	**30205** 25x52x16.25	**6010** 50x80x16	25/52/7	25/52/7	50/72/8	—	ø 52x7
90	**32205** 25x52x19.25	**6010** 50x80x16	25/52/7	25/52/7	50/72/8	ø 35x5	ø 52x7
110	**32206B** 30x62x21.25	**6012** 60x95x18	30/62/7	30/62/7	60/85/8	ø 47x7	ø 62x7

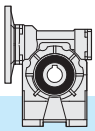
XC



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	20/32/7	10/26/7	25/40/7	ø 26x7
	63	**61804** (20x32x7)			20/32/7			
40	56	**6303** (17x47x14)	**6201** 12x32x10	**6006** 30x55x13	17/47/7	12/32/7	30/47/7	ø 32x7
	63	**6204** (20x47x14)			20/47/7			
	71	**6005** (25x47x12)			25/47/7			
50	63	**6204** (20x47x14)	**6203** 17x40x12	**6008** 40x68x15	20/47/7	17/40/7	40/62/8	ø 40x7
	71	**6005** (25x47x12)			25/47/7			
	80	**6006** (30x55x13)			30/55/7			
63	71	**30305** (25x62x18.25)	**30204** 20x47x15.25	**6008** 40x68x15	25/62/7	20/47/7	40/62/8	ø 47x7
	80	**30206** (30x62x17.25)			30/62/7			
	90	**32007** (35x62x18)			35/62/7			
75	80	**30206** (30x62x17.25)	**30205** 25x52x16.25	**6010** 50x80x16	30/62/7	25/52/7	50/72/8	ø 52x7
	90	**32007** (35x62x18)			35/62/7			
	100/112	**32008** (40x68x19)			40/68/10			
90	80	**30206** (30x62x17.25)	**32205B** 25x52x19.25	**6010** 50x80x16	30/62/7	25/52/7	50/72/8	ø 52x7
	90	**32007** (35x62x18)			35/62/7			
	100/112	**32008** (40x68x19)			40/68/10			
110	90	**30208** (40x80x19.75)	**32206B** 30x62x21.25	**6012** 60x95x18	40/80/10	30/62/7	60/85/8	ø 62x7
	100/112	**30208** (40x80x19.75)			40/80/10			
	132	**32010** (50x80x20)			50/80/10			

3.0 RIDUTTORE A VITE SENZA FINE SERIE K — *K WORM GEARBOXES* — SCHNECKENGETRIEBE K





3.1 Caratteristiche

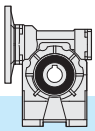
- I riduttori della serie a vite senza fine KC si presentano estremamente leggeri grazie alla forma compatta della carcassa in ghisa nelle grandezze 90 e 110 e in alluminio pressofuso per le grandezze 30, 40, 50, 63 e 75.
- La serie presenta una svariata possibilità di versioni, con e senza piedi, che la rendono più versatile nell'impiego in ogni tipologia di applicazione.
- La serie K è disponibile esclusivamente nella versione predisposta per attacco motore (PAM) e non con albero entrata maschio.
- 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.

3.1 Characteristics

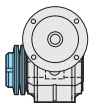
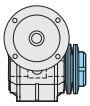
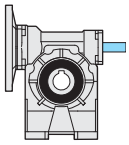
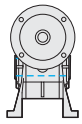
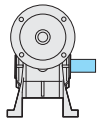
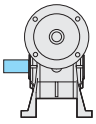
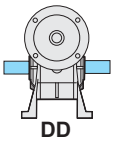
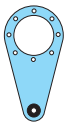
- *The KC worm gearboxes are extremely light thanks to the compact shape of the housing, which is in cast iron for sizes 90 and 110 and in die-cast aluminium for sizes 30, 40, 50, 63 and 75.*
- *This series features a wide range of versions, with and without feet, which makes it extremely versatile for utilization in various applications.*
- *The K series is available for motor mounting version (PAM) only and not with the male input shaft.*
- *The worm shaft is in case-and quenchhardened alloy steel and is ground.*
- *The worm wheel has a cast-iron hub with inserted cast bronze ring.*
- *The cast-iron housings are painted BLUE RAL5010 whereas the aluminium housings 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.*

3.1 Merkmale

- Die Schneckengetriebe der Serie KC sind äußerst leicht dank der kompakten Form des Gehäuses. Das Gehäuse ist aus Gusseisen für Größen 90 und 110, aus Druckgussaluminium für Größen 30, 40, 50, 63 und 75.
- Diese Serie ist in vielen Ausführungen, mit und ohne Füße erhältlich, was eine vielseitige Anwendbarkeit in unterschiedlichsten Applikationen ermöglicht.
- Die Serie K ist nur mit Motoranbau Version (IEC) und nicht mit einer Antriebswelle verfügbar.
- Die Schneckenwelle ist aus einsatzgehärtetem / abgeschrecktem und daraufhin geschliffenem Legierungsstahl.
- Das Schneckenrad besteht aus einer Nabe aus Gusseisen und einem aufgeschleuderten Gussbronze-Ring.
- Gehäuse aus Gusseisen werden mit BLAU RAL5010 lackiert, die Gehäuse 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.

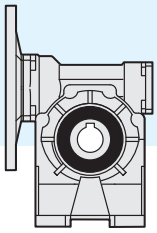


3.2 Designazione — *3.2 Designation* — 3.2 Bezeichnung

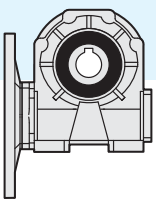
Riduttore *Gearbox* Getriebe	Tipo entrata *Input type* Antriebsart	Grandezza *Size* Größe	Versione *Version* Ausführung	Rapporto rid. *Ratio* Untersetzung	Predispos.att. mot. *Motor coupling* Motoranschluss	Posizione di mont. *Mounting position* Einbaulage	Limitatore di coppia. *Torque limiter* Drehmoment-begrenzer	Seconda entrata *Additional input* Zusatzantrieb	Albero uscita *Output shaft* Abtriebswelle	Braccio di reazione *Torque arm* Drehmomentstütze
K	**C**	**50**	**F1S**	**10**	**P.A.M**	**B3**	**LD**	**SeA**	**H**	**BR**
Riduttore a vite senza fine ***Wormgearbox*** **Schneckengetriebe**	 **C**	**30** **40** **50** **63** **75** **90** **110**	**A1-A2** **B1-B2** **V1-V2** **P** **F1S-F2S** **F3S** **F1D-F2D** **F3D**	**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**	 **LS**  **LD**	 **SeA**	 **H**  **SD**  **SS**  **DD**	 **BR**

Versioni — ***Versions*** — **Ausführungen**

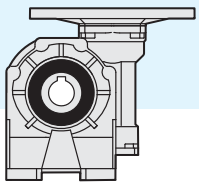
KC..A



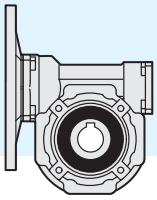
KC..B



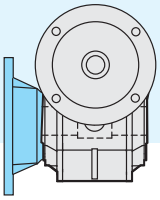
KC..V



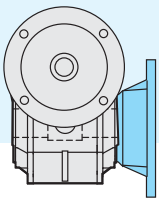
KC..P



KC..FS



KC..FD



3.3 Lubrificazione

I riduttori a vite senza fine KC 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 montaggio desiderata.

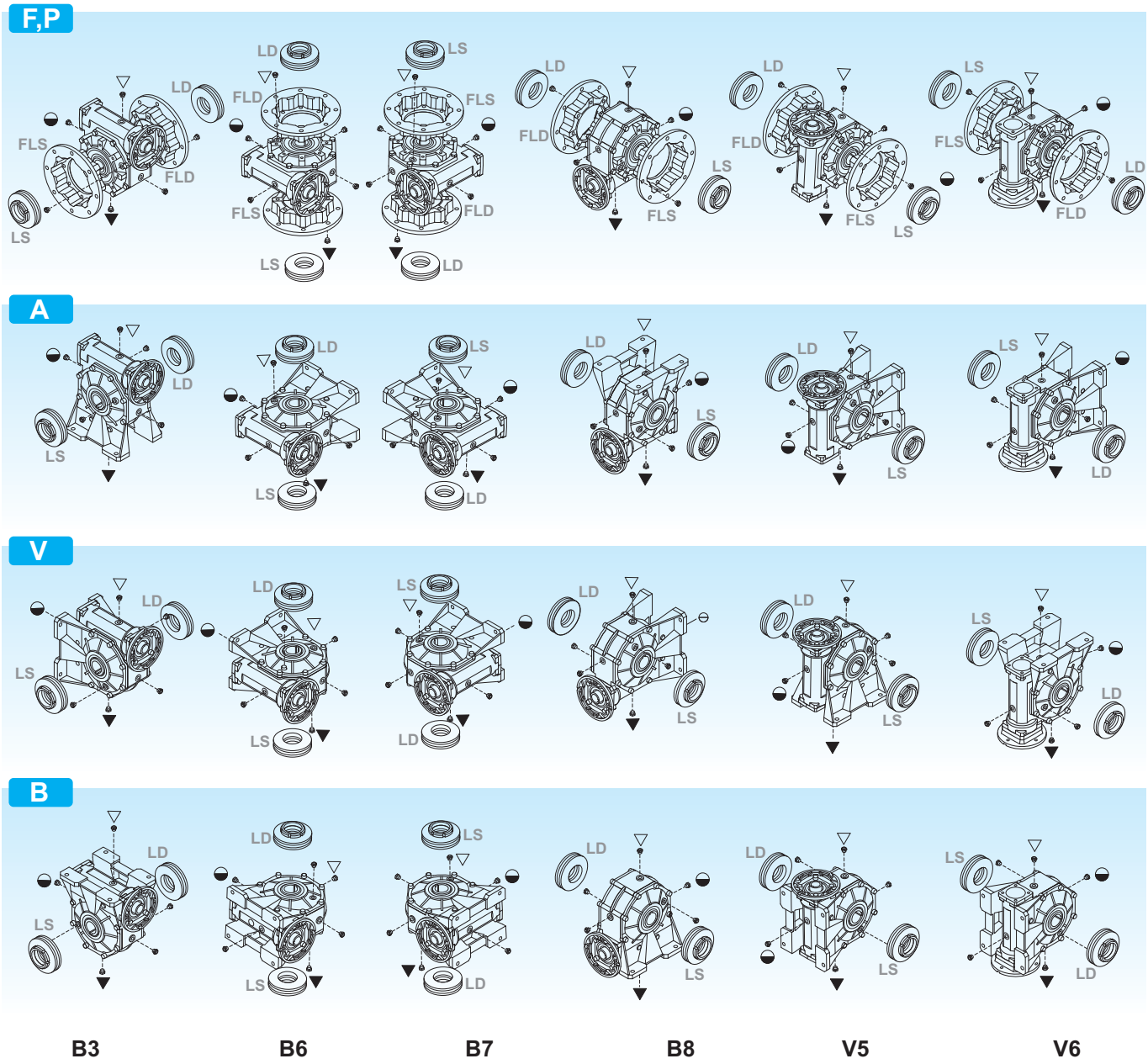
3.3 *Lubrication*

KC worm gearboxes are supplied with PAG synthetic lubricant featuring an ISO VG320 viscosity class.
Always specify the required mounting position when ordering.

3.3 Schmierung

KC Schneckengetriebe werden mit PAG synthetischen Schmiermittel Viskositätklasse ISO VG320 geliefert.
Im Auftrag bitte immer die gewünschte Einbaulage angeben.

Posizioni di montaggio | ***Mounting positions*** | **Einbaulagen**



B3 **B6** **B7** **B8** **V5** **V6**

▽ 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.

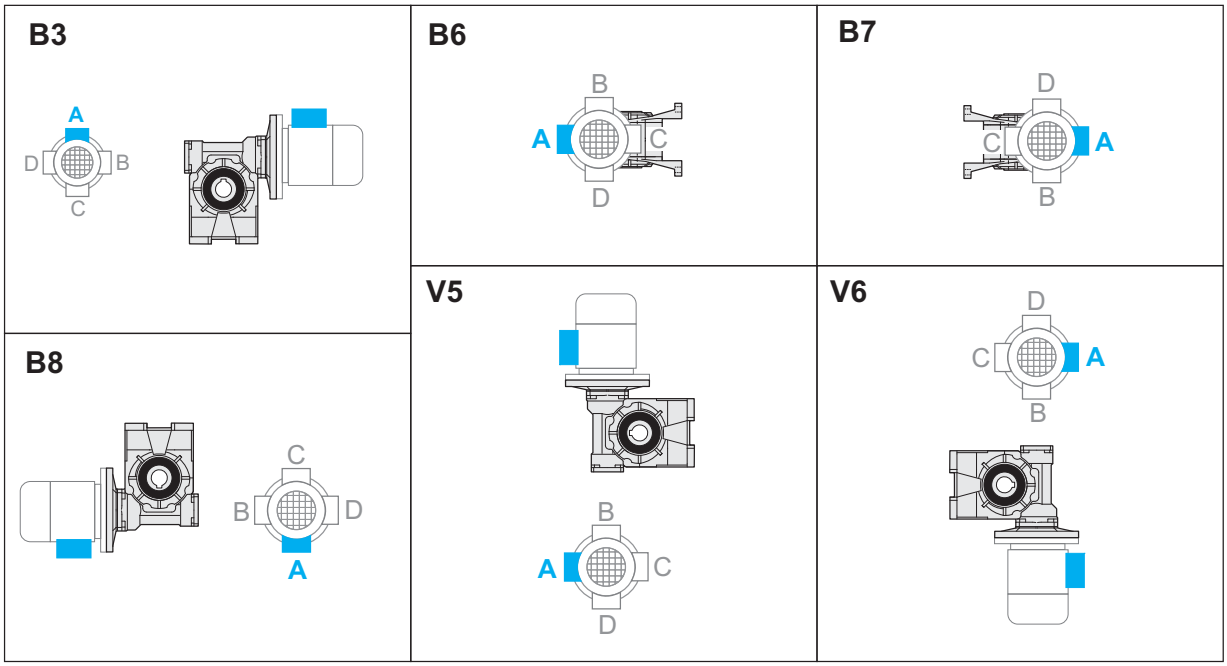
Aluminium housings size 30, 40, 50, 63 and 75 have one filling plug only.

Gehäuse aus Alumiunium Größe 30, 40, 50, 63 und 75 verfügen über nur eine Einfüllschraube.

3.3 Lubrificazione — *3.3 Lubrication* — 3.3 Schmierung

		Q.tà olio / *Oil quantity* / Schmiermittelmenge [lt] Posizione di montaggio / *Mounting position* / Einbaulage			
		B3	**B6 - B7**	**B8**	**V5 - V6**
KC	**30**	0.015			
	40	0.040			
	50	0.080			
	63	0.160			
	75	0.260			
	90	1.1	0.9	1.3	1.2
	110	2.4	2	2.8	2.7

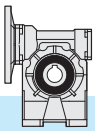
3.4 Posizione morsettiera — *3.4 Terminal board position* — 3.4 Lage der Klemmenkaste



Specificare sempre in fase di ordinazione la posizione di montaggio e la forma costruttiva.

Specify the version and the mounting position when ordering.

Bei der Bestellung immer die gewünschte Montageposition und Bauform angeben.



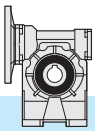
3.5 **Dati tecnici** *3.5* ***Technical data*** 3.5 **Technische Daten**

	n_1 = 2800		KC						
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14		Rd	P_{t0}
30	**7.5**	373	8	**0.37**	2.0			0.86	
	10	280	11	**0.37**	1.5			0.84	
	15	187	15	**0.37**	1.1			0.81	
	20	140	13	**0.25**	1.2	**63**		0.76	
	25	112	16	**0.25**	1.0			0.74	
	30	93	13	**0.18**	1.0		**56**	0.71	—
Kg	**40**	70	16	**0.18**	1.0			0.65	
	50	56	14	**0.13**	1.1			0.62	
1.2	**65**	43	17	**0.13**	1.0			0.57	
	80	35	13	**0.09**	1.0	—		0.54	
	100	28	16	**0.09**	0.8			0.52	

	n_1 = 1400		KC						
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14		Rd	P_{t0}
30	**7.5**	187	9	**0.22**	2.2			0.84	0.40
	10	140	12	**0.22**	1.8			0.82	0.40
	15	93	17	**0.22**	1.3			0.77	0.30
	20	70	18	**0.18**	1.1	**63**		0.72	0.20
	25	56	21	**0.18**	1.0			0.69	0.20
	30	47	18	**0.13**	1.1		**56**	0.66	0.20
Kg	**40**	35	21	**0.13**	1.0			0.59	0.20
	50	28	17	**0.09**	1.1			0.55	0.20
1.2	**65**	22	20	**0.09**	1.0			0.51	0.10
	80	18	16	**0.06**	1.0	—		0.48	0.10
	100	14	18	**0.06**	0.8			0.45	0.10

	n_1 = 900		KC						
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14		Rd	P_{t0}
30	**7.5**	120	9	**0.13**	2.9			0.82	
	10	90	11	**0.13**	2.3			0.80	
	15	60	15	**0.13**	1.6			0.75	
	20	45	19	**0.13**	1.2	**63**		0.69	
	25	36	23	**0.13**	1.1			0.66	
	30	30	18	**0.09**	1.2		**56**	0.63	—
Kg	**40**	23	21	**0.09**	1.1			0.55	
	50	18	16	**0.06**	1.3			0.52	
1.2	**65**	14	20	**0.06**	1.1			0.48	
	80	11	11	**0.03**	1.7	—		0.44	
	100	9	13	**0.03**	1.1			0.42	

	n_1 = 500		KC						
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14		Rd	P_{t0}
30	**7.5**	67	—	—	—			0.80	
	10	50	—	—	—			0.77	
	15	33	—	—	—			0.72	
	20	25	—	—	—			0.66	
	25	20	—	—	—	**63**		0.62	
	30	17	—	—	—			0.59	—
	40	13	—	—	—		**56**	0.51	
Kg	**50**	10	—	—	—			0.48	
1.2	**65**	8	—	—	—			0.43	
	80	6	—	—	—	—		0.40	
	100	5	—	—	—			0.38	



3.5 **Dati tecnici** | *3.5* ***Technical data*** | 3.5 **Technische Daten**

40

Kg 2.0

n_1 = 2800		KC							
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
7.5	373	17	**0.75**	1.8				0.87	
10	280	22	**0.75**	1.4				0.86	
15	187	32	**0.75**	1.0				0.82	
20	140	30	**0.55**	1.0	**71**			0.80	
25	112	24	**0.37**	1.1			—	0.76	
30	93	28	**0.37**	1.3		**63**		0.73	—
40	70	24	**0.25**	1.4				0.70	
50	56	28	**0.25**	1.1				0.65	
65	43	24	**0.18**	1.2	—			0.61	
80	35	21	**0.13**	1.3			**56**	0.58	
100	28	24	**0.13**	1.0				0.55	

40

Kg 2.0

n_1 = 1400		KC							
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
7.5	187	24	**0.55**	1.7				0.85	0.80
10	140	31	**0.55**	1.3				0.83	0.70
15	93	30	**0.37**	1.4				0.79	0.50
20	70	38	**0.37**	1.0	**71**			0.76	0.50
25	56	31	**0.25**	1.1			—	0.72	0.40
30	47	35	**0.25**	1.2		**63**		0.68	0.40
40	35	38	**0.22**	1.0				0.64	0.30
50	28	36	**0.18**	1.1				0.59	0.30
65	22	31	**0.13**	1.1	—			0.54	0.20
80	18	31	**0.11**	1.1			**56**	0.52	0.20
100	14	30	**0.09**	0.9				0.49	0.20

40

Kg 2.0

n_1 = 900		KC							
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
7.5	120	25	**0.37**	2.0				0.83	
10	90	32	**0.37**	1.5				0.81	
15	60	45	**0.37**	1.1				0.76	
20	45	39	**0.25**	1.2	**71**			0.74	
25	36	33	**0.18**	1.3			—	0.69	
30	30	37	**0.18**	1.3		**63**		0.65	—
40	23	33	**0.13**	1.3				0.61	
50	18	38	**0.13**	1.1				0.55	
65	14	32	**0.09**	1.2	—			0.51	
80	11	37	**0.09**	1.0			**56**	0.48	
100	9	29	**0.06**	1.0				0.45	

40

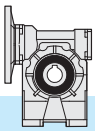
Kg 2.0

n_1 = 500		KC							
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
7.5	67	10	**0.09**	5.5				0.81	
10	50	14	**0.09**	4.4				0.79	
15	33	19	**0.09**	3.1				0.73	
20	25	24	**0.09**	2.3	**71**			0.70	
25	20	28	**0.09**	1.7			—	0.65	
30	17	31	**0.09**	1.8		**63**		0.61	—
40	13	39	**0.09**	1.3				0.57	
50	10	44	**0.09**	1.2				0.51	
65	8	52	**0.09**	0.9	—			0.46	
80	6	61*	**0.09**	0.7*			**56**	0.44	
100	5	71*	**0.09**	0.4*				0.41	

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

**** WARNING:** Maximum admissible 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: $T_{2M} = T_2 \times FS'$



3.5 **Dati tecnici** *3.5* ***Technical data*** 3.5 **Technische Daten**

50

Kg 3.4

n_1 = 2800		KC							
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
7.5	373	34	**1.5**	1.5				0.88	
10	280	44	**1.5**	1.2				0.86	
15	187	47	**1.1**	1.2				0.84	
20	140	42	**0.75**	1.4	**80**			0.81	
25	112	50	**0.75**	1.0			—	0.78	
30	93	42	**0.55**	1.3		**71**		0.75	—
40	70	54	**0.55**	1.0				0.72	
50	56	43	**0.37**	1.3				0.68	
65	43	53	**0.37**	1.0	—			0.64	
80	35	41	**0.25**	1.2			**63**	0.61	
100	28	35	**0.18**	1.3				0.58	

50

Kg 3.4

n_1 = 1400		KC							
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
7.5	187	40	**0.9**	1.8				0.86	1.2
10	140	52	**0.9**	1.4				0.84	1.0
15	93	74	**0.9**	1.0				0.80	0.80
20	70	58	**0.55**	1.3	**80**		—	0.78	0.70
25	56	47	**0.37**	1.4				0.74	0.60
30	47	53	**0.37**	1.2		**71**		0.71	0.60
40	35	68	**0.37**	1.0				0.67	0.50
50	28	53	**0.25**	1.3				0.62	0.40
65	22	64	**0.25**	1.0	—			0.58	0.40
80	18	53	**0.18**	1.1			**63**	0.54	0.40
100	14	45	**0.13**	1.2				0.51	0.30

50

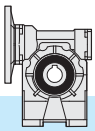
Kg 3.4

n_1 = 900		KC							
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
7.5	120	50	**0.75**	1.6				0.84	
10	90	66	**0.75**	1.3				0.82	
15	60	68	**0.55**	1.3				0.78	
20	45	59	**0.37**	1.5	**80**		—	0.75	
25	36	70	**0.37**	1.1				0.71	
30	30	79	**0.37**	1.0		**71**		0.67	—
40	23	67	**0.25**	1.1				0.63	
50	18	78	**0.25**	1.0				0.59	
65	14	67	**0.18**	1.1	—			0.54	
80	11	56	**0.13**	1.2			**63**	0.51	
100	9	45	**0.09**	1.3				0.47	

50

Kg 3.4

n_1 = 500		KC							
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
7.5	67	21	**0.18**	4.7				0.82	
10	50	28	**0.18**	3.8				0.80	
15	33	39	**0.18**	2.7				0.75	
20	25	50	**0.18**	2.1	**80**		—	0.72	
25	20	58	**0.18**	1.5				0.68	
30	17	65	**0.18**	1.5		**71**		0.63	—
40	13	81	**0.18**	1.2				0.59	
50	10	93	**0.18**	1.0				0.54	
65	8	56	**0.09**	1.5	—			0.50	
80	6	63	**0.09**	1.2			**63**	0.46	
100	5	74	**0.09**	0.8				0.43	



3.5 **Dati tecnici** 3.5 ***Technical data*** 3.5 **Technische Daten**

63

Kg 5.7

n_1 = 2800		KC							
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
7.5	373	68	**3**	1.3				0.88	
10	280	89	**3**	1.1				0.87	
15	187	95	**2.2**	1.0	**90**			0.84	
20	140	85	**1.5**	1.3				0.83	
25	112	76	**1.1**	1.2			—	0.81	
30	93	87	**1.1**	1.3		**80**		0.77	—
40	70	111	**1.1**	1.1				0.74	
50	56	90	**0.75**	1.1				0.70	
65	43	81	**0.55**	1.2	—			0.67	
80	35	65	**0.37**	1.4			**71**	0.64	
100	28	75	**0.37**	1.1				0.60	

63

Kg 5.7

n_1 = 1400		KC							
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
7.5	187	80	**1.8**	1.5				0.87	1.8
10	140	105	**1.8**	1.2				0.85	1.6
15	93	125	**1.5**	1.1	**90**			0.81	1.2
20	70	120	**1.1**	1.2			—	0.80	1.2
25	56	118	**0.9**	1.0				0.77	1.0
30	47	134	**0.9**	1.1		**80**		0.73	0.90
40	35	142	**0.75**	1.1				0.69	0.80
50	28	122	**0.55**	1.0				0.65	0.70
65	22	100	**0.37**	1.2	—			0.61	0.60
80	18	79	**0.25**	1.4			**71**	0.58	0.60
100	14	91	**0.25**	1.1				0.53	0.50

63

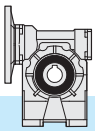
Kg 5.7

n_1 = 900		KC							
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
7.5	120	102	**1.5**	1.4				0.85	
10	90	133	**1.5**	1.1				0.83	
15	60	139	**1.1**	1.1	**90**			0.79	
20	45	123	**0.75**	1.4			—	0.77	
25	36	109	**0.55**	1.3				0.74	
30	30	122	**0.55**	1.3		**80**		0.70	—
40	23	154	**0.55**	1.1				0.66	
50	18	120	**0.37**	1.2				0.61	
65	14	98	**0.25**	1.4	—			0.57	
80	11	115	**0.25**	1.1			**71**	0.54	
100	9	95	**0.18**	1.2				0.50	

63

Kg 5.7

n_1 = 500		KC							
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
7.5	67	30	**0.25**	5.9				0.83	
10	50	39	**0.25**	4.7				0.81	
15	33	55	**0.25**	3.4	**90**			0.76	
20	25	71	**0.25**	2.8			—	0.74	
25	20	85	**0.25**	1.9				0.71	
30	17	94	**0.25**	2.1		**80**		0.65	—
40	13	118	**0.25**	1.7				0.62	
50	10	135	**0.25**	1.2				0.56	
65	8	163	**0.25**	1.0	—			0.52	
80	6	137	**0.18**	1.1			**71**	0.50	
100	5	77	**0.09**	1.6				0.45	



3.5 **Dati tecnici** *3.5* ***Technical data*** 3.5 **Technische Daten**

75

Kg 9.5

n_1 = 2800		KC							
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
7.5	373	125	**5.5**	1.0	**112 100**	**90**	—	0.89	—
10	280	120	**4**	1.2				0.88	
15	187	131	**3**	1.2				0.85	
20	140	171	**3**	1.0				0.84	
25	112	154	**2.2**	1.0				0.82	
30	93	120	**1.5**	1.4				0.78	
40	70	154	**1.5**	1.2	—			0.75	
50	56	136	**1.1**	1.2				0.73	
65	43	114	**0.75**	1.4			**80**	0.69	
80	35	135	**0.75**	1.1				0.66	
100	28	159	**0.75**	0.8				0.62	

75

Kg 9.5

n_1 = 1400		KC							
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
7.5	187	178	**4**	1.0	**112 100**	**90**	—	0.87	2.5
10	140	176	**3**	1.1				0.86	2.3
15	93	187	**2.2**	1.1				0.83	1.9
20	70	199	**1.8**	1.1				0.81	1.7
25	56	200	**1.5**	1.0				0.78	1.5
30	47	167	**1.1**	1.3				0.74	1.2
40	35	213	**1.1**	1.1	—			0.71	1.1
50	28	206	**0.9**	1.0				0.67	1.0
65	22	154	**0.55**	1.3			**80**	0.63	0.90
80	18	180	**0.55**	1.0				0.60	0.80
100	14	210	**0.55**	0.8				0.56	0.70

75

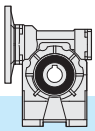
Kg 9.5

n_1 = 900		KC							
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
7.5	120	205	**3**	1.0	**112 100**	**90**	—	0.86	—
10	90	197	**2.2**	1.2				0.84	
15	60	231	**1.8**	1.0				0.81	
20	45	250	**1.5**	1.1				0.78	
25	36	221	**1.1**	1.1				0.76	
30	30	249	**1.1**	1.0				0.71	
40	23	214	**0.75**	1.3	—			0.67	
50	18	186	**0.55**	1.3				0.64	
65	14	151	**0.37**	1.5			**80**	0.59	
80	11	177	**0.37**	1.2				0.56	
100	9	203	**0.37**	0.9				0.52	

75

Kg 9.5

n_1 = 500		KC							
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
7.5	67	90	**0.75**	2.9	**112 100**	**90**	—	0.84	—
10	50	118	**0.75**	2.4				0.82	
15	33	167	**0.75**	1.7				0.78	
20	25	216	**0.75**	1.5				0.75	
25	20	260	**0.75**	1.1				0.72	
30	17	288	**0.75**	1.1				0.67	
40	13	265	**0.55**	1.2	—			0.63	
50	10	210	**0.37**	1.3				0.59	
65	8	251	**0.37**	1.0			**80**	0.55	
80	6	197	**0.25**	1.2				0.52	
100	5	161	**0.18**	1.3				0.47	



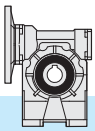
3.5 **Dati tecnici** | *3.5* ***Technical data*** | 3.5 **Technische Daten**

	n_1 = 2800		KC							
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
90	**7.5**	373	171	**7.5**	1.2	**112 100**	**90**	—	0.89	—
	10	280	165	**5.5**	1.3				0.88	
	15	187	241	**5.5**	1.0				0.86	
	20	140	230	**4**	1.2				0.84	
	25	112	212	**3**	1.2				0.83	
	30	93	243	**3**	1.1				0.79	
Kg	**40**	70	230	**2.2**	1.3	—			0.77	
16.4	**50**	56	278	**2.2**	1.0				0.74	
	65	43	235	**1.5**	1.1			**80**	0.71	
	80	35	205	**1.1**	1.2				0.68	
	100	28	163	**0.75**	1.3				0.64	

	n_1 = 1400		KC							
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
90	**7.5**	187	247	**5.5**	1.2	**112 100**	**90**	—	0.88	3.0
	10	140	236	**4**	1.3				0.86	2.5
	15	93	256	**3**	1.2				0.84	2.2
	20	70	334	**3**	1.1				0.82	2.0
	25	56	299	**2.2**	1.1				0.80	1.8
	30	47	340	**2.2**	1.0				0.76	1.5
Kg	**40**	35	355	**1.8**	1.1	—			0.72	1.3
16.4	**50**	28	353	**1.5**	1.0				0.69	1.1
	65	22	317	**1.1**	1.0			**80**	0.65	1.0
	80	18	309	**0.9**	1.0				0.63	1.0
	100	14	217	**0.55**	1.2				0.58	0.80

	n_1 = 900		KC							
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
90	**7.5**	120	206	**3**	1.7	**112 100**	**90**	—	0.86	—
	10	90	270	**3**	1.3				0.85	
	15	60	286	**2.2**	1.3				0.82	
	20	45	371	**2.2**	1.1				0.79	
	25	36	369	**1.8**	1.0				0.77	
	30	30	416	**1.8**	1.0				0.73	
Kg	**40**	23	440	**1.5**	1.0	—			0.69	
16.4	**50**	18	384	**1.1**	1.0				0.66	
	65	14	319	**0.75**	1.1			**80**	0.62	
	80	11	274	**0.55**	1.2				0.59	
	100	9	313	**0.55**	1.0				0.54	

	n_1 = 500		KC							
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
90	**7.5**	67	91	**0.75**	4.7	**112 100**	**90**	—	0.84	—
	10	50	118	**0.75**	3.7				0.83	
	15	33	169	**0.75**	2.7				0.79	
	20	25	219	**0.75**	2.3				0.76	
	25	20	265	**0.75**	1.7				0.74	
	30	17	294	**0.75**	1.6				0.68	
Kg	**40**	13	371	**0.75**	1.4	—			0.65	
16.4	**50**	10	439	**0.75**	1.1				0.61	
	65	8	388	**0.55**	1.1			**80**	0.57	
	80	6	305	**0.37**	1.3				0.54	
	100	5	344	**0.37**	1.0				0.49	



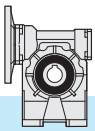
3.5 **Dati tecnici** *3.5* ***Technical data*** 3.5 **Technische Daten**

	n_1 = 2800		KC								
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
110	**7.5**	373	343	**15**	1.0	**132**	**112 100**	—	0.89	—
	10	280	332	**11**	1.1				0.88	
	15	187	331	**7.5**	1.2				0.86	
	20	140	435	**7.5**	1.1				0.85	
	25	112	393	**5.5**	1.1				0.84	
	30	93	450	**5.5**	1.0				0.80	
Kg	**40**	70	424	**4**	1.2	—		**90**	0.78	
	50	56	388	**3**	1.2			—	0.76	
31.5	**65**	43	354	**2.2**	1.2			**90**	0.73	
	80	35	287	**1.5**	1.4				0.70	
	100	28	339	**1.5**	1.1				0.66	

	n_1 = 1400		KC							
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
110	**7.5**	187	415	**9.2**	1.2	**132**	**112 100**	—	0.88	4.3
	10	140	446	**7.5**	1.1				0.87	4.0
	15	93	475	**5.5**	1.1				0.84	3.2
	20	70	623	**5.5**	1.0				0.83	3.0
	25	56	554	**4**	1.0				0.81	2.7
	30	47	472	**3**	1.3				0.77	2.2
Kg	**40**	35	606	**3**	1.1	—		**90**	0.74	2.0
	50	28	538	**2.2**	1.1			—	0.72	1.8
31.5	**65**	22	451	**1.5**	1.2			**90**	0.68	1.6
	80	18	390	**1.1**	1.3				0.65	1.5
	100	14	458	**1.1**	1.0				0.61	1.3

	n_1 = 900		KC							
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
110	**7.5**	120	381	**5.5**	1.5	**132**	**112 100**	—	0.87	—
	10	90	500	**5.5**	1.2				0.86	
	15	60	526	**4**	1.2				0.83	
	20	45	685	**4**	1.1				0.81	
	25	36	628	**3**	1.1				0.79	
	30	30	520	**2.2**	1.3				0.74	
Kg	**40**	23	664	**2.2**	1.1	—		**90**	0.71	
	50	18	653	**1.8**	1.1			—	0.68	
31.5	**65**	14	487	**1.1**	1.2			**90**	0.64	
	80	11	570	**1.1**	1.0				0.61	
	100	9	450	**0.75**	1.1				0.57	

	n_1 = 500		KC							
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5/B14			Rd	P_{t0}
110	**7.5**	67	183	**1.5**	3.9	**132**	**112 100**	—	0.85	—
	10	50	240	**1.5**	3.1				0.84	
	15	33	344	**1.5**	2.3				0.80	
	20	25	446	**1.5**	1.9				0.78	
	25	20	542	**1.5**	1.5				0.76	
	30	17	603	**1.5**	1.4				0.70	
Kg	**40**	13	765	**1.5**	1.2	—		**90**	0.67	
	50	10	671	**1.1**	1.2			—	0.64	
31.5	**65**	8	553	**0.75**	1.3			**90**	0.59	
	80	6	643	**0.75**	1.0				0.56	
	100	5	542	**0.55**	1.1				0.52	



3.6 **Momenti d' inerzia** [Kg·cm^2]
(riferiti all'albero veloce in entrata)

3.6 ***Moments of inertia*** *[Kg·cm^2]*
(referred to input shaft)

3.6 **Trägheitsmoment** [Kg·cm^2]
((bez. Antriebswelle)

K30

i_n	KC B5 - B14 IEC 56	KC B5 - B14 IEC 63
7.5	0.112	0.109
10	0.103	0.100
15	0.097	0.094
20	0.095	0.092
25	0.094	0.091
30	0.093	0.090
40	0.093	0.090
50	0.092	0.089
65	0.079	-
80	0.079	-
100	0.078	-

K75

i_n	KC B5 - B14 IEC 80	KC B5 - B14 IEC 90	KC B5 - B14 IEC 100-112
7.5	-	3.712	4.462
10	-	3.234	3.984
15	-	2.893	3.643
20	-	2.774	3.523
25	-	2.709	3.458
30	-	2.689	3.438
40	-	2.659	-
50	-	2.642	-
65	1.569	2.633	-
80	1.565	2.629	-
100	1.562	2.626	-

K40

i_n	KC B5 - B14 IEC 56	KC B5 - B14 IEC 63	KC B5 - B14 IEC 71
7.5	-	0.321	0.356
10	-	0.272	0.347
15	-	0.266	0.340
20	-	0.263	0.338
25	-	0.262	0.337
30	-	0.262	0.337
40	-	0.261	-
50	-	0.261	-
65	0.182	0.261	-
80	0.182	0.261	-
100	0.182	0.261	-

K90

i_n	KC B5 - B14 IEC 80	KC B5 - B14 IEC 90	KC B5 - B14 IEC 100-112
7.5	-	6.898	7.671
10	-	5.875	6.648
15	-	5.144	5.917
20	-	3.398	5.661
25	-	3.256	5.520
30	-	3.215	5.479
40	-	3.151	-
50	-	3.115	-
65	2.024	3.096	-
80	2.014	3.087	-
100	2.008	3.080	-

K50

i_n	KC B5 - B14 IEC 63	KC B5 - B14 IEC 71	KC B5 - B14 IEC 80
7.5	-	0.684	0.935
10	-	0.602	0.853
15	-	0.543	0.794
20	-	0.523	0.774
25	-	0.513	0.764
30	-	0.508	0.759
40	-	0.503	-
50	-	0.501	-
65	0.311	0.499	-
80	0.310	0.498	-
100	0.309	0.498	-

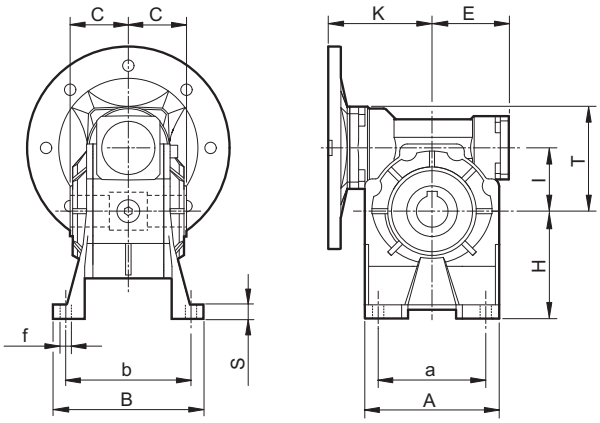
K110

i_n	KC B5 - B14 IEC 90	KC B5 - B14 IEC 100-112	KC B5 - B14 IEC 132
7.5	-	17.980	20.038
10	-	15.119	17.177
15	-	13.076	15.134
20	-	8.367	14.418
25	-	7.969	14.020
30	-	11.850	13.908
40	-	7.677	-
50	-	7.578	-
65	5.592	7.510	-
80	5.570	7.489	-
100	5.555	7.474	-

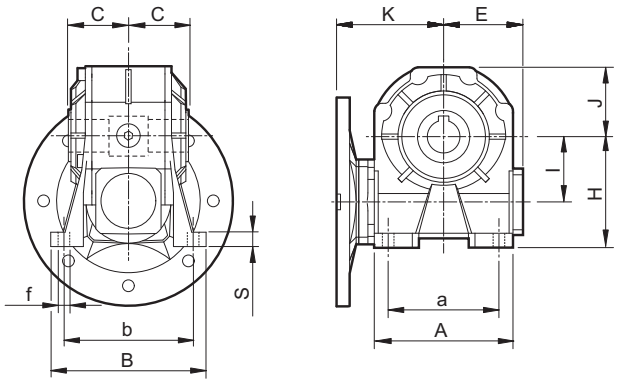
K63

i_n	KC B5 - B14 IEC 71	KC B5 - B14 IEC 80	KC B5 - B14 IEC 90
7.5	-	1.949	2.269
10	-	1.744	2.063
15	-	1.597	1.916
20	-	1.545	1.864
25	-	1.514	1.833
30	-	1.508	1.828
40	-	1.495	-
50	-	1.488	-
65	0.955	1.484	-
80	0.953	1.482	-
100	0.952	1.481	-

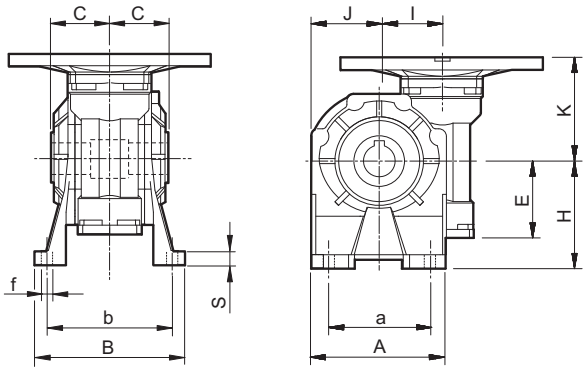
3.7 Dimensioni — *3.7 Dimensions* — 3.7 Abmessungen



KC..A

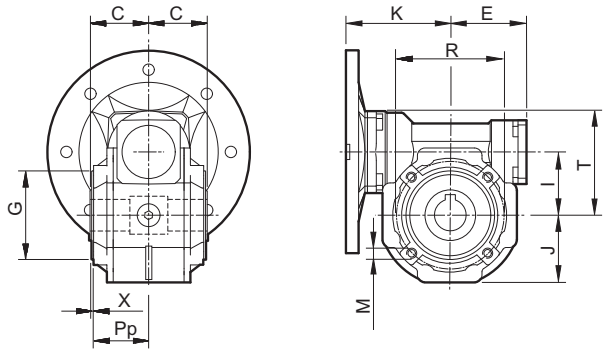


KC..B



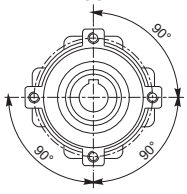
KC..V

	30	40	50	63	75	90	110
b2	5	6 (6)	8 (8)	8	8 (8)	10	12
C	31.5	39	46	56	60	70	77.5
D2 H7	14	18 (19)	25 (24)	25	28 (30)	35	42
E	41	51	60	71	85	103	127.5
G h8	55	60	70	80	95	110	130
I	31.5	40	50	63	75	90	110
J	37.5	43.5	53.5	64	78	100	122
K	57	75	82	97	114	122	153
M	M6x8	M6x10	M8x10	M8x14	M8x14	M10x18	M10x18
Pp	29	36.5	43.5	53	57	67	74
R	65	75	85	95	115	130	165
T	52.5	68.5	82.5	100.5	116.5	131.5	161.5
t2	16.3	20.8 (21.8)	28.3 (27.3)	28.3	31.3 (33.3)	38.3	45.3
X	1.5	1.5	1.5	2	2	2	2.5



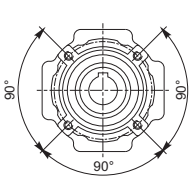
Flangia pendolare / *Side cover for shaft mounting* / Aufsteckflansch

30



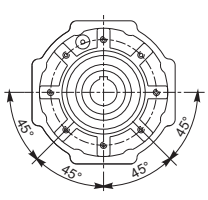
4
Fori / *Holes* / Bohrungen

40 - 50



4
Fori / *Holes* / Bohrungen

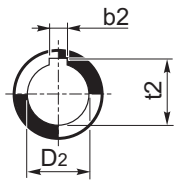
63 - 75 - 90 - 110



8
Fori / *Holes* / Bohrungen

KC..P

	Piedi *Feet* Füß	30	40	50	63	75	90	110
A	1	67	86.5	106	127.5	155.5	190	250
	2	67	86.5	106			190	250
a	1	40-52	70	63-85	95	120	140	200
	2	40-52	52	63-85			140	200
B	1	78	98	119	136	140	168	210
	2	78	98	119			168	210
b	1	66	84	99	111	115	140	162
	2	66	81	99			146	181
f	1	6.5	7	9	11	11	13	13
	2	6.5	8.5	9			11	13
H	1	52	71	85	100	115	135	172
	2	55	72	82			142	170
S	1	5	9	11	12	12	14	17
	2	8	10	8			14	15

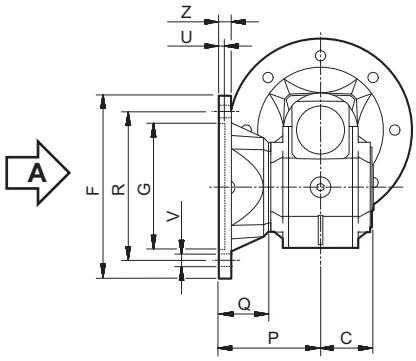


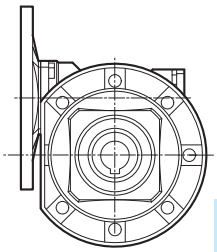
Albero uscita cavo
Hollow output shaft
Abtriebshohlwelle

3.7 Dimensioni

3.7 Dimensions

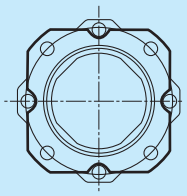
3.7 Abmessungen





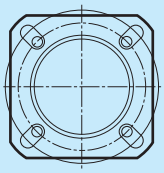
Vista da A / *View from A* / Ansicht von A

30
F1
—
—

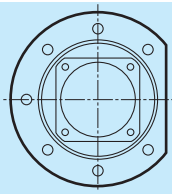


30

40	50
F1	F1
F2	—
—	—

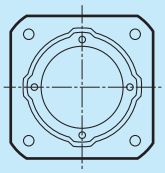


40	50
—	—
—	F2
F3	—

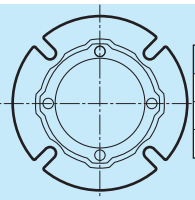


40 - 50

63	75
F1	F1
F2	—
—	—

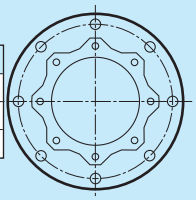


63	75
—	—
—	F2
F3	—

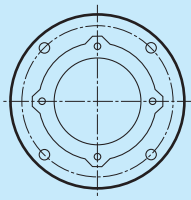


63 - 75

90	110
—	F1
—	—
—	—

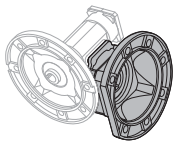


90	110
F1	—
F2	F2
F3	—

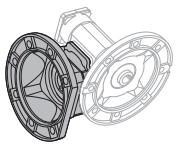


90 - 110

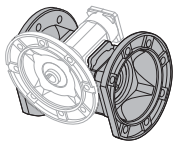
KC..F



F...D
Standard



F...S



F...2

KC		C	F		G (H8)	P	Q	R	U	V		Ø	Z
30	F1	31.5		66	50	54.5	23	68	4	n* 4		6.5	6
	F2												
	F3												
40	F1	39		85	60	67	28	75-90	4	n* 4		9	8
	F2			85	60	97	58	75-90	4	n* 4		9	8
	F3		140		95	80	41	115	5		n* 7	9	10
50	F1	46		94	70	90	44	85-100	5	n* 4		11	10
	F2		160		110	89	43	130	5		n* 7	11	11
	F3												
63	F1	56		142	115	82	26	150	5	n* 4		11	11
	F2			142	115	112	56	150	5	n* 4		11	11
	F3		160		110	80.5	24.5	130	5	n* 4		11	12
75	F1	60		160	130	111	51	165	5	n* 4		13	12
	F2		160		110	90	30	130	6	n* 4		11	13
	F3												
90	F1	70	200		152	111	41	175	5	n* 4		13	12
	F2		200		152	151	81	175	5	n* 4		13	13
	F3		200		130	110	40	165	6	n* 4		11	11
110	F1	77.5	260		170	131	53.5	230	6		n* 8	13	15
	F2		250		180	150	72.5	215	5	n* 4		15	16
	F3												

3.7 Dimensioni

3.7 *Dimensions*

3.7 Abmessungen

Flangia entrata / *Input flange* / Antriebsflansch

KC	IEC	G_1 H7	PM 1	PM 2	R_1	U_1	V_1 ∅	V_1	V_1	Y	Z_1	Diametro fori PAM / *Holes diameter IEC* / Bohrungen IEC 7.5	10	15	20	25	30	40	50	65	80	100
30	56 B5	80	•	•	100	4	7	8		120	8	9	9	9	9	9	9	9	9	9	9	9
	56 B14	50		•	65	3.5	6		4	80	8	9	9	9	9	9	9	9	9	9	9	9
	63 B5	95	•	•	115	4	9	8		140	8	11	11	11	11	11	11	11	11	/	/	/
	63 B14	60	•	•	75	4	6	8		90	8	11	11	11	11	11	11	11	11	/	/	/
40	56 B5	80	•	•	100	4	7	8		120	9	/	/	/	/	/	/	/	/	9	9	9
	56 B14	50		•	65	3.5	6		4	80	8	/	/	/	/	/	/	/	/	9	9	9
	63 B5	95	•	•	115	4	9	8		140	9	11	11	11	11	11	11	11	11	11	11	11
	63 B14	60		•	75	3.5	6		4	90	8	11	11	11	11	11	11	11	11	11	11	11
	71 B5	110	•	•	130	4.5	9	8		160	10	14	14	14	14	14	14	14	/	/	/	/
	71 B14	70		•	85	3.5	7		4	105	8	14	14	14	14	14	14	14	/	/	/	/
50	63 B5	95	•	•	115	4	9	8		140	9	/	/	/	/	/	/	/	/	11	11	11
	63 B14	60		•	75	3.5	6		4	90	8	/	/	/	/	/	/	/	/	11	11	11
	71 B5	110	•	•	130	4.5	9	8		160	10	14	14	14	14	14	14	14	14	14	14	14
	71 B14	70		•	85	3.5	7		4	105	8	14	14	14	14	14	14	14	14	14	14	14
	80 B5	130	•	•	165	4.5	11	8		200	10	19	19	19	19	19	19	19	/	/	/	/
	80 B14	80	•	•	100	4	7	8		120	10	19	19	19	19	19	19	19	/	/	/	/
63	71 B5	110	•	•	130	4.5	9	8		160	10	/	/	/	/	/	/	/	/	14	14	14
	71 B14	70		•	85	3.5	7		4	105	10	/	/	/	/	/	/	/	/	14	14	14
	80 B5	130	•	•	165	4.5	11	8		200	10	19	19	19	19	19	19	19	19	19	19	19
	80 B14	80		•	100	4	7		4	120	10	19	19	19	19	19	19	19	19	19	19	19
	90 B5	130	•	•	165	4.5	11	8		200	10	24	24	24	24	24	24	/	/	/	/	/
	90 B14	95	•	•	115	4	8.5	8		140	10	24	24	24	24	24	24	/	/	/	/	/
75	80 B5	130	•	•	165	4.5	11	8		200	10	/	/	/	/	/	/	/	/	19	19	19
	80 B14	80		•	100	4	7		4	120	11	/	/	/	/	/	/	/	/	19	19	19
	90 B5	130	•	•	165	4.5	11	8		200	10	24	24	24	24	24	24	24	24	24	24	24
	90 B14	95		•	115	4	9		4	140	11	24	24	24	24	24	24	24	24	24	24	24
	100/112 B5	180	•	•	215	5	14	8		250	13	28	28	28	28	28	28	/	/	/	/	/
	100/112 B14	110	•	•	130	4.5	9	8		160	11	28	28	28	28	28	28	/	/	/	/	/
90	80 B5	130	•	•	165	4.5	11	8		200	10	/	/	/	/	/	/	/	/	19	19	19
	80 B14	80		•	100	4	7		4	120	11	/	/	/	/	/	/	/	/	19	19	19
	90 B5	130	•	•	165	4.5	11	8		200	10	24	24	24	24	24	24	24	24	24	24	24
	90 B14	95		•	115	4	9		4	140	11	24	24	24	24	24	24	24	24	24	24	24
	100/112 B5	180	•	•	215	5	14	8		250	13	28	28	28	28	28	28	/	/	/	/	/
	100/112 B14	110	•	•	130	4.5	9	8		160	11	28	28	28	28	28	28	/	/	/	/	/
110	90 B5	130	•		165	5	11	4		200	12	/	/	/	/	/	/	24	/	24	24	24
	90 B14	95		•	115	5	9		4	140	12	/	/	/	/	/	/	24	/	24	24	24
	100/112 B5	180	•		215	5	14	4		250	14	28	28	28	28	28	28	28	28	28	28	28
	100/112 B14	110		•	130	5	9		4	160	12	28	28	28	28	28	28	28	28	28	28	28
	132 B5	230	•		265	5	14	4		300	14	38	38	38	38	38	38	/	/	/	/	/
	132 B14	130	•		165	5	11	4		200	12	38	38	38	38	38	38	/	/	/	/	/

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

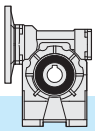
N.B.: E' possibile realizzare anche tutte le composizioni ibride ottenibili dalle flange esistenti.

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

N.B.: it is possible to create hybrid combinations with the existing flanges.

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

ANMERKUNG: Mischkombinationen mit der verfügbaren Flanschen sind möglich.

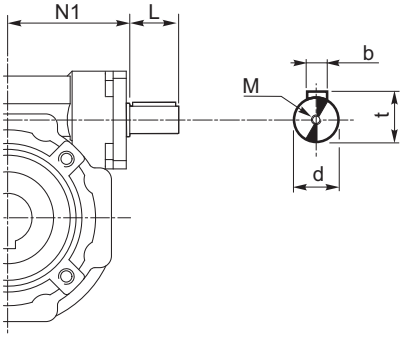


3.8 **Entrata supplementare**
(vite bisporgente)

3.8 ***Additional input***
(double extended shaft)

3.8 **Zusatzantrieb**
(beidseitige Welle)

S.e.A.



KC	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	72.5	6	21.5
75	24	40	M8x20	93	8	27
90	24	40	M8x20	108	8	27
110	28	50	M8x20	132.5	8	31

3.9 **Limitatore di coppia cavo passante**

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 ±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 volori 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.

3.9 ***Torque limiter with through hollow shaft***

The use of a torque limiter is advisable when the application requires the limitation of the transmissible torque to safeguard the plant and/or the gearbox from unexpected or undesired overloads.
The torque limiter is equipped with a through hollow shaft and a friction clutch. It is integrated in the gearbox, therefore space requirement is limited.
Designed to be working in oil bath, the device is reliable over time and is not subject to wear unless in case of operation with prolonged slipping (it occurs when the torque values are higher than the calibration values).
Calibration can be easily adjusted from outside by tightening of 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 ±10% tolerance and refer to static conditions.
Under dynamic conditions the values of the slipping torque will change according 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.

3.9 **Drehmomentenbegrenzer mit durchgehender Holwelle**

Die Anwendung eines Drehmoment- begrenzers wird empfohlen, um die Anlage und/oder das Getriebe gegen ungewünschte und unerwartete Überbe- lastungen zu schützen.
Es handelt sich um eine Vorrichtung mit einer durchgehender Hohlwelle.
Er ist in dem Getriebe integriert, d.h. der Raumbedarf ist klein. Der Begrenzer wurde für Betrieb in einem Ölbad entworfen.
Er ist zuverläßig über Zeit und verschleissfest (aussen wenn Rutschen für lange Zeit besteht: das passiert, wenn das Drehmoment höher als der Eichwert ist).
Die Eichung darf mühelos von aussen durch das Anziehen einer selbstsperrenden Mutter ausgeführt werden. Das Anziehen verursacht die Zusammendrückung der 4 wechselsinniggeschichteten Tellerfeder.

Die Vorrichtung 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 ±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 hoher, 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 Berüehrungsflächen 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.

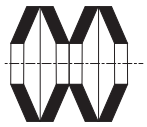
E' importante notare che la coppia di slittamento non resta sempre la medesima durante tutta la vita del limitatore.
Tende infatti a diminuire in rapporto al numero e alla durata degli slittamenti che, rodando le superfici di contatto, ne aumentano il rendimento.
È quindi opportuno verificare periodicamente, 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 whole life of the torque limiter.
It usually decreases in connection with the numbers and the duration of the slipping which because of the surfaces' lapping will increase 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 device is supplied already calibrated at the torque reported in the catalogue T_{2M}, unless otherwise specified in the order.

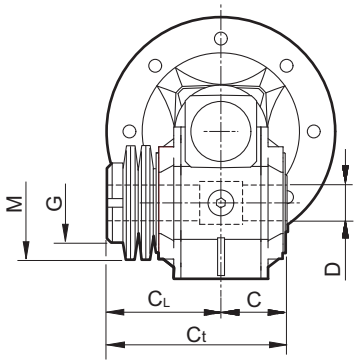
Es ist wichtig zu beachten, dass das Rutschmoment über die gesamte Lebensdauer der Rutschkupplung nicht konstant bleibt, sondern üblicherweise in Verbindung mit längeren Rutschzyklen aufgrund der eingelaufenen Berührungsflächen abnimmt.
Deswegen ist es ratsam, die Eichung der Vorrichtung besonders während der Einlaufzeit zu prüfen.
Falls ein niedriger Eichfehler verlangt wird, ist das übersetzbare Drehmoment auf der Anlage zu testen.
Wenn die Vorrichtung geliefert wird, ist sie schon auf dem im Katalog T_{2M} angegebenen Drehmoment geeicht, ausser wenn es in der Bestellung anders angegeben wird.

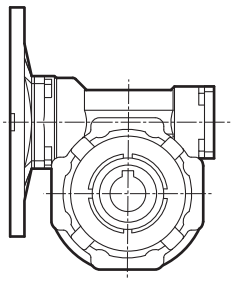
KC	N°. giri della ghiera di regolazione / *N°. revolutions of ring nut* / Nr. Umdrehungen der Mutter										
	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4
	M_{2S} [Nm]										
30	15	20	23	25							
40	37	45									
50	45	55	63	70	77						
63			85	95	110	125	137	150			
75					147	165	177	190	205	220	230
90			193	220	247	275	297	320	350	380	
110	425	550	600	700							

Disposizione delle molle
Washers' arrangement
Lage der Feder



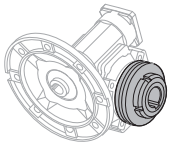
IN SERIE (min. coppia, max. sensibilità)
SERIES *(min. torque, max sensitivity)*
SERIE (min. Moment, max. Empfindlichkeit)



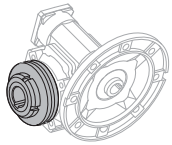


KC	C	C_L	C_t	D H7	M	G
30	31.5	55.5	87	14	50x25.4x1.25	M25x1.5
40	39	65	104	18 (19)	56x30.5x1.5	M30x1.5
50	46	76	122	25 (24)	63x40.5x1.8	M40x1.5
63	56	91	147	25	71x40.5x2	M40x1.5
75	60	100	160	28 (30)	90x50.5x2.5	M50x1.5
90	70	109	179	35 (32)	100x51x2.7	M50x1.5
110	77.5	127.5	205	42	125x61x4	M60x2.0

( ) A richiesta / *On request* / Auf Anfrage



LD



LS

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

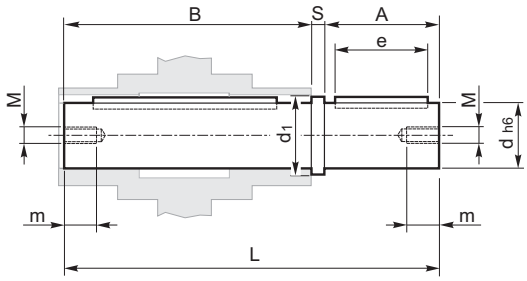
The version with torque limiter is supplied without output shafts.

Die Version mit Drehmomentbegrenzer wird ohne Abtriebswellen geliefert.

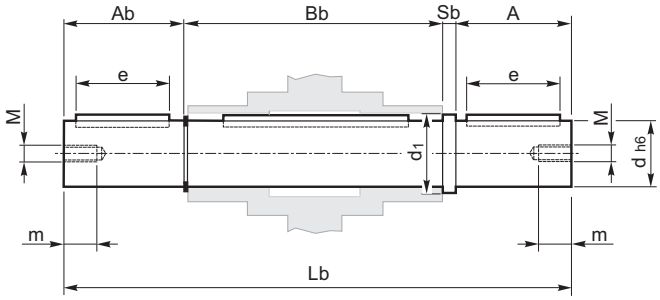
3.10 Accessori

Albero lento

Albero lento semplice
Single output shaft
Standard Abtriebswelle

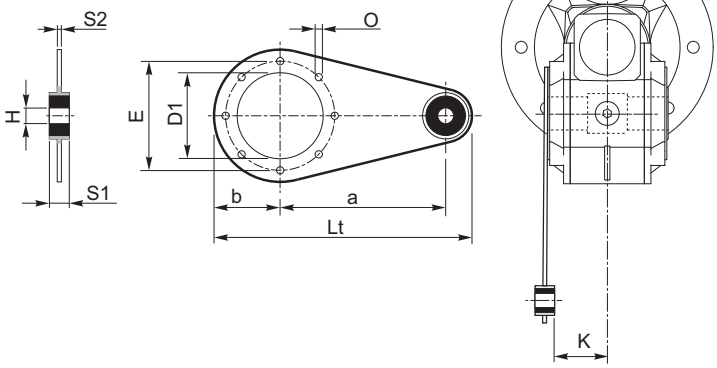


Albero lento doppio
Double output shaft
Doppelte Abtriebswelle



KC	A	Ab	B	Bb	d (h6)	d1	e	L	Lb	M	m	S	Sb
30	30	29	62	64	14	18.5	20	94.5	126	M6	16	2.5	2.5
40	40	39	77	79	18	23.5	30	120	161	M6	16	3	3
50	50	49	90	93	25	31.5	40	143.5	195.5	M8	22	3.5	3.5
63	50	49	111	113	25	31.5	40	165	216	M8	22	4	4
75	60	59	119	121	28	34.5	50	183	244	M8	22	4	4
90	80	78.5	139	141.5	35	41.5	60	224	305	M10	28	5	5
110	80	77.5	154.5	157	42	49.5	60	242.5	322.5	M10	28	8	8

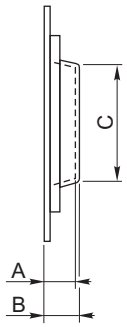
Braccio di reazione



KC	a	b	D1	E	H	K	Lt	O	S1	S2
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

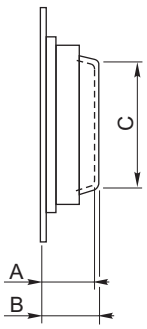
Kit di protezione:

Albero cavo / *Hollow shaft* / Hohlwelle



KC	A	B	C
30	12	13	39
40	14	15.5	44
50	15	16.5	54
63	17	19	60
75	18	20	70
90	21.5	24	80
110	22	25	96

Limitatore di coppia / *Torque limiter* / Drehmomentbegrenzer



KC	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

Opzioni disponibili:

Cuscinetti a rulli conici corona

3.10 Accessories

Output shaft

Torque arm

Protection Kit:

Available options:

Tapered roller bearings on worm wheel

3.10 Zubehör

Abtriebswelle

Drehmomentstütze

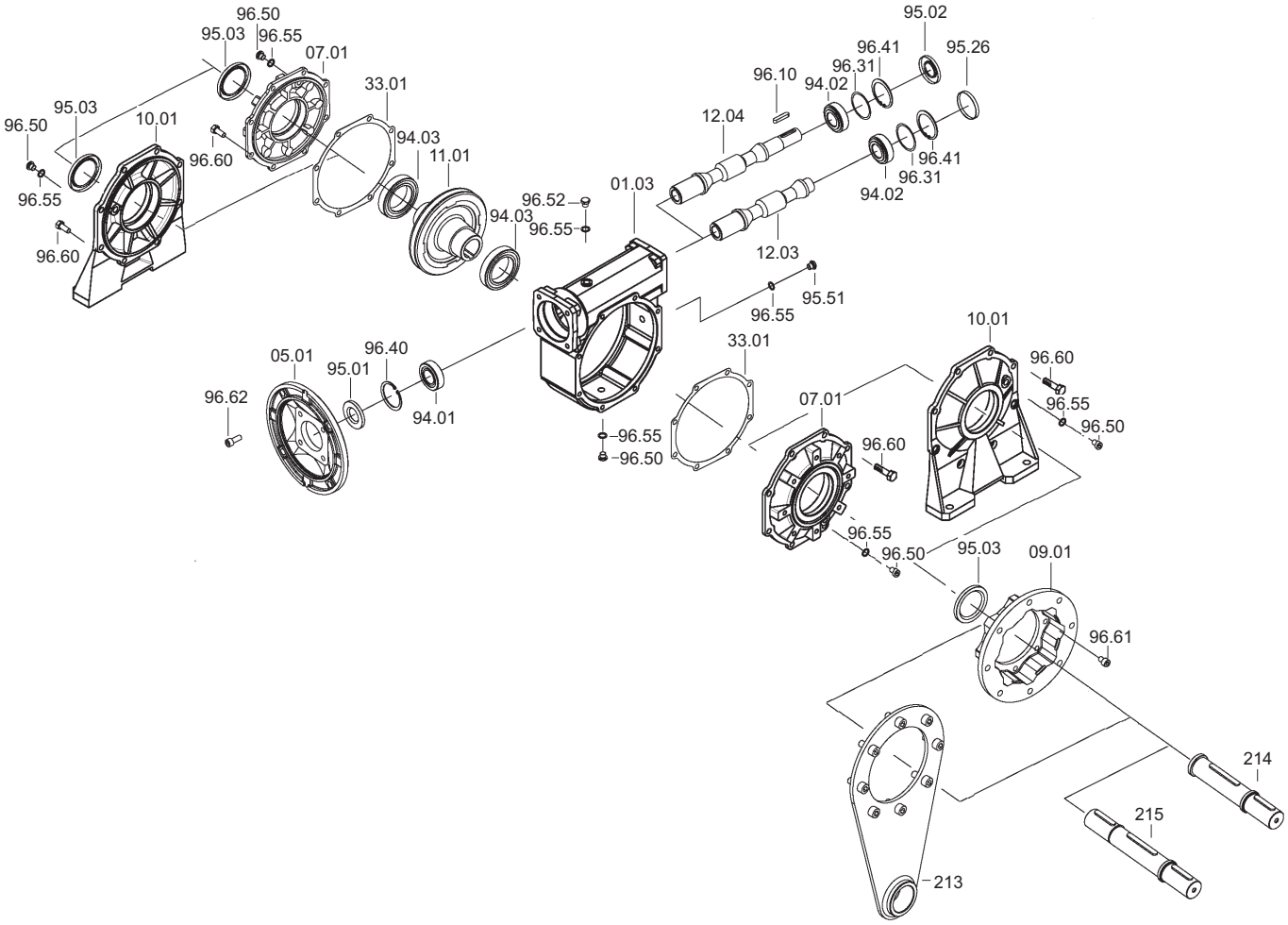
Kit

Auf Anfrage ist folgendes Zubehör erhältlich:

Kegelrollenlager auf Schneckenrad

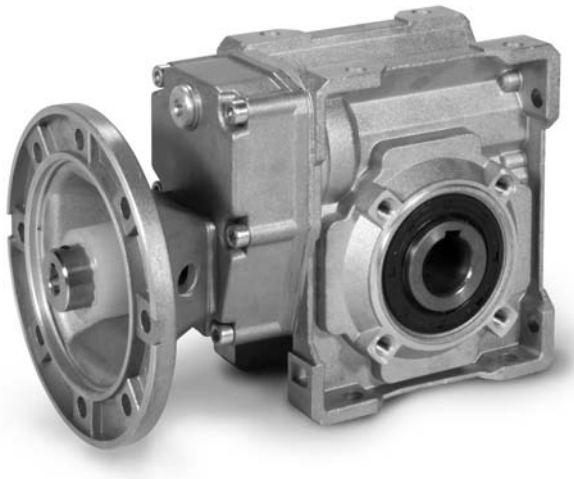
3.11 **Lista parti di ricambio** *3.11* ***Spare parts list*** 3.11 **Ersatzteilliste**

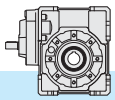
KC



KC	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	20/32/7	10/26/7	25/40/7	ø 26x7
	63	**61804** (20x32x7)			20/32/7			
40	56	**6303** (17x47x14)	**6201** 12x32x10	**6006** 30x55x13	17/47/7	12/32/7	30/47/7	ø 32x7
	63	**6204** (20x47x14)			20/47/7			
	71	**6005** (25x47x12)			25/47/7			
50	63	**6204** (20x47x14)	**6203** 17x40x12	**6008** 40x68x15	20/47/7	17/40/7	40/62/8	ø 40x7
	71	**6005** (25x47x12)			25/47/7			
	80	**6006** (30x55x13)			30/55/7			
63	71	**30305** (25x62x18.25)	**30204** 20x47x15.25	**6008** 40x68x15	25/62/7	20/47/7	40/62/8	ø 47x7
	80	**30206** (30x62x17.25)			30/62/7			
	90	**32007** (35x62x18)			35/62/7			
75	80	**30206** (30x62x17.25)	**30205** 25x52x16.25	**6010** 50x80x16	30/62/7	25/52/7	50/72/8	ø 52x7
	90	**32007** (35x62x18)			35/62/7			
	100/112	**32008** (40x68x19)			40/68/10			
90	80	**30206** (30x62x17.25)	**32205B** 25x52x19.25	**6010** 50x80x16	30/62/7	25/52/7	50/72/8	ø 52x7
	90	**32007** (35x62x18)			35/62/7			
	100/112	**32008** (40x68x19)			40/68/10			
110	90	**30208** (40x80x19.75)	**32206B** 30x62x21.25	**6012** 60x95x18	40/80/10	30/62/7	60/85/8	ø 62x7
	100/112	**30208** (40x80x19.75)			40/80/10			
	132	**32010** (50x80x20)			50/80/10			

4.0 RIDUTTORI A VITE SENZA FINE CON PRECOPPIA H — *H HELICAL WORM GEAR-BOXES* — STIRNRAD-SCHNECKENGETRIEBE H





4.1 Caratteristiche

- La serie H presenta le stesse caratteristiche della serie X, ma la presenza della precoppia cilindrica in entrata consente la realizzazione di rapporti più elevati o, a parità di rapporto, rendimenti migliori.
- La struttura è composta dalla carcassa monoblocco del riduttore a vite serie XA sull'entrata del quale è fissato il corpo contenente il primo stadio di riduzione.
- La vite senza fine è in acciaio legato cementato-temprato ed è rettificata.
- Gli ingranaggi della prima riduzione hanno dentatura elicoidale con profilo rettificato.
- La corona ha il mozzo in ghisa con riporto di fusione dell'anello in bronzo.
- 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.
- Le carcasse in ghisa sono verniciate BLU RAL5010 mentre quelle in alluminio sono sabbiate.

4.1 Characteristics

- *The H series has the same characteristics as the X series with the addition of a spur gear pre-stage at input which provides higher ratios or better efficiency under the same ratios.*
- *The structure is composed of a single piece housing for the XA gearbox , at the input side of this gearbox is fitted the housing containing the first stage reduction.*
- *The worm shaft is ground and in case - and quenchhardened alloy steel.*
- *The gears of the first reduction have a helical toothing with ground profile.*
- *The worm wheel has a cast-iron hub provided with inserted cast-bronze ring.*
- *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.
- *Housings in cast-iron are painted BLUE RAL5010, whereas those in aluminium are sandblasted.*

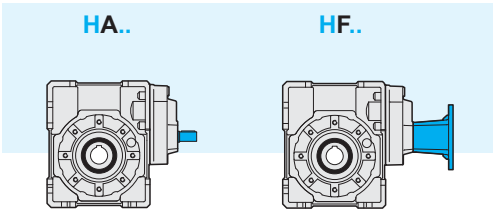
4.1 Merkmale

- Die Serie H bietet die gleichen Eigenschaften wie die Serie X. Aufgrund der Stirnrad-Vorstufe bei der Serie H sind jedoch höhere Untersetzungen möglich oder man erhält bei gleichen Untersetzungen einen besseren Wirkungsgrad.
- Diese Ausführung besteht aus dem Blockgehäuse des Schneckengetriebes der Serie XA und einem an den antriebsseitig angebauten Gehäuse, welches die Stirnradvorstufe enthält.
- Die Schnecke ist aus einsatzgehärtetem/abgeschrecktem und daraufhin geschliffenen Legierungsstahl.
- Die Zahnräder der Vorstufe besitzen ein schrägverzahntes Stirnradprofil.
- Das Schneckenrad besteht aus einer Nabe aus Gusseisen und einem aufgeschleuderten Gussbronze-Ring.
- Zahlreiches Zubehör ist lieferbar:
  zweite Antrieb, Kegelrollenlager auf Schneckenrad, Abtriebsflansch, standard oder doppelseitig herausragende Abtriebswelle, Drehmomentbegrenzer mit durchgehender Welle, Drehmomentstütze.
- Gehäuse aus Gusseisen werden mit BLAU RAL5010 lackiert, Gehäuse aus Aluminium werden sandgestrahlt.

4.2 Designazione — *4.2 Designation* — 4.2 Bezeichnung

Riduttore *Gearbox* Getriebe	Tipo entrata *Input type* Antriebsart	Grandezza *Size* Größe	Rapporto rid. *Ratio* Untersetzung	Predispos.att.mot. *Motor coupling* Motoranschluss	Posizione di mont. *Mounting position* Einbaulage	Flangia in uscita. *Output flange* Abtriebsflansch	Limitatore di coppia. *Torque limiter* Drehmoment-begrenzer	Seconda entrata *Second input* Zweiter Antrieb	Albero uscita *Output shaft* Abtriebswelle	Braccio di reazione *Torque arm* Drehmomentstütze
H	**A**	**50**	**30/1**	**P.A.M**	**B3**	**F1S**	**LD**	**SeA**	**H**	**BR**
Riduttore a vite senza fine con precoppia ***Worm gearbox with pre-stage*** **Schneckengetriebe mit Vorstufe**	**A** **F**	**40** **50** **63** **75** **90** **110**	**30** **40** **60** **80** **100** **120** **160** **200** **260** **320** **400**	**56** **63** **71** **80** **90** **100** **112**	**B3, B6** **B7, B8** **V5, V6**	**F1D-F2D-F3D** **F1S-F2S-F3S** **F12-F22-F32**	**LD** **LS**	**SeA**	**H** **SD** **SS** **DD**	**BR**

Tipo entrata — ***Input type*** — **Antriebstyp**

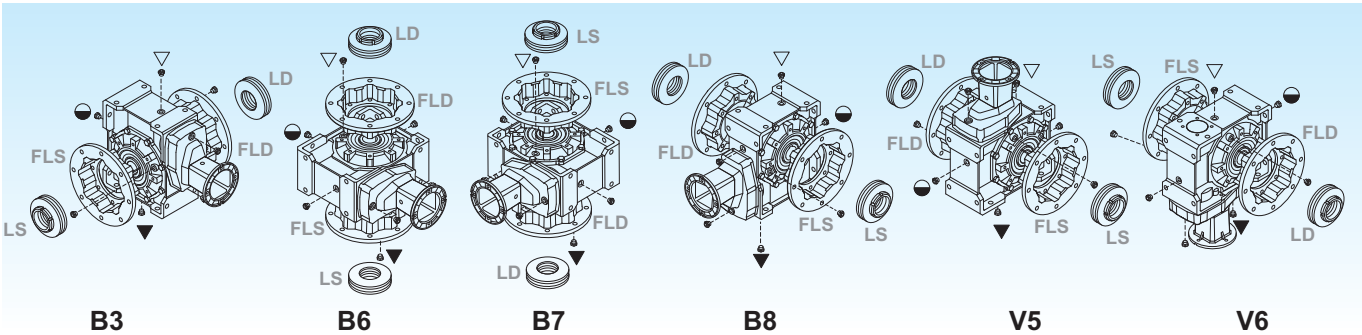


4.3 Lubrificazione e posizioni di montaggio — *4.3 Lubrication and mounting position* — 4.3 Schmierung und Einbaulage

I riduttori a vite senza fine H sono forniti completi di lubrificante sintetico.
Si raccomanda di precisare sempre in fase di ordine, la posizione di lavoro desiderata.

H series worm gearboxes are supplied with synthetic lubricant.
Always specify the required mounting position when ordering.

Schneckengetriebe Serie H werden mit synthetischem Schmiermittel geliefert.
Im Auftrag bitte immer die gewünschte Einbaulage angeben.



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

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

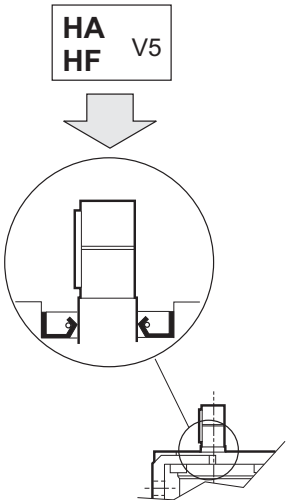
Aluminium housings size 40, 50, 63 and 75 have one filling plug only.

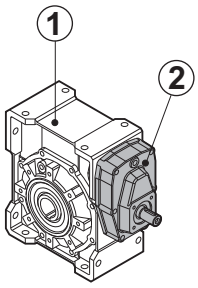
Aluminiumgehäuse in den Größen 40, 50, 63 und 75 haben nur eine Einfüllengsschraube

4.3 Lubrificazione e posizioni di montaggio

4.3 Lubrication and mounting position

4.3 Schmierung und Einbaulage





Attenzione! Nelle versioni HA e HF è indispensabile conoscere la posizione di lavoro in quanto nella configurazione V5 occorre posizionare in modo corretto il paraolio della vite per preservare la corretta lubrificazione della coppia d'ingranaggi cilindrici del primo stadio di riduzione.

Warning! *It is fundamental to specify the mounting position specially when ordering HA and HF versions. This is because in the V5 configuration the oil seal on the worm shaft must be positioned properly to ensure the lubrication of the spur gearset of the first reduction stage.*

Achtung! Bei den HA und HF Versionen ist die Information bez. die Einbaulage unbedingt erforderlich: in der V5 Bauform muss der Ölabdichtung auf der Schnecke korrekt eingebaut werden, um die Schmierung des Stirnradsatz der ersten Stufe aufrechtzuhalten.

		Q.tà olio / Oil quantity / Schmiermittelmenge [lt]			
		Posizione di montaggio / *Mounting position* / Einbaulage			
		B3	**B6 - B7**	**B8**	**V5 - V6**
1 H	**40**	0.040			
	50	0.080			
	63	0.160			
	75	0.260			
	90	1.1	0.9	0.8	1.2
	110	2.2	1.8	1.6	2.4
		B3	**B6**	**B8**	**V5**
2 H	**40**	0.040			
	50	0.070			
	63	0.140			
	75	0.200			
	90	0.200			
	110	0.400			

Specificare sempre in fase di ordinazione la posizione di montaggio e la forma costruttiva.

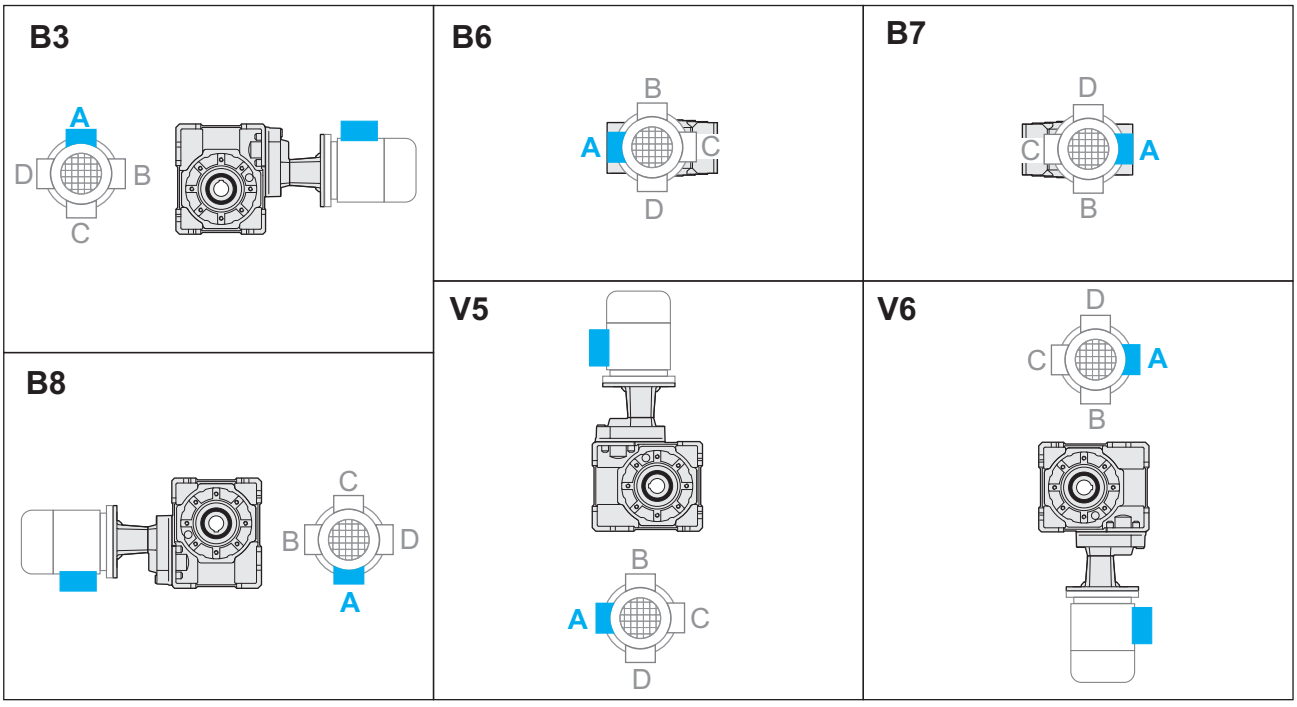
Specify the version and the mounting position when ordering.

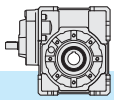
Bei der Bestellung immer die gewünschte Montageposition und Bauform angeben.

4.4 Posizione morsettiera

4.4 Terminal board position

4.4 Lage der Klemmenkaste





4.5 **Dati tecnici** *4.5* ***Technical data*** 4.5 **Technische Daten**

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Kg 2.9

n_1 = 2800		HF								HA			
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
30	93	30	**0.37**	1.7						**52**	0.64	0.80	
40	70	39	**0.37**	1.4						**53**	0.50	0.77	
60	47	37	**0.25**	1.4						**53**	0.36	0.72	
80	35	47	**0.25**	1.1						**50**	0.26	0.70	
100	28	40	**0.18**	1.1						**44**	0.20	0.65	
120	23	45	**0.18**	1.2	—	**63**	**56**	—	**63**	**56**	**55**	0.22	0.61	—
160	18	40	**0.13**	1.3							**52**	0.17	0.57	
200	14	47	**0.13**	1.0							**47**	0.13	0.51	
260	11	38	**0.09**	1.1							**42**	0.10	0.47	
320	9	44	**0.09**	0.9							**39**	0.08	0.45	
400	7	52*	**0.09**	0.6*							**31**	0.05	0.42	

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Kg 2.9

n_1 = 1400		HF								HA			
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
30	47	35	**0.22**	1.9						**65**	0.41	0.77	0.60
40	35	45	**0.22**	1.5						**65**	0.32	0.75	0.60
60	23	62	**0.22**	1.0						**62**	0.23	0.69	0.50
80	18	47	**0.13**	1.3						**60**	0.17	0.66	0.40
100	14	46	**0.11**	1.1						**52**	0.12	0.61	0.40
120	12	60	**0.13**	1.1	—	**63**	**56**	—	**63**	**56**	**66**	0.14	0.57	0.30
160	9	62	**0.11**	1.0							**62**	0.11	0.52	0.30
200	7	58	**0.09**	1.0							**58**	0.09	0.47	0.30
260	5	46	**0.06**	1.1							**46**	0.06	0.43	0.20
320	4	53	**0.06**	0.8							**44**	0.05	0.41	0.20
400	3	64*	**0.06**	0.5*							**33**	0.03	0.38	0.20

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Kg 2.9

n_1 = 900		HF								HA			
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
30	30	31	**0.13**	2.1						**66**	0.27	0.76	
40	23	40	**0.13**	1.6						**66**	0.21	0.73	
60	15	56	**0.13**	1.2						**66**	0.15	0.67	
80	11	49	**0.09**	1.3						**66**	0.12	0.64	
100	9	58	**0.09**	1.0						**58**	0.09	0.59	
120	8	62	**0.09**	1.1	—	**63**	**56**	—	**63**	**56**	**66**	0.10	0.54	—
160	6	51	**0.06**	1.3							**66**	0.08	0.50	
200	5	57	**0.06**	1.1							**61**	0.06	0.44	
260	4	33	**0.03**	1.6							**54**	0.05	0.40	
320	3	39	**0.03**	1.2							**46**	0.03	0.39	
400	2	46*	**0.03**	0.7*							**34**	0.02	0.36	

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Kg 2.9

n_1 = 500		HF								HA			
i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
30	17	—	—	—						**66**	0.15	0.74	
40	13	—	—	—						**66**	0.12	0.71	
60	8	—	—	—						**66**	0.09	0.66	
80	6	—	—	—						**66**	0.07	0.62	
100	5	—	—	—						**66**	0.06	0.57	
120	4	—	—	—	—	**63**	**56**	—	**63**	**56**	**66**	0.06	0.52	—
160	3	—	—	—							**66**	0.04	0.48	
200	2.5	—	—	—							**66**	0.04	0.42	
260	2	—	—	—							**60**	0.03	0.38	
320	1.5	—	—	—							**48**	0.02	0.36	
400	1	—	—	—							**35**	0.01	0.34	

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

* ***WARNING:*** *The max. admissible 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: $T_{2M} = T_2 \times FS'$

4.5 **Dati tecnici** *4.5* ***Technical data*** 4.5 **Technische Daten**

	n_1 = 2800		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
50	**30**	93	62	**0.75**	1.5						91	1.10	0.81	
	40	70	81	**0.75**	1.2						94	0.87	0.79	
	60	47	84	**0.55**	1.1						96	0.63	0.74	
	80	35	72	**0.37**	1.3						94	0.48	0.72	
	100	28	58	**0.25**	1.4						81	0.35	0.68	
	120	23	96	**0.37**	1.0	**71**	**63**	**56**	**71**	**63**	96	0.37	0.64	—
	160	18	81	**0.25**	1.2						97	0.30	0.60	
Kg	**200**	14	67	**0.18**	1.3						86	0.23	0.55	
4.7	**260**	11	81	**0.18**	1.0						81	0.18	0.51	
	320	9	67	**0.13**	1.1						72	0.14	0.47	
	400	7	54	**0.09**	1.1						59	0.10	0.44	

	n_1 = 1400		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
50	**30**	47	88	**0.55**	1.3						**113**	0.70	0.79	0.90
	40	35	116	**0.55**	1.0						**116**	0.56	0.76	0.80
	60	23	108	**0.37**	1.1						**116**	0.40	0.71	0.70
	80	18	93	**0.25**	1.2						**114**	0.31	0.68	0.60
	100	14	97	**0.22**	1.0						**97**	0.22	0.63	0.50
	120	12	107	**0.22**	1.0	**71**	**63**	**56**	**71**	**63**	**107**	0.22	0.59	0.50
	160	9	108	**0.18**	1.1						**115**	0.19	0.55	0.40
Kg	**200**	7	89	**0.13**	1.1						**102**	0.15	0.50	0.40
4.7	**260**	5	90	**0.11**	1.0						**90**	0.11	0.46	0.40
	320	4	83	**0.09**	1.0						**83**	0.09	0.42	0.30
	400	3	65	**0.06**	0.9						**65**	0.06	0.40	0.30

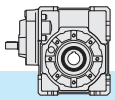
	n_1 = 900		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
50	**30**	30	91	**0.37**	1.3						**116**	0.47	0.77	
	40	23	116	**0.37**	1.0						**116**	0.37	0.75	
	60	15	110	**0.25**	1.1						**116**	0.26	0.69	
	80	11	101	**0.18**	1.2						**116**	0.21	0.66	
	100	9	85	**0.13**	1.3						**108**	0.17	0.61	
	120	8	94	**0.13**	1.3	**71**	**63**	**56**	**71**	**63**	**116**	0.16	0.57	—
	160	6	116	**0.13**	1.0						**116**	0.13	0.53	
Kg	**200**	5	91	**0.09**	1.2						**112**	0.11	0.48	
4.7	**260**	4	107	**0.09**	1.0						**107**	0.09	0.44	
	320	3	82	**0.06**	1.1						**90**	0.07	0.40	
	400	2	48	**0.03**	1.4						**65**	0.04	0.38	

	n_1 = 500		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
50	**30**	17	39	**0.09**	3.0						**116**	0.27	0.76	
	40	13	50	**0.09**	2.3						**116**	0.21	0.73	
	60	8	69	**0.09**	1.7						**116**	0.15	0.67	
	80	6	88	**0.09**	1.3						**116**	0.12	0.64	
	100	5	101	**0.09**	1.1						**116**	0.10	0.59	
	120	4	112	**0.09**	1.0	**71**	**63**	**56**	**71**	**63**	**116**	0.09	0.54	—
	160	3	138*	**0.09**	0.8						**116**	0.08	0.50	
Kg	**200**	2.5	156*	**0.09**	0.7						**116**	0.07	0.45	
4.7	**260**	2	184*	**0.09**	0.6*						**114**	0.06	0.41	
	320	1.5	208*	**0.09**	0.5*						**95**	0.04	0.38	
	400	1	244*	**0.09**	0.3*						**69**	0.03	0.35	

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

* ***WARNING:*** *The max. admissible 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: $T_{2M} = T_2 \times FS'$



4.5 **Dati tecnici** *4.5* ***Technical data*** 4.5 **Technische Daten**

	n_1 = 2800		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
63	**30**	93	126	**1.5**	1.3						**158**	1.89	0.82	
	40	70	164	**1.5**	1.0						**164**	1.50	0.80	
	60	47	170	**1.1**	1.0						**170**	1.10	0.76	
	80	35	151	**0.75**	1.2						**181**	0.90	0.74	
	100	28	133	**0.55**	1.1						**150**	0.62	0.71	
	120	23	148	**0.55**	1.2	**80**	**71**	**63**	**80**	**71**	**177**	0.66	0.66	—
Kg	**160**	18	186	**0.55**	1.0						**186**	0.55	0.62	
	200	14	147	**0.37**	1.0						**147**	0.37	0.57	
7.9	**260**	11	118	**0.25**	1.2						**142**	0.30	0.53	
	320	9	138	**0.25**	1.0						**138**	0.25	0.51	
	400	7	115	**0.18**	1.0						**115**	0.18	0.46	

	n_1 = 1400		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
63	**30**	47	146	**0.9**	1.4						**198**	1.22	0.79	1.3
	40	35	190	**0.9**	1.1						**203**	0.96	0.77	1.2
	60	23	163	**0.55**	1.2						**203**	0.69	0.72	1.0
	80	18	211	**0.55**	1.0						**211**	0.55	0.70	0.90
	100	14	169	**0.37**	1.1						**181**	0.40	0.67	0.80
	120	12	185	**0.37**	1.1	**80**	**71**	**63**	**80**	**71**	**213**	0.43	0.61	0.70
Kg	**160**	9	156	**0.25**	1.4						**220**	0.35	0.57	0.60
	200	7	177	**0.25**	1.0						**177**	0.25	0.52	0.60
7.9	**260**	5	154	**0.18**	1.1						**175**	0.20	0.48	0.50
	320	4	130	**0.13**	1.2						**160**	0.16	0.46	0.50
	400	3	150	**0.13**	0.8						**126**	0.11	0.41	0.50

	n_1 = 900		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
63	**30**	30	186	**0.75**	1.2						**220**	0.89	0.78	
	40	23	177	**0.55**	1.2						**220**	0.69	0.76	
	60	15	166	**0.37**	1.3						**220**	0.49	0.70	
	80	11	220	**0.37**	1.0						**220**	0.37	0.68	
	100	9	172	**0.25**	1.2						**201**	0.29	0.65	
	120	8	187	**0.25**	1.2	**80**	**71**	**63**	**80**	**71**	**220**	0.29	0.59	—
Kg	**160**	6	168	**0.18**	1.3						**220**	0.24	0.55	
	200	5	196	**0.18**	1.0						**196**	0.18	0.50	
7.9	**260**	4	162	**0.13**	1.2						**192**	0.15	0.46	
	320	3	133	**0.09**	1.3						**175**	0.12	0.43	
	400	2	148	**0.09**	0.9						**131**	0.08	0.39	

	n_1 = 500		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
63	**30**	17	79	**0.18**	2.8						**220**	0.50	0.76	
	40	13	101	**0.18**	2.2						**220**	0.39	0.74	
	60	8	140	**0.18**	1.6						**220**	0.28	0.68	
	80	6	182	**0.18**	1.2						**220**	0.22	0.66	
	100	5	220	**0.18**	1.0						**220**	0.18	0.62	
	120	4	115	**0.09**	1.9	**80**	**71**	**63**	**80**	**71**	**220**	0.17	0.56	—
Kg	**160**	3	143	**0.09**	1.5						**220**	0.14	0.52	
	200	2.5	161	**0.09**	1.4						**220**	0.12	0.47	
7.9	**260**	2	193	**0.09**	1.1						**215**	0.10	0.43	
	320	1.5	225	**0.09**	0.8						**188**	0.08	0.41	
	400	1	250*	**0.09**	0.6*						**138**	0.05	0.36	

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

* ***WARNING:*** *The max. admissible 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: $T_{2M} = T_2 \times FS'$

4.5 **Dati tecnici** *4.5* ***Technical data*** 4.5 **Technische Daten**

	n_1 = 2800		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
75	**30**	93	185	**2.2**	1.3						**236**	2.81	0.82	
	40	70	242	**2.2**	1.0						**242**	2.20	0.80	
	60	47	235	**1.5**	1.1						**258**	1.65	0.77	
	80	35	223	**1.1**	1.3						**285**	1.40	0.74	
	100	28	184	**0.75**	1.4						**252**	1.03	0.72	
	120	23	205	**0.75**	1.3	**90**	**80**	**71**	**90**	**80**	**275**	1.01	0.67	—
Kg	**160**	18	259	**0.75**	1.1						**290**	0.84	0.63	
	200	14	224	**0.55**	1.2						**258**	0.63	0.60	
13.3	**260**	11	181	**0.37**	1.3						**236**	0.48	0.55	
	320	9	214	**0.37**	1.0						**214**	0.37	0.52	
	400	7	241	**0.37**	0.8						**195**	0.30	0.48	

	n_1 = 1400		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
75	**30**	47	295	**1.8**	1.0						**295**	1.80	0.80	1.9
	40	35	319	**1.5**	1.0						**319**	1.50	0.78	1.7
	60	23	329	**1.1**	1.0						**329**	1.10	0.73	1.4
	80	18	350	**0.9**	1.0						**350**	0.90	0.71	1.3
	100	14	255	**0.55**	1.2						**305**	0.66	0.68	1.2
	120	12	280	**0.55**	1.2	**90**	**80**	**71**	**90**	**80**	**331**	0.65	0.62	1.0
Kg	**160**	9	348	**0.55**	1.0						**348**	0.55	0.58	0.90
	200	7	277	**0.37**	1.1						**307**	0.41	0.55	0.80
13.3	**260**	5	223	**0.25**	1.3						**279**	0.31	0.50	0.80
	320	4	256	**0.25**	1.0						**256**	0.25	0.47	0.70
	400	3	300*	**0.25**	0.7*						**213**	0.18	0.43	0.70

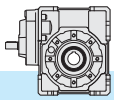
	n_1 = 900		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
75	**30**	30	275	**1.1**	1.2						**338**	1.35	0.78	
	40	23	350	**1.1**	1.0						**350**	1.10	0.76	
	60	15	343	**0.75**	1.0						**343**	0.75	0.71	
	80	11	321	**0.55**	1.1						**350**	0.60	0.69	
	100	9	258	**0.37**	1.3						**339**	0.49	0.66	
	120	8	281	**0.37**	1.2	**90**	**80**	**71**	**90**	**80**	**350**	0.46	0.60	—
Kg	**160**	6	350	**0.37**	1.0						**350**	0.37	0.56	
	200	5	277	**0.25**	1.2						**339**	0.31	0.52	
13.3	**260**	4	233	**0.18**	1.3						**307**	0.24	0.48	
	320	3	282	**0.18**	1.0						**282**	0.18	0.45	
	400	2	307*	**0.18**	0.7*						**221**	0.13	0.40	

	n_1 = 500		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
75	**30**	17	110	**0.25**	3.2						**350**	0.80	0.77	
	40	13	142	**0.25**	2.5						**350**	0.62	0.74	
	60	8	198	**0.25**	1.8						**350**	0.44	0.69	
	80	6	254	**0.25**	1.4						**350**	0.34	0.67	
	100	5	303	**0.25**	1.2						**350**	0.29	0.63	
	120	4	325	**0.25**	1.1	**90**	**80**	**71**	**90**	**80**	**350**	0.27	0.57	—
Kg	**160**	3	291	**0.18**	1.2						**350**	0.22	0.53	
	200	2.5	348	**0.18**	1.0						**350**	0.19	0.49	
13.3	**260**	2	200	**0.09**	1.7						**345**	0.16	0.45	
	320	1.5	231	**0.09**	1.3						**303**	0.12	0.42	
	400	1	258	**0.09**	0.9						**232**	0.08	0.38	

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

**** WARNING:*** *The max. admissible 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: $T_{2M} = T_2 \times FS'$



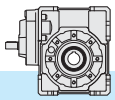
4.5 **Dati tecnici** *4.5* ***Technical data*** 4.5 **Technische Daten**

	n_1 = 2800		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
90	**30**	93	255	**3**	1.5						**381**	4.48	0.83	
	40	70	334	**3**	1.2						**396**	3.56	0.82	
	60	47	352	**2.2**	1.2						**410**	2.57	0.78	
	80	35	456	**2.2**	1.0						**456**	2.20	0.76	
	100	28	377	**1.5**	1.1						**416**	1.66	0.74	
	120	23	439	**1.5**	1.0	**90**	**80**	**71**	**90**	**80**	**439**	1.54	0.69	—
Kg	**160**	18	392	**1.1**	1.2						**467**	1.31	0.65	
	200	14	317	**0.75**	1.3						**427**	1.01	0.62	
27.2	**260**	11	384	**0.75**	1.0						**384**	0.75	0.58	
	320	9	329	**0.55**	1.1						**360**	0.60	0.55	
	400	7	252	**0.37**	1.3						**318**	0.47	0.50	

	n_1 = 1400		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
90	**30**	47	297	**1.8**	1.6						**482**	2.92	0.81	2.1
	40	35	388	**1.8**	1.3						**495**	2.30	0.79	1.9
	60	23	460	**1.5**	1.1						**506**	1.65	0.75	1.6
	80	18	434	**1.1**	1.3						**554**	1.40	0.72	1.4
	100	14	429	**0.9**	1.2						**505**	1.06	0.70	1.3
	120	12	473	**0.9**	1.1	**90**	**80**	**71**	**90**	**80**	**531**	1.01	0.64	1.1
Kg	**160**	9	494	**0.75**	1.1						**560**	0.85	0.60	1.0
	200	7	428	**0.55**	1.2						**510**	0.66	0.57	0.90
27.2	**260**	5	345	**0.37**	1.3						**454**	0.49	0.53	0.80
	320	4	402	**0.37**	1.1						**424**	0.39	0.50	0.80
	400	3	314	**0.25**	1.2						**367**	0.29	0.45	0.70

	n_1 = 900		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
90	**30**	30	379	**1.5**	1.5						**550**	2.18	0.79	
	40	23	492	**1.5**	1.1						**560**	1.71	0.77	
	60	15	510	**1.1**	1.1						**560**	1.21	0.73	
	80	11	447	**0.75**	1.3						**560**	0.94	0.70	
	100	9	534	**0.75**	1.1						**560**	0.78	0.68	
	120	8	430	**0.55**	1.3	**90**	**80**	**71**	**90**	**80**	**560**	0.72	0.61	—
Kg	**160**	6	533	**0.55**	1.1						**560**	0.57	0.58	
	200	5	426	**0.37**	1.3						**560**	0.49	0.54	
27.2	**260**	4	501	**0.37**	1.0						**501**	0.37	0.50	
	320	3	399	**0.25**	1.2						**466**	0.29	0.47	
	400	2	320	**0.18**	1.2						**381**	0.21	0.42	

	n_1 = 500		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
90	**30**	17	111	**0.25**	5.0						**560**	1.26	0.77	
	40	13	144	**0.25**	3.9						**560**	0.97	0.75	
	60	8	202	**0.25**	2.8						**560**	0.69	0.70	
	80	6	259	**0.25**	2.2						**560**	0.54	0.68	
	100	5	310	**0.25**	1.8						**560**	0.45	0.65	
	120	4	334	**0.25**	1.7	**90**	**80**	**71**	**90**	**80**	**560**	0.42	0.58	—
Kg	**160**	3	416	**0.25**	1.3						**560**	0.34	0.54	
	200	2.5	488	**0.25**	1.1						**560**	0.29	0.51	
27.2	**260**	2	417	**0.18**	1.3						**560**	0.24	0.47	
	320	1.5	485	**0.18**	1.1						**517**	0.19	0.44	
	400	1	269	**0.09**	1.5						**401**	0.13	0.39	



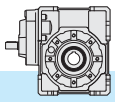
4.5 **Dati tecnici** *4.5* ***Technical data*** 4.5 **Technische Daten**

	n_1 = 2800		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			Input - IEC B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
110	**30**	93	641	**7.5**	1.0	**112 100**	**90**	**80**	**112 100**	**90**	**641**	7.50	0.84	—
	40	70	619	**5.5**	1.1						**658**	5.85	0.82	
	60	47	649	**4**	1.1						**698**	4.30	0.79	
	80	35	632	**3**	1.2						**782**	3.71	0.77	
	100	28	566	**2.2**	1.3						**727**	2.83	0.75	
	120	23	634	**2.2**	1.2						**754**	2.61	0.70	
Kg	**160**	18	807	**2.2**	1.0						**807**	2.20	0.67	
	200	14	661	**1.5**	1.1						**749**	1.70	0.65	
48.8	**260**	11	589	**1.1**	1.1						**646**	1.21	0.60	
	320	9	469	**0.75**	1.3						**611**	0.98	0.57	
	400	7	545	**0.75**	1.0						**545**	0.75	0.53	

	n_1 = 1400		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			Input - IEC B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
110	**30**	47	668	**4**	1.2	**112 100**	**90**	**80**	**112 100**	**90**	**807**	4.83	0.82	3.2
	40	35	655	**3**	1.3						**825**	3.78	0.80	2.9
	60	23	689	**2.2**	1.3						**864**	2.76	0.76	2.4
	80	18	887	**2.2**	1.1						**957**	2.37	0.74	2.2
	100	14	884	**1.8**	1.0						**884**	1.80	0.72	2.1
	120	12	809	**1.5**	1.1						**916**	1.70	0.66	1.7
Kg	**160**	9	749	**1.1**	1.3						**970**	1.42	0.62	1.5
	200	7	896	**1.1**	1.0						**896**	1.10	0.60	1.5
48.8	**260**	5	743	**0.75**	1.0						**743**	0.75	0.55	1.3
	320	4	624	**0.55**	1.2						**722**	0.64	0.52	1.2
	400	3	705	**0.55**	0.9						**644**	0.48	0.47	1.1

	n_1 = 900		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			Input - IEC B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
110	**30**	30	766	**3**	1.2	**112 100**	**90**	**80**	**112 100**	**90**	**922**	3.61	0.80	—
	40	23	732	**2.2**	1.3						**937**	2.82	0.78	
	60	15	849	**1.8**	1.1						**970**	2.06	0.74	
	80	11	912	**1.5**	1.1						**970**	1.59	0.72	
	100	9	811	**1.1**	1.2						**970**	1.32	0.69	
	120	8	884	**1.1**	1.1						**970**	1.21	0.63	
Kg	**160**	6	758	**0.75**	1.3						**970**	0.96	0.60	
	200	5	902	**0.75**	1.1						**970**	0.81	0.57	
48.8	**260**	4	779	**0.55**	1.1						**846**	0.60	0.52	
	320	3	616	**0.37**	1.3						**794**	0.48	0.49	
	400	2	700	**0.37**	1.0						**700**	0.37	0.45	

	n_1 = 500		HF								HA			
	i_n	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC B5			Input - IEC B14		T_{2M} [Nm]	P [kW]	Rd	P_{t0}
110	**30**	17	336	**0.75**	2.9	**112 100**	**90**	**80**	**112 100**	**90**	**970**	2.16	0.78	—
	40	13	437	**0.75**	2.2						**970**	1.67	0.76	
	60	8	616	**0.75**	1.6						**970**	1.18	0.72	
	80	6	792	**0.75**	1.2						**970**	0.92	0.69	
	100	5	970	**0.75**	1.0						**970**	0.75	0.67	
	120	4	754	**0.55**	1.3						**970**	0.71	0.60	
Kg	**160**	3	933	**0.55**	1.1						**970**	0.57	0.56	
	200	2.5	754	**0.37**	1.3						**970**	0.48	0.53	
48.8	**260**	2	900	**0.37**	1.1						**955**	0.39	0.49	
	320	1.5	700	**0.25**	1.3						**889**	0.32	0.46	
	400	1	568	**0.18**	1.3						**727**	0.23	0.41	



4.6 **Momenti d' inerzia** [Kg·cm^2]
(riferiti all'albero veloce in entrata)

4.6 ***Moments of inertia*** *[Kg·cm^2]*
(referred to input shaft)

4.6 **Trägheitsmoment** [Kg·cm^2]
((bez. Antriebswelle)

H40

i_n	HA	HF	
		B5 - B14	
		IEC 56	IEC 63
30	0.080	0.125	0.125
40	0.079	0.123	0.124
60	0.077	0.122	0.123
80	0.076	0.120	0.121
100	0.075	0.120	0.120
120	0.077	0.121	0.122
160	0.075	0.120	0.120
200	0.075	0.120	0.120
260	0.074	0.119	0.119
320	0.074	0.119	0.119
400	0.074	0.119	0.119

H90

i_n	HA	HF		
		B5	B5 - B14	
		IEC 71	IEC 80	IEC 90
30	1.064	1.843	1.977	3.055
40	1.000	1.779	1.913	2.991
60	0.955	1.733	1.868	2.945
80	0.845	1.623	1.758	2.835
100	0.836	1.615	1.749	2.827
120	0.927	1.706	1.840	2.918
160	0.829	1.608	1.742	2.820
200	0.827	1.606	1.740	2.818
260	0.784	1.562	1.696	2.774
320	0.783	1.562	1.696	2.774
400	0.783	1.561	1.695	2.773

H50

i_n	HA	HF		
		B5	B5 - B14	
		IEC 56	IEC 63	IEC 71
30	0.161	0.208	0.366	0.383
40	0.156	0.203	0.361	0.377
60	0.152	0.199	0.357	0.374
80	0.148	0.194	0.352	0.369
100	0.147	0.194	0.352	0.368
120	0.150	0.197	0.355	0.372
160	0.146	0.193	0.351	0.368
200	0.141	0.188	0.346	0.363
260	0.138	0.185	0.343	0.360
320	0.138	0.185	0.343	0.360
400	0.138	0.185	0.343	0.360

H110

i_n	HA	HF		
		B5	B5 - B14	
		IEC 80	IEC 90	IEC 110-112
30	2.558	4.726	4.654	6.424
40	2.379	4.547	4.475	6.246
60	2.251	4.420	4.347	6.118
80	1.958	4.127	4.054	5.825
100	1.933	4.102	4.029	5.800
120	2.175	4.343	4.271	6.041
160	1.915	4.084	4.011	5.782
200	1.909	4.077	4.005	5.776
260	1.779	3.948	3.875	5.646
320	1.778	3.946	3.874	5.645
400	1.777	3.945	3.873	5.644

H63

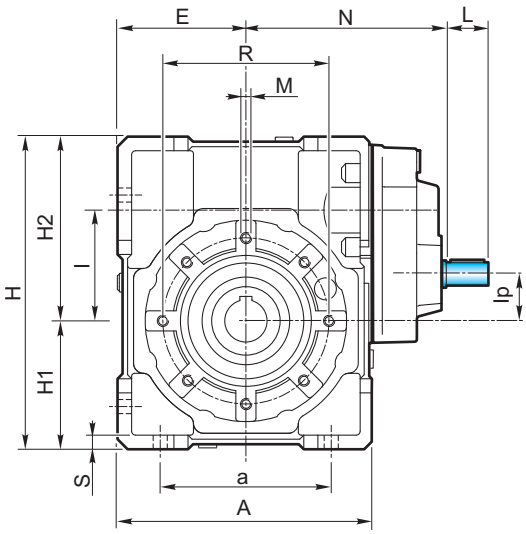
i_n	HA	HF		
		B5	B5 - B14	
		IEC 63	IEC 71	IEC 80
30	0.405	0.639	0.656	1.219
40	0.392	0.626	0.643	1.206
60	0.383	0.617	0.634	1.197
80	0.364	0.598	0.615	1.178
100	0.362	0.596	0.613	1.176
120	0.377	0.612	0.628	1.191
160	0.361	0.595	0.612	1.175
200	0.360	0.595	0.611	1.175
260	0.354	0.588	0.605	1.168
320	0.354	0.588	0.605	1.168
400	0.354	0.588	0.605	1.168

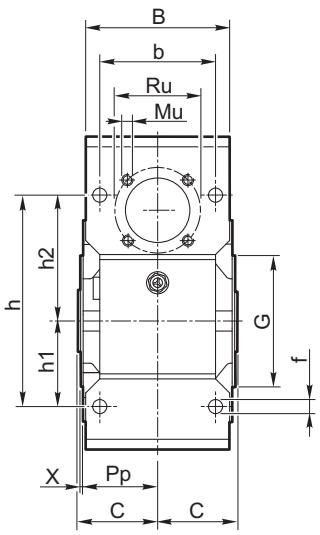
H75

i_n	HA	HF		
		B5	B5 - B14	
		IEC 71	IEC 80	IEC 90
30	0.865	1.643	1.778	2.855
40	0.835	1.613	1.748	2.825
60	0.813	1.592	1.726	2.804
80	0.777	1.556	1.690	2.768
100	0.773	1.551	1.686	2.764
120	0.801	1.579	1.714	2.791
160	0.770	1.548	1.683	2.760
200	0.769	1.547	1.682	2.759
260	0.751	1.530	1.664	2.742
320	0.751	1.530	1.664	2.742
400	0.751	1.529	1.664	2.742

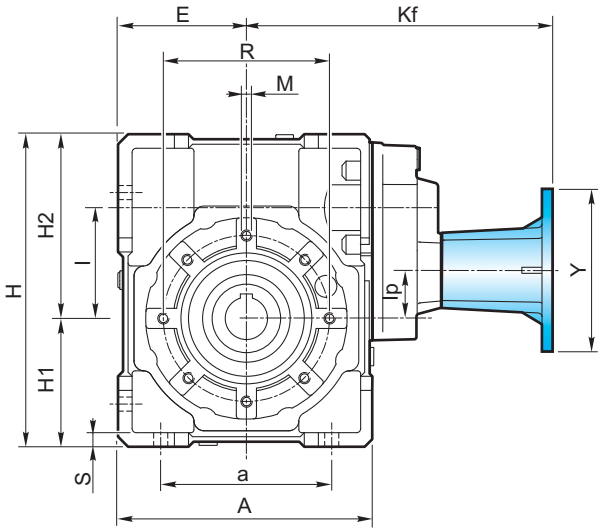
4.7 **Dimensioni** 4.7 ***Dimensions*** 4.7 **Abmessungen**

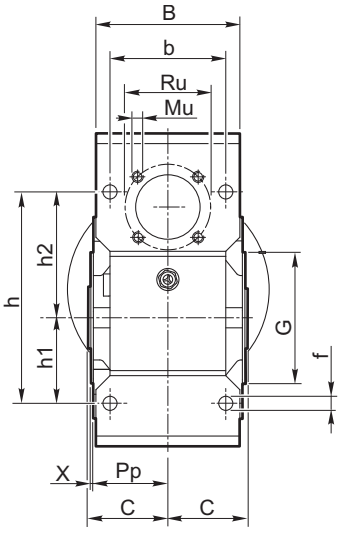
HA





HF

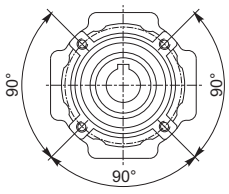




4.7 Dimensioni — *4.7 Dimensions* — 4.7 Abmessungen

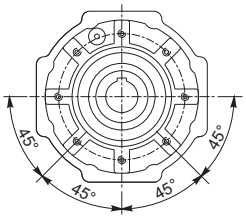
Flangia pendolare / *Shaft-mounted flange* / Aufsteckflansch

40 - 50



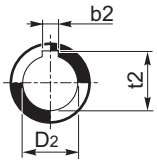
4 Fori / *Holes* / Bohrungen

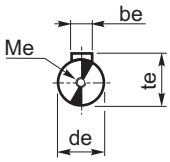
63 - 75 - 90 - 110



8 Fori / *Holes* / Bohrungen

Albero uscita cavo
Output hollow shaft
Abtriebshohlwelle



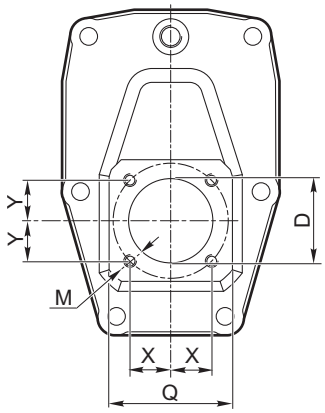


Albero entrata
Input shaft
Antriebswelle

H	A	a	B	b	b_e	b_2		C	d_e j6	D_2 H7		E	f	G h8	H	H_1	H_2	h	h_1	h_2
40	105	70	71	60	3	6	6	39	9	18	19	50	6.5	60	125	50	75	90	35	55
50	125	80	85	70	4	8	8	46	11	25	24	60	8.5	70	150	60	90	104	40	64
63	147	100	103	85	5	8	—	56	14	25	—	72	9	80	182	72	110	130	50	80
75	176	120	112	90	6	8	8	60	19	28	30	86	11	95	219.5	86	133.5	153	60	93
90	203	140	130	100	6	10	—	70	19	35	—	103	13	110	248.5	103	145.5	172	70	102
110	252.5	170	143	115	8	12	—	77.5	24	42	—	127.5	14	130	310.5	127.5	183	210	85	125

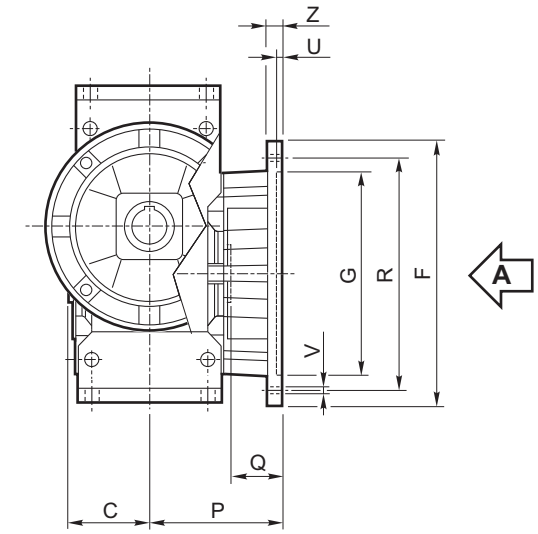
H	I	I_p	L	M	M_e	M_u	N	P_p	R	R_u	S	t_e	t_2		X
40	40	5	15	M6X10	M4X12	M5X10	91.5	36.5	75	42.4	6	10.2	20.8	21.8	1.5
50	50	10	20	M8x10	M4x12	M6x10	104.5	43.5	85	53.7	7	12.5	28.3	27.3	1.5
63	63	16.5	25	M8x14	M4x10	M6x12	121	53	95	60.8	8	16	28.3	—	2
75	75	22	30	M8x14	M6x16	M8x12	147.75	57	115	70.7	10	21.5	31.3	33.3	2
90	90	37	30	M10x18	M6x16	M8x14	157.75	67	130	70.7	12	21.5	38.3	—	2
110	110	47	40	M10x18	M8x22	M10x18	196.5	74	165	85.0	14	27	45.3	—	2.5

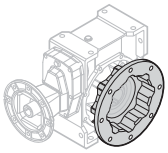
Dimensioni attacco flangia entrata — ***Dimensions of the input mounting flange*** — **Abmessungen des Eintriebsflansches**



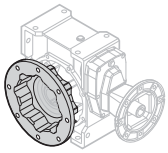
H	D	M	Q	X	Y
40	26	M5x9	40	12.5	12.5
50	32	M5x9	45	15	15
63	40	M6x12	53	19	19
75	47	M6x12	62	21.5	21.5
90	47	M6x12	62	21.5	21.5
110	52	M8x15	75	25	25

Flangia uscita — *Output flange* — Abtriebsflansch

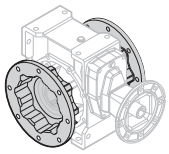




F..D
Standard

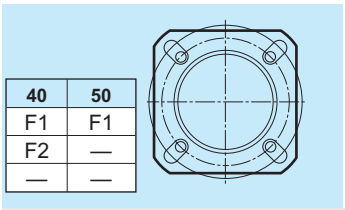


F..S

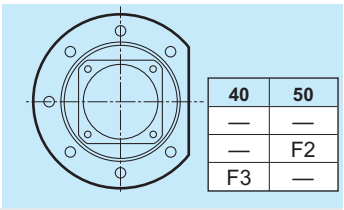


F..2

Vista da A / *View from A* / Ansicht von A

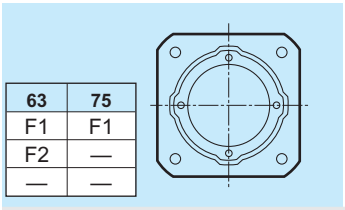


40	50
F1	F1
F2	—
—	—

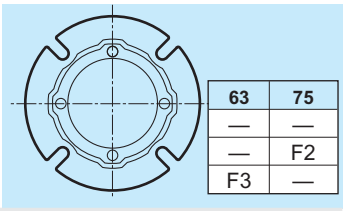


40	50
—	—
—	F2
F3	—

40 - 50

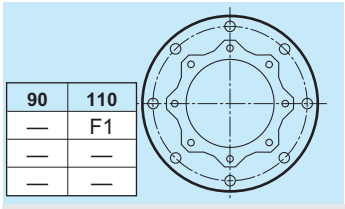


63	75
F1	F1
F2	—
—	—

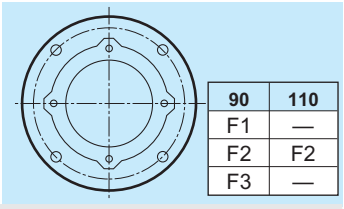


63	75
—	—
—	F2
F3	—

63 - 75



90	110
—	F1
—	—
—	—



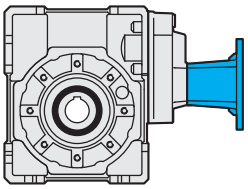
90	110
F1	—
F2	F2
F3	—

90 - 110

Tipo *Type* Typ		C	F		G H8	P	Q	R	U	V			Z
												Ø	
40	F1	39		85	60	67	28	75-90	4	n* 4		9	8
	F2			85	60	97	58	75-90	4	n* 4		9	8
	F3		140		95	80	41	115	5		n* 7	9	10
50	F1	46		94	70	90	44	85-100	5	n* 4		11	10
	F2		160		110	89	43	130	5		n* 7	11	11
	F3												
63	F1	56		142	115	82	26	150	5	n* 4		11	11
	F2			142	115	112	56	150	5	n* 4		11	11
	F3		160		110	80.5	24.5	130	5	n* 4		11	12
75	F1	60		160	130	111	51	165	5	n* 4		13	12
	F2		160		110	90	30	130	6	n* 4		11	13
	F3												
90	F1	70	200		152	111	41	175	5	n* 4		13	12
	F2		200		152	151	81	175	5	n* 4		13	13
	F3		200		130	110	40	165	6	n* 4		11	11
110	F1	77.5	260		170	131	53.5	230	6		n* 8	13	15
	F2		250		180	150	72.5	215	5	n* 4		15	16
	F3												

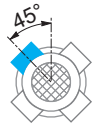
4.7 Dimensioni — *4.7 Dimensions* — 4.7 Abmessungen

Flangia entrata / *Input flange* / Antriebsflansch

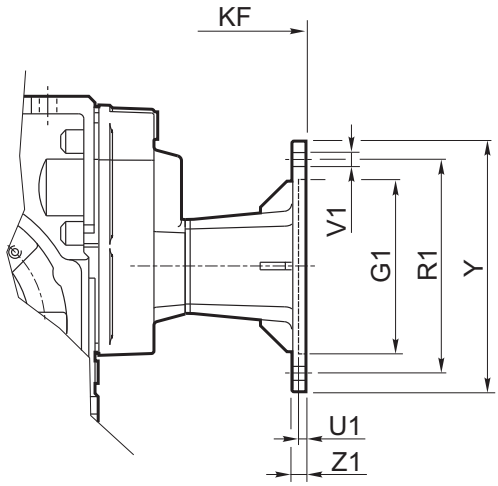


HF..

PM = 1



PM = 2



HF	IEC	PM		G_1 H7	K_F	R_1	U_1	V_1				Y	Z_1
		1	2					∅					
40	56 B5	•	•	80	129.5	100	3.5	7		8		120	8
	56 B14		•	50	129.5	65	3.5	6			4	80	8
	63 B5	•	•	95	132.5	115	4	9		8		140	10
	63 B14	•	•	60	132.5	75	3.5	6		8		90	8
50	56 B5	•	•	80	148.5	100	3.5	7		8		120	8
	63 B5	•	•	95	151.5	115	4	9		8		140	10
	63 B14	•	•	60	151.5	75	3.5	6		8		90	8
	71 B5	•	•	110	158.5	130	4.5	9		8		160	10
	71 B14	•	•	70	158.5	85	4	7		8		105	10
63	63 B5	•	•	95	173	115	4	9		8		140	10
	71 B5	•	•	110	180	130	4.5	9		8		160	10
	71 B14		•	70	180	85	3.5	7			4	105	10
	80 B5	•	•	130	190	165	4.5	11		8		200	10
	80 B14	•	•	80	190	100	4	7		8		120	10
75	71 B5	•	•	110	212	130	4.5	9		8		160	10
	80/90 B5	•	•	130	232	165	4.5	11		8		200	10
	80 B14	•	•	80	222	100	4	7		8		120	10
	90 B14	•	•	95	232	115	4	9		8		140	10
90	71 B5	•	•	110	222	130	4.5	9		8		160	10
	80/90 B5	•	•	130	242	165	4.5	11		8		200	10
	80 B14	•	•	80	232	100	4	7		8		120	10
	90 B14	•	•	95	242	115	4	9		8		140	10
110	80/90 B5	•	•	130	294.5	165	4.5	11		8		200	10
	90 B14		•	95	294.5	115	4	9			4	140	10
	100/112 B5	•	•	180	304.5	215	5	14		8		250	14
	100/112 B14	•	•	110	304.5	130	4.5	9		8		160	10

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.

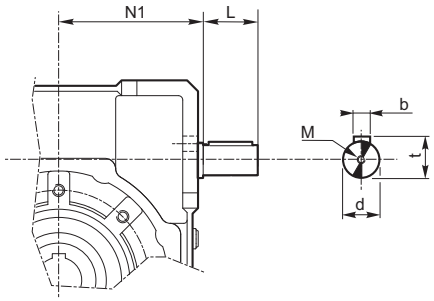
ANMERKUNG: STD Montage von P_M=2 nur wenn STD Montage von P_M=1 unmöglich ist.

4.8 Entrata supplementare (vite bisporgente)

4.8 *Additional input (double extended shaft)*

4.8 Zusatzantrieb (beidseitige Welle)

S.e.A.



H	d j6	L	M	N1	b	t
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

NOTA: L'entrata supplementare nella serie H si trova nella posizione intermedia del cinematismo. Quindi, se utilizzata come comando, avrà la sola riduzione della coppia vite/corona. Se invece viene utilizzata come asse condotto, la sua velocità sarà quella in entrata ridotta dal rapporto 4:1 della precoppia.

NOTE: *the second shaft of the H series gearboxes is placed in the intermediate position of the kinematic motion which if used as a drive will have only the reduction of the worm/wheel set. For the utilization as a driven shaft its speed will correspond to the input speed reduced by the ratio 4:1 of the pre-stage.*

BEMERKUNG: das zweite Wellenende der Getriebe der Serie H befindet sich in der Mitte des Getriebes. Falls das zweite Wellenende als zusätzliche Antriebswelle genutzt werden, muss aufgrund der Vorstufe mit einer um 4:1 reduzierte Drehzahl eingetrieben werden.

4.9 Limitatore di coppia cavo passante

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 ±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 volori 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.

4.9 *Torque limiter with through hollow shaft*

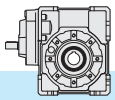
The use of a torque limiter is advisable in case of applications requiring the limitation of the torque in order to safeguard the plant and/or the gearbox against unexpected and undesired overloads or shocks.
The torque limiter is equipped with a through hollow shaft and friction clutch. It is integrated in the gearbox, space requirement is therefore limited.
Designed to work in oil bath, it is reliable over time and is not subject to wear unless prolonged slipping occurs (it happens when the torque values are higher than the calibration values).
Calibration can be easily adjusted from the outside by tightening of the self-locking ring nut, which causes the compression of 4 Belleville washers arranged in series.
The use of the torque limiter 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 ±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.

4.9 Drehmomentbegrenzer mit durchgehender Hohlwelle

Die Anwendung eines Drehmomentbegrenzers wird empfohlen, um die Anlage und das Getriebe gegen unerwünschte und unerwartete Überbelastungen und Stoßen zu schützen. Der Begrenzer verfügt über eine durchgehende Hohlwelle und eine Kupplung. Er ist in dem Getriebe integriert, d.h. der Raumbedarf ist klein.
Der Drehmomentbegrenzer wurde für Betrieb in 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 Eichung darf mühelos von aussen durch das Anziehen einer selbstsperrenden Mutter ausgeführt werden. Das Anziehen verursacht die Zusammendrückung der 4 wechselsinnigge- schichteten Tellerfeder.
Die Vorrichtung 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 ±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 hoher, 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.



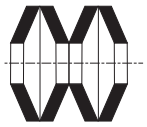
E' importante notare che la coppia di slittamento non resta sempre la medesima durante tutta la vita del limitatore.
Tende infatti a diminuire in rapporto al numero e alla durata degli slittamenti che, rodando le superfici di contatto, ne aumentano il rendimento.
È quindi opportuno verificare periodicamente, 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 whole life of the torque limiter. It usually decreases in connection with the numbers and the duration of the slipping which because of the surfaces' lapping will increase 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 device is supplied already calibrated at the torque value reported in the catalogue T_{2M}, unless otherwise specified in the order.

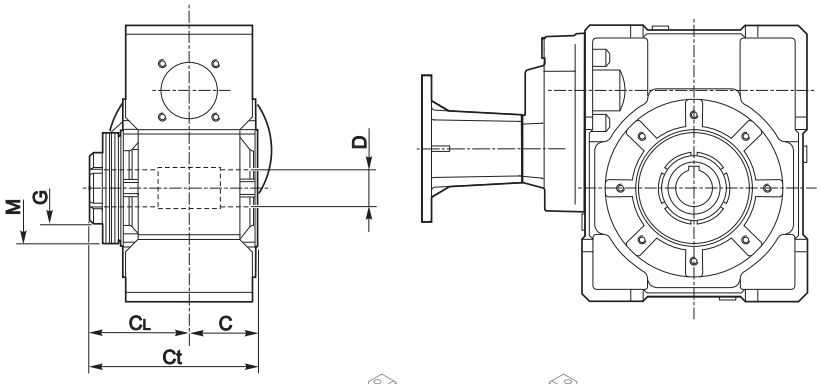
Es ist wichtig zu beachten, dass das Rutschmoment über die gesamte Lebensdauer der Rutschkupplung nicht konstant bleibt, sondern üblicherweise in Verbindung mit längeren Rutschzyklen aufgrund der eingelaufenen Berührungsflächen abnimmt.
Deswegen ist es ratsam, die Eichung der Vorrichtung besonders während der Einlaufzeit zu prüfen.
Falls ein niedriger Eichfehler verlangt wird, ist das übersetzbare Drehmoment auf die Anlage zu testen. Wenn die Vorrichtung geliefert wird, ist sie schon auf dem im Katalog T_{2M} angegebenen Wert geeicht (ausser wenn es in der Bestellung anders angegeben wird).

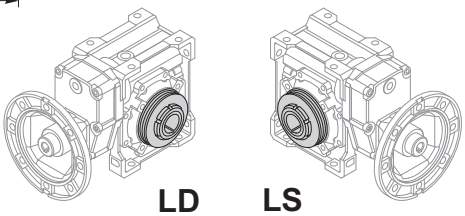
H	N°. giri della ghiera di regolazione / *N°. revolutions of ring nut* / Nr. Umdrehungen der Mutter															
	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4	4 1/4	4 1/2	4 3/4	5
	M_{2S} [Nm]															
40	37	45	48	52	60	65	67									
50		55	63	70	77	85	90	95	100	110	115	120				
63					110	125	137	150	163	175	183	190	203	215		
75		235	265	295	327	360										
90						275	297	320	350	380	415	450	485	520	535	550
110		550	600	700	750	800	850	920	970							

Disposizione delle molle
Washers' arrangement
Lage der Feder



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





LD **LS**

H	C	C_L	C_t	D H7	M	G
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)	90x50.5x3.5	M50x1.5
90	70	109	179	35 (32)	100x51x2.7	M50x1.5
110	77.5	127.5	205	42	125x61x4	M60x2.0

( ) A richiesta / *On request* / Auf Anfrage

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.

4.10 Accessori

4.10 Accessories

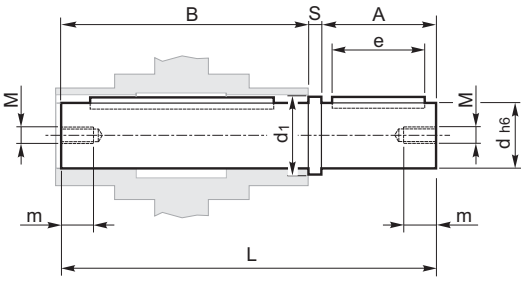
4.10 Zubehör

Albero lento

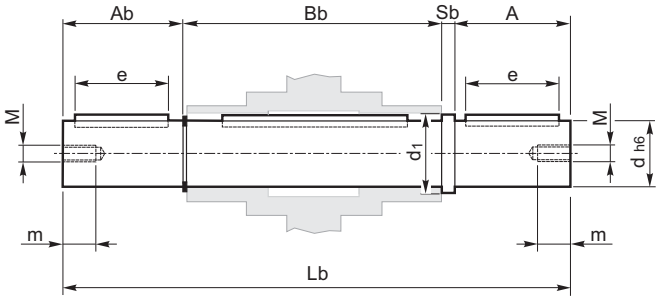
Output shaft

Abtriebswelle

Albero lento semplice
Single output shaft
Standard Abtriebswelle



Albero lento doppio
Double output shaft
Doppelte Abtriebswelle

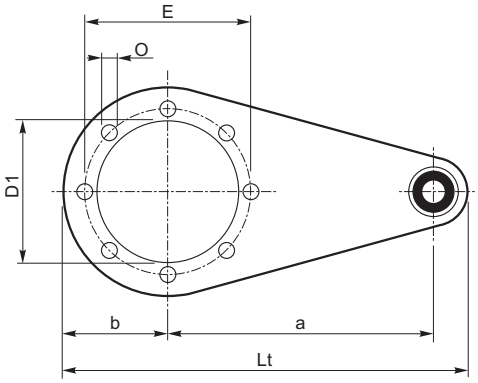


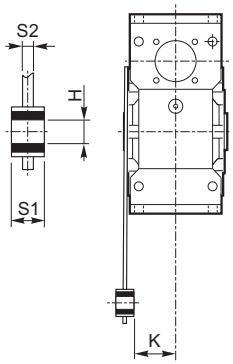
H	A	A_b	B	B_b	d (h6)	d_1	e	L	L_b	M	m	S	S_b
40	40	39	77	79	18	23.5	30	120	161	M6	16	3	3
50	50	49	90	93	25	31.5	40	143.5	199.5	M8	22	3.5	3.5
63	50	49	111	113	25	31.5	40	165	216	M8	22	4	4
75	60	59	119	121	28	34.5	50	183	244	M8	22	4	4
90	80	78.5	139	141.5	35	41.5	60	224	305	M10	28	5	5
110	80	77.5	154.5	157	42	49.5	60	242.5	322.5	M10	28	8	8

Braccio di reazione

Torque arm

Drehmomentstütze





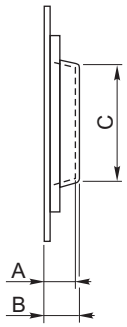
H	a	b	D_1	E	H	K	L_t	O	S1	S2
40	100	45	60	75	10	31.5	167	7	14	4
50	100	50	70	85	10	39	172	9	14	5
63	150	55	80	95	10	49	227	9	14	6
75	200	70	95	115	20	47.5	302	9	25	6
90	200	80	110	130	20	57.5	312	11	25	6
110	250	100	130	165	25	62	390	11	30	6

Kit di protezione:

Protection Kit:

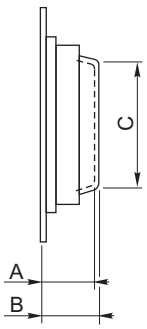
Schutzvorrichtung

Albero cavo / *Hollow shaft* / Hohlwelle



	A	B	C
40	14	15.5	44
50	15	16.5	54
63	17	19	60
75	18	20	70
90	21.5	24	80
110	22	25	96

Limitatore di coppia / *Torque limiter* / Drehmomentbegrenzer



	A	B	C
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

Opzioni disponibili:

Cuscinetti a rulli conici corona

Available options:

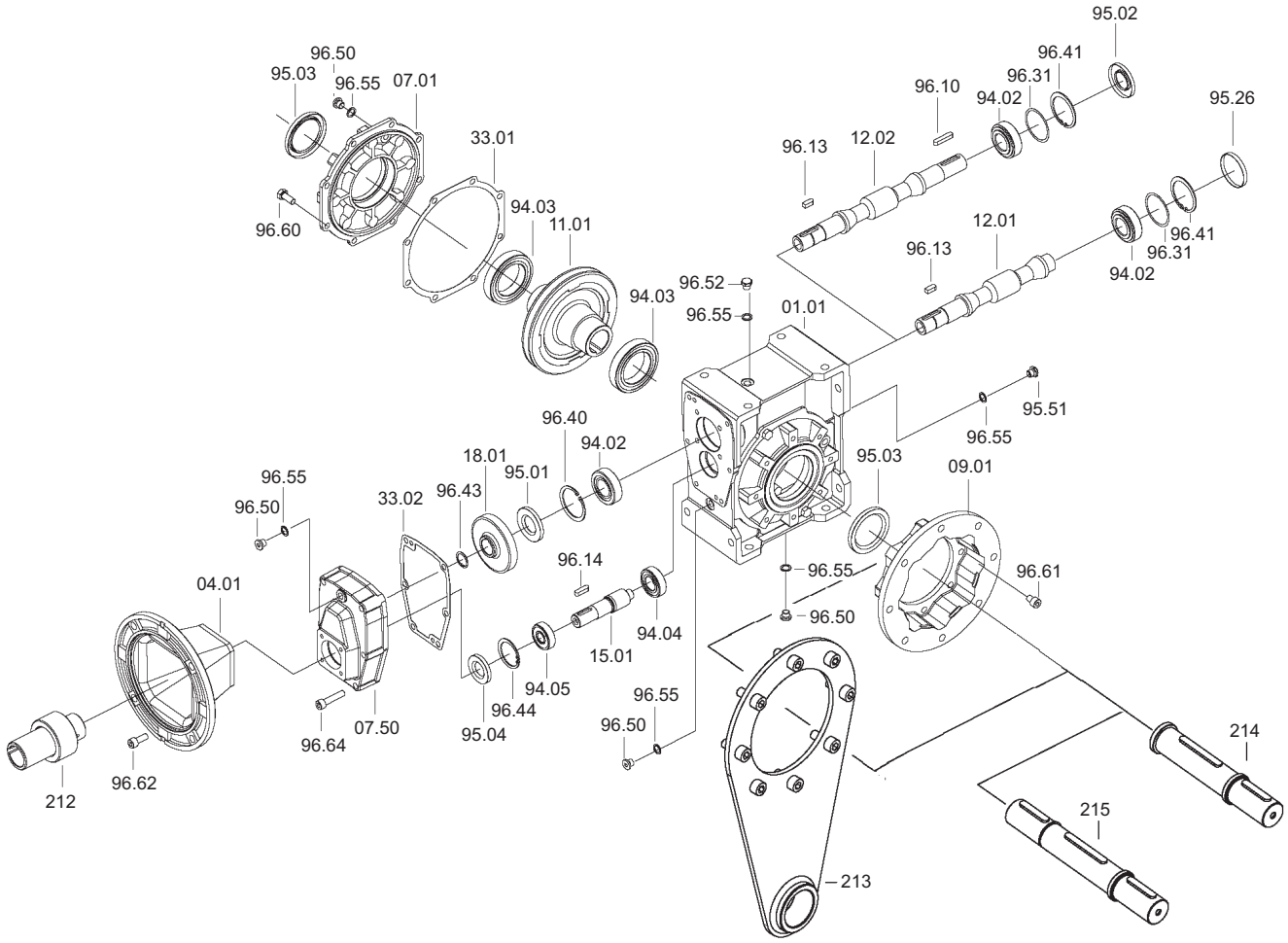
Tapered roller bearings on worm wheel

Auf Anfrage ist folgendes Zubehör erhältlich:

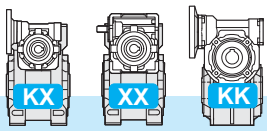
Kegelrollenlager auf Schneckenrad

4.11 **Lista parti di ricambio** *4.11* ***Spare parts list*** 4.11 **Ersatzteilliste**

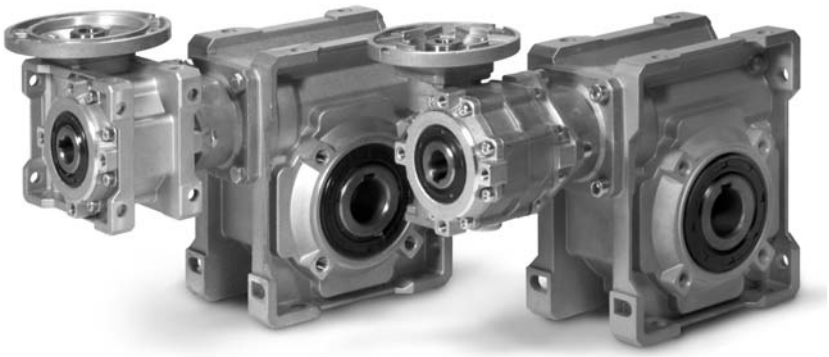
HA - HF



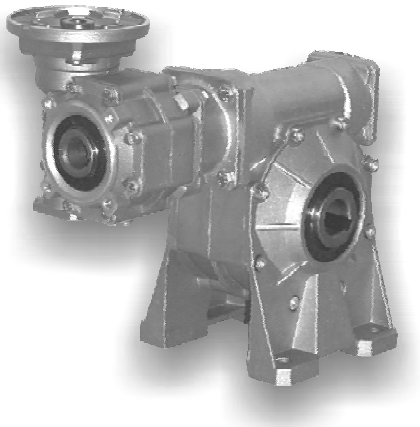
H	Cuscinetti / *Bearings* / Lager				Anelli di tenuta / *Oilseals* Öldichtungen				Cappellotto / *Closed oil seal* Geschlossene Öldichtung
	94.02	**94.03**	**94.04**	**94.05**	**95.01**	**95.02**	**95.03**	**95.04**	**95.26**
40	**6201** 12x32x10	**6006** 30x55x13	**6000** 10x26x8	**6000** 10x26x8	12/32/7	12/32/7	30/47/7	10/26/7	ø 32x7
50	**6203** 17x40x12	**6008** 40x68x15	**6200** 10x30x9	**6201** 12x32x10	17/40/7	17/40/7	40/62/8	12/32/7	ø 40x7
63	**30204** 20x47x15.25	**6008** 40x68x15	**6201** 12x32x10	**6203** 17x40x12	20/47/7	20/47/7	40/62/8	17/40/7	ø 47x7
75	**30205** 25x52x16.25	**6010** 50x80x16	**6202** 15x35x11	**6204** 20x47x14	25/52/7	25/52/7	50/72/8	20/47/7	ø 52x7
90	**32205** 25x52x19.25	**6010** 50x80x16	**6202** 15x35x11	**6204** 20x47x14	25/52/7	25/52/7	50/72/8	20/47/7	ø 52x7
110	**32206B** 30x62x21.25	**6012** 60x95x18	**6303** 17x47x14	**6205** 25x52x15	30/62/7	30/62/7	60/85/8	25/52/7	ø 62x7



5.0 RIDUTTORI A VITE SENZA FINE COMBINATI — *COMBINED WORM GEAR-BOXES* — KOMBINIERTE-SCHNECKENGETRIEBE



XX **KX**



KK

5.1 Caratteristiche

La combinazione di due riduttori a vite senza fine comporta rendimenti molto bassi, ma l'elevata riduzione di velocità ottenuta in uno spazio ridottissimo rende comunque interessante, e a volte insostituibile, questa soluzione. I riduttori a vite senza fine combinati sono disponibili nelle serie KX, XX e KK.

Le serie KX e KK sono disponibili esclusivamente nella versione p.a.m.

La serie XX è invece disponibile nella versione alberata XXA e nelle due versioni con predisposizione attacco motore in forma copatta XXC o con campana e giunto XXF.

Sono forniti con albero cavo di serie ed esiste un'ampia gamma 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.

5.1 *Characteristics*

The combination of two worm gearboxes provides very low efficiency, however the fact that substantial reduction in speed can be obtained in an extremely reduced space makes this solution very interesting and sometimes irreplaceable. Combined worm gearboxes are available in series: KX , XX and KK.

The KX and KK series are available for IEC version only.

The XX series is available in the XXA version with shaft and in two versions with motor coupling: XXC (compact) and XXF (with bell and joint).

The hollow shaft is supplied as standard. A broad range of accessories is avalable: 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.

5.1 Merkmale

Die Kombination zweier Schneckengetriebe bringt sehr niedrigen Wirkungsgrad mit sich, es handelt sich jedoch um eine interessante und manchmal unersetzbare Lösung, weil hohe Drehzahlverringerung in einem beträchtlich reduzierten Raum erhalten werden kann. Kombinierte Schneckengetriebe sind in Serien erhältlich: KX, XX und KK.
Die Serien KX und KK sind nur mit IEC-Motoranbau verfügbar.

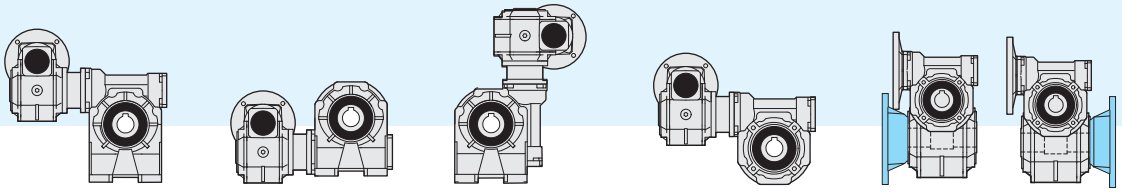
Die Serie XX ist mit Welle (XXA Version), oder mit Kupplung für Motoranschluss (XXC kompakt und XXF mit Glocke und Verbindsstück) lieferbar.

Die Hohlwelle gehört zur serienmäßigen Ausstattung. Eine breite Auswahl an Zubehör ist erhältlich: zweiter Antrieb, Kegelrollenlager auf Schneckenrad, Abtriebsflansch, standard oder doppelseitig herausragende Abtriebswelle, Drehmomentbegrenzer mit durchgehender Hohlwelle, Drehmomentstütze.

5.2 Designazione / *Designation* / Bezeichnung

Riduttore entrata *Gearbox at input* Getriebe am	Macchina uscita *Gearbox at output* Getriebe am Abtrieb	Tipo entrata *Input type* Antriebsart	Grandezza *Size* Größe	Rapporto rid. *Ratio* Untersetzung	Predispos.att. mot. *Motor coupling* Motoranschluss	Versione *Version* Version	Forma costruttiva *Execution* Bauform	Posizione di mont. *Mounting position* Einbaulage	Limitatore di coppia. *Torque limiter* Drehmomentbegrenzer	Seconda entrata *Additional input* Zusatzantrieb	Albero uscita *Output shaft* Abtriebswelle	Braccio di reazione *Torque arm* Drehmomentstütze
K	**K**	**C**	**50/110**	**1200**	**P.A.M.**	**F1**	**a**	**B3**	**LD**	**SeA1**	**H**	**BR**
Riduttore a vite senza fine combinato *Combined worm gearbox* **Doppelschneckengetriebe**		C	30/30 30/40 30/50 30/63 40/63 40/75 40/90 50/75 50/90 50/110 63/110	150 200 300 450 600 900 1200 1500 1950 2500 3250 4000 5000 10000	56 63 71 80 90	P F (1-2-3) A (1-2) B (1-2) V (1-2)	ab cd ef gh ik im no pq	B3 B6 B7 B8 V5 V6	LD LS L1	SeA1 SeA2	H SD SS DD	BR

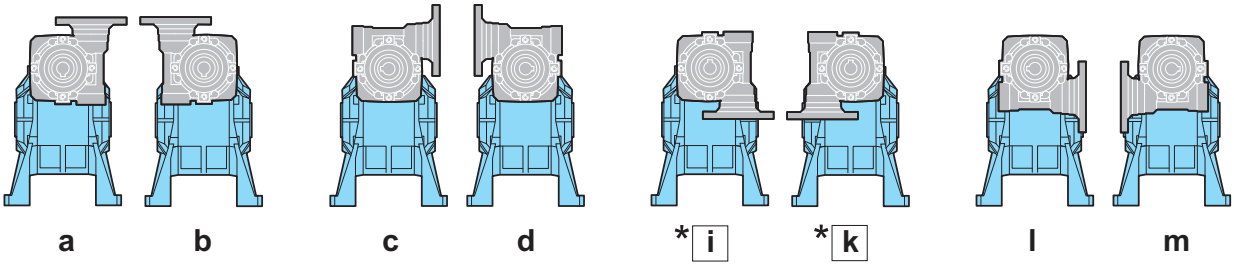
KKC..A KKC..B KKC..V KKC..P KKC..FS KKC..FD



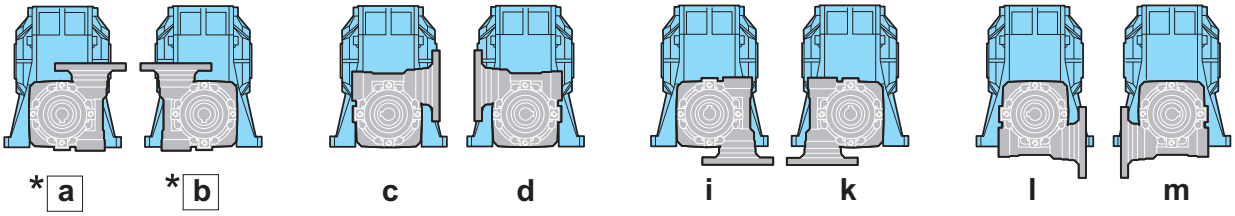
5.2 Designazione — *5.2 Designation* — 5.2 Bezeichnung

Forma costruttiva / *version* / Bauform

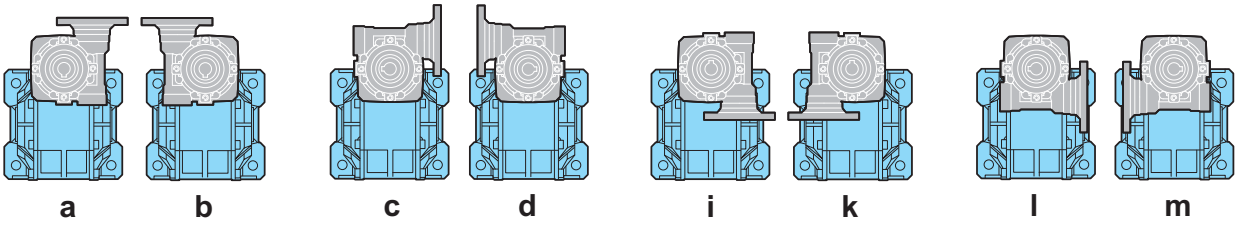
A



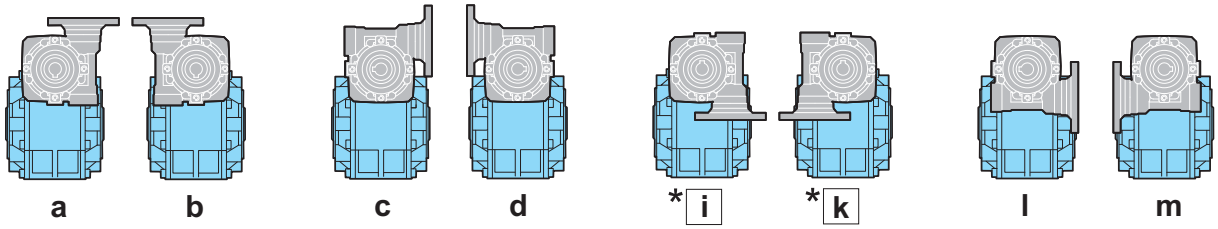
B



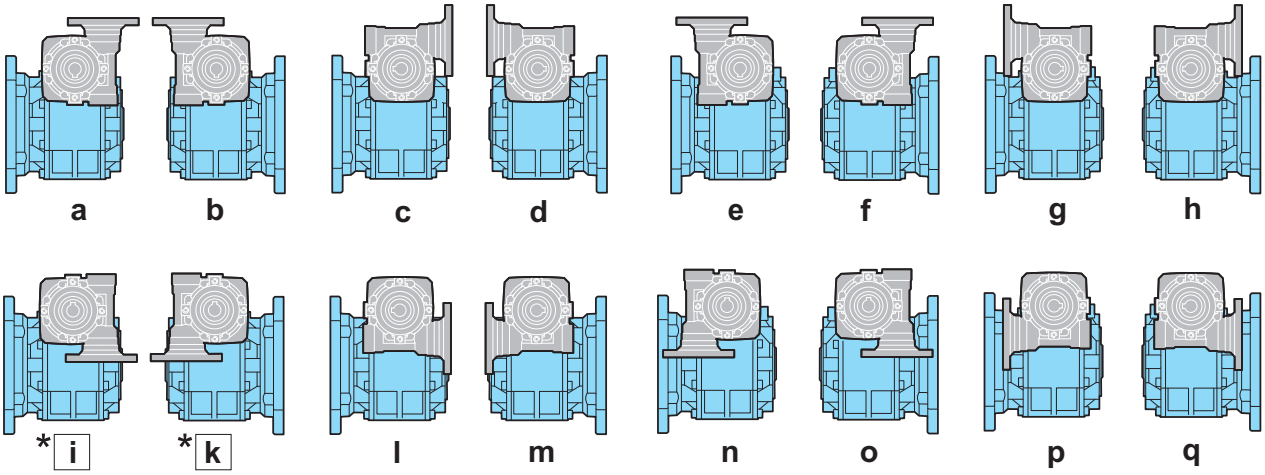
V



P



F

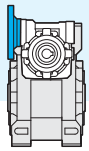


*☐ Forma costruttiva non realizzabile su: / *Version not feasible on: /* Bauform nicht ausführbar für:
30/30, 30/40, 30/50 PAM 63B5 (ø 140), 40/63 PAM 71B5 (ø 160)

5.2 Designazione — 5.2 *Designation* — 5.2 Bezeichnung

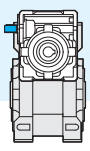
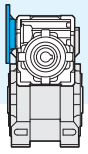
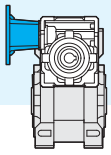
Riduttore entrata *Gearbox at input* Getriebe am Antrieb	Macchina uscita *Gearbox at output* Getriebe am Abtrieb	Tipo entrata *Input type* Antriebsart	Grandezza *Size* Größe	Rapporto rid. *Ratio* Untersetzung	Predispos.att. mot. *Motor coupling* Motoranschluss	Versione *Version* Version	Forma costruttiva *Execution* Bauform	Posizione di mont. *Mounting position* Einbaulage	Limitatore di coppia. *Torque limiter* Drehmomentbegrenzer	Seconda entrata *Additional input* Zusatzantrieb	Albero uscita *Output shaft* Abtriebswell	Braccio di reazione *Torque arm* Drehmomentstütze
K	**X**	**C**	**50/110**	**1200**	**P.A.M.**	**F1**	**a**	**B3**	**LD**	**SeA1**	**H**	**BR**
Riduttore a vite senza fine combinato *Combined worm gearbox* **Doppelschneckengetriebe**		C	30/30 30/40 30/50 30/63 40/63 40/75 40/90 50/75 50/90 50/110 63/110	150 200 300 450 600 900 1200 1500 1950 2500 3250 4000 5000 10000	56 63 71 80 90	P F (1-2-3)	ab cd ef gh ik lm no pq	B3 B6 B7 B8 V5 V6	LD LS L1	SeA1 SeA2	H SD SS DD	BR

KXC..



Riduttore entrata *Gearbox at input* Getriebe am Antrieb	Macchina uscita *Gearbox at output* Getriebe am Abtrieb	Tipo entrata *Input type* Antriebsart	Grandezza *Size* Größe	Rapporto rid. *Ratio* Untersetzung	Predispos.att. mot. *Motor coupling* Motoranschluss	Versione *Version* Version	Forma costruttiva *Execution* Bauform	Posizione di mont. *Mounting position* Einbaulage	Limitatore di coppia. *Torque limiter* Drehmomentbegrenzer	Seconda entrata *Additional input* Zusatzantrieb	Albero uscita *Output shaft* Abtriebswelle	Braccio di reazione *Torque arm* Drehmomentstütze
X	**X**	**C**	**50/110**	**1200**	**P.A.M.**	**F1**	**a**	**B3**	**LD**	**SeA1**	**H**	**BR**
Riduttore a vite senza fine combinato *Combined worm gearbox* **Doppelschneckengetriebe**		A C F	30/30 30/40 30/50 30/63 40/63 40/75 40/90 50/75 50/90 50/110 63/110	150 200 300 450 600 900 1200 1500 1950 2500 3250 4000 5000 10000	56 63 71 80 90	P F (1-2-3)	ab cd ef gh ik im no pq	B3 B6 B7 B8 V5 V6	LD LS L1	SeA1 SeA2	H SD SS DD	BR

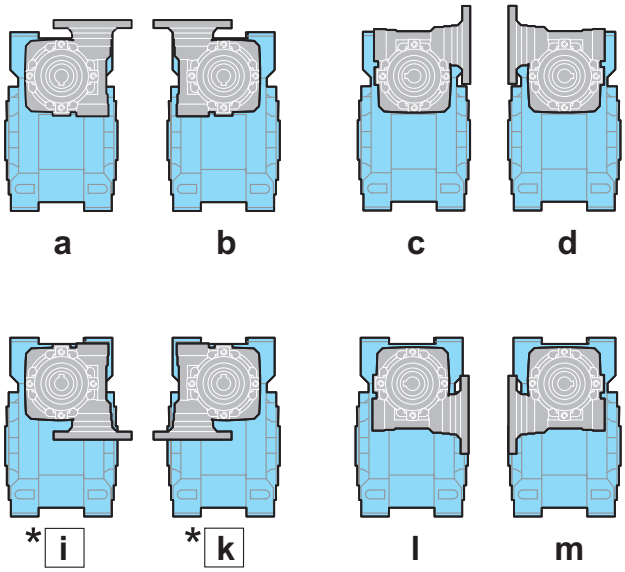
XXA.. XXC.. XXF..

5.2 Designazione — *5.2 Designation* — 5.2 Bezeichnung

Forma costruttiva / *version* / Bauform

P

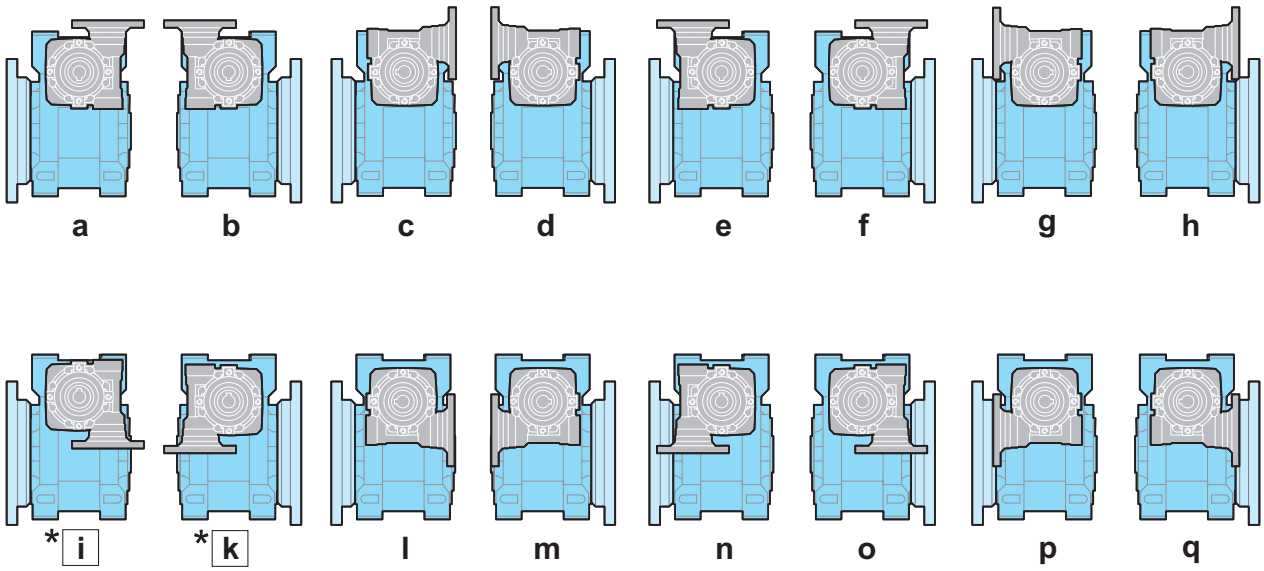


*□

Forma costruttiva non realizzabile su:
Version not feasible on:
Bauform nicht ausführbar für:

30/30, 30/40, 30/50 PAM 63B5 (ø 140)
40/63 PAM 71B5 (ø 160)

F



5.3 Lubrificazione e posizioni di montaggio

I riduttori a vite senza fine combinati sono forniti completi di lubrificante sintetico.

Si raccomanda di precisare sempre in fase di ordine la forma costruttiva e la posizione di lavoro desiderata.

5.3 Lubrication and mounting position

Combined worm gearboxes are supplied with synthetic lubricant.

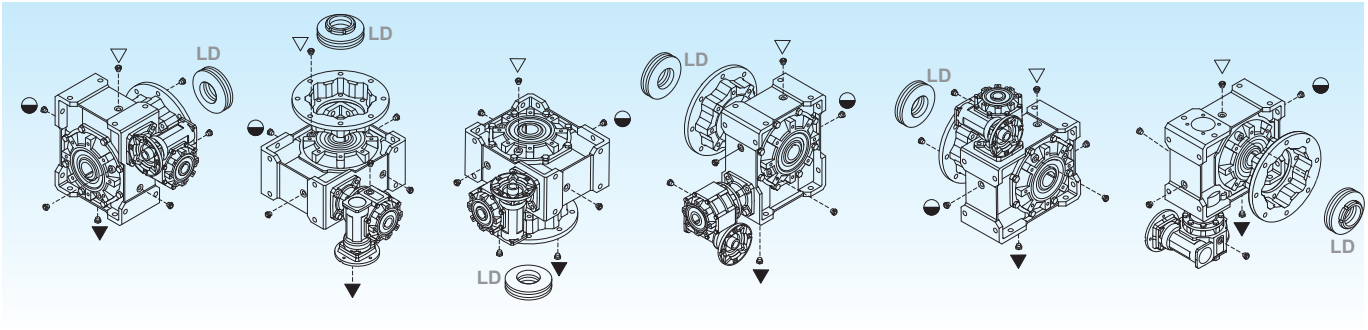
Always specify the version and the mounting position when ordering.

5.3 Schmierung und Einbaulage

Kombinierte Schneckengetriebe werden mit synthetischem Schmiermittel geliefert.

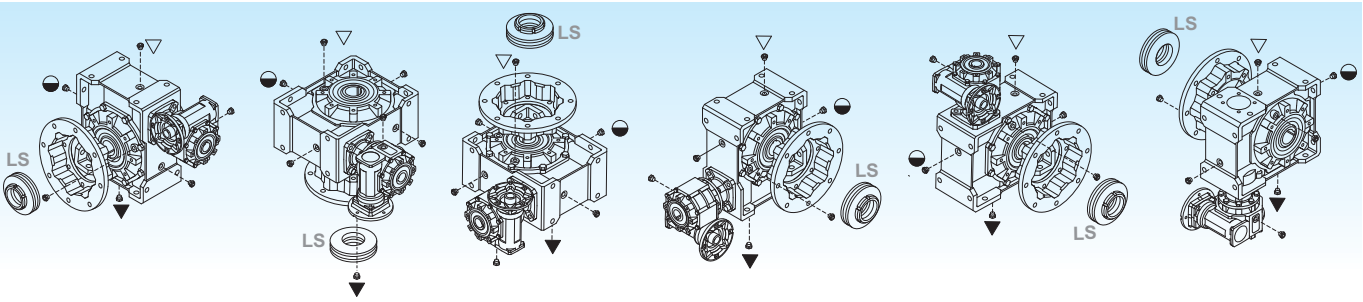
Im Auftrag sind immer Einbaulage und Bauform anzugeben.

F **(b, d, f, h, k, m, o, q)** **P** **(a, b, c, d, i, k, l, m)**



B3 **B6** **B7** **B8** **V5** **V6**

F **(a, c, e, g, i, l, n, p)**



B3 **B6** **B7** **B8** **V5** **V6**

▽ 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.

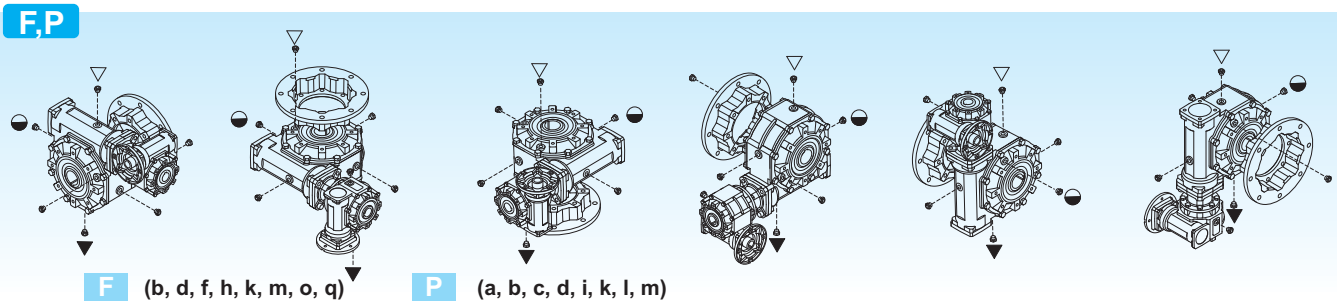
30, 40, 50, 63 and 75 aluminium housings have one oil filling plug only.

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

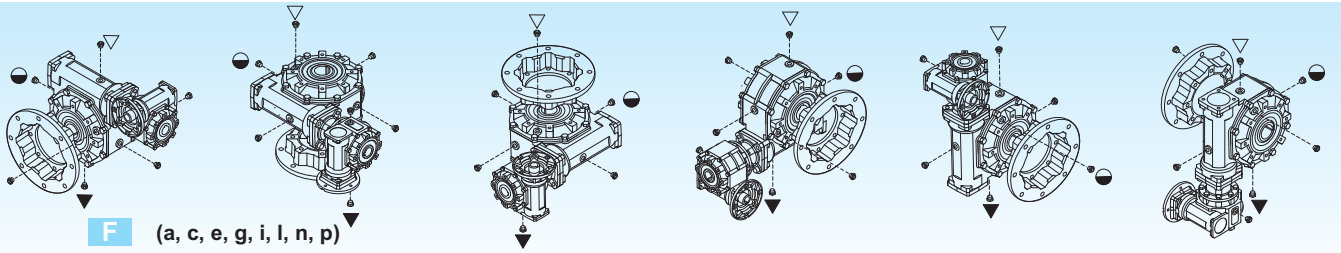
			Q.tà olio / *Oil quantity* / Schmiermittelmenge [lt]										
			XXA - XXC - KXC - XXF										
			30/30	**30/40**	**30/50**	**30/63**	**40/63**	**40/75**	**40/90**	**50/75**	**50/90**	**50/110**	**63/110**
Posizioni di montaggio *Mounting positions* Einbaulage	**B3**	**IN**	0.015					0.04			0.08		0.16
		OUT	0.015	0.04	0.08	0.16	0.16	0.26	1.1	0.26	1.1	2.2	2.2
	B6	**IN**	0.015					0.04			0.08		0.16
		OUT	0.015	0.04	0.08	0.16	0.16	0.26	0.9	0.26	0.9	1.8	1.8
	B7	**IN**	0.015					0.04			0.08		0.16
		OUT	0.015	0.04	0.08	0.16	0.16	0.26	0.9	0.26	0.9	1.8	1.8
	B8	**IN**	0.015					0.04			0.08		0.16
		OUT	0.015	0.04	0.08	0.16	0.16	0.26	0.8	0.26	0.8	1.6	1.6
	V5	**IN**	0.015					0.04			0.08		0.16
		OUT	0.015	0.04	0.08	0.16	0.16	0.26	1.2	0.26	1.2	2.4	2.4
	V6	**IN**	0.015					0.04			0.08		0.16
		OUT	0.015	0.04	0.08	0.16	0.16	0.26	1.2	0.26	1.2	2.4	2.4

IN = Riduttore entrata / *Gearbox at input* / Getriebe am Antrieb
OUT = Riduttore uscita / *Gearbox at output* / Getriebe am Abtrieb

F,P

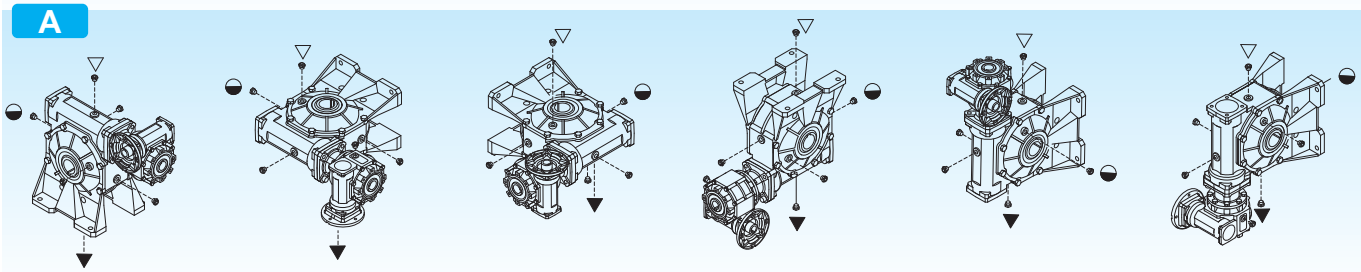


F (b, d, f, h, k, m, o, q) **P** (a, b, c, d, i, k, l, m)

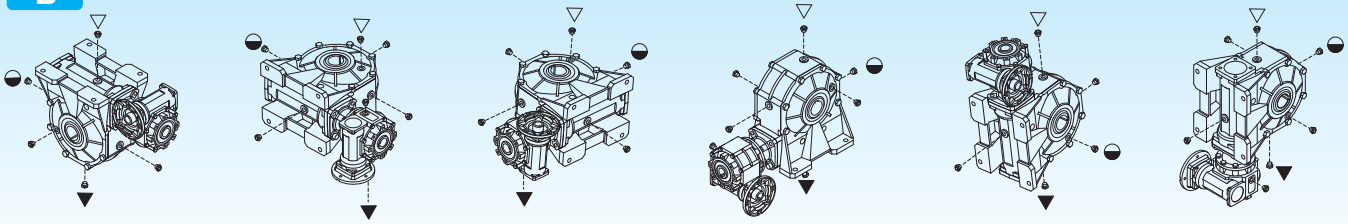


F (a, c, e, g, i, l, n, p)

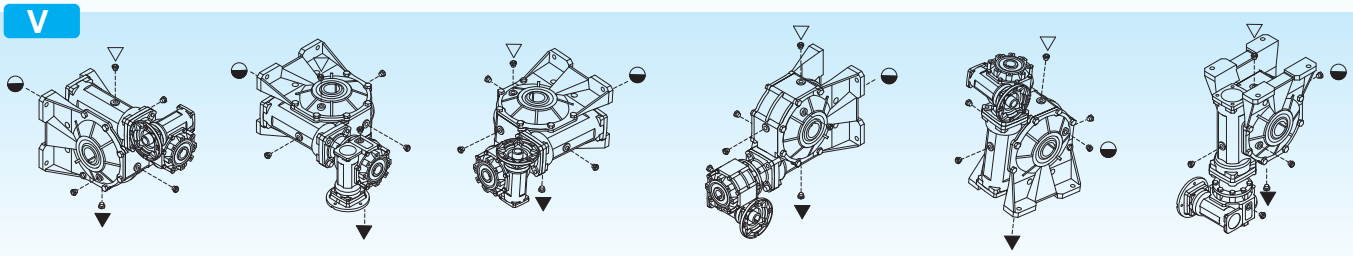
A



B



V



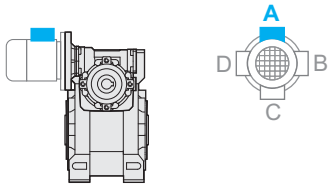
B3 **B6** **B7** **B8** **V5** **V6**

			Q.tà olio / *Oil quantity* / Schmiermittelmenge [lt]										
			Combinato tipo : **KKC**										
			30/30	**30/40**	**30/50**	**30/63**	**40/63**	**40/75**	**40/90**	**50/75**	**50/90**	**50/110**	**63/110**
Posizioni di montaggio *Mounting positions* Einbaulage	**B3**	**IN**	0.015					0.04			0.08		0.16
		OUT	0.015	0.04	0.08	0.16	0.16	0.26	1.1	0.26	1.1	2.4	2.4
	B6	**IN**	0.015					0.04			0.08		0.16
		OUT	0.015	0.04	0.08	0.16	0.16	0.26	0.9	0.26	0.9	2	2
	B7	**IN**	0.015					0.04			0.08		0.16
		OUT	0.015	0.04	0.08	0.16	0.16	0.26	0.9	0.26	0.9	2	2
	B8	**IN**	0.015					0.04			0.08		0.16
		OUT	0.015	0.04	0.08	0.16	0.16	0.26	1.3	0.26	1.3	2.38	2.8
	V5	**IN**	0.015					0.04			0.08		0.16
		OUT	0.015	0.04	0.08	0.16	0.16	0.26	1.2	0.26	1.2	2.7	2.7
	V6	**IN**	0.015					0.04			0.08		0.16
		OUT	0.015	0.04	0.08	0.16	0.16	0.26	1.2	0.26	1.2	2.7	2.7

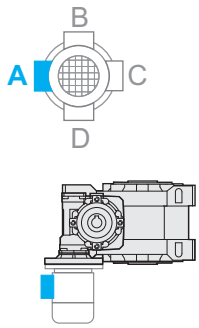
IN = Riduttore entrata / *Gearbox at input* / Getriebe am Antrieb **OUT** = Riduttore uscita / *Gearbox at output* / Getriebe am Abtrieb

Posizione morsettiera | ***Terminal board position*** | **Lage der Klemmenkaste**

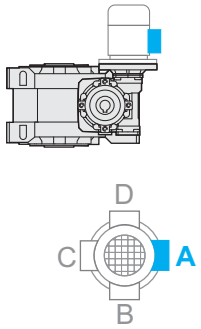
B3



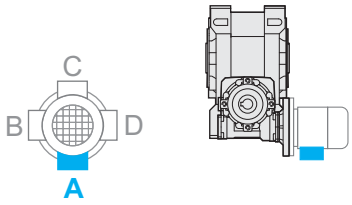
B6



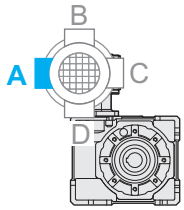
B7



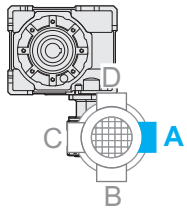
B8



V5



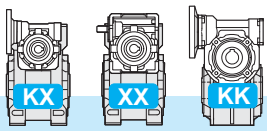
V6



Specificare sempre in fase di ordinazione la posizione di montaggio e la forma costruttiva.

Specify the version and the mounting position when ordering.

Bei der Bestellung immer die gewünschte Montageposition und Bauform angeben.



5.4 **Dati tecnici** *5.4* ***Technical data*** 5.4 **Technische Daten**

30/30

Kg 3.0

n_1 = 1400				KXC - XXC - XXF - KKC										XXA		
	30	30	n_2	T_2	P_1	FS'	Input - IEC							T_{2M}	P	Rd
i_n	i_1	i_2	[min^{-1}]	[Nm]	[kW]		KC - XC			XF				[Nm]	[kW]	
							B5/B14			B5		B14				
150		15	9.3	32	**0.06**	1.2								**37**	0.070	0.51
200	10	20	7.0	39	**0.06**	0.8								**32**	0.050	0.47
300			4.7	52*	**0.06**	0.8*								**39**	0.045	0.42
450	15		3.1	73*	**0.06**	0.5*		**63**						**39**	0.032	0.40
600	20		2.3	91*	**0.06**	0.4*								**39**	0.026	0.37
900	30	30	1.6	125*	**0.06**	0.3*								**39**	0.019	0.34
1200	40		1.2	149*	**0.06**	0.3*	—		**56**	—	**63**	**56**	—	**63**	**56**	**39**	0.016	0.30
1500	50		0.9	173*	**0.06**	0.2*								**39**	0.014	0.28
1950	65		0.7	209*	**0.06**	0.2*		—						**39**	0.011	0.26
2500	50		0.6	235*	**0.06**	0.1*		**63**						**30**	0.008	0.23
3250	65	50	0.4	283*	**0.06**	0.11*								**30**	0.006	0.21
4000	80		0.4	328*	**0.06**	0.09*		—						**30**	0.005	0.20
5000	100		0.3	385*	**0.06**	0.08*								**30**	0.005	0.19
10000		100	0.1	609*	**0.06**	0.03*								**17**	0.002	0.15

30/40

Kg 4.0

n_1 = 1400				KXC - XXC - XXF - KKC										XXA		
	30	40	n_2	T_2	P_1	FS'	Input - IEC							T_{2M}	P	Rd
i_n	i_1	i_2	[min^{-1}]	[Nm]	[kW]		KC - XC			XF				[Nm]	[kW]	
							B5/B14			B5		B14				
150		15	9.3	72	**0.13**	1.1								**82**	0.148	0.54
200	10	20	7.0	76	**0.11**	1.0								**76**	0.110	0.51
300			4.7	79	**0.09**	1.0								**82**	0.094	0.43
450	15		3.1	74	**0.06**	1.1		**63**						**82**	0.067	0.40
600	20		2.3	92	**0.06**	0.9								**82**	0.054	0.37
900	30	30	1.6	126*	**0.06**	0.6*								**82**	0.039	0.34
1200	40		1.2	151*	**0.06**	0.5*								**82**	0.033	0.31
1500	50		0.9	176*	**0.06**	0.5*	—		**56**	—	**63**	**56**	—	**63**	**56**	**82**	0.028	0.29
1950	65		0.7	212*	**0.06**	0.4*		—						**82**	0.023	0.27
2500	50		0.6	236*	**0.06**	0.3*		**63**						**68**	0.017	0.23
3250	65	50	0.4	285*	**0.06**	0.24*								**68**	0.014	0.21
4000	80		0.4	330*	**0.06**	0.21*		—						**68**	0.012	0.20
5000	100		0.3	387*	**0.06**	0.18*								**68**	0.011	0.19
10000		100	0.1	626*	**0.06**	0.06*								**35**	0.003	0.15

30/50

Kg 6.0

n_1 = 1400				KXC - XXC - XXF - KKC										XXA		
	30	50	n_2	T_2	P_1	FS'	Input - IEC							T_{2M}	P	Rd
i_n	i_1	i_2	[min^{-1}]	[Nm]	[kW]		KC - XC			XF				[Nm]	[kW]	
							B5/B14			B5		B14				
150		15	9.3	124	**0.22**	1.2								**149**	0.265	0.55
200	10	20	7.0	129	**0.18**	1.1								**144**	0.201	0.52
300			4.7	118	**0.13**	1.3								**150**	0.166	0.44
450	15		3.1	140	**0.11**	1.1		**63**						**150**	0.118	0.42
600	20		2.3	143	**0.09**	1.0								**150**	0.094	0.39
900	30	30	1.6	131	**0.06**	1.1								**150**	0.069	0.36
1200	40		1.2	156	**0.06**	1.0								**150**	0.058	0.32
1500	50		0.9	182	**0.06**	0.8	—		**56**	—	**63**	**56**	—	**63**	**56**	**150**	0.049	0.30
1950	65		0.7	220*	**0.06**	0.7*		—						**150**	0.041	0.28
2500	50		0.6	253*	**0.06**	0.5*		**63**						**125**	0.030	0.25
3250	65	50	0.4	305*	**0.06**	0.41*								**125**	0.025	0.23
4000	80		0.4	354*	**0.06**	0.35*		—						**125**	0.021	0.22
5000	100		0.3	414*	**0.06**	0.30*								**125**	0.018	0.20
10000		100	0.1	645*	**0.06**	0.11*								**69**	0.006	0.16

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

* ***WARNING:*** *Maximum admissible 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: $T_{2M} = T_2 \times FS'$

5.4 Dati tecnici — *5.4 Technical data* — 5.4 Technische Daten

30/63

Kg 8.5

i_n	30 i_1	63 i_2	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	KXC - XXC - XXF - KKC Input - IEC KC - XC B5/B14	KC - XC B5/B14	KC - XC B5/B14	XF B5	XF B5	XF B14	XF B14	XXA T_{2M} [Nm]	XXA P [kW]	XXA Rd
150	10	15	9.3	126	**0.22**	1.8	—	**63**	**56**	—	**63**	**56**	—	**63**	**56**	**228**	0.400	0.56
200		20	7.0	162	**0.22**	1.7										**279**	0.378	0.54
300		30	4.7	207	**0.22**	1.3										**268**	0.285	0.46
450	15		3.1	238	**0.18**	1.1										**268**	0.202	0.43
600	20		2.3	215	**0.13**	1.2										**268**	0.162	0.40
900	30		1.6	250	**0.11**	1.1										**268**	0.118	0.37
1200	40		1.2	243	**0.09**	1.1										**268**	0.099	0.33
1500	50		0.9	189	**0.06**	1.4										**268**	0.085	0.31
1950	65		0.7	228	**0.06**	1.2		—								**268**	0.071	0.29
2500	50	50	0.6	265	**0.06**	0.8		**63**								**222**	0.050	0.26
3250	65		0.4	319*	**0.06**	0.70*										**222**	0.042	0.24
4000	80		0.4	369*	**0.06**	0.60*		—								**222**	0.036	0.23
5000	100		0.3	433*	**0.06**	0.51*										**222**	0.031	0.21
10000		100	0.1	663*	**0.06**	0.21*										**138**	0.012	0.16

40/63

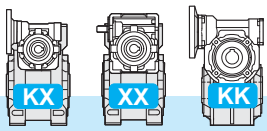
Kg 9.5

i_n	40 i_1	63 i_2	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	KXC - XXC - XXF - KKC Input - IEC KC - XC B5/B14	KC - XC B5/B14	KC - XC B5/B14	XF B5	XF B5	XF B14	XF B14	XXA T_{2M} [Nm]	XXA P [kW]	XXA Rd
150	10	15	9.3	214	**0.37**	1.2	**71**	**63**	—	**71**	**63**	**56**	**71**	**63**	—	**261**	0.452	0.56
200		20	7.0	277	**0.37**	1.0										**279**	0.373	0.55
300		30	4.7	238	**0.25**	1.1										**268**	0.282	0.46
450	15		3.1	244	**0.18**	1.1										**268**	0.197	0.44
600	20		2.3	226	**0.13**	1.2										**268**	0.154	0.43
900	30		1.6	257	**0.11**	1.0										**268**	0.115	0.38
1200	40		1.2	264	**0.09**	1.0										**268**	0.091	0.36
1500	50		0.9	203	**0.06**	1.3	—									**268**	0.079	0.33
1950	65		0.7	241	**0.06**	1.1			**56**							**268**	0.067	0.30
2500	50	50	0.6	284	**0.06**	0.8			—							**222**	0.047	0.28
3250	65		0.4	338*	**0.06**	0.66*										**222**	0.039	0.25
4000	80		0.4	400*	**0.06**	0.55*			**56**							**222**	0.033	0.24
5000	100		0.3	471*	**0.06**	0.47*										**222**	0.028	0.23
10000		100	0.1	722*	**0.06**	0.19*										**138**	0.011	0.18

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

**** WARNING:** Maximum admissible 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: $T_{2M} = T_2 \times FS'$



5.4 **Dati tecnici** *5.4* ***Technical data*** 5.4 **Technische Daten**

40/75

Kg 14.5

n_1 = 1400				KXC - XXC - XXF - KKC											XXA		
	40	75					Input - IEC										
i_n	i_1	i_2	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	KC - XC B5/B14			XF B5			XF B14			T_{2M} [Nm]	P [kW]	Rd
150	10	15	9.3	322	**0.55**	1.3	**71**	**63**	—	**71**	**63**	**56**	**71**	**63**	—	**409**	0.698	0.57
200		20	7.0	417	**0.55**	1.1										**442**	0.583	0.56
300		30	4.7	358	**0.37**	1.2										**418**	0.432	0.47
450	15		3.1	346	**0.25**	1.2										**418**	0.302	0.45
600	20		2.3	390	**0.22**	1.1										**418**	0.236	0.43
900	30		1.6	309	**0.13**	1.4										**418**	0.176	0.39
1200	40		1.2	388	**0.13**	1.1										**418**	0.140	0.36
1500	50		0.9	379	**0.11**	1.1										**418**	0.121	0.34
1950	65		0.7	368	**0.09**	1.1			**56**							**418**	0.102	0.31
2500	50	50	0.6	296	**0.06**	1.3			—							**381**	0.077	0.29
3250	65		0.4	352	**0.06**	1.08	—									**381**	0.065	0.26
4000	80		0.4	417	**0.06**	0.91			**56**							**381**	0.055	0.25
5000	100		0.3	491*	**0.06**	0.78*										**381**	0.047	0.24
10000		100	0.1	762*	**0.06**	0.30*										**232**	0.018	0.19

50/75

Kg 16.5

n_1 = 1400				KXC - XXC - XXF - KKC											XXA		
	50	75					Input - IEC										
i_n	i_1	i_2	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	KC - XC B5/B14			XF B5			XF B14			T_{2M} [Nm]	P [kW]	Rd
150	10	15	9.3	409	**0.75**	1.0	**80**	**71**	—	**80**	**71**	**63**	**80**	**71**	—	**409**	0.750	0.57
200		20	7.0	422	**0.55**	1.0										**442**	0.576	0.56
300		30	4.7	363	**0.37**	1.2										**418**	0.427	0.48
450	15		3.1	350	**0.25**	1.2										**418**	0.299	0.46
600	20		2.3	418	**0.25**	1.0										**418**	0.250	0.42
900	30		1.6	418	**0.18**	1.0										**418**	0.180	0.40
1200	40		1.2	406	**0.13**	1.0										**418**	0.134	0.38
1500	50		0.9	470	**0.13**	0.9										**418**	0.116	0.35
1950	65		0.7	572*	**0.13**	0.7*			**63**							**418**	0.095	0.33
2500	50	50	0.6	674*	**0.13**	0.6*			—							**381**	0.074	0.30
3250	65		0.4	819*	**0.13**	0.47*	—									**381**	0.060	0.28
4000	80		0.4	939*	**0.13**	0.41*			**63**							**381**	0.053	0.26
5000	100		0.3	1108*	**0.13**	0.34*										**381**	0.045	0.25
10000		100	0.1	1719*	**0.13**	0.13*										**232**	0.018	0.19

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

* ***WARNING:*** *Maximum admissible 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: $T_{2M} = T_2 \times FS'$

5.4 **Dati tecnici** *5.4* ***Technical data*** 5.4 **Technische Daten**

40/90

Kg 27.0

n_1 = 1400				KXC - XXC - XXF - KKC											XXA		
i_n	40 i_1	90 i_2	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC								T_{2M} [Nm]	P [kW]	Rd
							KC - XC			XF							
							B5/B14			B5			B14				
150	10	15	9.3	327	**0.55**	1.3	71	63	—	71	63	56	71	63	—	**435**	0.732	0.58
200		20	7.0	424	**0.55**	1.3										**560**	0.727	0.56
300		30	4.7	542	**0.55**	1.2										**673**	0.683	0.48
450	15		3.1	520	**0.37**	1.3										**673**	0.478	0.46
600	20		2.3	668	**0.37**	1.0										**673**	0.373	0.44
900	30		1.6	605	**0.25**	1.1										**673**	0.278	0.39
1200	40		1.2	668	**0.22**	1.0										**673**	0.221	0.37
1500	50		0.9	630	**0.18**	1.0	—		**56**							**660**	0.188	0.34
1950	65		0.7	542	**0.13**	1.1			—							**620**	0.149	0.31
2500	50	50	0.6	564	**0.11**	1.1										**634**	0.124	0.30
3250	65		0.4	549	**0.09**	1.15			**56**							**634**	0.104	0.28
4000	80		0.4	651	**0.09**	0.97										**634**	0.088	0.27
5000	100		0.3	767	**0.09**	0.83										**634**	0.074	0.25
10000		100	0.1	1173*	**0.09**	0.34*										**401**	0.031	0.19

50/90

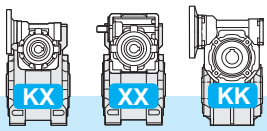
Kg 29.0

n_1 = 1400				KXC - XXC - XXF - KKC											XXA		
i_n	50 i_1	90 i_2	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC								T_{2M} [Nm]	P [kW]	Rd
							KC - XC			XF							
							B5/B14			B5			B14				
150	10	15	9.3	541	**0.90**	1.2	80	71	—	80	71	63	80	71	—	**655**	1.089	0.59
200		20	7.0	584	**0.75**	1.2										**709**	0.910	0.57
300		30	4.7	548	**0.55**	1.2										**673**	0.675	0.49
450	15		3.1	527	**0.37**	1.3										**673**	0.473	0.46
600	20		2.3	463	**0.25**	1.5										**673**	0.363	0.45
900	30		1.6	632	**0.25**	1.1										**673**	0.266	0.41
1200	40		1.2	573	**0.18**	1.2										**673**	0.212	0.39
1500	50		0.9	662	**0.18**	1.0	—		**63**							**673**	0.183	0.36
1950	65		0.7	582	**0.13**	1.2			—							**673**	0.150	0.34
2500	50	50	0.6	701	**0.13**	0.9										**634**	0.118	0.32
3250	65		0.4	853*	**0.13**	0.74*			**63**							**634**	0.097	0.30
4000	80		0.4	977*	**0.13**	0.65*										**634**	0.084	0.28
5000	100		0.3	1153*	**0.13**	0.55*										**634**	0.071	0.26
10000		100	0.1	1764*	**0.13**	0.23*										**401**	0.030	0.20

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

* ***WARNING:*** *Maximum admissible 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: $T_{2M} = T_2 \times FS'$



5.4 **Dati tecnici** *5.4* ***Technical data*** 5.4 **Technische Daten**

50/110

Kg 49.0

n_1 = 1400				KXC - XXC - XXF - KKC										XXA		
i_n	50 i_1	110 i_2	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC KC - XC B5/B14			XF B5			XF B14			T_{2M} [Nm]	P [kW]	Rd
150		15	9.3	557	**0.9**	1.4										**785**	1.269	0.60
200	10	20	7.0	712	**0.9**	1.4										**1000**	1.265	0.58
300			4.7	928	**0.9**	1.3										**1165**	1.130	0.50
450	15		3.1	1105	**0.75**	1.1	**80**		—							**1165**	0.791	0.48
600	20		2.3	1054	**0.55**	1.1										**1165**	0.608	0.47
900	30	30	1.6	968	**0.37**	1.2										**1165**	0.445	0.43
1200	40		1.2	823	**0.25**	1.4		**71**		**80**	**71**	**63**	**80**	**71**	—	**1165**	0.354	0.40
1500	50		0.9	952	**0.25**	1.2										**1165**	0.306	0.37
1950	65		0.7	1018	**0.22**	1.1			**63**							**1150**	0.248	0.35
2500	50		0.6	1009	**0.18**	1.1			—							**1119**	0.200	0.33
3250	65	50	0.4	886	**0.13**	1.26	—									**1119**	0.164	0.31
4000	80		0.4	1015	**0.13**	1.10			**63**							**1119**	0.143	0.29
5000	100		0.3	1198	**0.13**	0.93										**1119**	0.121	0.27
10000		100	0.1	1854*	**0.13**	0.39*										**727**	0.051	0.21

63/110

Kg 52.0

n_1 = 1400				KXC - XXC - XXF - KKC										XXA		
i_n	63 i_1	110 i_2	n_2 [min^{-1}]	T_2 [Nm]	P_1 [kW]	FS'	Input - IEC KC - XC B5/B14			XF B5			XF B14			T_{2M} [Nm]	P [kW]	Rd
150		15	9.3	939	**1.5**	1.2										**1123**	1.793	0.61
200	10	20	7.0	1200	**1.5**	1.0										**1229**	1.536	0.59
300			4.7	1148	**1.1**	1.0										**1165**	1.116	0.51
450	15		3.1	1119	**0.75**	1.0	**90**		—							**1165**	0.781	0.49
600	20		2.3	1081	**0.55**	1.1										**1165**	0.593	0.48
900	30	30	1.6	995	**0.37**	1.2										**1165**	0.433	0.44
1200	40		1.2	1165	**0.37**	1.0		**80**		**90**	**80**	**71**	**90**	**80**	—	**1165**	0.370	0.40
1500	50		0.9	998	**0.25**	1.2										**1165**	0.292	0.39
1950	65		0.7	1217	**0.25**	1.0			**71**							**1165**	0.239	0.37
2500	50		0.6	1469	**0.25**	0.8			—							**1119**	0.190	0.34
3250	65	50	0.4	1792*	**0.25**	0.62*	—									**1119**	0.156	0.32
4000	80		0.4	2097*	**0.25**	0.53*			**71**							**1119**	0.133	0.31
5000	100		0.3	2395*	**0.25**	0.47*										**1119**	0.117	0.28
10000		100	0.1	3706*	**0.25**	0.20*										**727**	0.049	0.22

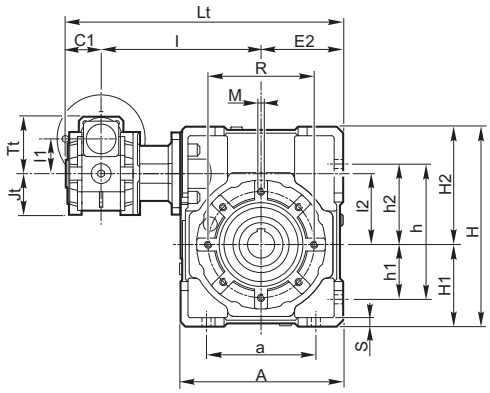
*** ATTENZIONE:** la coppia massima utilizzabile [T_{2M}] deve essere calcolata utilizzando il fattore di servizio: $T_{2M} = T_2 \times FS'$

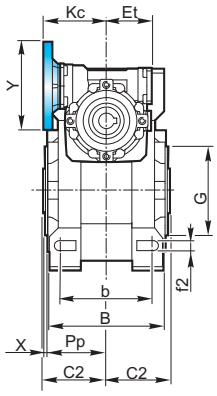
**** WARNING:** Maximum admissible torque [T_{2M}] must be calculated using the following service factor : $T_{2M} = T_2 \times FS'$*

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

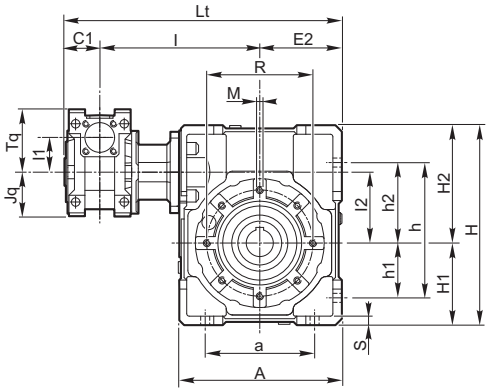
5.5 Dimensioni — *5.5 Dimensions* — 5.5 Abmessungen

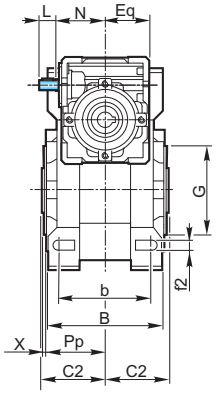
KXC



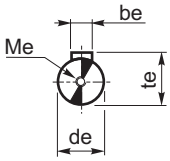


XXA

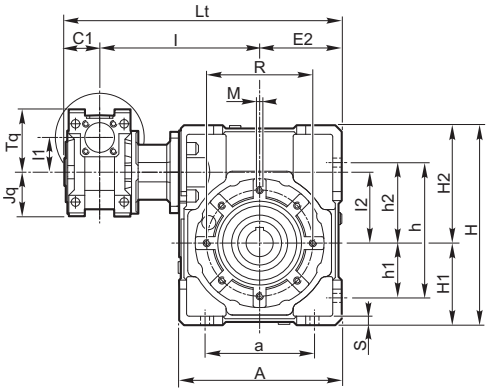


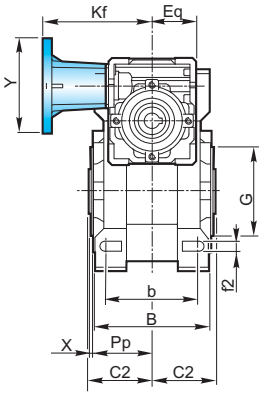


Albero entrata
Input shaft
Antriebswelle

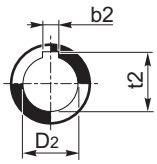


XXF

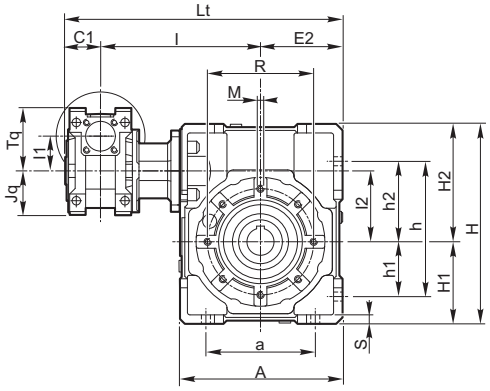


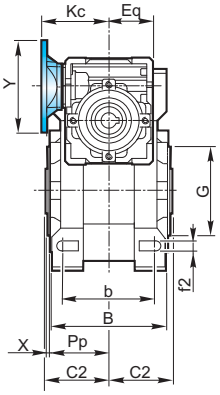


Albero uscita cavo
Output hollow shaft
Abtriebshohlwelle



XXC

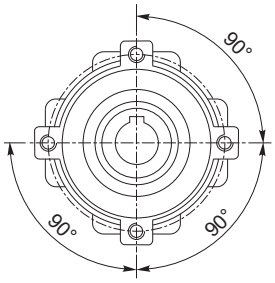




5.5 Dimensioni — *5.5 Dimensions* — 5.5 Abmessungen

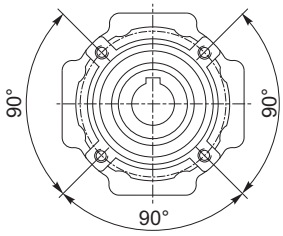
Flangia pendolare / *Shaft-mounted flange* / Aufsteckflansch

30/30



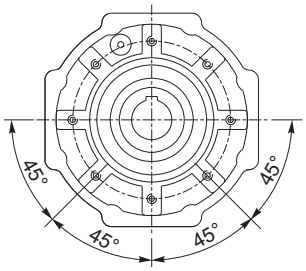
4 Fori / *Holes* / Bohrungen

30/40 - 30/50



4 Fori / *Holes* / Bohrungen

30/63 - 40/63 - 40/75 - 40/90 - 50/75 - 50/90 - 50/110 - 63/110



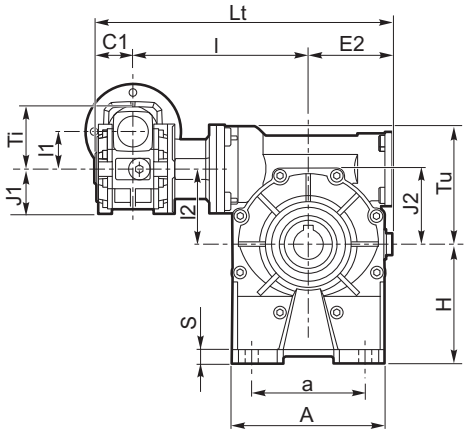
8 Fori / *Holes* / Bohrungen

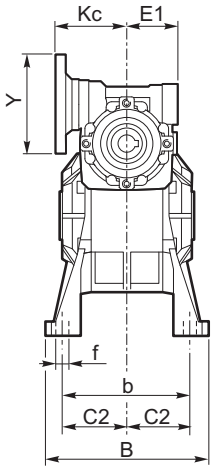
	KXC - XXC - XXF -XXA																				
	a	A	b	be	b_2		B	C_1	C_2	de	D_2 H7		Et	Eq	E_2	f_2	G h8	h	h_1	h_2	H	H_1	H_2
30/30	54	80	44	3	5	—	56	31.5	31.5	9	14	—	41	40	40	6.5	55	71	27	44	97	40	57
30/40	70	105	60		6	6	71		39		18	19			50	6.5	60	90	35	55	125	50	75
30/50	80	125	70		8	8	85		46		25	24			60	8.5	70	104	40	64	150	60	90
30/63	100	147	85	8		—	103		56			—			72	9	80	130	50	80	182	72	110
40/63				4				39		11			51	50									
40/75	120	176	90		8	8	112		60		28	30			86	11	95	153	60	93	219.5	86	133.5
50/75				5				46		14			60	60									
40/90	140	203	100	4	10	—	130	39	70	11	35	—	51	50	103	13	110	172	70	102	248.5	103	145.5
50/90				5				46		14			60	60									
50/110	170	252.5	115	6	12	—	143	56	77.5	19	42	—	71	72	127.5	14	130	210	85	125	310.5	127.5	183
63/110																							

	KXC - XXC - XXF -XXA																		
	l	l_1	l_2	Jt	Jq	K_c	K_q	L	L_t	M	Me	N	P_P	R	S	Tt	Tq	Te	t_2	X
30/30	100	31.5	31.5	37.5	40	57	57	15	171.5	M6x8	M4x10	44.5	29	65	5.5	52.5	57	10.2	16.3 —	1.5
30/40	122		40						203.5	M6x10			36.5	75	6				20.8 21.8	1.5
30/50	132		50						223.5	M8x10			43.5	85	7				28.3 27.3	1.5
30/63	145		63						248.5	M8x14			53	95	8				—	2
40/63	150	40		43.5	50	75	75	20	261		M4x12	57.5				68.5	75	12.5		
40/75	174.5		75						299.5	M8x14			57	115	10				31.3 33.3	2
50/75	190	50		53.5	60	82	82	25	322		M5x13	67.5				82.5	90	16		
40/90	184.5	40	90	43.5	50	75	75	20	326.5	M10x18	M4x12	57.5	67	130	12	68.5	75	12.2	38.3 —	2
50/90	200	50		53.5	60	82	82	25	349		M5x13	67.5				82.5	90	16		
50/110	226		110						399.5	M8x20			74	165	14				45.3 —	2.5
63/110	236	63		64	72	97	95	30	419.5		M8x20	77.5				100.5	110	21.5		

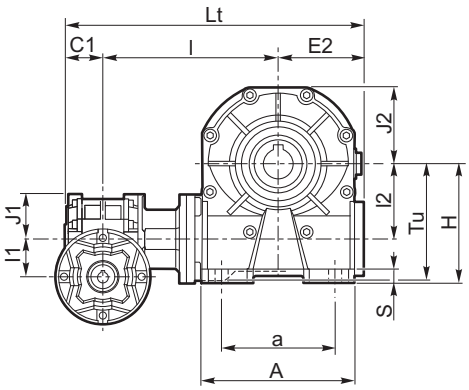
5.5 Dimensioni — *5.5 Dimensions* — 5.5 Abmessungen

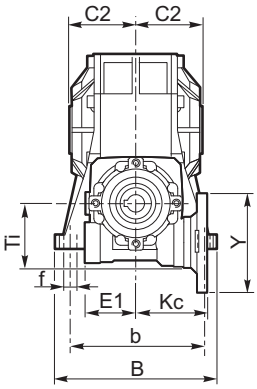
KKC_A

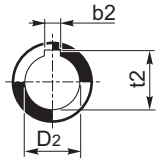




KKC_B

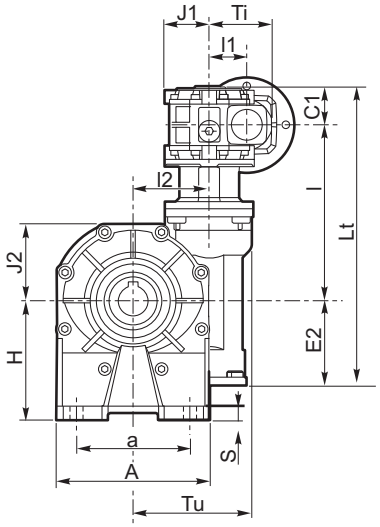


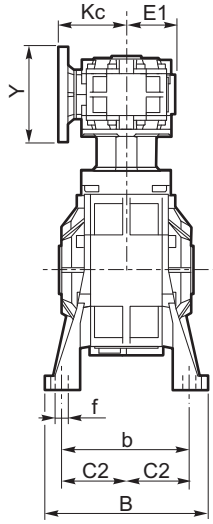




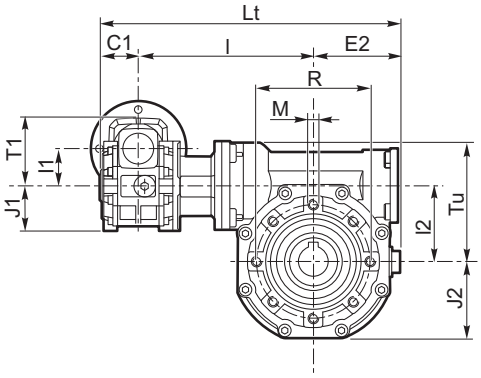
Albero uscita cavo
Output hollow shaft
Abtriebs-Hohlwelle

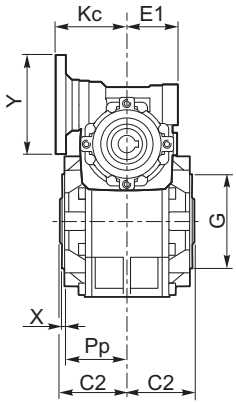
KKC_V





KKC_P

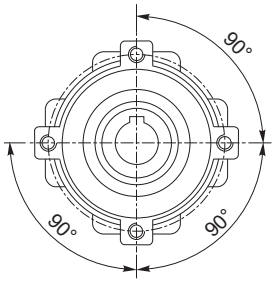




5.5 Dimensioni — *5.5 Dimensions* — 5.5 Abmessungen

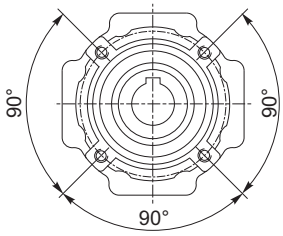
Flangia pendolare / *Shaft-mounted flange* / Aufsteckflansch

30/30



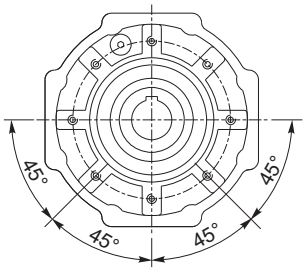
4 Fori / *Holes* / Bohrungen

30/40 - 30/50



4 Fori / *Holes* / Bohrungen

30/63 - 40/63 - 40/75 - 40/90 - 50/75 - 50/90 - 50/110 - 63/110

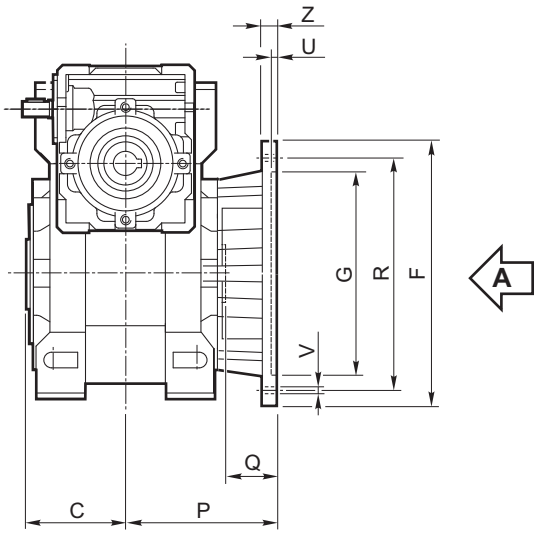


8 Fori / *Holes* / Bohrungen

	KKC																									
	A		a		B		b		f		H		S		b_2		C_1	C_2	D_2 H7		E_1	E_2	G h8	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2										
30/30	67		40-52		78		66		6.5		52	55	5	8	5	—	31.5	31.5	**14**	—	41	41	55	
30/40	86.5		70	52	98		84	81	7	8.5	71	72	9	10	6	6		39	**18**	19		51	60	
30/50	106		63-85		119		99		9		85	82	11	8	8	8		46	**25**	24		60	70	
30/63	127.5		95		136		111		11		100		12			—	39	56		—	51	71	80	
40/63																								
40/75	155.5		120		140		115		11		115		12		8	—		60	**28** (30)	—		85	95	
50/75																	46				60			
40/90	190		140		168		140	146	13	11	135	142	14		10	—	39	70	**35**	—	51	103	110	
50/90																	46				60			
50/110	250		200		210		162	181	13	13	171	170	17	15	12	—		77.5	**42**	—		127.5	130	
63/110																	56				71			

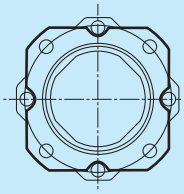
	KKC														
	I	I_1	I_2	J_1	J_2	K_c	L_t	M	P_P	R	T_i	T_u	t_2		X
30/30	100	31.5	31.5	37.5	37.5	57	171.5	M6x8	29	65	52.5	52.5	16.3	—	1.5
30/40	122		40		43.5		203.5	M6x10	36.5	75		68.5	20.8	21.8	1.5
30/50	132		50		53.5		223.5	M8x10	43.5	85		82.5	28.3	27.3	1.5
30/63	145		63		64		248.5	M8x14	53	95		100.5		—	2
40/63	150	40		43.5		75	261				68.5				
40/75	176.5		75		78		301.5	M8x14	57	115		116.5	31.3	—	2
50/75	192	50		53.5		82	324				82.5				
40/90	186.5	40	90	43.5	100	75	328.5	M10x18	67	130	68.5	131.5	38.3	—	2
50/90	202	50		53.5		82	351				82.5				
50/110	226		110		122		399.5	M8x20	74	165		161.5	45.3	—	2.5
63/110	236	63		64		97	419.5				100.5				

Flangia uscita | ***Output flange*** | **Abtriebsflansch**



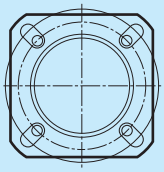
Vista da A / *View from A* / Ansicht von A

30/30
F1
—
—

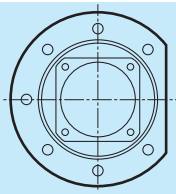


30/30

30/40	30/50
F1	F1
F2	—
—	—

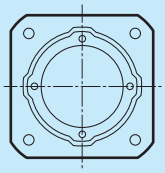


30/40	30/50
—	—
—	F2
F3	—

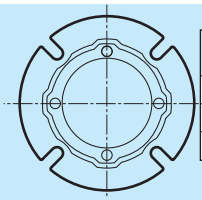


30/40 - 30/50

30/63 40/63	40/75 50/75
F1	F1
F2	—
—	—

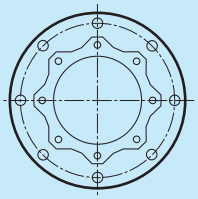


30/63 40/63	40/75 50/75
—	—
—	F2
F3	—

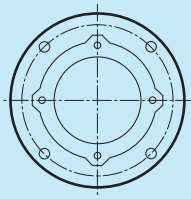


30/63 - 40/63 - 40/75 - 50/75

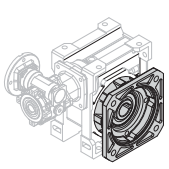
40/90 50/90	50/110 63/110
—	F1
—	—
—	—



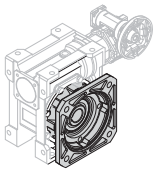
40/90 50/90	50/110 63/110
F1	—
F2	F2
F3	—



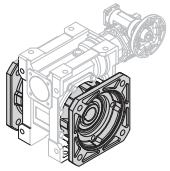
40/90 - 50/90 - 50/110 - 63/110



F..D
Standard

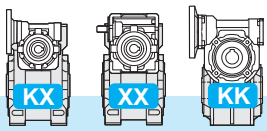


F..S



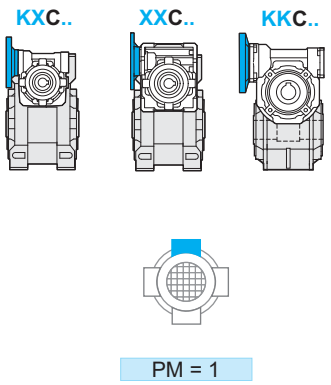
F..2

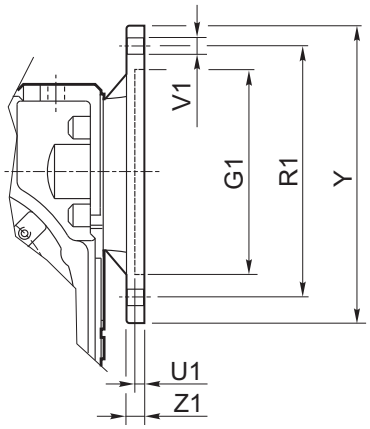
KX XX KK	Tipo *Type* Typ	C	F		G H8	P	Q	R	U	V		Ø	Z
30/30	F1	31.5		66	50	54.5	23	68	4	n* 4		6.5	6
	F2												
	F3												
30/40	F1	39		85	60	67	28	75-90	4	n* 4		9	8
	F2			85	60	97	58	75-90	4	n* 4		9	8
	F3		140		95	80	41	115	5		n* 7	9	10
30/50	F1	46		94	70	90	44	85-100	5	n* 4		11	10
	F2		160		110	89	43	130	5		n* 7	11	11
	F3												
30/63 40/63	F1	56		142	115	82	26	150	5	n* 4		11	11
	F2			142	115	112	56	150	5	n* 4		11	11
	F3		160		110	80.5	24.5	130	5	n* 4		11	12
40/75 50/75	F1	60		160	130	111	51	165	5	n* 4		13	12
	F2		160		110	90	30	130	6	n* 4		11	13
	F3												
40/90 50/90	F1	70	200		152	111	41	175	5	n* 4		13	12
	F2		200		152	151	81	175	5	n* 4		13	13
	F3		200		130	110	40	165	6	n* 4		11	11
50/110 63/110	F1	77.5	260		170	131	53.5	230	6		n* 8	13	15
	F2		250		180	150	72.5	215	5	n* 4		15	16
	F3												



5.5 Dimensioni — *5.5 Dimensions* — 5.5 Abmessungen

Flangia entrata / *Input flange* / Antriebsflansch





KXC XXC KKC	IEC	G_1 H7	PM 1	PM 2	R_1	U_1	V_1 ∅	V_1	V_1	V_1	Y	Z_1	Diametro fori PAM / *Holes diameter IEC* Bohrungsdurchmesser IEC 150 200 300	450	600	900	1200	1500 2500	1950 3250	4000	5000 10000
30/30 30/40 30/50 30/63	56 B5	80	•	•	100	4	7		8		120	8	9	9	9	9	9	9	9	9	9
	56 B14	50		•	65	3.5	6			4	80	8	9	9	9	9	9	9	9	9	9
	63 B5	95	•	•	115	4	9		8		140	8	11	11	11	11	11	11	/	/	/
	63 B14	60	•	•	75	4	6		8		90	8	11	11	11	11	11	11	/	/	/
40/63 40/75 40/90	56 B5	80	•	•	100	4	7		8		120	9	/	/	/	/	/	/	9	9	9
	56 B14	50		•	65	3.5	6			4	80	8	/	/	/	/	/	/	9	9	9
	63 B5	95	•	•	115	4	9		8		140	9	11	11	11	11	11	11	11	11	11
	63 B14	60		•	75	3.5	6			4	90	8	11	11	11	11	11	11	11	11	11
	71 B5	110	•	•	130	4.5	9		8		160	10	14	14	14	14	14	/	/	/	/
	71 B14	70		•	85	3.5	7			4	105	8	14	14	14	14	14	/	/	/	/
50/75 50/90 50/110	63 B5	95	•	•	115	4	9		8		140	9	/	/	/	/	/	/	11	11	11
	63 B14	60		•	75	3.5	6			4	90	8	/	/	/	/	/	/	11	11	11
	71 B5	110	•	•	130	4.5	9		8		160	10	14	14	14	14	14	14	14	14	14
	71 B14	70		•	85	3.5	7			4	105	8	14	14	14	14	14	14	14	14	14
	80 B5	130	•	•	165	4.5	11		8		200	10	19	19	19	19	19	/	/	/	/
	80 B14	80	•	•	100	4	7		8		120	10	19	19	19	19	19	/	/	/	/
63/110	71 B5	110	•	•	130	4.5	9		8		160	10	/	/	/	/	/	/	14	14	14
	71 B14	70		•	85	3.5	7			4	105	10	/	/	/	/	/	/	14	14	14
	80 B5	130	•	•	165	4.5	11		8		200	10	19	19	19	19	19	19	19	19	19
	80 B14	80		•	100	4	7			4	120	10	19	19	19	19	19	19	19	19	19
	90 B5	130	•	•	165	4.5	11		8		200	10	24	24	24	24	/	/	/	/	/
	90 B14	95	•	•	115	4	8.5		8		140	10	24	24	24	24	/	/	/	/	/

* Speciale — * *Special* — *Sonderausführung

N.B.: E' possibile realizzare anche tutte le composizioni ibride ottenibili dalle flange esistenti.

N.B.: it is possible to create hybrid combinations with the existing flanges.

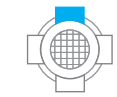
Anmerkung: Mischkombinationen sind mit den bestehenden Flanschen möglich.

5.5 Dimensioni

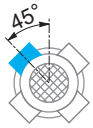
5.5 Dimensions

5.5 Abmessungen

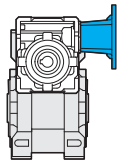
Flangia entrata / *Input flange* / Antriebsflansch

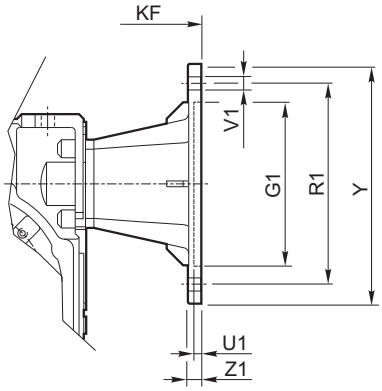


PM = 1



PM = 2





XXF	IEC	PM		G_1 H7	K_F	R_1	U_1	V_1				Y	Z_1
		1	2					∅					
30/30 30/40 30/50 30/63	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
40/63 40/75 40/90	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
50/75 50/90 50/110	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
63/110	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

5.6 Limitatore di coppia cavo passante

5.6 Torque limiter with through hollow shaft

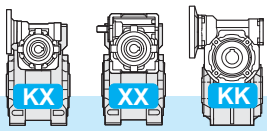
5.6 Drehmomentbegrenzer mit durchgehender Hohlwelle

XX-KX KK	N°. giri della ghiera di regolazione / *N°. revolutions of ring nut* / Nr. Umdrehungen der Mutter												
	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
30/30	22	27	33	38	43								
30/40	55	64	73	87									
30/50	75	97	120	157									
30/63		127	155	180	205	232	260	282					
40/63													
40/75			235	265	295	327	360	407	455				
50/75													
40/90			320	349	400	440	475	517	550	595	630	650	670
50/90													
50/110		720	815	910	1000	1100	1250						
63/110													

I valori riportati in tabella si riferiscono ai limitatori nelle versioni LS e LD (riduttore uscita).

The values listed in the table refer to torque limiters in the LS and LD versions (output gearbox).

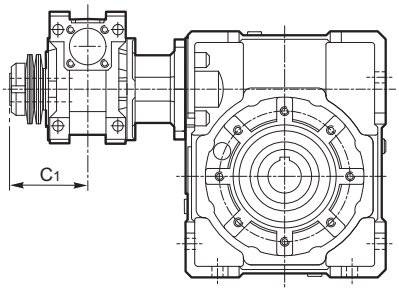
Die in der Tabelle angegebenen Werte beziehen sich auf die LS und LD Versionen (Getriebe am Abtrieb).

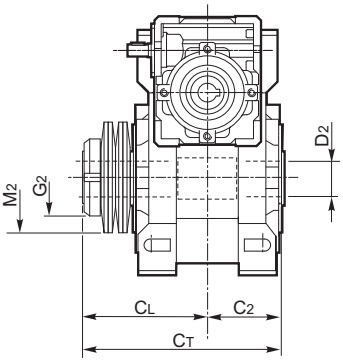


5.6 Limitatore di coppia cavo passante

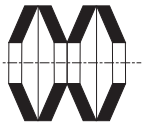
5.6 *Torque limiter with through hollow shaft*

5.6 Drehmomentbegrenzer mit durchgehender Hohlwelle

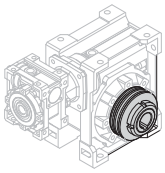


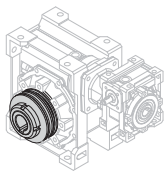


Disposizione delle molle
Washers' arrangement
Lage der Feder

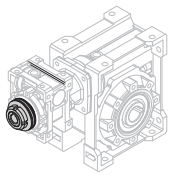


IN SERIE (min. coppia, max. sensibilità)
SERIES *(min. torque, max sensitivity)*
SERIE (min. Moment, max. Empfindlichkeit)





LD LS



L1*

XX - KX / LD LS	C2	CL	CT	D2 H7	G2	M2
30/30	31.5	55.5	87	14	M25x1.5	50x25.4x1.5
30/40	39	65	104	18 (19)	M30x1.5	56x30.5x2
30/50	46	76	122	25 (24)	M40x1.5	63x40.5x2.5
30/63 40/63	56	91	147	25	M40x1.5	71x40.5x2.5
40/75 50/75	60	100	160	28 (30)	M50x1.5	90x50.5x3.5
40/90 50/90	70	109	179	35 (32)	M50x1.5	100x51x3.5
50/110 63/110	77.5	127.5	205	42	M60x2	125x61x5

XX - KX / L1	C1
30/30 30/40 30/50 30/63	55.5
40/63 40/75 40/90	65
50/75 50/90	76
63/110	91

*** Limitatore l1 nei combinati**

La versione con limitatore sul riduttore in entrata (L1), anche se composta da componenti standard, deve considerarsi una esecuzione speciale dal punto di vista dell'utilizzo.
Infatti il valore di taratura del limitatore L1, anche se al valore minimo, genera una coppia sul secondo riduttore molto elevata, spesso al di sopra del limite massimo ammesso.
Anche la precisione di taratura, di conseguenza, è molto bassa: infatti ogni variazione della coppia sul primo riduttore va moltiplicata per il rapporto del riduttore uscita.
La scelta del limitatore in entrata (L1) non può assolutamente essere motivata dal prezzo inferiore rispetto a quello in uscita.
L'utilità di questa versione potrebbe invece nascere dalla necessità di avere una limitazione nella trasmissione della potenza del motore ma, nel contempo, di avere sul riduttore in uscita una irreversibilità senza il rischio di slittamento.
Per queste ragioni il limitatore in entrata (L1) viene fornito in posizione libera, cioè con taratura a cura del cliente secondo le proprie esigenze.

**** L1 torque limiter in combined gearboxes***

The version with torque limiter on the gearbox at input (L1), although made of standard component, is to be regarded as a special execution from the utilization point of view.
Actually, the L1 limiter calibration value, even though set to its minimum, generates on the second gearbox a very high torque which often exceeds the maximum admissible value.
As a consequence, calibration is not precise: any variation of the torque on the first gearbox is to be multiplied by the ratio of the gearbox at output.
The choice of the limiter at input (L1) cannot be based on the fact that the price of the limiter at input is lower than that at output.
Nevertheless, this is a good solution if the application requires at the same time both the limitation of the power transmitted by the motor and irreversability on the second gearbox in order to prevent sliding.
For the above mentioned reasons, the torque limiter at input (L1) is supplied in free position, i.e. the customer will carry out the limiter calibration according to the customer's requirements.

*** L1 Rutschkupplung in kombinierten getrieben**

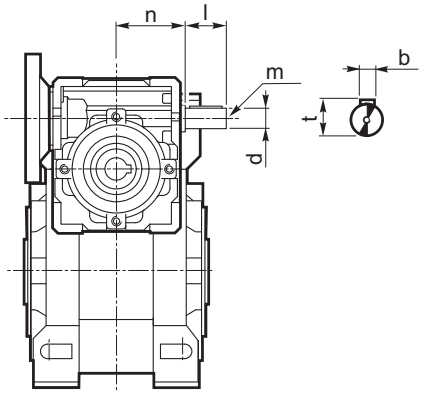
Die Ausführung mit Rutschkupplung an dem Getriebe am Antrieb (L1), obwohl aus Standard Bestandteile, ist eine Sonderausführung mit Bezug auf die Anwendung.
Der Eichungswert der L1 Rutschkupplung, auch der mindeste, erzeugt an das zweite Getriebe ein sehr hohes Drehmoment, das oft den max. zulässigen Wert überschreitet.
Daraus folgt, dass die Eichung nicht präzis ist: jede Änderung des Drehmoments an dem ersten Getriebe soll mit dem Verhältnis des zweiten Getriebes multipliziert werden.
Der Grund für die Wahl der Rutschkupplung am Antrieb (L1) darf nicht der niedriger Preis sein.
Diese Ausführung ist jedoch bemerkenswert, falls die Applikation sowohl die Begrenzung der Motorleistung als auch die Irreversibilität des zweiten Getriebes verlangt.
Folglich wird die Rutschkupplung am Antrieb (L1) frei gestellt, d. h. der Kunde soll die Rutschkupplung nach seiner Bedürfnisse eichen.

5.7 Esecuzione con vite bisporgente

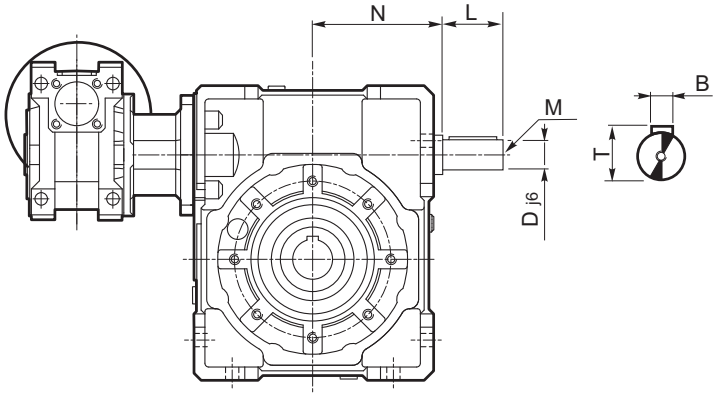
5.7 *Double extended worm shaft design*

5.7 Versionen mit Doppelseitig Herausragender Schneckenwelle

SeA1



SeA2



L' entrata supplementare del riduttore in uscita (SeA2) non può essere utilizzata come comando in quanto il relativo movimento risulta impedito dalla irreversibilità del primo riduttore.
Utilizzato come asse condotto, avrà veliocità corrispondente a quella di ingresso ridotta del rapporto del primo riduttore.

The second input shaft of the output gearbox (SeA2) can not be utilized as a drive because its motion will be stopped by the reversibility of the first gearbox.
If utilized as a drive shaft its speed will be equal to the input speed decreased by the ratio of the first gearbox.

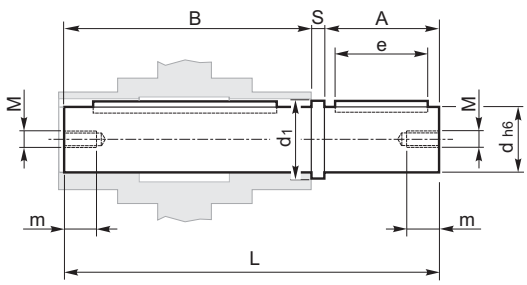
Die verlängerte Schneckenwelle des zweiten Getriebes (SeA2) kann nicht als Antrieb verwendet werden, da die Selbshemmung des ersten Getriebes entgegengewirkt.
Wird sie als Abtriebswelle verwendet, besitzt sie eine um die Untersetzung des ersten Getriebes entsprechend reduzierte Drehzahl und Drehmoment.

KXC - XXC XXF - XXA KKC	SeA1							SeA2						
	b	d j6	l	m	n		t	B	D j6	L	M	N		T
					KX	XX						KX	XX	
30/30	3	9	15	M4x10	42.5	42.5	10.2	3	9	15	M4x10	42.5	42.5	10.2
30/40	3	9	15	M4x10	42.5	42.5	10.2	4	11	20	M4x12	52.5	52.5	12.5
30/50	3	9	15	M4x10	42.5	42.5	10.2	5	14	25	M5x13	62.5	62.5	16
30/63	3	9	15	M4x10	42.5	42.5	10.2	6	19	30	M8x20	72.5	74.5	21.5
40/63	4	11	20	M4x12	52.5	52.5	12.5	6	19	30	M8x20	72.5	74.5	21.5
40/75	4	11	20	M4x12	52.5	52.5	12.5	8	24	40	M8x20	93	91	27
50/75	5	14	25	M5x13	62.5	62.5	16	8	24	40	M8x20	93	91	27
40/90	4	11	20	M4x12	52.5	52.5	12.5	8	24	40	M8x20	108	108	27
50/90	5	14	25	M5x13	62.5	62.5	16	8	24	40	M8x20	108	108	27
50/110	5	14	25	M5x13	62.5	62.5	16	8	28	50	M8x20	132	132	31
63/110	6	19	30	M8x20	72.5	74.5	21.5	8	28	50	M8x20	132	132	31

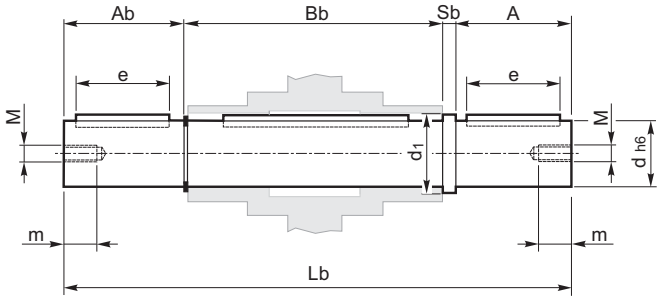
5.8 Accessori — *5.8 Accessories* — 5.8 Zubehor

Albero lento — *Output shaft* — Abtriebswelle

Albero lento semplice
Single output shaft
Standard Abtriebswelle

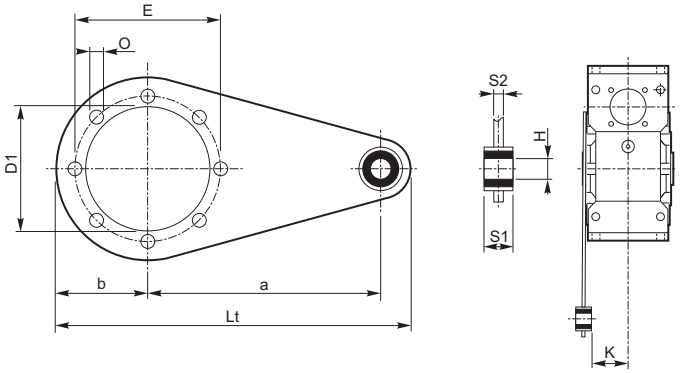


Albero lento doppio
Double output shaft
Doppelte Abtriebswelle



KK-KX-XX	A	A_b	B	B_b	d (h6)	d_1	e	L	L_b	M	m	S	S_b
30/30	30	29	62	64	14	18.5	20	94.5	126	M6	16	2.5	2.5
30/40	40	39	77	79	18	23.5	30	120	161	M6	16	3	3
30/50	50	49	90	93	25	31.5	40	143.5	195	M8	22	3.5	3.5
30/63 40/63	50	49	111	113	25	31.5	40	165	216	M8	22	4	4
40/75 50/75	60	59	119	121	28	34.5	50	183	244	M8	22	4	4
40/90 50/90	80	78.5	139	141.5	35	41.5	60	224	305	M10	28	5	5
50/110 63/110	80	77.5	154.5	157	42	49.5	60	242.5	322.5	M10	28	8	8

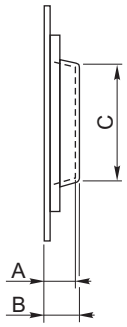
Braccio di reazione — *Torque arm* — Drehmomentstütze



KK KX XX	a	b	D_1	E	H	K	L_t	O	S1	S2
30/30	85	37.5	55	65	8	24	141.5	7	14	4
30/40	100	45	60	75	10	31.5	167	7	14	4
30/50	100	50	70	85	10	39	172	9	14	5
30/63 40/63	150	55	80	95	10	49	227	9	14	6
40/75 50/75	200	70	95	115	20	47.5	302	9	25	6
40/90 50/90	200	80	110	130	20	57.5	312	11	25	6
50/110 63/110	250	100	130	165	25	62	390	11	30	6

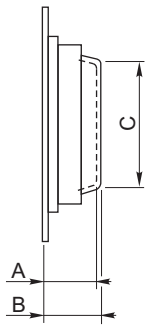
Kit di protezione: — *Protection Kit:* — Kit

Albero cavo / *Hollow shaft* / Hohlwelle



KK KX XX	A		B		C	
	IN	OUT	IN	OUT	IN	OUT
30/30	12	12	13	13	39	39
30/40		14		15.5		44
30/50		15		16.5		54
30/63	14	17	15.5	19	44	60
40/63						
40/75		18		20		70
50/75	15		16.5		54	
40/90	14	21.5	15.5	24	44	80
50/90	15		16.5		54	
50/110		22		25		96
63/110	17		19		60	

Limitatore di coppia / *Torque limiter* / Drehmomentstütze



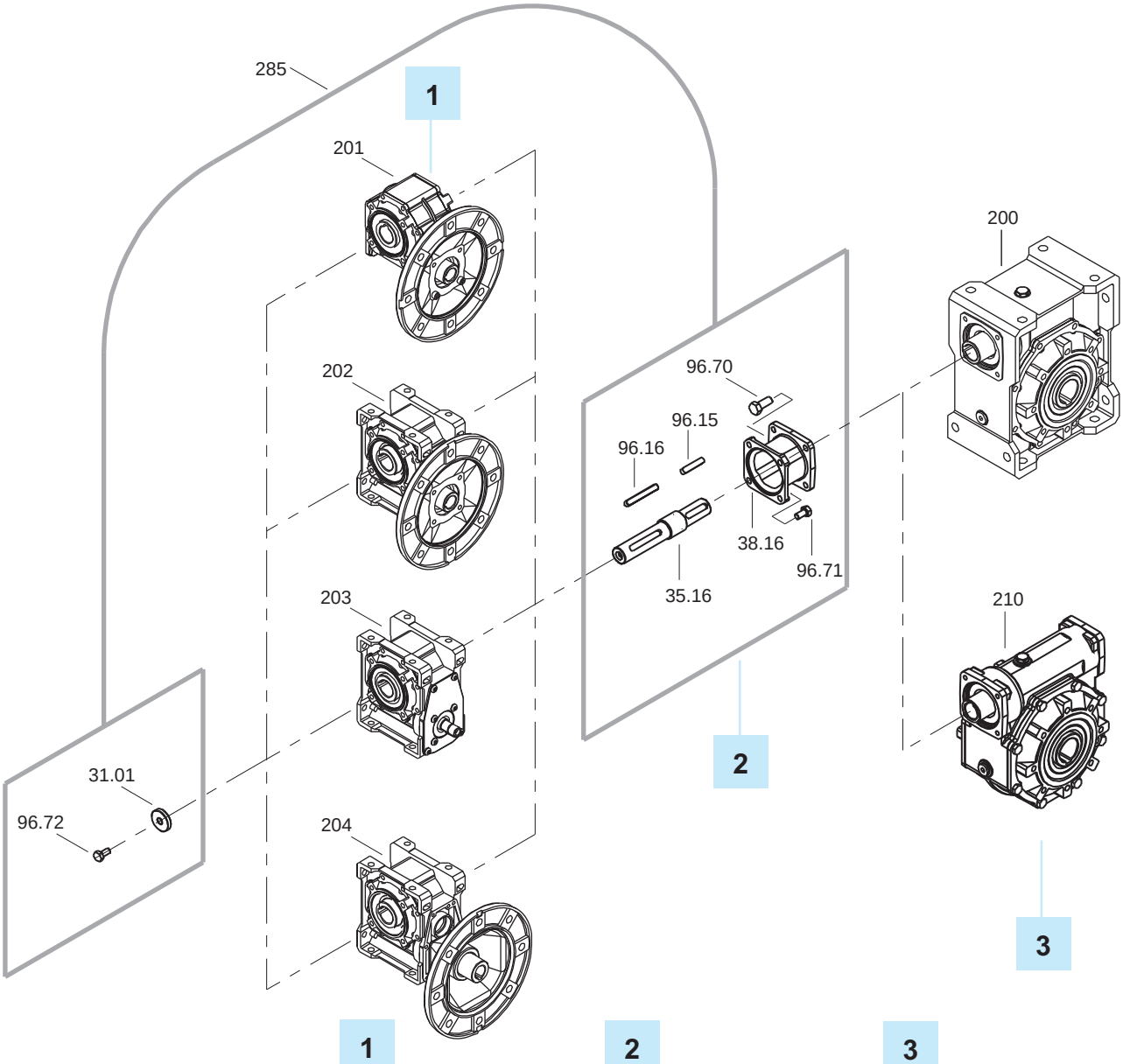
KK KX XX	A		B		C	
	IN	OUT	IN	OUT	IN	OUT
30/30	36	36	37	37	36	36
30/40		40		41.5		44
30/50		47		48.5		53
30/63	40	52	41.5	54	44	55
40/63						
40/75		58		60		68
50/75	47		48.5		53	
40/90	40	60.5	41.5	63	44	70
50/90	47		48.5		53	
50/110		72		75		85
63/110	52		54		55	

Opzioni disponibili: — *Available options:* — Auf Anfrage ist folgendes Zubehör erhältlich:

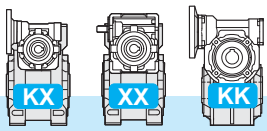
Cuscinetti a rulli conici corona — *Tapered roller bearings on worm wheel* — Kegelrollenlager für Schneckenrad

5.9 **Lista parti di ricambio** *5.9* ***Spare parts list*** 5.9 **Ersatzteilliste**

KXC - XXC - XXA - XXF - KKC



	1 IN X..P - K..P	2 KIT	3 OUT XC - KC
30/30	X30 KC30	**KIT 30/30** (2850002010)	30/9
30/40		**KIT 30/40** (2850002013)	40/11
30/50		**KIT 30/50** (2850002016)	50/14
30/63		**KIT 30/63** (2850002019)	63/19
40/63	X40 KC40	**KIT 40/63** (2850002028)	63/19
40/75		**KIT 40/75-90** (2850002031)	75/24
40/90			90/24
50/75	X50 KC50	**KIT 50/75-90** (2850002034)	75/24
50/90			90/24
50/110		**KIT 50/110** (2850002049)	110/28
63/110	X63 KC63	**KIT 63/110** (2850002052)	110/28

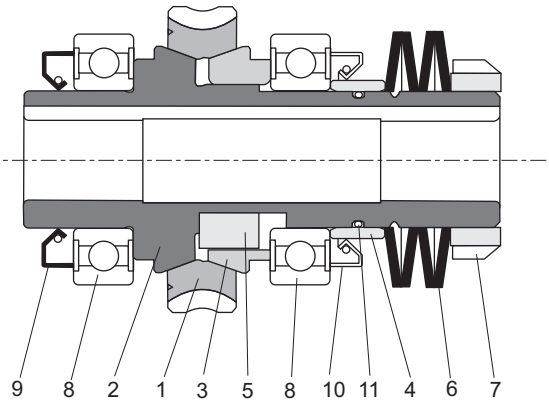


5.9 **Lista parti di ricambio** | *5.9* ***Spare parts list*** | 5.9 **Ersatzteilliste**

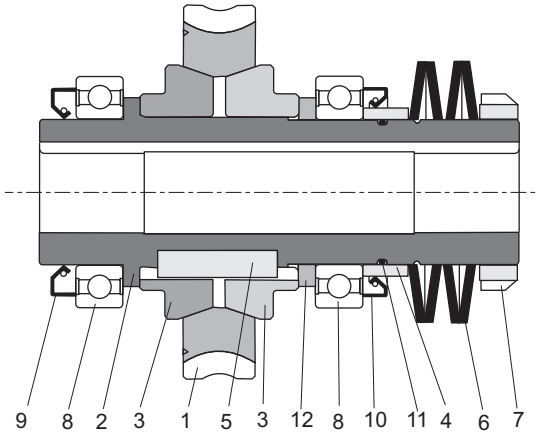
X - H - K - KX - XX - KK

Limitatore di coppia cavo passante | *Torque limiter with through hollow shaft* | Drehmomentbegrenzer mit durchgehende Hohlwelle

A

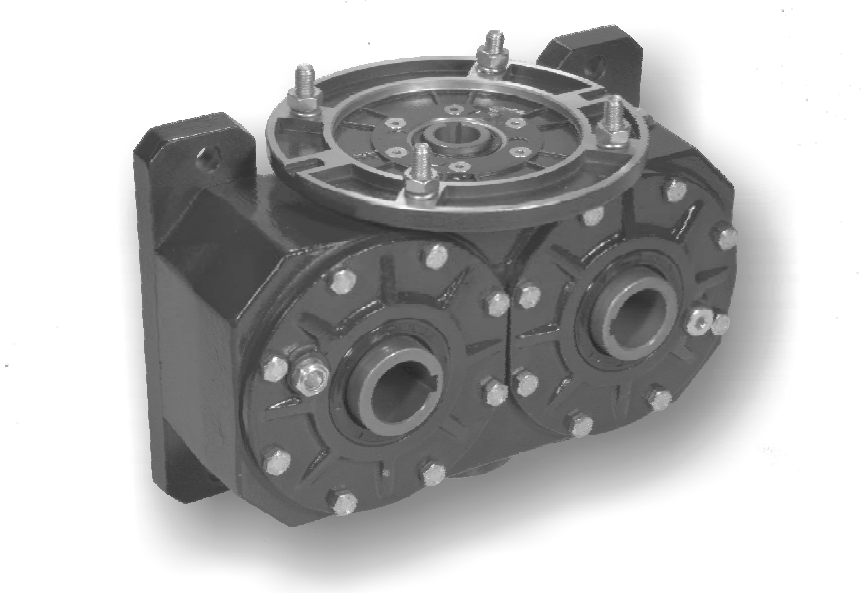


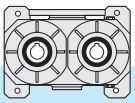
B



	A			B			
	X - H - K						
	30 (LD - LS)	**40 (LD - LS)**	**50 (LD - LS)**	**63 (LD - LS)**	**75 (LD - LS)**	**90 (LD - LS)**	**110 (LD - LS)**
	KX - XX - KK						
	30/30 (L1-LD-LS) **30/40** (L1) **30/50** (L1) **30/63** (L1)	**30/40** (LD - LS) **40/63** (L1) **40/75** (L1) **40/90** (L1)	**30/50** (LD - LS) **50/75** (L1) **50/90** (L1) **50/110** (L1)	**30/63** (LD - LS) **40/63** (LD - LS) **63/110** (L1)	**40/75** (LD - LS) **50/75** (LD - LS)	**40/90** (LD - LS) **50/90** (LD - LS)	**50/110** (LD - LS) **63/110** (LD - LS)
1	Corona in bronzo / *Bronze wheel* / Bronzerad /						
2	Albero cavo limitatore / *Hollow shaft torque limiter* / Rutschkupplungs-Hohlwelle						
3	Anello di frizione / *Friction ring* / Reibring						
4	Distanziale molle / *Washers' distance ring* / Federdistanzring						
5	Linguetta / *key* / Passfeder						
	8x7x10AB	10x8x13AB	12x8x18AB	12x8x40A	16x10x40A	16x10x50A	18x11x60A
6	Molle a tazza / *Belleville washers* / Tellerfeder						
7	Ghiera / *Metal ring* / Metall Ring						
8	6005 25x47x12	6006 30x55x13	6008 40x68x15	6008 40x68x15	6010 50x80x16	6010 50x80x16	6012 60x95x18
9	25x40x7	30x47x7	40x62x8	40x62x8	50x72x8	50x72x8	60x85x8
10	30x40x5	35x47x7	48x62x8	48x62x8	58x72x8	58x72x8	70x85x8
11	OR2087 21.95x1.78	OR2106 26.7x1.78	OR 36.27x1.78	OR 36.27x1.78	OR2187 47.37x1.78	OR2187 47.37x1.78	OR2225 56.87x1.78
12	—			Distanziale / *Spacer* / Abstandshülse			

6.0 RIDUTTORI A VITE SENZA FINE CON DOPPIA USCITA — *DOUBLE OUTPUT WORM GEARBOXES* — SCHNECKENGETRIEBE MIT ZWEI AUSGANGSWELLEN





La serie APS comprende riduttori costruiti appositamente per soddisfare delle specifiche esigenze di automazione.
Il cinematismo, composto da una vite senza fine e due corone, consente di disporre, all'uscita, di due alberi cavi con una rotazione sincrona controrotante.
La motorizzazione può essere effettuata tramite motori elettrici o motovariatori provvisti di una flangia di fissaggio dimensionata a norme IEC.

APS series includes gearboxes specially manufactured in order to comply with specifical requirements.
The kinematic motion is carried out by means of a wormshaft and two wormwheels in order to have two output shafts with a synchronous rotation.
These gearboxes can be assembled to electric motors or motorvariators equipped with a fixing flange with dimensions conforming to IEC specifications.

Bei der Serie APS handelt es sich um Schneckengetriebe mit zwei Ausgangshohlwellen welche für Automatisierungsaufgaben eingesetzt werden können.
Die Konstruktion besteht aus einer Schneckenwelle und zwei Schneckenrädern mit Hohlwelle oder Vollwelle in einem Gehäuse.
Die Drehbewegung der Schneckenwelle wird in eine synchron-gegenläufige Drehbewegung der Schneckenräder umgesetzt.
Der Antrieb kann durch IEC-Normotoren oder durch Variatoren erfolgen.

6.1 Caratteristiche

- **Corpo e flange**
  Costruiti in alluminio e verniciati colore BLU RAL 5010
- **Vite senza fine**
  In acciaio legato. Indurita tramite cementazione e tempra e finita di rettifica
- **Corona**
  Fascia dentata in bronzo GcuSn12 UNI 7013 riportata di fusione su mozzo in ghisa G20 UNI 5007
- **Cuscinetti**
  Sulla vite e sulle due uscite sono montati cuscinetti a rulli conici
- **Lubrificazione**
  Normalmente i riduttori vengono forniti privi di lubrificante. Su richiesta possono essere forniti con lubrificante sintetico

6.1 Characteristics

- ***Casing and flanges***
  Made from aluminium and painted BLUE RAL 5010
- ***Worm screw***
  Made from alloy steel. Hardened and case-hardened then finished by grinding
- ***Worm wheel***
  UNI 7013 GcuSn12 bronze toothed band. Inserted by casting on UNI 5007 G20 cast-iron hub.
- ***Bearings***
  Taper roller bearings are mounted on the screw and on the two outputs
- ***Lubrication***
  Gearboxes are normally supplied without lubricant. However, they can be supplied with synthetic lubricant on request

6.1 Merkmale

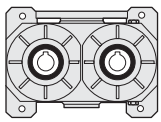
- **Gehäuse und Flansche**
  Aus Aluminium gefertigt und mit Farbe BLAU RAL 5010 lackiert
- **Schnecke**
  Aus legiertem Stahl. Gehärtet durch Einsatzhärtung und Abschreckhärtung mit Fertigschliff
- **Zahnkranz**
  Zahnband aus Bronze GcuSn 12 UNI 7013, aufgegossen auf Nabe aus Gusseisen G20 UNI 5007
- **Lager**
  Auf der Schnecke und auf den beiden Abtrieben werden Kegelrollenlager montiert.
- **Schmierung**
  Normalerweise werden die Getriebe ohne Schmiermittel geliefert. Auf Anfrage können sie mit synthetischem Schmiermittel geliefert werden

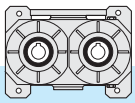
6.2 Designazione

6.2 Designation

6.2 Bezeichnung

Riduttore *gearbox* Getriebe	Tipo entrata *Input type* Antriebsart	Grandezza *Size* Größe	Rapporto rid. *Ratio* Untersetzung	Predispos.att. mot. *Motor coupling* Motoranschluss
VSF.2 USC.	**VM**	**135**	**40**	**pam 200/19**
	VM **VI**	**135** **150** **170** **230**	**i**	





6.3 Dati tecnici — *6.3 Technical data* — 6.3 Technische daten

Tipo / Size / Typ			135	150		170		230		
	Kg		13	15.5		19		40		
	i		40	7.5	40	40	80	10	28	40
VM	n_1 = 1400 min^{-1}	n_2 [min^{-1}]	35	187	35	35	17.5	140	50	35
		P_1 [kW]	0.75	1.8	0.75	1.8	1.5	4	4	1.8
		T_2 [Nm]	66	37	65	160	221	109	268	160
		F_s	2	3.7	2.6	1.4	1	3.8	1.6	2.8
VI	n_1 = 1400 min^{-1}	n_2 [min^{-1}]	35	187	35	35	17.5	140	50	35
		P_1 [kW]	1.5	6.7	2	2.6	1.5	15	6.7	5
		T_2 [Nm]	131	138	175	234	218	425	450	450
		η_D	0.64	0.80	0.64	0.65	0.54	0.80	0.70	0.65
	n_1 = 900 min^{-1}	n_2 [min^{-1}]	23	120	23	23	1	90	32	23
		P_1 [kW]	1.2	5.2	1.5	2	11.1	12	5	3.9
		T_2 [Nm]	158	166	2.01	269	247	505	525	520
		η_D	0.60	0.79	0.61	0.62	0.51	0.79	0.69	0.63
	n_1 = 500 min^{-1}	n_2 [min^{-1}]	12.5	67	12.5	12.5	6	50	18	12.5
		P_1 [kW]	0.8	3.8	1.1	1.4	0.8	8.7	3.8	2.8
		T_2 [Nm]	186	206	237	317	288	623	627	617
		η_D	0.56	0.76	0.56	0.57	0.46	0.75	0.62	0.57
		η_S	0.43	0.70	0.44	0.45	0.33	0.69	0.49	0.42

6.4 Lubrificazione

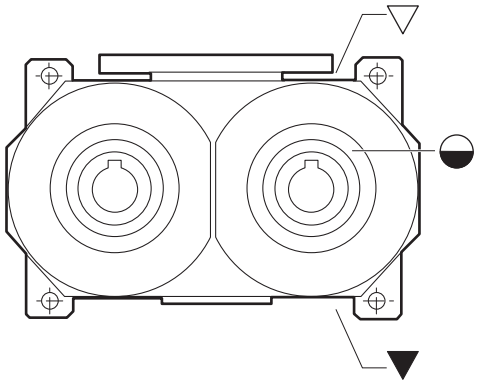
Normalmente i riduttori vengono forniti privi di lubrificante.
I tappi sono predisposti come da disegno.

6.4 *Lubrication*

The gearboxes are normally supplied without lubricant.
The filler plugs are arranged as shown in the drawing.

6.4 Schmierung

Normalerweise werden die Getriebe ohne Schmiermittel geliefert.
Die Anbringung der Füllstopfen entspricht der Zeichnung.



Tipo / Size / Typ	Olio / Oil / Öl [l]
135	0.7
150	1.1
170	1.3
230	3.1

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

6.5 Carichi radiali e assiali

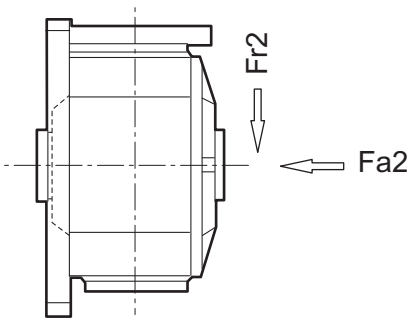
Nella tabella sono indicati i valori, espressi in N, dei carichi radiali e assiali ammissibili su ogni singola uscita.
Il carico radiale F_{r2} si considera applicato ad una distanza dalla battuta dell'albero cavo pari al valore del diametro.
I valori indicati hanno come limite la struttura del riduttore, perciò non variano al diminuire della velocità, cosa che normalmente avviene quando il limite è riferito ai cuscinetti.

6.5 *Radial and axial loads*

In the table, the permissible radial and axial loads for each individual output are shown as N
The radial load F_{r2} should be considered as applied at a distance from the shaft shoulder equal to the diameter figure.
The listed values are limited by the gear drive structure, therefore, they will not change as the speed decreases, which is normally the case when bearings are the limit reference.

6.5 Radial und Axial Belastungen

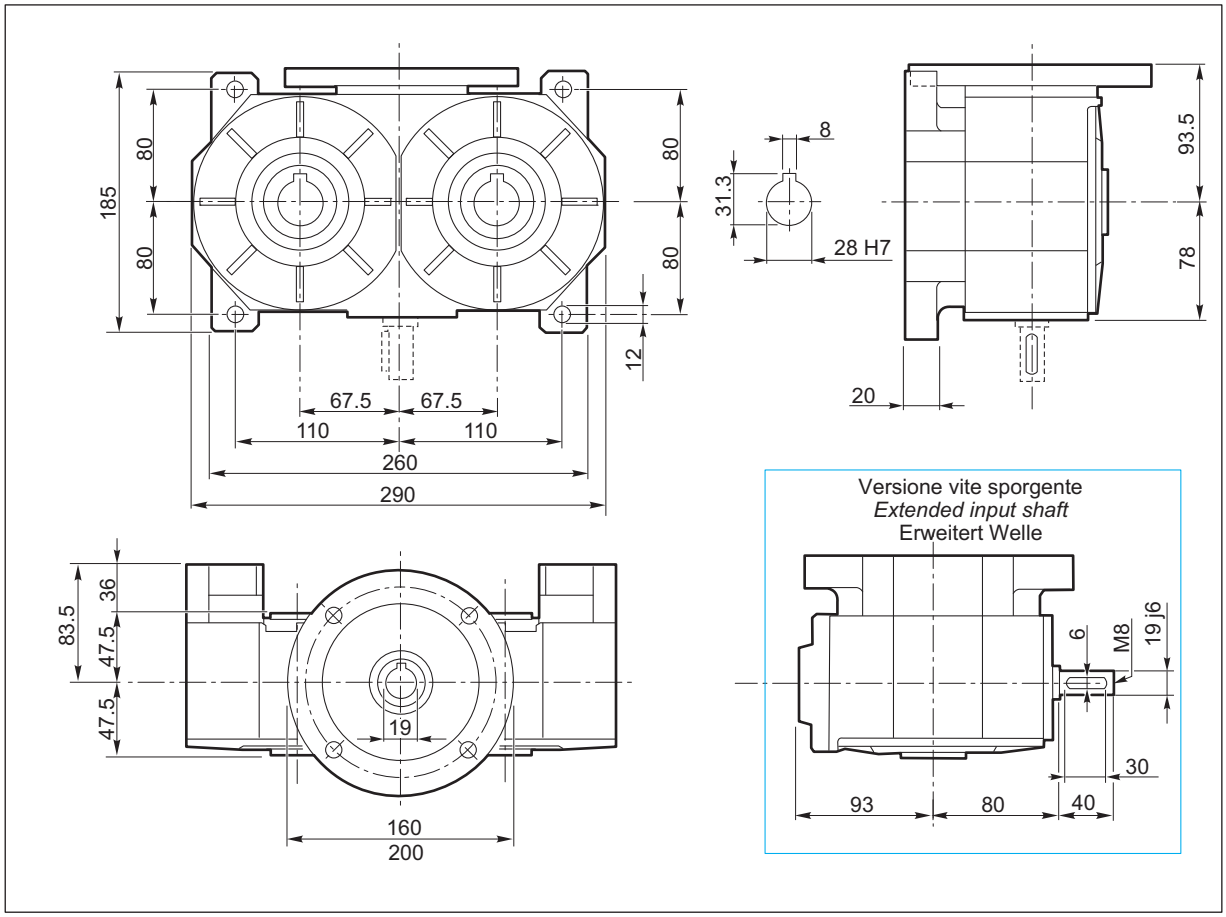
In der Tabelle werden die Werte der auf jedem einzelnen Abtrieb zulässigen Radial- und Axialbelastungen in N angegeben.
Hinsichtlich der radialen Belastung F_{r2} wird von einem Abstand vom Anschlag der Hohlwelle ausgegangen, der dem Wert des Durchmessers entspricht.
Die angegebenen Werte werden durch die Struktur des Getriebes beschränkt und verändern sich daher bei Reduzierung der Drehzahl nicht. Dies ist normalerweise dann der Fall, wenn der Grenzwert sich auf die Lager bezieht.



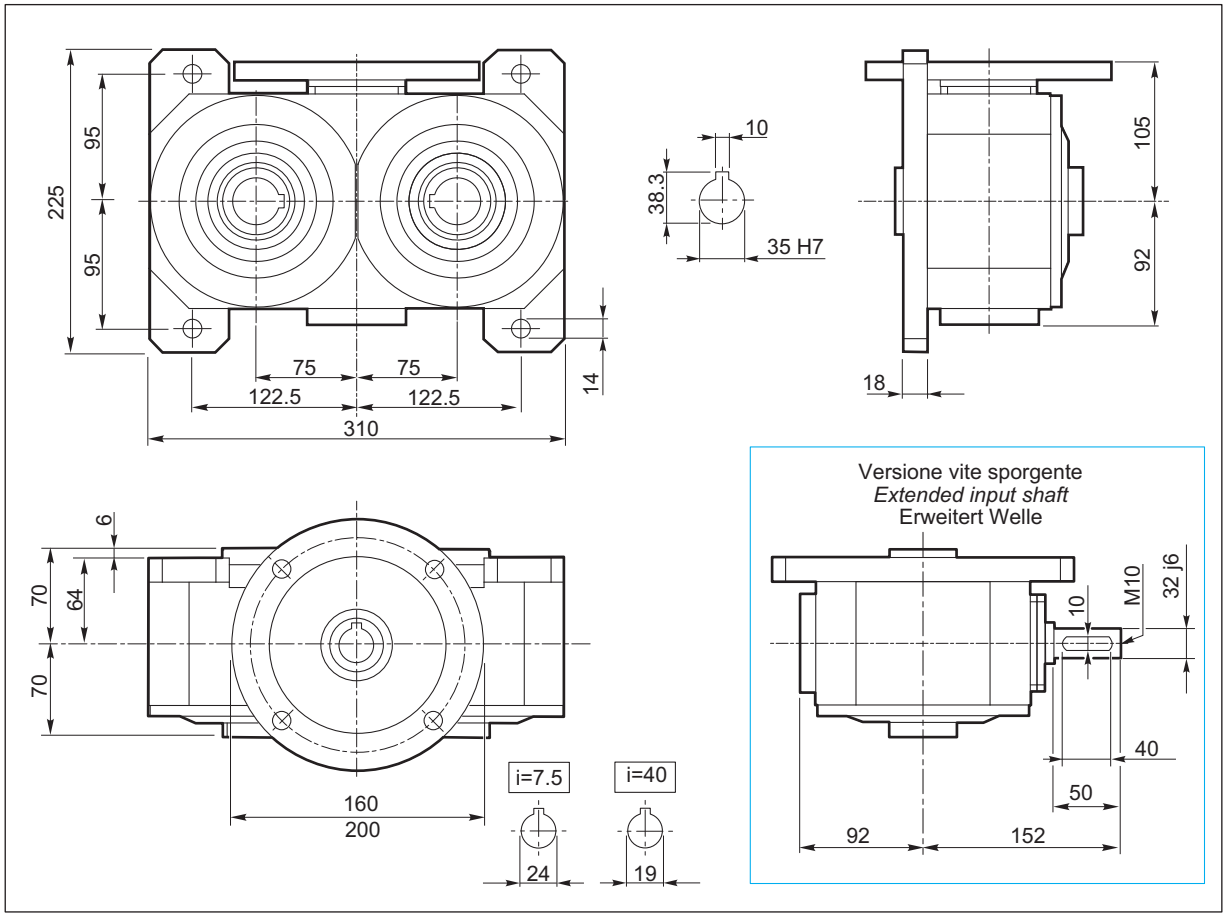
Tipo *Size* Typ	**135**	**150**	**170**	**230**
F_{r2} [N]	1200	1900	1700	3000
F_{a2} [N]	600	950	850	1500

6.6 **Dimensioni** 6.6 ***Dimensions*** 6.6 **Abmessungen**

135

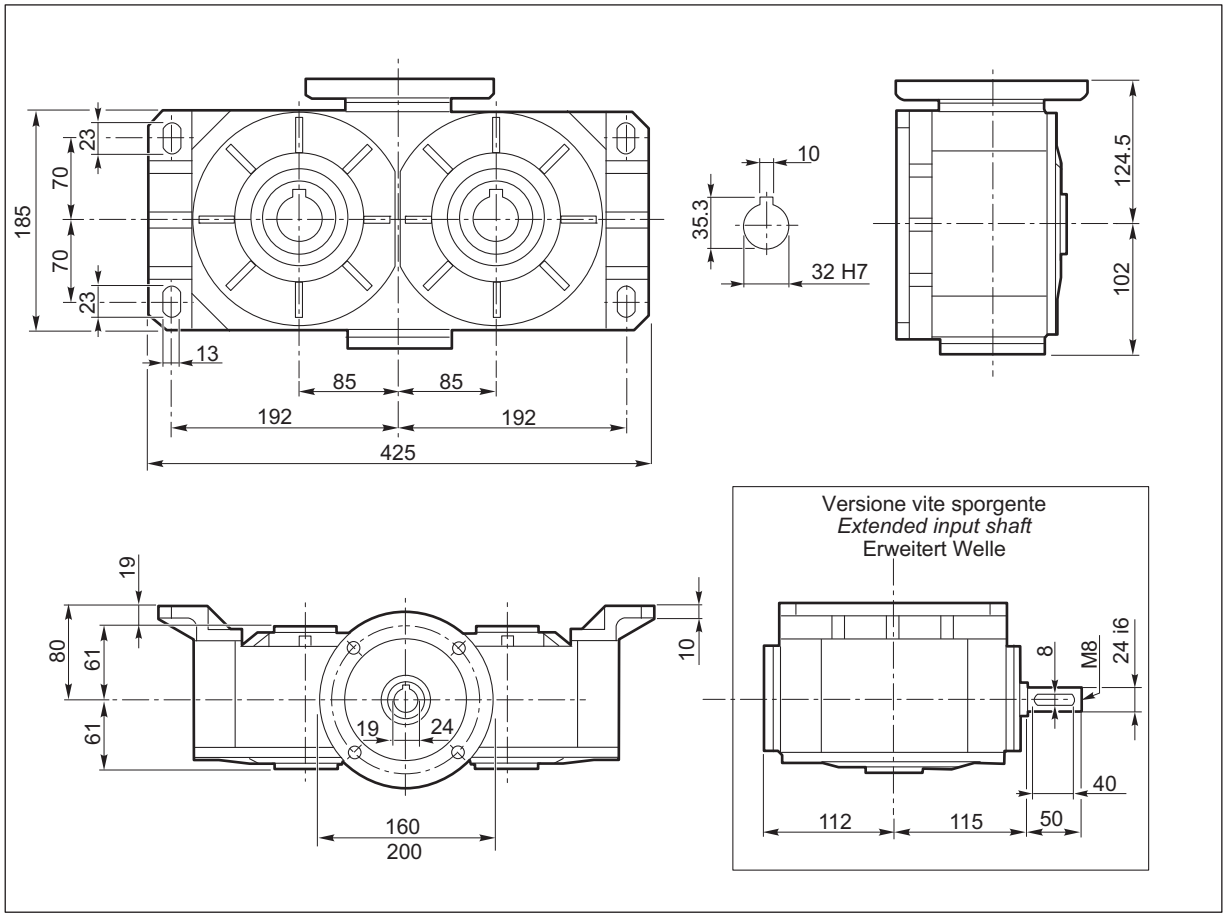


150

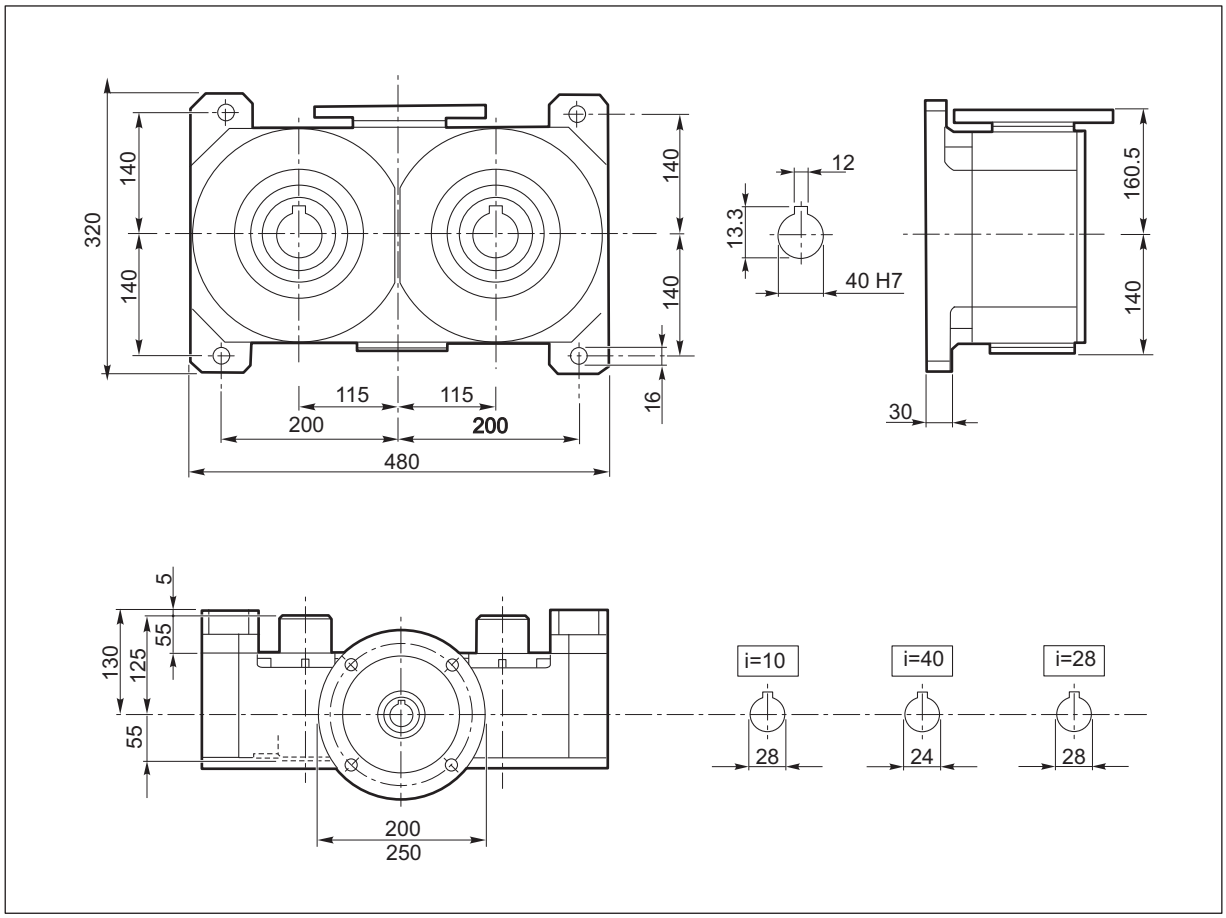


6.6 **Dimensioni** *6.6* ***Dimensions*** 6.6 **Abmessungen**

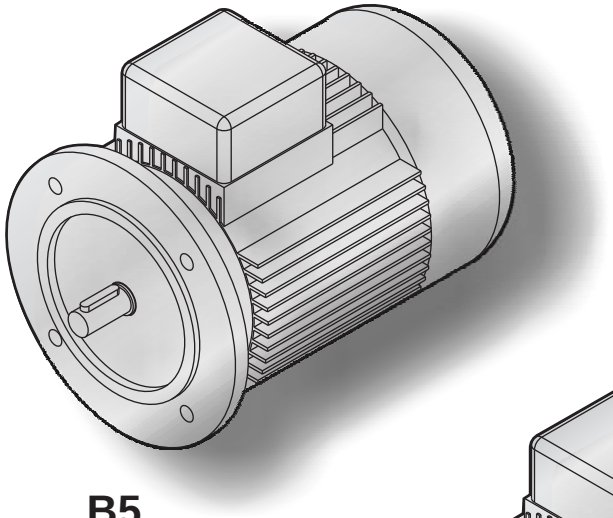
170



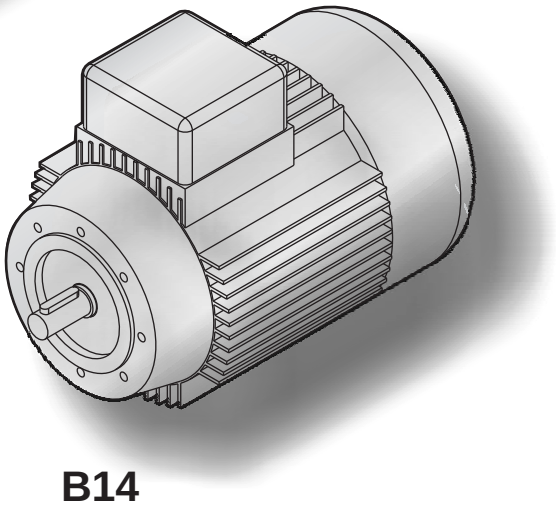
230



7.0 MOTORI ELETTRICI *ELECTRIC MOTORS* ELEKTROMOTOREN

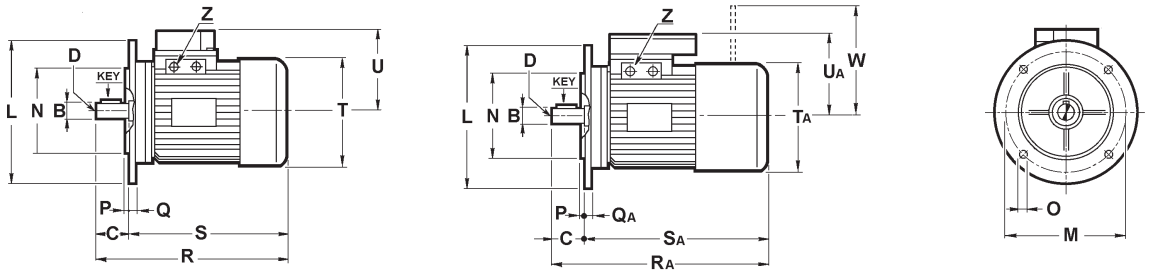


B5



B14

B5



Motori elettrici (1)
Electric motors
Elektromotoren

Motori elettrici autofrenanti (2)
Electric brake motors
Elektro-Bremsmotoren

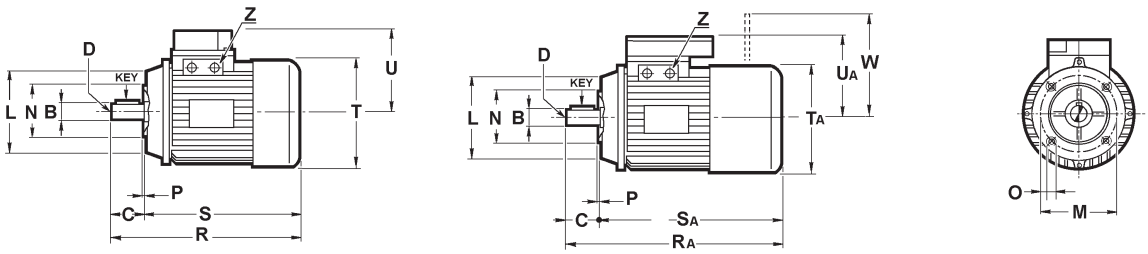
		4 poles			B	C	D	L	M	N	O	P	Q	QA	R	RA	S	SA	T	TA	U	UA	W	Z	KEY
		kW	kg. (1)	kg. (2)																					
56	A	0.06	2.5	4	9	20	M4	120	100	80	7	3	8	8	188	220	168	200	110	110	108	108	90	PG11	3x3x15
	B	0.09	2.6	5																					
	C	0.11	3.2	5																					
63	A	0.13	3.7	5	11	23	M4	140	115	95	9	3	9	9	208	257	185	234	123	123	110	110	98	PG11	4x4x15
	B	0.18	4.3	7																					
	C	0.22	4.3	7																					
71	A	0.25	5.8	8	14	30	M5	160	130	110	9	3.5	9	9	245	297	215	267	140	140	121	121	98	PG11	5x5x20
	B	0.37	6.2	8																					
	C	0.55	7.4	9																					
80	A	0.55	8.5	11	19	40	M6	200	165	130	11	3.5	10	10	278	336	238	296	159	159	138	138	111	PG16	6x6x30
	B	0.75	9.8	13																					
	C	0.9	10.5	13.5																					
90	S	1.1	12	17	24	50	M8	200	165	130	11	3.5	10	10	305	369	255	319	176	176	149	149	129	PG16	8x7x35
	L	1.5	13.5	18											330	394	280	344							
	LB	1.8	15.5	20																					
100	A	2.2	19	25.5	28	60	M10	250	215	180	14	4	14	14	369	434	309	374	195	195	160	160	139	PG16	8x7x45
	B	3	21	28																					
	BL	4	23	30																					
112	A	4	29	38	28	60	M10	250	215	180	14	4	14	14	388	467	328	407	219	219	172	172	161	PG16	8x7x45
	BL	5.5	35	44																					
132	S	5.5	43	56	38	80	M12	300	265	230	14	4	20	14	448	570	368	490	258	258	192	192	186	PG21	10x8x60
	M	7.5	52	66											485	600	405	520							
	ML	9.2	54	68																					

Le dimensioni dei motori elettrici sono puramente indicative.

The dimensions of the electric motors are approximate values.

Die Abmessungen der Elektromotoren sind Näherungswerte.

B14



Motori elettrici (1)
Electric motors
Elektromotoren

Motori elettrici autofrenanti (2)
Electric brake motors
Elektro-Bremsmotoren

		4 poles			B	C	D	L	M	N	O	P	R	RA	S	SA	T	TA	U	UA	W	Z	KEY
		kW	kg. (1)	kg. (2)																			
56	A	0.06	2.5	4	9	20	M4	80	65	50	M5	2.5	188	220	168	200	110	110	108	108	90	PG11	3x3x15
	B	0.09	2.6	5																			
	C	0.11	3.2	5																			
63	A	0.13	3.7	5	11	23	M4	90	75	60	M5	2.5	208	257	185	234	123	123	110	110	98	PG11	4x4x15
	B	0.18	4.3	7																			
	C	0.22	4.3	7																			
71	A	0.25	5.8	8	14	30	M5	105	85	70	M6	2.5	245	297	215	267	140	140	121	121	98	PG11	5x5x20
	B	0.37	6.2	8																			
	C	0.55	7.4	9																			
80	A	0.55	8.5	11	19	40	M6	120	100	80	M6	3	278	336	238	296	158	159	138	138	111	PG16	6x6x30
	B	0.75	9.8	13																			
	C	0.9	10.5	13.5																			
90	S	1.1	12	17	24	50	M8	140	115	95	M8	3	305	369	255	319	176	176	149	149	129	PG16	8x7x35
	L	1.5	13.5	18									330	394	280	344			160				
	LB	1.8	15.5	20																			
100	A	2.2	19	25.5	28	60	M10	160	130	110	M8	3.5	369	434	309	374	195	195	173	160	139	PG16	8x7x45
	B	3	21	28																			
	BL	4	23	30																			
112	A	4	29	38	28	60	M10	160	130	110	M8	3.5	388	467	328	407	219	219	192	172	161	PG16	8x7x45
	BL	5.5	35	44																			
132	S	5.5	43	56	38	80	M12	200	165	130	M10	4	448	570	368	490	258	258	192	192	186	PG21	10x8x60
	M	7.5	52	66									485	600	405	520							
	ML	9.2	54	68																			

Le dimensioni dei motori elettrici sono puramente indicative.

The dimensions of the electric motors are approximate values.

Die Abmessungen der Elektromotoren sind Näherungswerte.

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TCIED08VSF P01W00 06/2008

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