

# RS-RT

## RIDUTTORI A VITE SENZA FINE

- singolo stadio
- con precoppia cilindrica
- doppio stadio




## WORM GEAR BOXES

- single-stage worm
- helical / worm
- two-stage worm

## SCHNECKENGETRIEBE

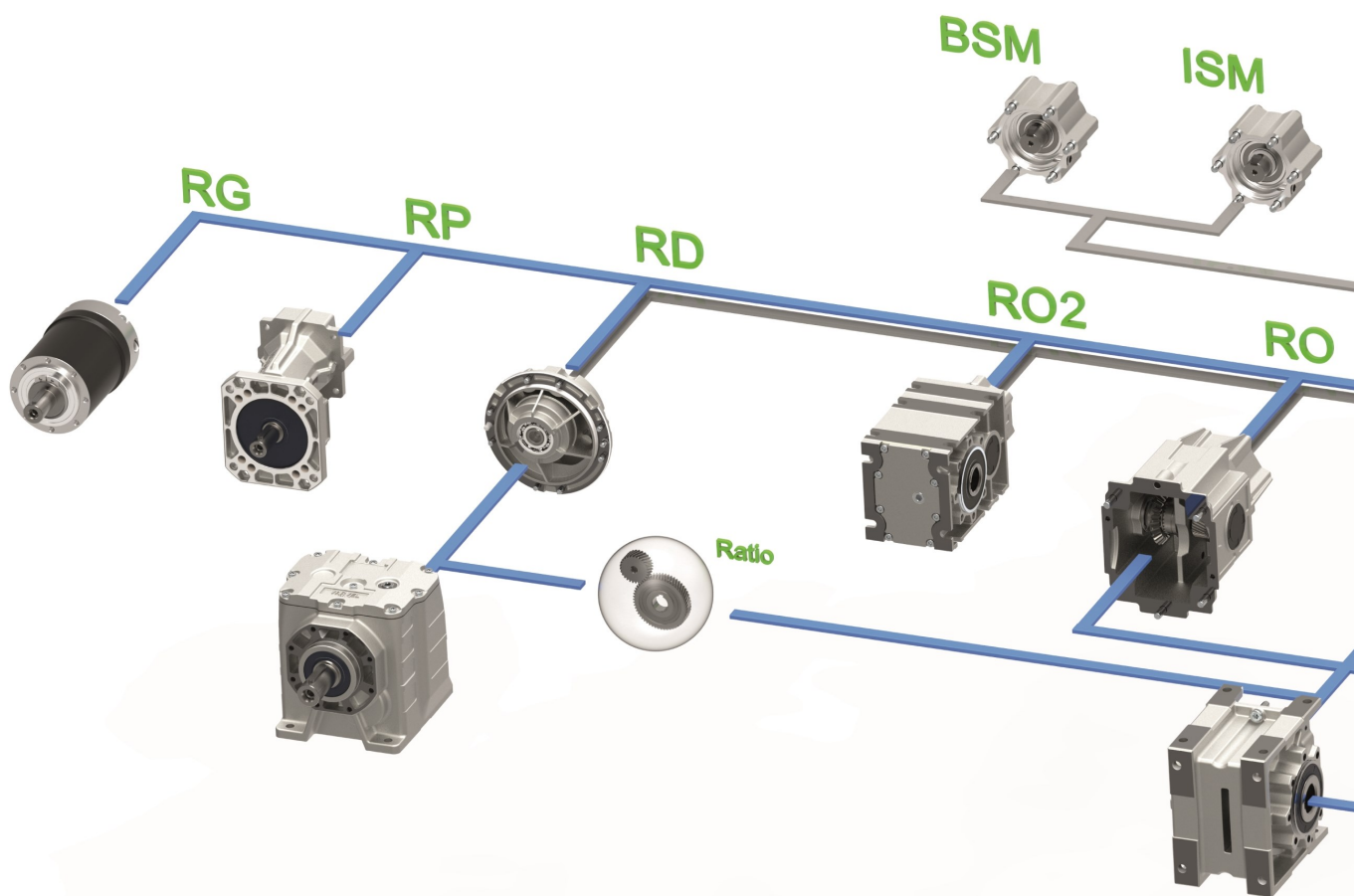
- Einstufig
- mit Stirnradvorstufe
- Doppelstufig



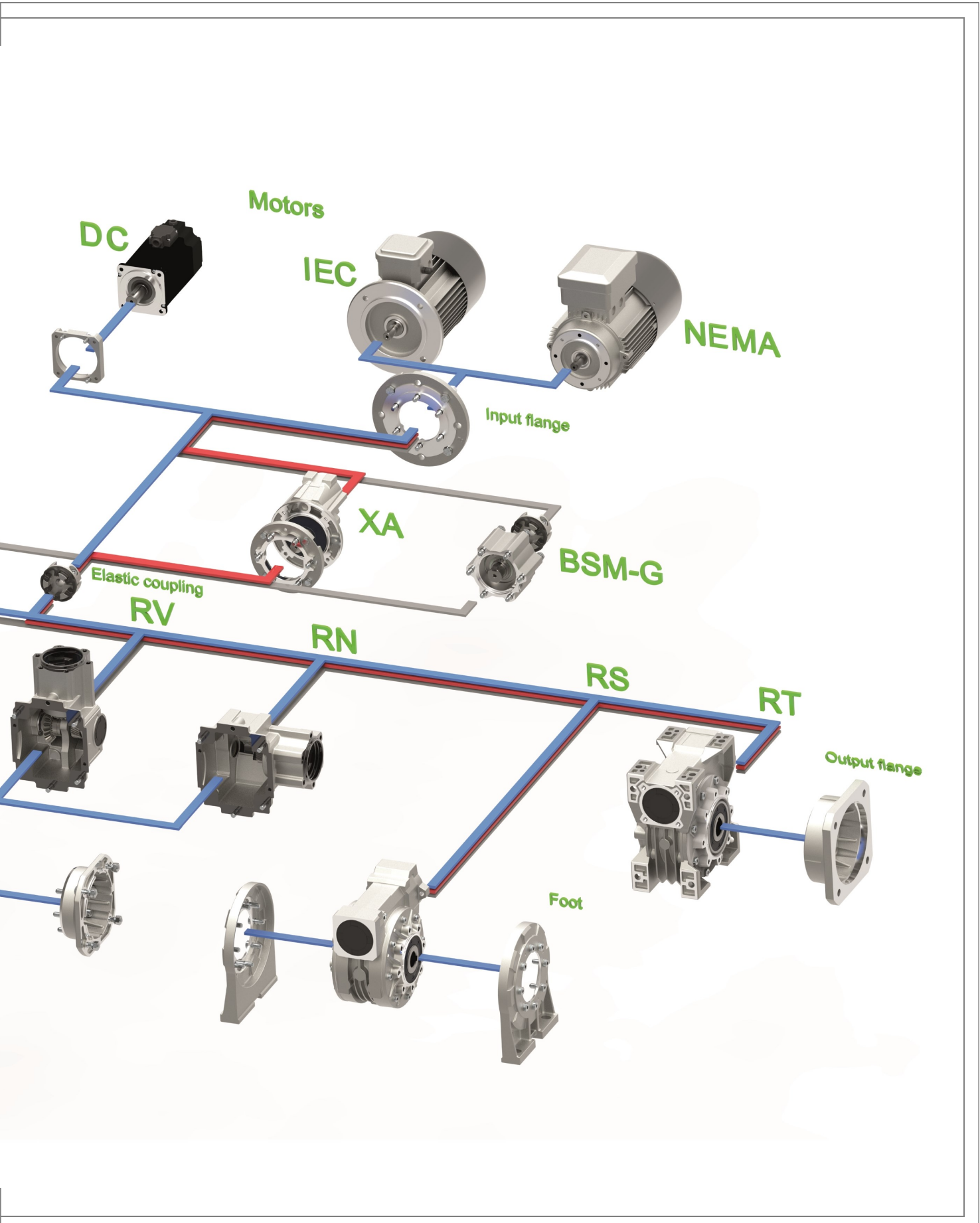
INDICE 	CONTENTS 	INDEX 
Modularità ..... 2-3	Modular system ..... 2-3	Modularsystem ..... 2-3
Descrizione ..... 4-6	Description ..... 4-6	Produkte ..... 4-6
Tipi, Simboli ..... 7	Types, Symbols ..... 7	Typen, Zeichen ..... 7
Giunto ..... 8	Coupling ..... 8	Kupplung ..... 8
IEC - Flange & Giunto ..... 9	IEC - Flanges & coupling ..... 9	IEC - Flansch u. Kupplung ..... 9
NEMA - Flange & Giunto ..... 10	NEMA - Flanges & coupling ..... 10	NEMA - Flansch u. Kupplung ..... 10
Designazione riduttore ..... 11	Gearbox designation ..... 11	Bezeichnungen des Getriebes ..... 11
Catalogo elettronico VARsize ..... 12	VARsize electronic catalogue ..... 12	Elektronischer Katalog VARsize .. 12
Tappi di sfiato ..... 12	Breather plugs ..... 12	Entlüftungsventile ..... 12
Posizioni di montaggio ..... 13-15	Mounting positions ..... 13-15	Einbaulage ..... 13-15
Pesi, Lubrificanti ..... 16	Weights, Lubricants ..... 16	Gewichte, Schmierung ..... 16
Fattori di Servizio ..... 17-18	Service Factors ..... 17-18	Betriebsfaktoren ..... 17-18
Carichi esterni ..... 19-20	External loads ..... 19-20	Außere Kräfte ..... 19-20
<b>Tabelle di Selezione</b>	<b>Selection tables</b>	<b>Auswahltabelle</b>
Versioni ..... 22	Versions ..... 22	Ausführungen ..... 22
Giunto ..... 23	Couplings ..... 23	Kupplung ..... 23
Flangia entrata ..... 24-25	Input flanges ..... 24-25	Eingangsfansch ..... 24-25
RS - RT ..... 26-29	RS - RT ..... 26-29	RS - RT ..... 26-29
RA - TA ..... 30-33	RA - TA ..... 30-33	RA - TA ..... 30-33
RS/RS - RT/RT ..... 34-35	RS/RS - RT/RT ..... 34-35	RS/RS - RT/RT ..... 34-35
MRS - MRT ..... 36-39	MRS - MRT ..... 36-39	MRS - MRT ..... 36-39
<b>Dimensioni</b>	<b>Dimensions</b>	<b>Abmessungen</b>
RS, RA, RS/RS ..... 40-49	RS, RA, RS/RS ..... 40-49	RS, RA, RS/RS ..... 40-49
RT, TA, RT/RT ..... 50-57	RT, TA, RT/RT ..... 50-57	RT, TA, RT/RT ..... 50-57
XA ..... 58	XA ..... 58	XA ..... 58
Motori IEC ..... 59	IEC Motors ..... 59	IEC-Motoren ..... 59
Standard motori elettrici ..... 60	Electric motor standards ..... 60	E-Motoren Standards ..... 60
Flange servomotori ..... 61-63	Servomotor flanges ..... 61-63	Servomotor Flansche ..... 61-63
<b>Informazioni generali</b>	<b>General information</b>	<b>Allgemeine Informationen</b>
Irreversibilità ..... 64	Self-locking ..... 64	Selbsthemmung ..... 64
Dati di dentatura ..... 65	Gearing data ..... 65	Verzahnungsdaten ..... 65
Parti componenti ..... 66-68	Component parts ..... 66-68	Bauelemente ..... 66-68
Senso di rotazione ..... 69	Direction of rotation ..... 69	Drehrichtungen ..... 69
ATEX ..... 70-71	ATEX ..... 70-71	ATEX ..... 70-71
Uso e Manutenzione ..... 72	Operation and Maintenance ..... 72	Betriebs u. Wartungsanweisung .. 72



Sistema modulare - Modular System - Modularsystem



**RS-RT**



**Descrizione - Description - Beschreibung****Riduttori a singolo stadio**

I riduttori RS e RT hanno le stesse prestazioni e rapporti di riduzione ma permettono diversi layout e montaggi spaziali adatti alla maggior parte delle applicazioni.

I riduttori sono realizzati come standard per il montaggio delle più svariate flange motore e giunti, e entrambi i lati consentono applicazione di piedi, flange di uscita e braccio di reazione con facile montaggio.

**Riduttori con precoppia**

I riduttori RA e TA sono formati da un riduttore indipendente a uno stadio di ingranaggi FXA accoppiato a un riduttore standard FRS o FRT permettendo maggiori coppie in uscita e rendimenti più elevati dei singoli stadi FRS o FRT con rapporto equivalente.

**Riduttori combinati**

I riduttori RS/RS e RT/RT sono costituiti dalla combinazione di due riduttori standard RS o RT e offrono una ampia selezione di elevati rapporti di riduzione per basse velocità di uscita.

I due riduttori sono lubrificati indipendentemente con olio sintetico a lunga durata.

**Alberi di uscita**

Tutti i riduttori sono costruiti con albero uscita cavo come standard.

Alberi in acciaio, semplice AS o doppio AD, sono fornibili su richiesta.

Una protezione di sicurezza ASC dell'estremità non utilizzata dell'albero AS è disponibile su richiesta.

**Bracci di reazione**

I riduttori standard sono utilizzabili come riduttori pendolari.

Il braccio reazione - BR-BT tipo base o BRV -BTV con boccia antivibrante in Vulkollan - è costruito in lamiera ad elevato spessore, zincata bianca.

**Limitatori di giri**

Il dispositivo SL arresta - per mezzo di fine corsa interni - il funzionamento del motoriduttore dopo un tempo prefissato. L'esecuzione standard permette circa 40 giri dell'albero di uscita. L'escursione dei fine corsa è regolabile e il tempo di funzionamento del riduttore varia da 12 a 170 secondi in relazione al rapporto del riduttore.

**Single-stage worm gearboxes**

RS and RT gearboxes have same performance data and reduction ratios but allow different spatial layout and fittings suitable to most applications

The gearboxes are made as standard for the mounting of various motor adapters and couplings, and either sides allow feet, output flanges and torque arm easy fitting.

**Helical/worm gearboxes**

RA and TA gearboxes are made of an independent single-stage helical gearbox FXA fitted on a standard FRS or FRT gearbox input, allowing greater output torques and higher efficiency than the single-stage FRS or FRT gearbox with equivalent ratio.

**Two-stage worm gearboxes**

RS/RS and RT/RT gearboxes are made of two standard gearboxes RS or RT combination and offer a full selection of high reduction ratios to get even lower output speeds.

Both gearboxes are independently lubricated with synthetic long-life oil.

**Output shafts**

All gearboxes are manufactured with hollow output shaft as standard.

Steel single AS or double AD solid output shafts can be supplied on demand. An ASC safety shield fitted on the opposite side of the AS extension. is available on demand.

**Torque arms**

Gearbox basic versions work as shaft mounted units.

The torque arm - BR and BT plain version, or BRV and BTV with Vulkollan vibration-damping bushing - is made of white galvanized extra thick plate.

**Travel limiters**

SL travel limiter halts, by the means of internal limit switches, the gearbox operation after a preset period of time. As standard, 40 turns of output shaft are performed. Limit switch travel can be adjusted and gearbox working time ranges from 12 to 170 seconds according to reduction ratios.

**Einstufige Schneckengetriebe**

Die Getriebe der Serien RS u. RT haben die gleiche Leistung und Übersetzung, ermöglichen aber diverse Layout- und Weltraummontagen, die sich für die meisten Anwendungen eignen.

Die Getriebe sind standardmäßig für Montagen mit unterschiedlichsten Motorflanschen und Kupplungen und auf beiden Seiten lassen sich Füße, Ausgangsflansch und Drehmomentstütze einfach montieren.

**Schneckengetriebe mit Stirnradvorstufe**

RA- und TA-Getriebe bestehen aus einem eigenständigen einstufigen FXA-Getriebe, gekoppelt mit einem FRS- oder FRT-Standardgetriebe, wodurch mehr Ausgangsdrehmomente und höhere Wirkungsgrade als die einstufigen FRS oder FRT mit gleichwertiger Übersetzung möglich sind.

**Doppelstufige Schneckengetriebe**

Die Getriebe der Serien RS/RS u. RT/RT bestehen aus der Kombination zweier RS- oder RT-Standardgetriebe und bieten eine große Auswahl an hohen Übersetzungen für untere Ausgangsgeschwindigkeiten.

Die Getriebe werden mit synthetischem langlebigem Öl geschmiert.

**Ausgangswellen**

Standardmäßig werden alle Getriebe mit Hohlaustragswelle erbaut.

Stahlwellen, Einfache-AS oder Doppel-AD, sind auf Anfrage lieferbar.

Ein ASC-Wellenschutz am nicht benutzten Ende der AS-Welle ist auf Anfrage erhältlich.

**Drehmomentstütze**

Die Standard-Getriebe können als Pendlergetriebe verwendet werden. Die Drehmomentstütze - BR u. BT als Standard Version oder BRV-BTV mit Vulkollan-Schwingungsdämpfungsbuchse - besteht aus weiß verzinktem, extra dickem Blech.

**Drehzahlbegrenzer**

Das SL-Gerät stoppt - über interne Endschalter - den Betrieb des Getriebemotors nach einer eingestellten Zeit. Die Standardausführung erlaubt ca. 40 Umdrehungen der Abtriebswelle. Der Weg der Endschalter ist einstellbar und die Betriebszeit des Untersetzungsgetriebes variiert im Verhältnis zum Untersetzungsverhältnis von 12 bis 170 Sekunden.

**Descrizione - Description - Beschreibung**
**RS**

**RT**

**Limitatori di coppia**

Il dispositivo limitatore di coppia - TLI realizzato all'interno del riduttore e TLE installabile esternamente - permette la regolazione della coppia trasmissibile, la protezione del motoriduttore in caso d'ostacolo accidentale, il semplice sblocco del sistema e la manovra manuale in caso di mancanza di corrente.

Il valore della coppia di slittamento, tarato in fabbrica, è regolabile in diminuzione dal valore di coppia massima a zero e la rotazione dell'albero di uscita riprende quando la coppia ridiscende al di sotto del valore prefissato. Le quantità d'olio sono riportate a pagina 48 e 56.

**Paraoli**

- NBR - montati su alberi entrata e uscita, come standard,
- Viton - montati per funzionamento con motori 2-poli AC, DC e servo, a richiesta.
- Silicone - montati per funzionamento a basse temperature, a richiesta.

**Lubrificante**

I riduttori sono forniti riempiti di olio sintetico a lunga durata (ISO VG 320) per temperature -15/+35 °C.

Le quantità d'olio sono valide per le diverse posizioni di montaggio.

Tappi olio e di sfiato sono forniti su richiesta (v. pag. 12).

**Fattore di servizio**

I dati di selezione sono intesi per un fattore di servizio SF1.0, cioè

- 8 ore di funzionamento al giorno
- carico uniforme
- 6 avviamenti all'ora
- temperatura ambiente fra 15 a 35 °C

**Direttiva ATEX**

I riduttori VARVEL-ATEX, forniti su richiesta, sono costruiti secondo la Direttiva Europea 2014/34/UE-ATEX e pertanto, sono qualificati per installazione in atmosfere potenzialmente esplosive.

Dettagliate informazioni alle pagine 70-71.

**Dimensioni**

Le dimensioni e le unità di misura sono riferite al sistema metrico, o imperiale quando specificato.

**Torque limiter s**

The torque limiter and safeguard device - TLI built-in type and TLE kit-pack to fit on a regular gearbox - allows easy torque adjustments, full gearbox safeguard against unexpected overload conditions, simple hand release and manual operation in case of power supply failure.

The factory preset maximum slipping torque can be adjusted down to zero. Shaft rotation restarts automatically as soon as torque value is lower than the preset value.

TLI oil quantity are listed at pages 48 and 56.

**Oil seals**

- NBR - fitted on input and output shafts as standard.
- Viton - for operation with 2-pole AC, DC and servo motors, on demand.
- Silicone - for low temperature operation, on demand.

**Lubricant**

Gearboxes are delivered filled with synthetic long-life oil (ISO VG 320 Grade) for temperature -15/+35 °C as standard. Oil quantities are valid for any working positions. Lubrication-for-life is factory packed.

Oil, drain or vent plugs on demand (see page 12).

**Service factor**

Selection data are intended for service factor SF1.0. i.e.

- 8 running hours per day,
- uniform load,
- less than 6 start/stops per hour and
- room temperature from 15 to 35 °C.

**Directive ATEX**

The gearboxes VARVEL-ATEX, supplied on demand, are manufactured according to the European Directive 2014/34/UE-ATEX and therefore, they are qualified for installation in potentially explosive atmospheres.

Detailed information at pages 70-71.

**Dimensions**

Dimensions and units of measurement are referred to metric system, or imperial where applicable

**Drehmomentbegrenzer**

Der Drehmomentbegrenzer - TLI ist intern im Getriebe erbaut und TLE extern baubar - ermöglicht eine Regulierung des übertragbaren Drehmoments, den Getriebemotor-schutz bei unbeabsichtigten Hindernissen, einfaches Entsperren des Systems und manuelle Betätigung bei Stromausfall.

Das im Werk kalibrierte Drehmoment wird vom maximalen Drehmoment bei Null gesenkt und die Drehung der Ausgangswelle wieder aufgenommen, wenn das Drehmoment unter den Sollwert fällt.

Die Ölmengen sind auf den Seiten 48 und 56 angegeben.

**Dichtringe**

- NBR - werden als Standard an den Ein- und Ausgangswellen montiert.
- Viton - für Betrieb mit 2-Pole Wechselstrom-, Gleichstrom- und Servomotoren, auf Anfrage.
- Silikon - für niedrige Temperaturen, auf Anfrage.

**Schmierung**

Die Getriebe werden mit langlebigem synthetischem Öl (ISO VG 320) für Temperaturen bei -15/+35 °C beliefert. Die Ölmenge gilt für verschiedene Montagepositionen. Öl - und Entlüftungsventile sind auf Anfrage erhältlich (siehe Seite 12).

**Betriebsfaktor**

Die Auswahldaten sind für einen SF1.0-Leistungsfaktor bestimmt, d.h.

- 8-Stunden pro Tag an Betriebsdauer
- gleichmäßige Belastung
- 6 Starts pro Stunde
- Raumtemperatur zwischen 15 und 35°C

**Richtlinie ATEX**

VARVEL-ATEX-Getriebe, die auf Anfrage geliefert werden, sind gemäß der Europäischen Richtlinie 2014/34/EU-ATEX gebaut und daher für den Einbau in explosionsfähige Atmosphären qualifiziert.

Detaillierte Informationen auf den Seiten 70-71.

**Dimensionen**

Die Abmessungen und Maßeinheiten beziehen sich auf das metrische System, oder imperiale wenn angegeben.



**Descrizione - Description - Beschreibung**

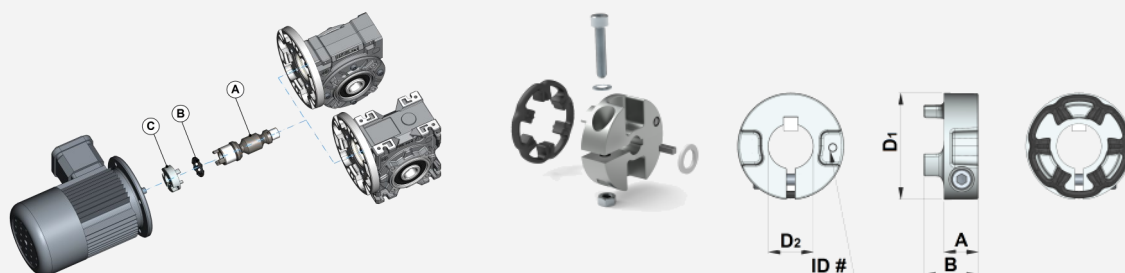
<b>Specifiche generali</b>		<b>General specifications</b>	<b>Allgemeine Eigenschaften</b>
Gamma Range Bereich	Grandezze: RS (9) - RT (7) 55 rapporti 3020 Nm coppia uscita max.	Sizes: RS (9) - RT (7) 55 ratios 3020 Nm max. output torque	Baugrößen: RS (9) - RT (7) 55 Übersetzungen 3020 Nm max. Abtriebsmoment
Dimensionamento Sizing Auslegung	Secondo BS721.	According to BS721.	Laut BS721.
Carcassa, Coperchi Housing, Covers Gehäuse, Flansche	Pressofusione in alluminio fino alla taglia 85 Ghisa dalla taglia 110	Pressure die cast aluminium up to size 85 Cast iron from size 110	Aluminium-Druckguss bis Größe 85 Grauguss ab Größe 110
Giunto Coupling Kupplung	Pressofusione in alluminio Acciaio, a richiesta	Pressure die cast aluminium Steel, on demand	Aluminium-Druckguss Stahl, auf Anfrage
Parti dentate Toothed parts Verzahnung	Viti in acciaio cmt / tmp con evolvente rettificato Ruote in bronzo su mozzo in ghisa.	Worms of CH steel with ground tooth profile. Wheels of bronze on cast iron hub.	Schnecken: Stahl einsatzgehärtet u. Zahnprofil geschliffen. Schnecken-Räder: Bronze HW Roheisen
Cuscinetti Bearings Lagerung	Sfere o rulli secondo grandezza e specifiche tecniche	Ball- or roller-types according to sizes and technical requirements	Kugel- oder Rollenlager entsprechend den technischen Vorschriften
Paraolio Oil seals Dichtungen	NBR - Nitril-Butadiene Rubber con secondo labbro parapolvere secondo DIN 3760 VI - Polimero fluorurato Viton a richiesta SI - Silicene a richiesta	NBR - Nitril-Butadiene Rubber with additional anti-dust lip according to DIN 3760 VI - Viton Fluorinated rubber on demand SI - Silicene rubber on demand	NBR - Nitril-Butadien Rubber mit zusätzlicher Staublippe entsprechend DIN 3760 VI - Fluorelaste Viton auf Anfrage SI - Silikon auf Anfrage
Lubrificante Lubricant Schmierung	Olio sintetico a lunga durata Gradazione ISO VG 320	Synthetic long-life oil Grade ISO VG 320	Synthetisches Getriebeöl ISO VG 320 als Langzeit-Füllung
Verniciatura Painting Lackierung	Alluminio naturale fino taglia 85 Vernice a polveri epossidiche colore standard RAL 7012 dalla taglia 110	Raw aluminium until size 85 Epoxy powder paint Standard colour RAL 7012 from size 110	Aluminium bis Größe 85 Epoxydpuverfarbe Standard-farbtone RAL 7012 ab Größe 110
Grado di protezione Protection grade Schutzgrad	IP66 - Solo corpo del riduttore IP20 - Corpo del riduttore con flange e collegamenti Protezioni aumentate su richiesta	IP66 - Gearbox body only IP20 - Gearbox body with flanges and adapters: Increased grades on demand	IP66 - Nur Getriebebeskörper IP20 - Getriebebeskörper mit Verbindungsflansche Schutzart erhöht nach Anfrage
ATEX	A richiesta	On demand	Auf Anfrage
<b>Formule utili</b>		<b>Useful formulae</b>	<b>Nützliche Formeln</b>
$P_1 = \frac{M_2 * n_2}{9550 * \eta}$	Potenza entrata [kW]	Input power [kW]	Eingangsleistung [kW]
$M_2 = \frac{9550 * P_1 * \eta}{n_2}$	Coppia uscita [Nm]	Output torque [Nm]	Ausgangsdrehmoment [Nm]
$FS = \frac{M_2}{M_{(app)}}$	Fattore di servizio	Service factor	Betriebsfaktor

**Tipi, Simboli - Types, Symbols - Typen, Zeichen**
**RS-RT**

<b>Tipi</b>		<b>Types</b>		<b>Typen</b>	
<b>AC</b>	Albero di uscita cavo	Hollow output shaft	Hohausgangswelle		
<b>AD, AS</b>	Albero uscita solido (doppio, semplice)	Solid output shaft (double, single)	Feste Ausgangswelle (doppel-, einfache)		
<b>ASC</b>	Protezione per estremità non sporgente dell'albero AS	Safety cap for not projecting side of AS shaft	AS-Wellenschutz für die nicht vorstehende Seite		
<b>BR, BRV</b>	RS - Braccio di reazione (standard, con boccola in Vulkollan)	RS - Torque arm (standard, with Vulkollan bush)	RS - Drehmomentstütze (Standard, mit Buchse aus Vulkollan)		
<b>BT, BTV</b>	RT - Braccio di reazione (standard, con boccola in Vulkollan)	RT - Torque arm (standard, with Vulkollan bush)	RT - Drehmomentstütze (Standard, mit Buchse aus Vulkollan)		
<b>D, DA</b>	RS - Versione con piedi, vite verticale	RS - Footed version, vertical wormshaft	RS - Fußausführung, senkrechte Schraube		
<b>FL, FA, FB, FO, FR</b>	RS - Versione con flangia	RS - Flanged version	RS - Flanschausführung		
<b>F, FL, FV</b>	RT - Versione con flangia	RT - Flanged version	RT - Flanschausführung		
<b>I, IA</b>	RS - Versione con piedi, vite in basso	RS - Footed version, wormshaft down	RS - Fußausführung, Schraube unten		
<b>PC, PA, PB</b>	RS - Versione pendolare	RS - Shaft mount version	RS - Aufsteckausführung		
<b>RA</b>	Riduttore con precoppia, carcassa tonda	Helical/worm reducer, round housing	Standardgetriebe mit Stirnradvorstufe, Gehäuse rund		
<b>RS</b>	Riduttore base, carcassa tonda	Basic gearbox, round housing	Standardgetriebe, Gehäuse rund		
<b>RS/RS</b>	Riduttore doppio stadio, carcassa tonda	Basic two-stage gearbox, round housing	Doppelstufig-Grundgetriebe, Gehäuse rund		
<b>RT</b>	Riduttore base, carcassa quadra	Basic gearbox, square housing	Standardgetriebe, Gehäuse quadratisch		
<b>RT/RT</b>	Riduttore doppio stadio, carcassa quadra	Basic two-stage gearbox, square housing	Doppelstufig-Grundgetriebe, Gehäuse quadratisch		
<b>S, SA</b>	RS - Versione con piedi, vite in alto	RS - Footed version, wormshaft up	RS - Fußausführung, Schraube oben		
<b>SL</b>	Limitatore di giri	Travel limiter	Drehzahlbegrenzer		
<b>TA</b>	Riduttore con precoppia, carcassa quadra	Helical/worm reducer, square housing	Standardgetriebe mit Stirnradvorstufe, Gehäuse quadratisch		
<b>TLE, TLI</b>	Limitatore di coppia (esterno, interno)	Torque limiter (external, built-in)	Drehmomentbegrenzer (extern, intern)		
<b>VB</b>	Vite con 2.a estremità d'albero	Wormshaft with 2nd shaft end	Schneckenwelle mit 2. Wellenende		
<b>XA</b>	Riduttore precoppia a ingranaggi	Single stage helical attachment	Stirnradvorstufe Getriebe		
<b>Simboli</b>		<b>Symbols</b>		<b>Zeichen</b>	
$F_{r1}, F_{r2}, F_r$ [N]	Carico radiale di catalogo (entrata, uscita, applicazione)	Catalogue radial load (input, output)	Radialkraft aus dem Katalog (Eingang, Ausgang)		
SF	Fattore di servizio	Service factor	Betriebsfaktor		
$i, i_r$	Rapporto di riduzione (nominale, reale)	Reduction ratio (nominal, real)	Übersetzung (nominal, reell)		
$J_1, J_2, J_m$ [kgm <sup>2</sup> ]	Momento d'inerzia del riduttore (entrata, uscita) e del motore	Moment of inertia of the gearbox (input, output) and of motor	Trägheitsmoment des Getriebes (Eingang, Ausgang) u. des Motor		
$k_a, k_L, k_T, k_{S3}$	Fattore (accelerazione, lunghezza, tipo, intermittenza S3)	Factor (acceleration, length, type, S3 intermittence)	Faktor (Beschleunigung, Länge, Typ, S3-Intermittenz)		
Lub H, V	Lubrificante (litri) Montaggio (orizzontale, verticale)	Lubricant (litres) Mounting (horizontal, vertical)	Schmierstoff (Liter) Einbaulage (waagrechte, senkrechte)		
$M_2, M_{(app)}$ [Nm]	Coppia massima di uscita (riduttore, applicazione)	Maximum output torque (gearbox, application)	Abtriebsdrehmoment (Getriebe, Anwendung)		
$\eta$	Rendimento	Efficiency	Wirkungsgrad		



Giunto - Coupling - Kupplung



**Vantaggi**

- Giunto con serraggio a morsetto per attrito sull'albero motore
- Flange e giunti per motori IEC, NEMA, Brushless, c.c. montabili sul riduttore finito
- Eliminazione sfregamento fra foro e chiave (tribocorrosione)
- Gioco zero nel collegamento riduttore/motore
- Disallineamento angolare ammesso inferiore a 1°
- Elevata rigidità torsionale

**Advantages**

- Friction clamped coupling on motor shaft
- IEC, NEMA, Brushless, DC adapters and couplings fitted on already assembled gearbox
- Elimination of fretting corrosion between bore and key
- Zero backlash in gearbox/motor connection
- Angular allowed misalignment lower than 1°
- High torsional rigidity

**Vorzüge**

- Kupplung mit Reibungsklemmung auf dem Motorwelle
- IEC-, NEMA-, Brushless-, Gleichstrom-Flanschen und Kupplungen auf dem fertigem Getriebe montierbar
- Vermeidung von Passungsost zwischen Bohrung u. Keil
- Getriebe / Motor Spielfrei Verkeilung
- Zulässige Winkelausgleich unter 1°
- Hohe Verdrehsteifigkeit

Tipo Type Typ	Motore Motor	Codice Kit Kit Part No. Kit-Kode	RS - RT	Mt [Nm]	Mt <sub>1</sub> [Nm]	Mt <sub>2</sub> [Nm]	A [mm]	B [mm]	D <sub>1</sub> [mm]	D <sub>2</sub> [mm]	ID#
G3	IEC	KG3.009	28-40	4.5 - 6	15	8-10	11	19	30	9	309
		KG3.011	28-40	4.5 - 6	15	10-12			30	11	311
		KG3.014	40	6.5 - 7.5	28	15-20			36	14	314
G5	IEC	KG5.009	50-60	9 - 10	15	8-10	14.5	23	45	9	509
		KG5.011	50-60		20	10-12			45	11	511
		KG5.014	50-60		25	15-20			45	14	514
		KG5.019	50-60		40	25-30			45	19	519
		KG5.024	60		50	30-40			52	24	524
G6	IEC	KG6.014	70	15 - 18	60	40-50	19.5	31.5	58	14	614
		KG6.019	70-85-110		80	60-70				19	619
		KG6.024	70-85-110		120	80-100				24	624
		KG6.028	70-85-110		150	100-120				28	628

Tipo Type Typ	Motore Motor	Codice Kit Kit Part No. Kit-Kode	RS - RT	Mt [in-lb]	Mt <sub>1</sub> [in-lb]	Mt <sub>2</sub> [in-lb]	A [in]	B [in]	D <sub>1</sub> [in]	D <sub>2</sub> [in]	ID#
G3	NEMA	KG3.N42	28-40	40 - 53	133	71-89	0.43	0.74	1.17	3/8"	3N42
		KG3.N48	40		177	89-106			1.40	1/2"	3N48
G5	NEMA	KG5.N56	50-60	80 - 89	354	221-266	0.57	0.91	1.76	5/8"	5N56
		KG5.N140	60		443	266-354			2.03	7/8"	5N140
G6	NEMA	KG6.N56	70-85-110	133 - 159	885	531-620	0.76	1.23	2.268	5/8"	6N56
		KG6.N140	70-85-110		1062	708-885				7/8"	6N140
		KG6.N180	70-85-110		1328	885-1062				1-1/8"	6N180

Mt - Coppia di serraggio vite  
 Mt<sub>1</sub> - Coppia trasmissibile con chiave  
 Mt<sub>2</sub> - Coppia trasmissibile senza chiave

Mt - Screw locking torque  
 Mt<sub>1</sub> - Transmissible torque with key  
 Mt<sub>2</sub> - Transmissible torque without key

Mt - Schrauben-Klemmdrehmoment  
 Mt<sub>1</sub> - übertragbar Drehmoment mit Keil  
 Mt<sub>2</sub> - übertragbar Drehmoment ohne Keil



**IEC - Flange e Giunto - Flanges & Coupling - Flansche u. Kupplung [mm]**

Tipo Riduttore Gearbox Type Getriebestyp	Tipo Flangia Flange Type Flanschtyp	IEC	Flangia - Flange - Flansch		Giunto - Coupling - Kupplung	
			Kit Part No. (B5)	Kit Part No. (B14)	Tipo - Type - Typ	Kit Part No.
RS-RT 28	FM 28	IEC56 IEC63	K530.206.120 K530.206.140	K530.206.080 K530.206.090	G3 ø9 G3 ø11	KG3.009 KG3.011
RS-RT 40	FM 40	IEC56 IEC63 IEC71	K531.206.120 K531.206.140 K531.206.160	K531.206.080 K531.206.090 K531.206.105	G3 ø9 G3 ø11 G3 ø14	KG3.009 KG3.011 KG3.014
RS-RT 50	FM 50	IEC63 IEC71 IEC80	K532.206.140 K532.206.160 K532.206.200	K532.206.090 K532.206.105 K532.206.120	G5 ø11 G5 ø14 G5 ø19	KG5.011 KG5.014 KG5.019
RS-RT 60	FM 60	IEC71 IEC80 IEC90	K539.206.160 K539.206.200 K539.206.200	K539.206.105 K539.206.120 K539.206.140	G5 ø14 G5 ø19 G5 ø24	KG5.014 KG5.019 KG5.024
RS-RT 70	FM 70	IEC71 IEC80 IEC90 IEC100	K533.206.160 K533.206.200 K533.206.200 K533.206.250	K533.206.105 K533.206.120 K533.206.140 K533.206.160	G6 ø14 G6 ø19 G6 ø24 G6 ø28	KG6.014 KG6.019 KG6.024 KG6.028
RS-RT 85	FM 85	IEC80 IEC90 IEC100/112	K534.206.200 K534.206.200 K534.206.250	K534.206.120 K534.206.140 K534.206.160	G6 ø19 G6 ø24 G6 ø28	KG6.019 KG6.024 KG6.028
RS-RT 110	FM 110	IEC90 IEC100/112 IEC132	K535.206.200 K535.206.250 K535.206.300	NA K535.206.160 K535.206.200	G6 ø24 G6 ø28 ø38 (#)	KG6.024 KG6.028 NA
RS 130	FM 130	IEC100/112 IEC 132	K536.206.250 K537.206.300	NA K536.206.200	ø28 (#) ø38 (#)	NA
RS 150	FM 150	IEC100/112 IEC 132 IEC 160	K536.206.250 K537.206.300 K537.206.350	K536.206.200 K536.206.250 NA	ø28 (#) ø38 (#) ø42 (#)	NA
XA 63	FM 40	IEC56 IEC63	K531.206.120 K531.206.140	K531.206.080 K531.206.090	ø9 (#) ø11 (#)	NA
XA 71	FM 50	IEC71	K532.206.160	K532.206.105	ø14 (#)	NA
XA 80	FM 70	IEC80 IEC90	K533.206.200 K533.206.200	K533.206.120 K533.206.140	ø19 (#) ø24 (#)	NA
XA 100	FM 85	IEC80 IEC90 IEC100/112	K534.206.200 K534.206.200 K534.206.250	K534.206.120 K534.206.140 K534.206.160	G6 ø19 G6 ø24 G6 ø28	KG6.019 KG6.024 KG6.028



# - Vite con foro e chiave  
NA - Non disponibile

# - Bored and keyed wormshaft  
NA - Not available

# - Schneckenwelle mit Keil / Keil-Nut  
NA - Nicht verfügbar



# RS-RT

## NEMA - Flange e Giunto - Flanges & Coupling - Flansche u. Kupplung [inches]

Tipo Riduttore Gearbox Type Getriebetyp	Tipo Flangia Flange Type Flanschtyp	NEMA	Codice Kit Flangia Flange Kit Part No. Flansch Kit Teil Nr.	Giunto - Coupling - Kupplung	
				Tipo - Type - Typ	Kit Part No.
RS-RT 28	FM 28	42 C 48C	K530.207.N48 K530.207.N48	G3 $\phi$ 3/8" G3 $\phi$ 1/2"	KG3.N042 KG3.N048
RS-RT 40	FM 40	42 C 48 C 56 C	K531.227.N48 K531.227.N48 K531.227.N56	G3 $\phi$ 3/8" G3 $\phi$ 1/2" G3 $\phi$ 5/8"	KG3.N042 KG3.N048 KG3.N056
RS-RT 50	FM 50	56 C	K532.227.N56	G5 $\phi$ 5/8"	KG5.N056
RS-RT 60	FM 60	56 C 140 TC	K539.227.N56 K539.227.N56	G5 $\phi$ 5/8" G5 $\phi$ 7/8"	KG5.N056 KG5.N140
RS-RT 70	FM 70	56 C 140 TC 180 TC	K533.227.N56 K533.227.N56 K533.227.N180	G6 $\phi$ 5/8" G6 $\phi$ 7/8" G6 $\phi$ 1-1/8"	KG6.N056 KG6.N140 KG6.N180
RS-RT 85	FM 85	56 C 140 TC 180 TC	K534.227.N56 K534.227.N56 K534.227.N180	G6 $\phi$ 5/8" G6 $\phi$ 7/8" G6 $\phi$ 1-1/8"	KG6.N056 KG6.N140 KG6.N180
RS-RT 110	FM 110	56 C 140 TC 180 TC	K535.227.N56 K535.227.N56 K535.227.N180	G6 $\phi$ 5/8" G6 $\phi$ 7/8" G6 $\phi$ 1-1/8"	KG6.N056 KG6.N140 KG6.N180
RS 130	FM 130	56 C 140 TC 180 TC	K536.227.N56 K536.227.N56 K536.227.N180	$\phi$ 28 (#) [mm] $\phi$ 38 (#) [mm]	NA
RS 150	FM 130	56 C 140 TC 180 TC 210 TC	K537.227.N56 K537.227.N56 K537.227.N180 K537.227.N180	$\phi$ 28 (#) [mm] $\phi$ 38 (#) [mm] $\phi$ 42 (#) [mm]	NA
XA 63	FM 40	IEC56 (*) IEC63 (*)	K531.206.120 K531.206.140	$\phi$ 9 (#) [mm] $\phi$ 11 (#) [mm]	NA
XA 71	FM 50	IEC71 (*)	K532.206.160	$\phi$ 14 (#) [mm]	NA
XA 80	FM 70	IEC80 (*) IEC90 (*)	K533.206.200 K533.206.200	$\phi$ 19 (#) [mm] $\phi$ 24 (#) [mm]	NA
XA 100	FM 85	56 C 140 TC 180 TC	K334.227.N056 K334.227.N056 K334.227.N180	G6 $\phi$ 5/8" G6 $\phi$ 7/8" G6 $\phi$ 1-1/8"	KG6.N056 KG6.N140 KG6.N180



# - Vite IEC con foro e chiavetta  
\* - Entrata solo IEC  
NA - Non disponibile

# - IEC bred and keyed wormshaft  
\* - IEC input only  
NA - Not available

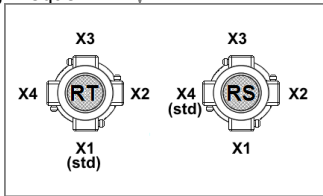
# - IEC-Schneckenwelle mit Keil / Keil-Nut  
\* - Nur IEC-Eingang  
NA - Nicht verfügar

# RS-RT

## Designazione - Designation - Bezeichnung

Designazione del riduttore				Designation of the gearbox				Bezeichnung des Getriebes	
<b>F</b>	<b>RT</b>	<b>-G</b> ---	<b>[../]</b>	<b>40</b>	<b>B3</b>	<b>28</b>	<b>IEC71</b>	<b>B14</b>	<b>(OPS, OPP)</b>
<p>OPS = Opzioni standard pag. 48 e 56 - Standard options at pages 48 and 56 - Standard Optionen Seite 48 u. 56            OPP = Opzioni a piè pagina - Options at the foot of the page - Optionen siehe Seitenende</p> <p>Forma motore - Motor form - Motorbauform            Grandezza del motore elettrico - Electric motor frame - Motorbaugröße            Rapporto di riduzione - Reduction ratio - Untersetzungsverhältnis            Forma costruttiva del riduttore - Gearbox form - Bauform des Getriebes            Grandezza riduttore - Gearbox size - Baugröße des Getriebes            63/, 71/, 80/ (FXA) = Grandezza precoppia - Helical stage size - Baugröße Vorstufe            28/, 40/, 50/ (FRS / FRT) = Grandezza 1° riduttore - 1st gearbox size - Baugröße 1. Getriebe</p> <p>G = Entrata con giunto G - Input with G coupling - Eingang mit G-Kupplung            --- = Entrata con foro &amp; chiavetta - Input with key &amp; keyway - Eingang mit Bohrung u. Keil</p> <p>RS, RT, RA, TA, RS/RS, RT/RT = Tipo riduttore - Gearbox type - Getriebetyp</p>									
M = Motoriduttore	- Geared motor	- Getriebemotor							
F = Riduttore con flangia entrata	- Gearbox with input flange	- Getriebe mit Eingangsflansch							
S = Riduttore senza flangia entrata	- Gearbox without input flange	- Getriebe ohne Eingangsflansch							
... = (nulla) Riduttore con albero entrata sporgente	- (nothing) Gearbox with input free shaft	- (Nichts) mit freie Eingangswelle							

Designazione del motore				Designation of the motor				Bezeichnung des Motors	
<b>MT</b>	<b>0.37 kW</b>	<b>71 B</b>	<b>4</b>	<b>B14</b>	<b>230/400/50</b>	<b>IP55</b>	<b>F</b>	<b>X4</b>	
<p>Posizione della morsettiere - Terminal box position - Klemmkastenposition            Classe isolamento - Insulation class - Isolationsklasse            Grado di protezione - Protection class - Schutzart            Tensione / Frequenza - Voltage/frequency - Spannung/Frequenz            Forma costruttiva - Mounting form - Bauform            Numero poli - Number of poles - Polzahl            Grandezza IEC del motore - IEC motor frame - IEC-Motorbaugröße            Potenza del motore - Motor power - Motorleistung</p>									
MT = Motore trifase	- Three-phase motor	- Dreiphasenmotor							
MM = Motore monofase	- Single-phase motor	- Einphasenmotor							
MA = Motore autofrenante	- Brake motor	- Bremsmotor							



Opzioni	OPP Options	Optionen
L'allestimento standard, ove non diversamente richiesto, è montato sul lato destro visto dall'entrata. ACØ - Albero cavo non std ø.. CS - Cuscinetti uscita non std F, FL - Flangia uscita aggiuntiva GRM - Gioco ridotto montaggio LNS - Lubrificazione non std VB - Vite bisporgente	Standard fitting side is the right side of the gearbox when seen from the input side, unless otherwise requested. ACØ - Non-standard hollow shaft ø.. CS - Heavy duty output bearings F, FL - Additional output flange GRM - Reduced end play LNS - Non- standard lubrication VB - NDE wormshaft extension	Die Standardausführung, wenn nicht gesondert angefragt, wird auf die rechte Seite, vom Eingang her betrachtet, montiert. ACØ - Sonderhohlwelle ø.. CS - Sonderlager Ausgang F, FL - zusätzlicher FL Ausgangsflansch GRM - spielarme Montage LNS - Sonderschmierung VB - Schneckenwelle beidseitig



<p><b>Modularità e la flessibilità</b> hanno guidato il progetto dei prodotti VARVEL fino dagli anni 2000: così, la disponibilità di riduttori in kit ha permesso il montaggio in pochi minuti utilizzando una normale attrezzatura. Questo permette la massima flessibilità ai distributori e rivenditori VARVEL che, grazie ad un numero limitato di elementi, possono configurare all'istante il prodotto richiesto dai clienti. Il programma di selezione <b>VARsize</b><sup>®</sup> disponibile nel sito web <a href="http://www.varvel.com">www.varvel.com</a> permette un facile dimensionamento dei prodotti VARVEL.</p> <p><b>Disegni 2D/3D</b> Tramite configurazione assistita si generano modelli 3D e disegni 2D nei formati CAD più diffusi.</p> <p><b>Configurazione assistita</b> Identifica, fra tutte le serie, i riduttori che sono adeguati per soddisfare i parametri di funzionamento richiesti (potenza, coppia, velocità, fattore di servizio, ecc.). Definita la grandezza del riduttore, un documento è generato dai dati della richiesta, così come il disegno dimensionale PDF, il modello 3D e il disegno 2D.</p>	<p><b>Modularity and flexibility</b> have been leading the design of VARVEL products since the years 2000: this way, the gearbox-kit concept was carried out allowing everyone to assemble the unit in a few minutes with standard tooling. This feature provides the highest flexibility to VARVEL's distributors and resellers who - thanks to a limited kit selection - are able to immediately configure the required product. <b>VARsize</b><sup>®</sup> selection program, available from our web-site <a href="http://www.varvel.com">www.varvel.com</a> allows a friendly sizing of VARVEL product range.</p> <p><b>2D/3D Drawings</b> A guided selection lets 2D/3D models downloaded for the most popular CAD systems.</p> <p><b>Guided selection</b> This option returns a list of appropriate product configurations upon a given sequence of application parameters (power, output torque, rpm, service factor etc.); a PDF data sheet featuring performance data and dimensional drawings are generated for each configuration, as well as the 3D model and 2D drawings.</p>	<p><b>Bausteinprinzip und Flexibilität</b> Sie bestimmen seit den 2000er Jahren das Design von VARVEL-Produkten. Die Verfügbarkeit von Getrieben in Kit Form ermöglichte daher die Montage mit einfachem Werkzeug in nur wenigen Minuten. Dies ermöglicht VARVEL-Händlern und Wiederverkäufern maximale Flexibilität, die Dank einer begrenzten Anzahl von Elementen das vom Kunden gewünschte Produkt sofort konfigurieren können. Das <b>VARsize</b><sup>®</sup>-Auswahlprogramm finden Sie auf der Website <a href="http://www.varvel.com">www.varvel.com</a> ermöglicht die einfache Dimensionierung von VARVEL-Produkten .</p> <p><b>2D/3D-Zeichnungen</b> Die unterstützte Auswahl bietet die Möglichkeit 2D/3D Modelle für die gängigen CAD Systeme zu laden.</p> <p><b>Unterstützte Auswahl</b> Mit diesem Dienst wird eine Liste möglicher Produktvarianten erzeugt, bestimmt durch Parameter (Leistung, Moment, Drehzahl, Betriebsfaktor usw.); ein PDF Datenblatt mit Leistungsdaten und Maßbild ist für jede dieser Konfigurationen verfügbar, ebenso wie 3D Modelle und 2D Zeichnungen.</p>
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Tappi di sfiato	Breather plugs	Entlüftungsventile
<p>L'installazione del tappo di sfiato è raccomandato quando la pressione interna supera i valori di 0.25-0.3 bar per evitare possibili fuoriuscite di lubrificante dai paraolio. L'aumento della pressione interna è originata dalla variazione del volume del lubrificante causato dall'aumento della temperatura a fronte di condizioni</p> <ul style="list-style-type: none"> <li>esterne (posizione di lavoro inclinata, ambiente maggiore di 35 °C), o</li> <li>interne (velocità di ingresso maggiore di 2000 rpm, frequenti avviamenti, servizio continuo oltre a 8 ore al giorno).</li> </ul> <p>La taratura standard dello sfiato è 0.25-0.3 bar. Altre tarature su richiesta. Richiedere la fattibilità dell'installazione del tappo di sfiato in quanto non tutte le taglie dei riduttori lo permettono.</p>	<p>Vent plug installation is recommended to avoid possible leakage of lubricant from the oil sea when internal pressure exceeds 0.25-0.3 bar . Internal pressure increase is caused by the lubricant volume variation due to temperature increase by</p> <ul style="list-style-type: none"> <li>external conditions (sloped working position, environment over 35°C), or</li> <li>internal conditions (input speed over 2000 rpm; frequent start/stops, continuous service over 8 hours a day).</li> </ul> <p>Vent plug standard calibration is 0.25-0.3 bar. Other calibrations on demand. Ask for vent plug installation feasibility as not all the sizes allow it.</p>	<p>Die Installation des Entlüftungsventil wird empfohlen, wenn der Innendruck 0.25-0.3 bar übersteigt, um ein Auslaufen von Schmiermitteln aus den Dichtungen zu vermeiden. Die Erhöhung des Innendrucks ergibt sich aus der Veränderung des Schmiervolumens verursacht unter bestimmten Temperatur Bedingungen, rein indikativ, wie</p> <ul style="list-style-type: none"> <li>äußerer Bedingungen (gekippte Arbeitsposition, Umgebung mehr als 35 °C), oder</li> <li>inneren Bedingungen (Eingangsgeschwindigkeit mehr als 2000 UpM, häufige Start ups, durchgehender Dienst mehr als 8 Stunden pro Tag).</li> </ul> <p>Die Standardkalibrierung der Entlüftung beträgt 0,25-0,3 bar. Andere Kalibrierungen auf Anfrage. Bitte fragen Sie nach der Durchführbarkeit des Entlüftungsventil, da dies nicht alle Getrieben erlauben.</p>

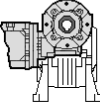
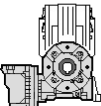
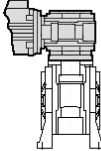
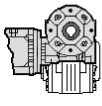
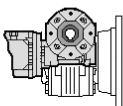
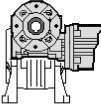
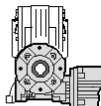
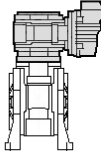
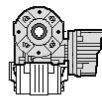
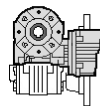
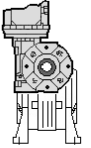
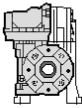
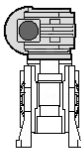
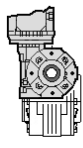
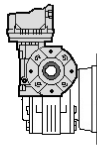
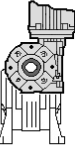
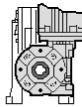
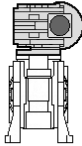
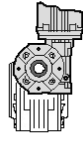
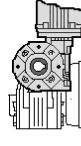
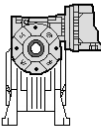
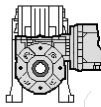
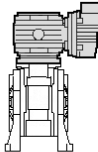
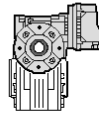
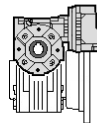
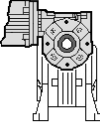
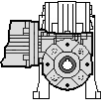
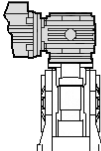
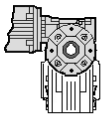
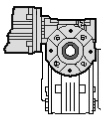
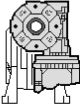
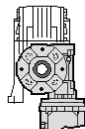
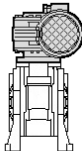
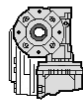
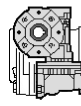
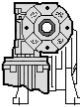
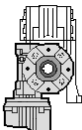
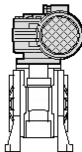
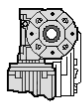
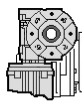
**Posizioni di montaggio - Mounting positions - Einbaulagen**

**RS-RT**

RS - RA - RS/RS Gearbox fixing							
Fissaggio riduttore					Befestigung des Getriebes		
S - SA	I - IA	D - DA		PC - PA - PB	FL - FA - FB - FR		
 (std)	 (std)	 (std)	<b>B3</b>	 (std)	 (std)	 B5i	<b>B5</b>
			<b>V5</b>			 B5ai	<b>B5a</b>
			<b>B8</b>			 B5bi	<b>B5b</b>
			<b>V6</b>			 B5ci	<b>B5c</b>
			<b>B6</b>			 V1i	<b>V1</b>
			<b>B7</b>			 V3i	<b>V3</b>
<b>RA</b>							
Posizione precoppia		Helical stage position		Position der Vorstufe			
10	11	12	13				
 (std)							

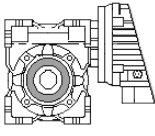
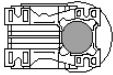
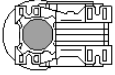
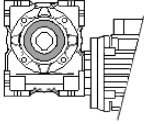
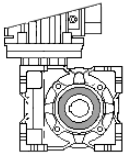
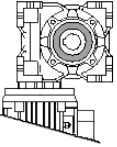
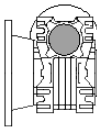
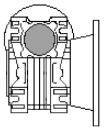
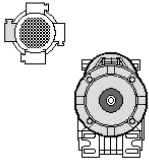
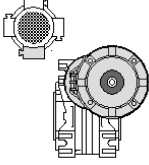
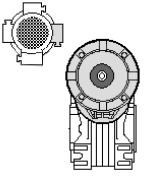
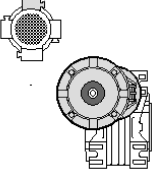
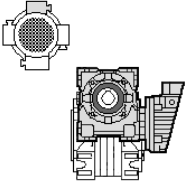
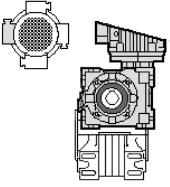
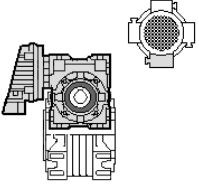
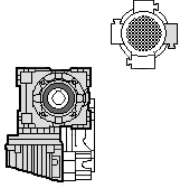
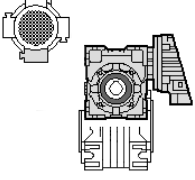
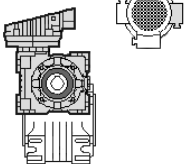
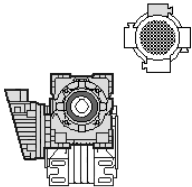
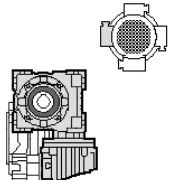


**Posizioni di montaggio - Mounting positions - Einbaulagen**

	<b>RS/RS</b>				
	Posizione primo riduttore	First gearbox position			Position des ersten Getriebes
	<b>S - SA</b>	<b>I - IA</b>	<b>D - DA</b>	<b>PC - PA - PB</b>	<b>FL - FA - FB - FR</b>
<b>11</b>					
<b>12</b>					
<b>13</b>					
<b>14</b>					
<b>15</b>					
<b>16</b>					
<b>17</b>					
<b>18</b>					

**Posizioni di montaggio - Mounting positions - Einbaulagen**

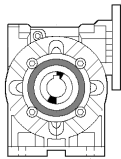
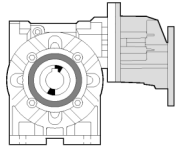
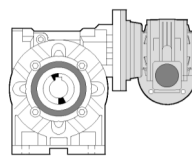
**RS-RT**

Fissaggio riduttore		RT - TA - RT/RT Gearbox fixing		Befestigung des Getriebes	
<b>B3</b>	<b>B6</b>	<b>B7</b>	<b>B8</b>		
 (std)					
<b>V5</b>	<b>V6</b>	<b>F</b>	<b>Fi</b>		
	 (std)	 (std)			
Posizione precoppia		TA Helical stage position		Position der Vorstufe	
<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>		
 (std)					
Posizione primo riduttore		RT/RT First gearbox position		Position des ersten Getriebes	
<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>		
 (std)					
<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>		
					



# RS-RT

## Pesi e Lubrificanti - Weights & Lubricants - Gewichte u. Schmiermittel

singolo stadio				RS - RT single stage worm		Einstufig					
Tipo -Type - Typ	FRS - FRT kg	FRS - FRT l									
28	1.1	0.03									
40	2.5	0.08									
50	3.8	0.13									
60	6.5	0.25									
70	9.0	0.35									
85	13.5	0.60									
110	39.0	1.50									
RS130	50.0	2.75									
RS150	80.0	4.40									
								FRS-FRT l - olio riduttore a lunga durata ISO VG320 [litri] gearbox ISO VG 320 long-life oil [litres] Langlebiges synthetisches Ölmenge des Getriebes [Liter]			
con precoppia cilindrica				RA - TA helical worm		mit Stirnradvorstufe					
Tipo -Type - Typ	FRA - FTA kg	FXA l <sub>1</sub>	FRS - FRT l <sub>2</sub>								
63 / 40	4.0	0.04	0.08								
63 / 50	5.3	0.04	0.13								
63 / 60	8.0	0.04	0.25								
71 / 50	6.6	0.05	0.13								
71 / 60	9.3	0.05	0.25								
71 / 70	11.8	0.05	0.35								
71 / 85	16.3	0.05	0.60								
80 / 60	10.5	0.10	0.25								
80 / 70	13.0	0.10	0.35								
80 / 85	17.5	0.10	0.60								
80 / 110	43.0	0.10	1.50								
100 / 110	46.0	0.20	1.50								
RA100 / 130	64.0	0.20	2.75								
RS100 / 150	94.0	0.20	4.40								
			FXA l <sub>1</sub> - olio 1° riduttore a lunga durata ISO VG320 [litri] 1st gearbox ISO VG 320 long-life oil [litres] Langlebiges synthetisches Ölmenge des 1. Getriebes [Liter]								
			FRS-FRT l <sub>2</sub> - olio 2° riduttore a lunga durata ISO VG320 [litri] 2nd gearbox ISO VG 320 long-life oil [litres] Langlebiges synthetisches Ölmenge des 2. Getriebes [Liter]								
doppio stadio				RS/RS - RT/RT two stage worm		Doppelstufig					
Tipo -Type - Typ	FRS/RS FRT/RT kg	FRS FRT l <sub>1</sub>	RS RT l <sub>2</sub>								
28 / 28	2.5	0.03	0.03								
28 / 40	3.9	0.03	0.08								
28 / 50	5.2	0.03	0.13								
28 / 60	7.9	0.03	0.25								
40 / 70	12.0	0.08	0.35								
40 / 85	16.5	0.08	0.60								
50 / 110	45.0	0.13	1.50								
RS60 / 130	57.0	0.23	2.75								
RS70 / 150	90.0	0.35	4.40								
			FRS/RS - FRT/RT l <sub>1</sub> - olio 1° riduttore a lunga durata ISO VG320 [litri] 1st gearbox ISO VG 320 long-life oil [litres] Langlebiges synthetisches Ölmenge des 1. Getriebes [Liter]								
			l <sub>2</sub> - olio 2° riduttore a lunga durata ISO VG320 [litri] 2nd gearbox ISO VG 320 long-life oil [litres] Langlebiges synthetisches Ölmenge des 2. Getriebes [Liter]								



## Fattori di servizio - Service factors - Betriebsfaktoren

# RS-RT

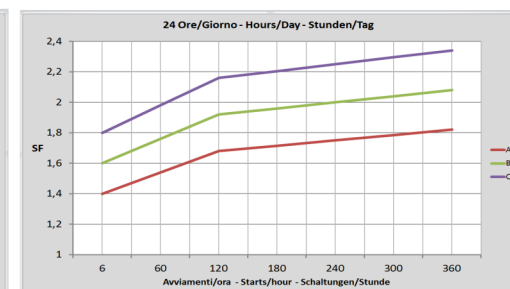
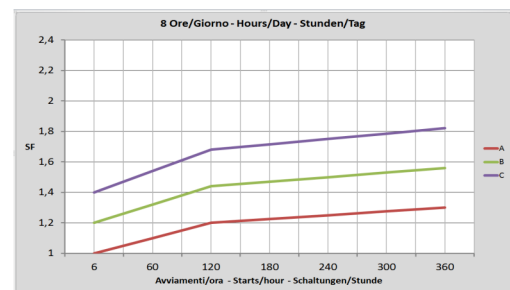
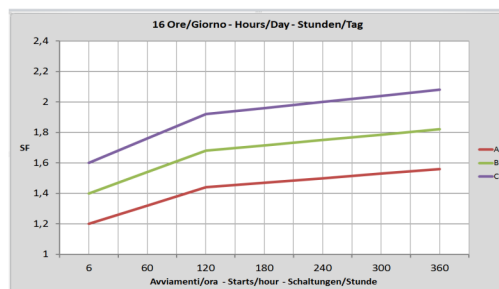
Fattore di utilizzo del riduttore	Duty Factor of the gearbox	Ausnutzungsfaktor des Getriebes
<p>Il <b>Fattore di utilizzo</b> è determinato dal rapporto fra la coppia massima di uscita <math>M_2</math> del riduttore e la coppia richiesta dalla applicazione <math>M_{(app)}</math> che deve essere uguale o superiore al fattore SF o <math>k_a</math> qui definiti.</p> <p>Il <b>Fattore di servizio</b> [SF1.0] è inteso come rappresentativo di un funzionamento di 8 ore al giorno, con carico uniforme, avviamenti inferiori a 6 all'ora e temperatura ambiente fra 15 e 35 °C.</p> <p>Per altre condizioni di servizio, selezionare SF secondo le tabelle SF<sub>1</sub> e SF<sub>2</sub> qui sotto.</p> <p>Il <b>Fattore di accelerazione delle masse</b> [<math>k_a \leq 0.2</math>] è inteso come rappresentativo di un funzionamento di 8 ore al giorno per Classe di carico A.</p> <p>Per altre condizioni di lavoro, selezionare <math>k_a</math> secondo i grafici seguenti.</p> <p>Per temperatura massima ambiente maggiore di 35°C oppure minore di 0°C interpellare il Servizio Clienti.</p>	<p><b>Duty factor</b> is defined as the ratio between gearbox maximum output torque <math>M_2</math> and application torque <math>M_{(app)}</math> that must be equal or bigger than SF or <math>k_a</math> factor here defined.</p> <p><b>Service factor</b> [SF1.0] is meant as typical operation of 8 hours/day, with uniform load, starts/ stops lower than 6 per hour and ambient temperature between 15 and 35 Celsius.</p> <p>For other operation conditions, select SF according to tables SF<sub>1</sub> and SF<sub>2</sub> below.</p> <p><b>Mass acceleration factor</b> [<math>k_a \leq 0.2</math>] is meant as 8 hours/day typical operation for Load class A.</p> <p>For other working conditions, select <math>k_a</math> from the graphs below as appropriate.</p> <p>For max. ambient temperature exceeding 35°C or below 0°C, please ask Customer Service.</p>	<p>Der <b>Ausnutzungsfaktor</b> wird definiert als das Verhältnis zwischen dem Drehmoment des Getriebes <math>M_2</math> und dem erfragtem Drehmoment der Anwendung <math>M_{(app)}</math>, der gleich oder größer als der hier definierte Faktor SF oder <math>k_{(a)}</math> - sein muss.</p> <p>Der <b>Servicefaktor</b> [SF1.0] gilt als repräsentativ für eine 8-stündiger Betrieb, mit gleichförmiger Last, bis zu 6 Schaltungen je Stunde und Umgebungstemperaturen zwischen 15° und 35 °C.</p> <p>Für andere Arbeitsbedingungen bitte SF gemäß den Tabellen SF<sub>1</sub> und SF<sub>2</sub> wählen.</p> <p>Der <b>Massenbeschleunigungs Faktor</b> [<math>k_{(a)} \leq 0.2</math>] gilt als repräsentativ für eine 8-stündiger Betrieb für A-Belastungsklasse.</p> <p>Für andere Arbeitsbedingungen bitte <math>k_a</math> gemäß den Grafiken wählen.</p> <p>Für max. Umgebungstemperatur über 35°C oder unter 0°C, fragen Sie bitte unseren Kundenservice.</p>

Fattore di servizio SF				Service factor SF		Betriebsfaktor SF	
Tipo di carico SF <sub>1</sub> Charge type SF <sub>1</sub> Belastung-Typ SF <sub>1</sub>				Avviamenti / Ora SF <sub>2</sub> Start-Stops per hour SF <sub>2</sub> Schaltungen pro Stunde SF <sub>2</sub>		SF = SF <sub>1</sub> x SF <sub>2</sub>	
ore hours Stunden	uniforme uniform gleichmäßige	variabile uniform variabel	a urti with shocks mit Stöße	numero number Anzahl	Fattore Factor Faktor		
8	1.0	1.2	1.4	6	1.0		
16	1.2	1.4	1.6	60	1.1		
24	1.4	1.6	1.8	120	1.2		

Fattore di accelerazione delle masse - $k_a$		Acceleration factor of masses - $k_a$		Beschleunigungsfaktor der Massen - $k_a$	
	$k_a$	Tipo di carico	Load type	Last-Typ	
A	$k_a \leq 0.2$	uniforme	uniform	gleichförmige	
B	$0.2 < k_a \leq 3$	con urti moderati	moderate shocks	ungleichförmige	
C	$3 < k_a \leq 10$	con forti urti	severe shocks	stark ungleichförmige	

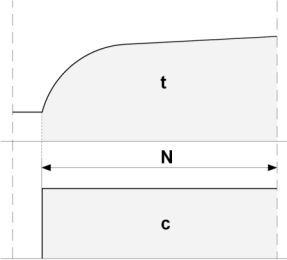
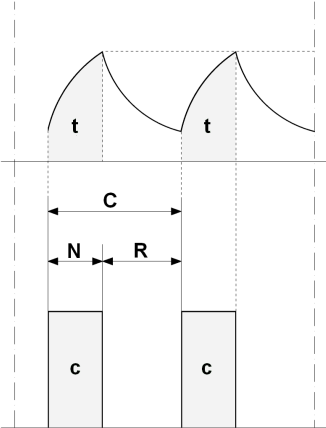
A, B, C - Classe di carico - Load class - Belastungsklassen

$$k_a = \frac{J_2}{J_m} + \frac{J_1}{J_m}$$





**Tipi di servizio - Service types - Betriebstypen**

Tipo di servizio del motore	Duty type of the motor	Betriebsarten des Motors
<p>Le specifiche dei tipi di servizi sono definiti dalle norme CEI EN 60034-1 / IEC34-1.</p> <p><b>S1 - Servizio continuo</b>            Funzionamento a carico costante (c) per un periodo di tempo indefinito (N), comunque sufficiente a raggiungere l'equilibrio termico (t).            In servizio continuo, possono essere utilizzati i riduttori che nelle tabelle di selezione hanno un fattore di servizio SF1.0 o superiore.</p>	<p>Duty types are defined by CEI EN 60034-1 / IEC34-1 Standard.</p> <p><b>S1 - Continuous duty</b>            Steady load (c) operation for an indefinite period (N), but long enough to achieve thermal balancing (t).            On continuous duty, the gearboxes with service factor of selection tables SF1.0 or higher can be accordingly used.</p>	<p>Die Betriebsarten sind definiert in den Normen CEI EN 60034-1 / IEC34-1.</p> <p><b>S1 - Dauerbetrieb</b>            Betrieb mit konstanter Belastung (c) über eine unbestimmte Zeit (N), ohne dass der thermische Beharrungszustand (t) der Maschine beeinträchtigt wird.            Im Dauerbetrieb können Getriebe eingesetzt werden, die in den Auswahltabellen einen Betriebsfaktor SF1.0 oder höher aufweisen.</p>
<p><b>S3 - Servizio intermittente periodico</b>            Funzionamento secondo un ciclo (C) comprendente un periodo di tempo a carico costante (N) ed un periodo di tempo di riposo (R). Gli avviamenti non influiscono sulle temperature (t). Il ciclo (C) di riferimento è di 10 minuti complessivi.            In servizio intermittente periodico, possono essere utilizzati i riduttori che nelle tabelle di selezione hanno un fattore di servizio SF pari al rapporto di intermittenza (<math>k_{S3}</math>) o superiore.            Il rapporto di intermittenza viene determinato secondo la formula seguente.</p>	<p><b>S3 - Periodic intermittent duty</b>            Operation according to cycle (C) including steady load time (N) and rest time (R).            Starts/stops do not affect temperature (t). Reference cycle (C) is 10 minutes overall.            On periodic intermittent duty, the gearboxes with service factor of selection tables SF matching the intermittence ratio service factor (<math>k_{S3}</math>) or higher can be accordingly used.            Intermittence ratio is calculated according the following formula.</p>	<p><b>S3 - Aussetzbetriebe</b>            Betrieb als Folge (C) gleichartiger Spiele mit konstanter Last während der Zeit (N) und einer folgenden Pause (R). Starten/Anhalten beeinflussen nicht die Temperatur. Für die Zyklusdauer (C) gilt eine Zeit von 10 Minuten.            Im periodischen Intervallbetrieb können Getriebe verwendet werden, die in den Auswahltabellen einen Betriebsfaktor von SF haben, der gleich dem Intermittenzverhältnis (<math>k_{S3}</math>) ist. Die Intermittenzübersetzung wird nach die folgende Formel bestimmt.</p>
<p><math display="block">\frac{N}{(N+R)} * 100 = \begin{matrix} 60\% &amp; k_{S3} \mathbf{0.9} \\ 40\% &amp; k_{S3} \mathbf{0.85} \\ 25\% &amp; k_{S3} \mathbf{0.75} \\ 15\% &amp; k_{S3} \mathbf{0.7} \end{matrix}</math></p> <p>c = Carico Load Belastung</p> <p>C = Ciclo di lavoro Duty cycle Zyklusdauer</p> <p>N = Tempo di lavoro Operation time Betriebszeit</p> <p>R = Tempo di riposo Rest time Pause</p> <p>t = Temperatura Temperature Temperatur</p>		

## Carichi esterni - External Loads - Außere Kräfte

## RS-RT

Carichi Radiali di uscita	Output Radial loads (OHL)	Ausgangsradialbelastungen																												
<p>Il carico radiale riportato nelle tabelle, deve essere verificato in base alla velocità di uscita, alla posizione di montaggio (A) e al tipo di elemento di trasmissione (B) montato sull'albero di uscita del riduttore tramite i relativi fattori <math>k_L</math> e <math>k_T</math>. Il carico radiale <math>F_{r2}</math> del riduttore deve essere uguale o maggiore al carico radiale <math>F_r</math> dell'applicazione.</p> <p style="text-align: center;">- A -</p> <p><b>Punto di applicazione del carico radiale</b> Il carico radiale è considerato applicato alla mezzzeria dell'albero di uscita. Altre posizioni originano carichi da correggere con l'appropriato fattore <math>k_L</math>. Esempi della distanza da spallamento dell'albero:</p>	<p>The radial (overhung) load shown in the tables, should be checked according to output speed, mounting position (A), type of the transmission element (B) fitted on the gearbox output shaft and rectified by the appropriate <math>k_L</math> and <math>k_T</math> rating factors. Gearbox radial load <math>F_{r2}</math> must be equal or greater than application radial load <math>F_r</math>.</p> <p style="text-align: center;">- A -</p> <p><b>Application point of radial load</b> OHL is considered as applied at the output shaft mid-point. Other positions origin loads to be adjusted by the appropriate factor <math>k_L</math>. Examples of the distance from the shaft shoulder:</p>	<p>Die Radialbelastung in den Tabellen müssen mit entsprechender Abtriebsdrehzahl, der Montageposition (A) und dem Übertragungselement (B) montiert auf der Getriebe-Ausgangswelle durch entsprechendem Faktoren <math>k_L</math> und <math>k_T</math> verglichen werden; die Radialbelastung des Getriebes <math>F_{r2}</math> muss gleich oder größer als die Radialbelastung der Anwendung <math>F_r</math> sein.</p> <p style="text-align: center;">- A -</p> <p><b>Anwendung Punkt der Radialbelastung</b> Die Radialbelastung wird auf der Mitte der Ausgangswelle angelegt. Andere Positionen erzeugen Lasten, die mit dem entsprechendem Faktor <math>k_L</math> zu korrigieren sind. Beispiele für den Abstand der Stufenwelle:</p>																												
- A -	- A -	- A -																												
- B -	- B -	- B -																												
Elemento della trasmissione	Transmission element	Übertragungselement																												
<table border="1"> <thead> <tr> <th><math>k_L</math></th> <th>L</th> </tr> </thead> <tbody> <tr> <td>1.1</td> <td><math>1/4 * L</math></td> </tr> <tr> <td>1.0</td> <td><math>1/2 * L</math></td> </tr> <tr> <td>0.9</td> <td><math>3/4 * L</math></td> </tr> <tr> <td>0.8</td> <td>L</td> </tr> </tbody> </table>	$k_L$	L	1.1	$1/4 * L$	1.0	$1/2 * L$	0.9	$3/4 * L$	0.8	L																				
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<table border="1"> <thead> <tr> <th><math>k_T</math></th> <th>Tipo dell'elemento</th> <th>Element type</th> <th>Elementtyp</th> </tr> </thead> <tbody> <tr> <td>1,15</td> <td>Ingranaggio n. denti &lt; 17</td> <td>Gear tooth No. &lt; 17</td> <td>Zahnrad Zähnezahl &lt; 17</td> </tr> <tr> <td>1,40</td> <td>Pignone catena n. denti &lt; 13</td> <td>Chain sprocket tooth No. &lt; 13</td> <td>Kettenrad Zähnezahl &lt; 13</td> </tr> <tr> <td>1,25</td> <td>n. denti &lt; 20</td> <td>tooth No. &lt; 20</td> <td>Zähnezahl &lt; 20</td> </tr> <tr> <td>1,00</td> <td>n. denti &gt; 20</td> <td>tooth No. &gt; 20</td> <td>Zähnezahl &gt; 20</td> </tr> <tr> <td>2,50</td> <td>Puleggia per cinghie "V"</td> <td>Pulley for V-belt</td> <td>Riemen für Keilriemen "V"</td> </tr> <tr> <td>1,25</td> <td>cinghie dentate</td> <td>toothed-belt</td> <td>Zahnriemen</td> </tr> </tbody> </table>	$k_T$	Tipo dell'elemento	Element type	Elementtyp	1,15	Ingranaggio n. denti < 17	Gear tooth No. < 17	Zahnrad Zähnezahl < 17	1,40	Pignone catena n. denti < 13	Chain sprocket tooth No. < 13	Kettenrad Zähnezahl < 13	1,25	n. denti < 20	tooth No. < 20	Zähnezahl < 20	1,00	n. denti > 20	tooth No. > 20	Zähnezahl > 20	2,50	Puleggia per cinghie "V"	Pulley for V-belt	Riemen für Keilriemen "V"	1,25	cinghie dentate	toothed-belt	Zahnriemen		
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<p><b>Carico radiale - Radial (overhung) load - Radialbelastung</b></p> <p><math>F_{r2} = (2000 \times M_2) : D \times k_L \times k_T</math>  <math>F_{r2} \geq F_r</math>  dove  <math>F_r</math> = Carico radiale dell'applicazione  <math>F_{r2}</math> = Carico radiale del riduttore  <math>M_2</math> = Coppia di uscita del riduttore</p>			<p>where  <math>F_r</math> = Radial load of application  <math>F_{r2}</math> = Radial load of gearbox  <math>M_2</math> = Output torque of gearbox</p>	<p>wo  <math>F_r</math> = Radial Belastung der Anwendung-  <math>F_{r2}</math> = Radial Belastung des Getriebes  <math>M_2</math> = Ausgangsdrehmoment des Getriebes</p>																										
Carichi Assiali di uscita	Output Axial loads	Ausgangsaxialbelastung																												
<p>Il carico assiale  <math>F_{a2} = F_{r2} \times 0.2</math>  è incluso nel valore dei carichi radiali di catalogo ed è valido sia a trazione che a compressione.</p>	<p>Axial load  <math>F_{a2} = F_{r2} \times 0.2</math>  is included within the catalogue radial load figure and is valid on both tensile and compressive stress.</p>	<p>Der Axialbelastung  <math>F_{a2} = F_{r2} \times 0.2</math>  ist in dem Wert der Radialbelastung des Kataloges enthalten und gilt sowohl in Zug und Druck.</p>																												



# RS-RT

## Carichi esterni - External loads - Außere Kräfte [daN]

Carichi radiali entrata		Input radial loads					Eingangsradialkräfte	
rpm	2800	1400	900	700	500	300		
RS-RT 28	5	7	8	9	10	12		
RS-RT 40	11	15	16	17	18	20		
RS-RT 50	15	20	22	25	28	30		
RS-RT 60	23	30	33	35	37	40		
RS-RT 70	26	35	40	44	47	50		
RS-RT 85	34	45	52	58	62	70		
RS-RT 110	57	75	80	85	92	100		
RS 130	70	100	105	110	115	120		
RS 150	90	120	125	130	140	150		

Carichi Radiali uscita		Output radial loads											Ausgangsradialkräfte		
Cuscinetti standard - Standard bearings - Standardlagerung															
i rpm	5	7	10	15	20	28	40	49	56	70	80	100	Brg No.		
	280	200	140	93	70	50	35	29	25	20	18	14			
RS-RT 28	80	80	80	90	100	100	110	120	120	130	130	130	6005		
RS-RT 40	100	100	110	120	135	150	160	170	180	190	200	230	16006		
RS-RT 50	145	125	145	170	190	200	230	240	260	280	290	320	16008		
RS-RT 60	225	240	250	290	330	360	390	430	460	500	530	560	6208*	* 6008 - per/for/für RS60	
RS-RT 70	260	270	290	360	390	420	450	520	550	590	630	670	6209		
RS-RT 85	330	330	370	440	470	540	550	630	660	710	750	830	6210		
RS-RT 110	---	390	415	520	540	590	570	750	780	800	880	980	6212		
RS 130	---	500	585	615	650	660	780	880	950	970	1050	1150	6015		
RS 150	---	650	770	830	880	900	1100	1200	1250	1300	1400	1500	6216		

Cuscinetti rinforzati - Heavy duty bearings - Verstärkter Lagerung															
i rpm	5	7	10	15	20	28	40	49	56	70	80	100	Brg No.		
	280	200	140	93	70	50	35	29	25	20	18	14			
RS-RT 28	vedi versione standard - see standard eversion - sehen Standard Ausführung														
RS-RT 40	140	150	155	165	190	210	225	240	250	260	260	260	32006		
RS-RT 50	200	175	200	240	260	300	340	360	390	420	420	420	32008		
RS-RT 60	290	300	320	370	420	480	510	570	610	660	660	660	30208		
RS-RT 70	335	330	370	450	516	560	610	690	730	790	790	790	30209		
RS-RT 85	410	420	460	550	630	720	730	840	870	940	940	940	30210		
RS-RT110	---	500	540	670	750	800	930	1050	1110	1110	1110	1110	30212		
RS 130	---	700	790	860	970	990	1170	1290	1420	1450	1450	1450	32015		
RS 150	---	900	1080	1160	1320	1350	1650	1800	1870	1950	1950	1950	30216		



**Versioni - Versions - Ausführungen****MRS, MRT**

Motoriduttori a singolo stadio, con precoppia, a doppio stadio

- Potenza: 0.06 kW a 15 kW a 4 poli
- Giri uscita: 650 rpm a 0.14 rpm

Geared motors w/single stage worm, helical/worm, double stage worm

- Powers: 0.06 kW to 15 kW, 4 poles
- Output speed: 650 rpm to 0.14 rpm

Einstufig, mit Stirnradvorstufe, Doppelstufig Getriebemotoren

- Leistung: 0.06 kW bis 15 kW, 4-polen
- Ausgangsgeschwindigkeit: 650 UpM bis 1.4 UpM

**FRS, FRT**

Riduttori con flangia motore, a singolo stadio, con precoppia, a doppio stadio, entrata cava (giunto elastico o foro/chiavetta)

- Flange motore: IEC 56 a IEC 160 e NEMA 56C a NEMA 210TC
- Coppia: 7 Nm a 3020 Nm
- Rapporti di riduzione: 5:1 a 10000:1

Gearboxes with motor flange, single stage worm, helical/worm, double stage worm, quill input (coupling or key/keyway)

- Motor flanges: IEC 56 to IEC 160 and NEMA 56C to NEMA 210TC
- Output torque: 7 Nm to 3020 Nm
- Reduction ratios: 5:1 to 10000:1

Getriebe mit Motorflansch, Einstufig, Stirnradvorstufe, Doppelstufig, Eingangshohlwelle (Kupplung oder Keil-Nut)

- Motorflansche: IEC 56 bis IEC 160 u. NEMA 56C bis NEMA 210TC
- Ausgangsdrehmoment: 7 Nm bis 3020 Nm
- Untersetzungsverhältnis: 5:1 bis 10000:1

**SRS, SRT**

Riduttori senza flangia motore di entrata, a singolo stadio, con precoppia, a doppio stadio, entrata cava (giunto elastico o foro/chiavetta)

- Coppia: 7 Nm a 3020 Nm
- Rapporti di riduzione: 5:1 a 10000:1

Gearboxes without input flange, single stage worm, helical/worm, double stage worm, quill input (coupling or key/keyway)

- Output torque: 7 Nm to 3020 Nm
- Reduction ratios: 5:1 to 10000:1

Getriebe ohne Motorflansch, Einstufig, Stirnradvorstufe, Doppelstufig, Eingangshohlwelle (Kupplung oder Keil-Nut)

- Ausgangsdrehmoment: 7 Nm bis 3020 Nm
- Untersetzungsverhältnis: 5:1 bis 10000:1

**RS, RT**

Riduttori a singolo stadio, con precoppia, a doppio stadio con albero entrata sporgente

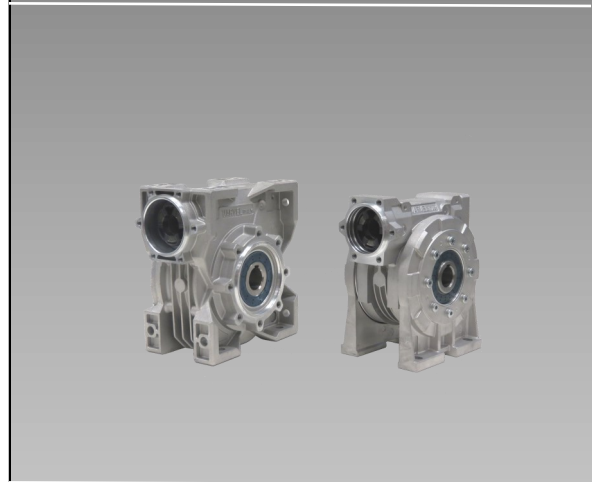
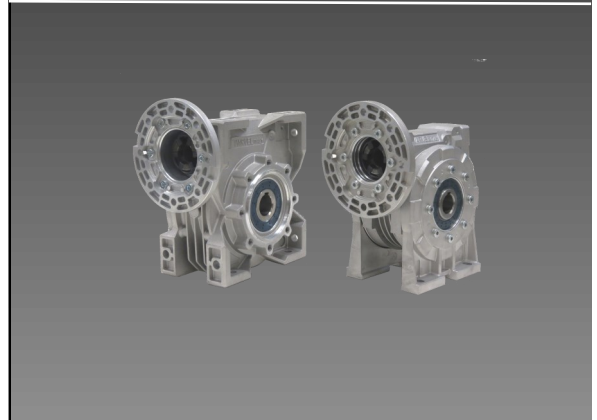
- Coppia: 7 Nm a 3020 Nm
- Rapporti di riduzione: 5:1 a 10000:1

Gearboxes w/single stage worm, helical/worm, double stage worm with input solid shaft

- Output torque: 7 Nm to 3020 Nm
- Reduction ratios: 5:1 to 10000:1

Einstufig, mit Stirnradvorstufe, Doppelstufig mit Eingangswelle

- Ausgangsdrehmoment: 7 Nm bis 3020 Nm
- Untersetzungsverhältnis: 5:1 bis 10000:1



**Selezione giunto - Coupling selection - Kupplungsauswahl**
**RS-RT**

Motori IEC		IEC motors						IEC-Motoren	
FRS FRT	28	40	50	60	70	85	110	FRS 130	FRS 150
IEC 56	G3	G3	---	---	---	---	---	---	---
IEC 63	G3	G3	G5	---	---	---	---	---	---
IEC 71	---	G3	G5	G5	G6	---	---	---	---
IEC 80	---	---	G5	G5	G6	G6	---	---	---
IEC 90	---	---	---	G5	G6	G6	G6	---	---
IEC 100	---	---	---	---	G6	G6	G6	■	■
IEC 112	---	---	---	---	---	G6	G6	■	■
IEC 132	---	---	---	---	---	---	■	■	■
IEC 160	---	---	---	---	---	---	---	---	■
<b>FXA</b>	63	71	80	100					
IEC 56	■	---	---	---					
IEC 63	■	---	---	---					
IEC 71	---	■	---	---					
IEC 80	---	---	■	G6					
IEC 90	---	---	■	G6					
IEC 100	---	---	---	G6					
IEC 112	---	---	---	G6					
Motori NEMA		NEMA motors						NEMA-Motoren	
FRS FRT	28	40	50	60	70	85	110	FRS 130	FRS 150
NEMA 42	G3	G3	---	---	---	---	---	---	---
NEMA 48	---	G3	---	---	---	---	---	---	---
NEMA 56	---	G3	G5	G5	G6	G6	G6	---	---
NEMA 140	---	---	---	G5	G6	G6	G6	■	■
NEMA 180	---	---	---	---	G6	G6	G6	■	■
NEMA 210	---	---	---	---	---	---	---	---	■
<b>FXA</b>	63	71	80	100					
NEMA 56	---	---	---	G6					
NEMA 140	---	---	---	G6					
NEMA 180	---	---	---	G6					

■ - Accoppiamento foro e chiavetta  
(solo metrico)

■ - Bore and key fitting  
(metric only)

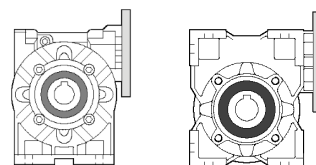
■ - Bohrung u. Keil Kupplung  
(nur metrisch)



**FRS-FRT - Flangia entrata - Input flanges - Eingangsflansch**

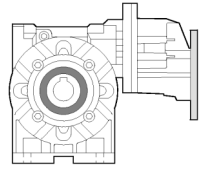
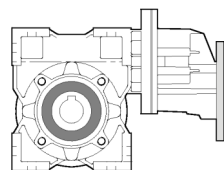
	rpm IEC	i =											
		5	7	10	15	20	28	40	49	56	70	80	100
		280	200	140	93	70	50	35	29	25	20	18	14
28	56	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②
	63	①②	①②	①②	①②	①②	①②	①②	①②	①	①	①	①
40	56	①	①	①	①	①	①	①	①	①	①	①	①
	63	①	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②
	71	①②	①②	①②	①②	①②	①②	①②	①②	①	①	①	①
50	63	①	①	①	①	①	①	①	①	①	①②	①②	①②
	71	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②
	80	①②	①②	①②	①②	①②	①②	①②	①②	①	①	①	①
60	71	①	①	①	①	①	①②	①②	①②	①②	①②	①②	①②
	80	①	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②
	90	①	①②	①②	①②	①②	①②	①②	①	①	①	①	①
70	71	①	①	①	①	①	①②	①②	①②	①②	①②	①②	①②
	80	①	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②
	90	①	①②	①②	①②	①②	①②	①②	①②	①	①	①	①
	100	①②	①②	①②	①②	①	①	①	①	①	①	①	①
85	80	①	①	①	①	①	①	①②	①②	①②	①②	①②	①②
	90	①	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②
	100/112	①②	①②	①②	①②	①②	①②	①②	①	①	①	①	①
110	90	---	③	③	③	③	③	③④	③④	③④	③④	④	④
	100/112	---	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②	①②
	132	---	②	②	②	②	---	---	---	---	---	---	---
130	100/112	---	④	④	④	④	④	④	④	④	④	④	④
	132	---	④	④	④	④	④	---	---	---	---	---	---
150	100/112	---	④	④	④	④	④	④	④	④	④	④	④
	132	---	④	④	④	④	④	④	④	④	---	---	---
	160	---	④	④	④	④	④	④	④	---	---	---	---

	Entrata con	Input with	Eingang mit
① - B5&B14 ③ - B5	giunto	coupling	Kupplung
② - B5&B14 ④ - B5	foro e cava / chiavetta	bore and key / keyway	Bohrung u. Keil / Keil-Nut





**FRA-FTA - Flangia entrata - Input flanges - Eingangsflansch**
**RS-RT**

IEC	i = 5	7	10	15	20	28	40	49	56	70	80	100
63/40	①	①	①	①	①	①	①	①	①	①	①	①
63/50	①	①	①	①	①	①	①	①	①	①	①	①
63/60	---	---	---	---	---	①	①	①	①	①	①	①
63/40	①	①	①	①	①	①	①	①	①	①	①	①
63/50	①	①	①	①	①	①	①	①	①	①	①	①
63/60	---	---	---	---	---	①	①	①	①	①	①	①
71/50	②	②	②	②	②	②	②	②	⑦	⑦	⑦	⑦
71/60	②	②	②	②	②	②	②	②	②	②	②	②
71/70	②	②	②	②	②	②	②	②	②	②	②	②
71/85	---	---	---	---	---	---	②	②	②	②	②	②
80/60	③	③	③	③	③	③	⑧	⑧	⑧	⑧	⑧	⑧
80/70	③	③	③	③	③	③	③	③	⑧	⑧	⑧	⑧
80/85	③	③	③	③	③	③	③	③	③	③	③	③
80/110	---	④	④	④	④	③	③	③	③	③	③	③
88/60	③	③	③	③	③	③	⑧	⑧	⑧	⑧	⑧	⑧
80/70	③	③	③	③	③	③	③	③	⑧	⑧	⑧	⑧
80/85	③	③	③	③	③	③	③	③	③	③	③	③
80/110	---	④	④	④	④	③	③	③	③	③	③	③
100/110	---	④	④	④	④	③	③	③	③	③	③	③
100/130 (*)	---	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤
90 B5 & B14 100 B5 & B14	---	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤
100/150 (*)	---	⑥	⑥	⑥	⑥	⑤	⑤	⑤	⑤	⑤	⑤	⑤
90 B5&B14 100 B5 & B14	---	⑥	⑥	⑥	⑥	⑤	⑤	⑤	⑤	⑤	⑤	⑤
Uscita precoppia e entrata FRS/FRT ① - ø105 x 14 ② - ø120 x 19 ③ - ø140 x 24 ④ - ø140 x 28 ⑤ - ø200 x 28 ⑥ - ø200 x 28 Foro vite ø38mm + Boccola ø28/38mm	Helical stage output and FRS/FRT input: ① - ø105 x 14 ② - ø120 x 19 ③ - ø140 x 24 ④ - ø140 x 28 ⑤ - ø200 x 28 ⑥ - ø200 x 28 Wormshaft bore ø38mm + Bush ø28/38mm)	Ausgang der Vorstufe u. Eingang der Getriebe FRS/FRT ① - ø105 x 14 ② - ø120 x 19 ③ - ø140 x 24 ④ - ø140 x 28 ⑤ - ø200 x 28 ⑥ - ø200 x 28 Schneckebohrung ø38 mm + Buchse ø28/38mm										
* - solo FRA	* - FRA only	* - nur FRA										

Selezione riduttore - Gearbox selection - Getriebeauswahl

RS-RT

RS-RT - 2800 rpm													
i =	5	7	10	15	20	28	40	49	56	70	80	100	
rpm	560	400	280	187	140	100	70	57	50	40	35	28	
RS - RT 28	kW	0.84	0.63	0.49	0.35	0.25	0.23	0.16	0.13	0.12	0.09	0.08	0.04
	Nm	13	13	14	14	13	15	14	13	12	11	10	7
	eff.	0.86	0.86	0.83	0.79	0.77	0.69	0.64	0.61	0.54	0.49	0.49	0.46
	$J_1 \times 10^{-6}$	6,2300	6,0100	5,5500	5,3000	5,2100	5,1600	5,1300	5,1200	5,1200	5,1100	5,1100	5,1100
RS - RT 40	kW	2.1	1.5	1.2	0.82	0.56	0.49	0.36	0.30	0.26	0.21	0.19	0.15
	Nm	32	31	34	34	30	34	32	31	30	29	28	26
	eff.	0.89	0.87	0.85	0.81	0.78	0.72	0.66	0.62	0.6	0.57	0.54	0.51
	$J_1 \times 10^{-5}$	2,2750	2,2130	2,0040	1,8920	1,8530	1,8280	1,8150	1,8110	1,8090	1,8060	1,8050	1,8040
RS - RT 50	kW	3.8	3.0	2.0	1.5	0.95	0.92	0.63	0.51	0.43	0.33	0.31	0.23
	Nm	58	62	59	61	52	66	59	56	53	46	49	40
	eff.	0.90	0.88	0.86	0.82	0.8	0.75	0.69	0.66	0.64	0.58	0.58	0.52
	$J_1 \times 10^{-5}$	7,1680	6,0680	5,3610	4,9830	4,8510	4,7680	4,7240	4,7100	4,7030	4,6950	4,6920	4,6880
RS - RT 60	kW	5.8	4.4	3.5	2.6	1.9	1.6	1.1	0.72	0.73	0.60	0.52	0.34
	Nm	90	93	104	110	108	116	105	85	92	92	85	68
	eff.	0.90	0.88	0.87	0.84	0.82	0.76	0.73	0.71	0.66	0.64	0.6	0.58
	$J_1 \times 10^{-4}$	1,3740	1,3443	1,1860	1,1016	1,0720	1,0534	1,0435	1,0403	1,0388	1,0371	1,0364	1,0355
RS - RT 70	kW	8.1	5.7	4.3	3.2	2.4	2.2	1.5	1.2	1.0	0.80	0.69	0.54
	Nm	126	122	130	139	136	161	155	142	130	120	115	107
	eff.	0.91	0.89	0.88	0.85	0.83	0.78	0.74	0.7	0.68	0.63	0.61	0.58
	$J_1 \times 10^{-4}$	3,3190	3,0626	2,7418	2,5706	2,5107	2,4729	2,4529	2,4464	2,4434	2,4399	2,4384	2,4367
RS - RT 85	kW	13.0	9.6	7.5	5.3	4.3	3.1	2.4	2.0	1.7	1.3	1.1	0.93
	Nm	202	205	225	234	237	235	250	242	229	210	200	190
	eff.	0.91	0.89	0.88	0.86	0.8	0.8	0.76	0.72	0.71	0.67	0.64	0.6
	$J_1 \times 10^{-4}$	5,0250	4,8911	4,1250	3,7160	3,5729	3,4828	3,4349	3,4196	3,4124	3,4039	3,4004	3,3963
RS - RT 110	kW	---	17,5	14,8	10,7	8,6	7,0	5,0	4,5	3,6	3,1	3,0	2,1
	Nm	---	375	445	470	490	530	520	545	490	525	540	450
	eff.	---	0,9	0,88	0,86	0,84	0,79	0,76	0,73	0,71	0,7	0,67	0,62
	$J_1 \times 10^{-3}$	---	2,2160	1,9420	1,7960	1,7450	1,7130	1,6960	1,6910	1,6880	1,6850	1,6840	1,6820
RS 130	kW	---	26,3	21,6	15,8	12,2	9,4	7,7	6,0	5,3	3,9	3,3	2,4
	Nm	---	565	655	705	715	715	815	740	780	670	620	560
	eff.	---	0,9	0,89	0,87	0,86	0,8	0,78	0,74	0,77	0,72	0,68	0,68
	$J_1 \times 10^{-3}$	---	3,9443	3,2820	2,9284	2,8047	2,7268	2,6854	2,6721	2,6659	2,6586	2,6555	2,6520
RS 150	kW	---	37,0	29,6	22,8	17,1	13,6	10,7	8,5	6,6	5,5	4,9	3,6
	Nm	---	795	900	1015	1005	1065	1170	1090	970	950	915	845
	eff.	---	0,9	0,89	0,87	0,86	0,82	0,8	0,77	0,77	0,72	0,68	0,68
	$J_1 \times 10^{-3}$	---	8,1739	6,9606	6,3130	6,0863	5,9436	5,8678	5,8435	5,8321	5,8187	5,8131	5,8066

**Selezione riduttore - Gearbox selection - Getriebeauswahl**
**RS-RT**

<b>RS-RT - 1400 rpm</b>													
<b>i =</b>		5	7	10	15	20	28	40	49	56	70	80	100
<b>rpm</b>		280	200	140	93	70	50	35	29	25	20	18	14
RS - RT 28	kW	0,68	0,45	0,33	0,23	0,16	0,16	0,10	0,09	0,08	0,06	0,05	0,03
	Nm	20	18	18	18	16	20	17	17	15	12	12	8
	eff.	0.88	0.84	0.81	0.77	0.74	0.66	0.62	0.57	0.51	0.45	0.45	0.43
	$J_1 \times 10^{-6}$	6,2300	6,0100	5,5500	5,3000	5,2100	5,1600	5,1300	5,1200	5,1200	5,1100	5,1100	5,1100
RS - RT 40	kW	1.5	1,1	0,81	0,55	0,38	0,37	0,25	0,21	0,18	0,14	0,12	0,09
	Nm	45	45	46	44	39	48	42	41	38	36	32	29
	eff.	0.87	0.85	0.83	0.78	0.75	0.68	0.61	0.58	0.56	0.52	0.50	0.46
	$J_1 \times 10^{-5}$	2,2750	2,2130	2,0040	1,8920	1,8530	1,8280	1,8150	1,8110	1,8090	1,8060	1,8050	1,8040
RS - RT 50	kW	2.7	1,8	1,3	0,93	0,63	0,63	0,41	0,37	0,31	0,25	0,20	0,13
	Nm	81	75	75	74	65	85	72	76	71	63	58	43
	eff.	0.88	0.86	0.84	0.78	0.76	0.71	0.64	0.62	0.60	0.53	0.52	0.47
	$J_1 \times 10^{-5}$	7,1680	6,0680	5,3610	4,9830	4,8510	4,7680	4,7240	4,7100	4,7030	4,6950	4,6920	4,6880
RS - RT 60	kW	4.1	2,8	2,3	1,6	1,2	1,0	0,75	0,62	0,54	0,46	0,37	0,25
	Nm	125	113	133	130	122	139	135	128	123	122	106	83
	eff.	0.89	0.86	0.84	0.81	0.77	0.71	0.66	0.62	0.60	0.55	0.53	0.49
	$J_1 \times 10^{-4}$	1,3740	1,3443	1,1860	1,1016	1,0720	1,0534	1,0435	1,0403	1,0388	1,0371	1,0364	1,0355
RS - RT 70	kW	5.7	4,0	3,1	2,2	1,8	1,5	1,2	0,84	0,74	0,58	0,50	0,37
	Nm	176	166	180	188	194	216	208	189	180	163	154	130
	eff.	0.89	0.88	0.86	0.83	0.81	0.75	0.71	0.67	0.64	0.59	0.56	0.52
	$J_1 \times 10^{-4}$	3,3190	3,0626	2,7418	2,5706	2,5107	2,4729	2,4529	2,4464	2,4434	2,4399	2,4384	2,4367
RS - RT 85	kW	9.1	6,2	4,6	3,4	2,9	2,2	1,6	1,4	1,2	0,96	0,86	0,55
	Nm	279	259	268	289	322	319	325	316	305	290	280	210
	eff.	0.90	0.88	0.86	0.83	0.82	0.76	0.72	0.67	0.68	0.63	0.60	0.56
	$J_1 \times 10^{-4}$	5,0250	4,8911	4,1250	3,7160	3,5729	3,4828	3,4349	3,4196	3,4124	3,4039	3,4004	3,3963
RS - RT 110	kW	---	12,5	9,0	6,5	5,7	4,4	3,5	2,7	2,2	2,0	1,5	1,1
	Nm	---	525	532	560	647	642	691	631	595	635	525	469
	eff.	---	0.88	0.87	0.84	0.83	0.76	0.73	0.71	0.70	0.67	0.66	0.61
	$J_1 \times 10^{-3}$	---	2,2160	1,9420	1,7960	1,7450	1,7130	1,6960	1,6910	1,6880	1,6850	1,6840	1,6820
RS 130	kW	---	19,0	15,0	11,0	8,5	7,5	5,5	3,9	3,7	2,7	2,4	1,8
	Nm	---	807	890	960	975	1100	1140	950	1005	865	810	750
	eff.	---	0.89	0.87	0.85	0.84	0.77	0.76	0.72	0.71	0.67	0.63	0.61
	$J_1 \times 10^{-3}$	---	3,9443	3,2820	2,9284	2,8047	2,7268	2,6854	2,6721	2,6659	2,6586	2,6555	2,6520
RS 150	kW	---	24,9	21,0	16,0	12,5	9,5	8,0	5,9	5,1	3,8	3,3	2,6
	Nm	---	1060	1260	1410	1430	1435	1680	1440	1420	1230	1170	1120
	eff.	---	0.89	0.88	0.86	0.84	0.79	0.77	0.73	0.73	0.68	0.65	0.63
	$J_1 \times 10^{-3}$	---	8,1739	6,9606	6,3130	6,0863	5,9436	5,8678	5,8435	5,8321	5,8187	5,8131	5,8066



**Selezione riduttore - Gearbox selection - Getriebeauswahl**

<b>RS-RT - 900 rpm</b>													
i =		5	7	10	15	20	28	40	49	56	70	80	100
rpm		180	128	90	60	45	32	23	19	16	13	11	9
RS - RT 28	kW	0,49	0,36	0,24	0,18	0,13	0,12	0,08	0,07	0,06	0,04	0,03	0,02
	Nm	22	22	20	21	19	22	20	19	16	13	11	8
	eff.	0.84	0.82	0.78	0.72	0.70	0.61	0.56	0.52	0.45	0.43	0.40	0.37
	$J_1 \times 10^{-6}$	6,2300	6,0100	5,5500	5,3000	5,2100	5,1600	5,1300	5,1200	5,1200	5,1100	5,1100	5,1100
RS - RT 40	kW	1.2	0,84	0,64	0,44	0,30	0,28	0,19	0,16	0,14	0,12	0,10	0,08
	Nm	54	52	54	52	45	52	46	43	41	40	39	36
	eff.	0.86	0.83	0.80	0.74	0.70	0.63	0.56	0.52	0.49	0.46	0.44	0.42
	$J_1 \times 10^{-5}$	2,2750	2,2130	2,0040	1,8920	1,8530	1,8280	1,8150	1,8110	1,8090	1,8060	1,8050	1,8040
RS - RT 50	kW	2.1	1,5	1,1	0,75	0,52	0,51	0,35	0,28	0,25	0,19	0,17	0,12
	Nm	96	95	95	91	79	99	85	81	80	67	67	55
	eff.	0.86	0.85	0.81	0.76	0.72	0.65	0.58	0.56	0.54	0.47	0.46	0.42
	$J_1 \times 10^{-5}$	7,1680	6,0680	5,3610	4,9830	4,8510	4,7680	4,7240	4,7100	4,7030	4,6950	4,6920	4,6880
RS - RT 60	kW	3.2	2,4	1,9	1,4	1,0	0,87	0,56	0,43	0,40	0,32	0,28	0,19
	Nm	150	150	163	166	161	175	152	135	130	125	115	94
	eff.	0.87	0.85	0.83	0.75	0.76	0.68	0.64	0.61	0.55	0.53	0.480	0.47
	$J_1 \times 10^{-4}$	1,3740	1,3443	1,1860	1,1016	1,0720	1,0534	1,0435	1,0403	1,0388	1,0371	1,0364	1,0355
RS - RT 70	kW	4.5	3,2	2,4	1,7	1,3	1,2	0,87	0,64	0,53	0,42	0,38	0,30
	Nm	212	202	211	218	207	242	240	205	187	170	160	147
	eff.	0.88	0.86	0.83	0.79	0.77	0.70	0.654	0.62	0.59	0.54	0.50	0.46
	$J_1 \times 10^{-4}$	3,3190	3,0626	2,7418	2,5706	2,5107	2,4729	2,4529	2,4464	2,4434	2,4399	2,4384	2,4367
RS - RT 85	kW	7.2	5,0	3,9	3,0	2,1	1,8	1,5	1,0	0,83	0,73	0,64	0,51
	Nm	338	320	350	378	355	373	410	350	332	300	290	260
	eff.	0.88	0.86	0.84	0.80	0.78	0.71	0.66	0.672	0.671	0.55	0.53	0.48
	$J_1 \times 10^{-4}$	5,0250	4,8911	4,1250	3,7160	3,5729	3,4828	3,4349	3,4196	3,4124	3,4039	3,4004	3,3963
RS - RT 110	kW	---	9,8	8,0	5,7	4,4	3,7	2,7	2,3	1,9	1,7	1,5	0,94
	Nm	---	635	720	745	745	795	780	780	690	765	715	500
	eff.	---	0.87	0.85	0.82	0.79	0.73	0.68	0.64	0.62	0.59	0.57	0.50
	$J_1 \times 10^{-3}$	---	2,2160	1,9420	1,7960	1,7450	1,7130	1,6960	1,6910	1,6880	1,6850	1,6840	1,6820
RS 130	kW	---	14,9	11,7	8,4	6,5	5,1	4,1	3,1	2,8	2,1	1,8	1,3
	Nm	---	975	1070	1115	1115	1145	1215	1095	1145	960	890	805
	eff.	---	0.88	0.86	0.83	0.81	0.75	0.70	0.67	0.68	0.63	0.58	0.57
	$J_1 \times 10^{-3}$	---	3,9443	3,2820	2,9284	2,8047	2,7268	2,6854	2,6721	2,6659	2,6586	2,6555	2,6520
RS 150	kW	---	20,8	15,9	12,2	9,3	7,3	5,6	4,5	3,3	2,9	2,5	2,0
	Nm	---	1360	1470	1635	1625	1660	1740	1600	1370	1390	1290	1230
	eff.	---	0.88	0.87	0.84	0.82	0.77	0.73	0.69	0.69	0.64	0.61	0.58
	$J_1 \times 10^{-3}$	---	8,1739	6,9606	6,3130	6,0863	5,9436	5,8678	5,8435	5,8321	5,8187	5,8131	5,8066

**Selezione riduttore - Gearbox selection - Getriebeauswahl**
**RS-RT**

<b>RS-RT - 700 rpm</b>													
i =		5	7	10	15	20	28	40	49	56	70	80	100
rpm		140	100	70	47	35	25	18	15	13	10	8.7	7
RS - RT 28	kW	0,41	0,29	0,21	0,14	0,10	0,10	0,06	0,05	0,04	0,03	0,02	0,01
	Nm	23	23	23	22	21	24	21	20	17	13	11	8
	eff.	0.82	0.81	0.77	0.71	0.69	0.60	0.55	0.51	0.44	0.40	0.39	0.36
	$J_1 \times 10^{-6}$	6,2300	6,0100	5,5500	5,3000	5,2100	5,1600	5,1300	5,1200	5,1200	5,1100	5,1100	5,1100
RS - RT 40	kW	1.00	0,74	0,54	0,39	0,26	0,24	0,17	0,14	0,12	0,10	0,09	0,07
	Nm	59	58	58	58	49	55	49	46	45	43	41	38
	eff.	0.85	0.82	0.79	0.73	0.68	0.59	0.53	0.50	0.48	0.44	0.42	0.39
	$J_1 \times 10^{-5}$	2,2750	2,2130	2,0040	1,8920	1,8530	1,8280	1,8150	1,8110	1,8090	1,8060	1,8050	1,8040
RS - RT 50	kW	1.8	1,4	0,92	0,65	0,44	0,43	0,29	0,24	0,21	0,16	0,15	0,12
	Nm	106	110	100	99	86	106	91	87	83	70	72	62
	eff.	0.86	0.83	0.80	0.75	0.71	0.64	0.57	0.542	0.52	0.45	0.44	0.39
	$J_1 \times 10^{-5}$	7,1680	6,0680	5,3610	4,9830	4,8510	4,7680	4,7240	4,7100	4,7030	4,6950	4,6920	4,6880
RS - RT 60	kW	2.8	2,0	1,6	1,1	0,87	0,73	0,49	0,35	0,34	0,26	0,24	0,17
	Nm	165	164	177	178	175	187	165	140	139	128	120	100
	eff.	0.87	0.84	0.81	0.77	0.74	0.67	0.62	0.59	0.54	0.51	0.46	0.44
	$J_1 \times 10^{-4}$	1,3740	1,3443	1,1860	1,1016	1,0720	1,0534	1,0435	1,0403	1,0388	1,0371	1,0364	1,0355
RS - RT 70	kW	3.9	2,7	2,1	1,4	1,1	1,0	0,71	0,55	0,46	0,36	0,32	0,24
	Nm	234	216	233	231	225	256	245	220	197	176	167	150
	eff.	0.87	0.85	0.82	0.78	0.75	0.68	0.63	0.60	0.56	0.51	0.48	0.45
	$J_1 \times 10^{-4}$	3,3190	3,0626	2,7418	2,5706	2,5107	2,4729	2,4529	2,4464	2,4434	2,4399	2,4384	2,4367
RS - RT 85	kW	6.2	4,6	3,5	2,5	1,9	1,5	1,2	0,93	0,78	0,59	0,56	0,44
	Nm	372	370	400	408	388	400	420	379	353	310	305	275
	eff.	0.87	0.85	0.83	0.79	0.76	0.69	0.65	0.61	0.59	0.55	0.50	0.46
	$J_1 \times 10^{-4}$	5,0250	4,8911	4,1250	3,7160	3,5729	3,4828	3,4349	3,4196	3,4124	3,4039	3,4004	3,3963
RS - RT 110	kW	---	8,5	6,8	4,9	3,9	3,3	2,3	2,0	1,7	1,5	1,2	0,79
	Nm	---	700	780	795	815	890	820	840	770	815	720	515
	eff.	---	0.86	0.84	0.80	0.77	0.71	0.66	0.62	0.60	0.57	0.55	0.48
	$J_1 \times 10^{-3}$	---	2,2160	1,9420	1,7960	1,7450	1,7130	1,6960	1,6910	1,6880	1,6850	1,6840	1,6820
RS 130	kW	---	12,8	10,3	7,4	5,6	4,4	3,6	2,7	2,4	1,8	1,6	1,1
	Nm	---	1060	1200	1230	1215	1200	1320	1185	1215	1030	955	855
	eff.	---	0.87	0.85	0.81	0.80	0.72	0.68	0.65	0.66	0.61	0.56	0.55
	$J_1 \times 10^{-3}$	---	3,9443	3,2820	2,9284	2,8047	2,7268	2,6854	2,6721	2,6659	2,6586	2,6555	2,6520
RS 150	kW	---	18,0	13,7	10,6	8,1	6,2	4,9	3,8	3,0	2,6	2,3	1,7
	Nm	---	1475	1610	1805	1780	1790	1890	1710	1535	1500	1425	1275
	eff.	---	0.87	0.86	0.83	0.81	0.75	0.71	0.68	0.67	0.61	0.58	0.56
	$J_1 \times 10^{-3}$	---	8,1739	6,9606	6,3130	6,0863	5,9436	5,8678	5,8435	5,8321	5,8187	5,8131	5,8066



**XA - 1400 rpm**

	Precoppia	FXA Attachment			Vorstufe
<b>FXA</b>	$i_n =$ rpm	3.5 400	6.3 225	8 175	
FXA63	$i_r =$ kW	3.5 0.50	6.2 0.23	7.8 0.18	
	Nm	12	10	9	
	$R_2$ [N]	390	450	450	
FXA71	$i_r =$ kW	3.5 1.1	6.4 0.52	8.0 0.37	
	Nm	26	22	20	
	$R_2$ [N]	490	560	560	
FXA80	$i_r =$ kW	3.4 3.1	6.4 1.5	8.3 1.1	
	Nm	68	65	60	
	$R_2$ [N]	610	700	700	
FXA100	$i_r =$ kW	3.9 8.7	6.2 4.0	7.5 2.2	
	Nm	235	163	136	
	$R_2$ [N]	1500	2500	2500	

Dimensioni: pag. 58  
Dimensions: page 58  
Abmessungen: Seite 58

Posizione precoppia	FXA Attachment position	Position der Vorstufe
	<b>FRA</b>	
	<b>FTA</b>	

**Selezione riduttore - Gearbox selection - Getriebeauswahl**
**RS-RT**

<b>RA-TA - 1400 rpm [FXA i=3.5]</b>													
$i_n = 3.5$	$i = i_n \times i_2$	17.5	25	35	53	70	98	140	172	196	245	280	350
	rpm	80	57	40	27	20	14	10	8	7	6	5	4
	$i_2$	5	7	10	15	20	28	40	49	56	70	80	100
RA-TA 63/40	kW	0.73	0.55	0.40	0.28	0.20	0.19	0.13	0.11	0.10	0.06	0.05	0.03
	Nm	70	72	72	70	60	70	64	58	56	42	35	25
	eff.	0.80	0.78	0.75	0.70	0.63	0.56	0.50	0.46	0.44	0.41	0.40	0.35
RA-TA 63/50 RA-TA 71/50	kW	1.34	1.02	0.70	0.50	0.33	0.32	0.21	0.20	0.16	0.11	0.09	0.06
	Nm	130	135	127	125	105	125	105	115	100	80	70	50
	eff.	0.81	0.79	0.76	0.70	0.66	0.59	0.52	0.50	0.46	0.42	0.40	0.35
RA-TA 63/60 RA-TA 71/60 RA-TA 80/60	kW	1.94	1.53	1.18	0.83	0.57	0.53	0.33	0.27	0.23	0.19	0.15	0.10
	Nm	190	205	217	215	192	217	177	170	152	145	110	85
	eff.	0.82	0.80	0.77	0.72	0.70	0.61	0.57	0.54	0.49	0.45	0.38	0.36
RA-TA 71/70 RA-TA 80/70	kW	2.57	1.96	1.48	1.08	0.77	0.72	0.50	0.43	0.36	0.30	0.26	0.19
	Nm	255	265	275	285	260	310	270	270	235	225	200	180
	eff.	0.83	0.81	0.78	0.74	0.71	0.64	0.57	0.54	0.49	0.45	0.41	0.39
RA-TA 71/85 RA-TA 80/85	kW	4.09	3.14	2.39	1.77	1.37	1.11	0.80	0.65	0.58	0.49	0.40	0.26
	Nm	415	430	450	475	470	475	445	420	410	390	340	250
	eff.	0.85	0.82	0.79	0.75	0.72	0.64	0.58	0.55	0.53	0.48	0.44	0.40
RA-TA 80/110 RA-TA 100/110	kW	---	6.02	4.63	3.58	2.61	2.18	1.60	1.27	1.12	0.86	0.86	0.54
	Nm	---	835	895	950	910	960	950	850	820	750	740	540
	eff.	---	0.83	0.81	0.74	0.73	0.66	0.62	0.57	0.55	0.52	0.45	0.42
RA 100/130	kW	---	7.0	6.8	5.5	3.8	3.1	2.3	1.7	1.5	1.3	1.1	0.8
	Nm	---	975	1320	1495	1350	1430	1380	1300	1250	1200	1080	880
	eff.	---	0.83	0.81	0.77	0.75	0.67	0.63	0.64	0.62	0.60	0.50	0.48
RA 100/150	kW	---	7.9	7.8	7.5	5.7	4.5	3.3	2.7	2.4	1.8	1.6	1.0
	Nm	---	1115	1535	2090	2060	2130	2050	2040	2025	1700	1459	1200
	eff.	---	0.84	0.82	0.79	0.76	0.69	0.66	0.64	0.62	0.60	0.52	0.50



**Selezione riduttore - Gearbox selection - Getriebeauswahl**

<b>RA-TA - 1400 rpm [FXA i=6.3]</b>													
$i_n = 6.3$	$i = i_n \times i_2$	31.5	44	63	95	126	176	252	309	353	441	504	630
	rpm	44	32	22	15	11	8	5.5	4.6	4	3.2	2.8	2.2
	$i_2$	5	7	10	15	20	28	40	49	56	70	80	100
RA-TA 63/40	kW	0.45	0.35	0.25	0.17	0.12	0.11	0.08	0.06	0.06	0.05	0.04	0.03
	Nm	76	79	78	74	63	69	63	57	55	53	51	46
	eff.	0.78	0.76	0.72	0.67	0.60	0.52	0.45	0.43	0.39	0.35	0.34	0.31
RA-TA 63/50 RA-TA 71/50	kW	0.81	0.62	0.42	0.30	0.20	0.20	0.14	0.11	0.10	0.09	0.07	0.05
	Nm	140	145	133	130	113	138	115	108	100	92	89	72
	eff.	0.80	0.78	0.74	0.67	0.63	0.55	0.48	0.45	0.42	0.36	0.36	0.31
RA-TA 63/60 RA-TA 71/60 RA-TA 80/60	kW	1.23	0.92	0.74	0.52	0.40	0.35	0.23	0.16	0.16	0.11	0.10	0.08
	Nm	215	218	237	235	230	238	210	160	175	141	130	122
	eff.	0.81	0.79	0.75	0.70	0.67	0.57	0.53	0.49	0.45	0.42	0.37	0.35
RA-TA 71/70 RA-TA 80/70	kW	1.59	1.2	0.95	0.68	0.50	0.44	0.32	0.26	0.23	0.18	0.17	0.12
	Nm	280	289	310	310	292	320	259	272	254	221	210	190
	eff.	0.82	0.80	0.76	0.71	0.68	0.60	0.54	0.50	0.46	0.42	0.37	0.36
RA-TA 71/85 RA-TA 80/85	kW	2.66	2.0	1.6	1.1	0.84	0.69	0.53	0.43	0.37	0.28	0.26	0.22
	Nm	490	490	526	516	495	501	500	466	449	391	380	345
	eff.	0.80	0.80	0.77	0.72	0.69	0.60	0.55	0.51	0.50	0.46	0.42	0.36
RA-TA 80/110 RA-TA 100/110	kW	---	4.3	3.2	2.4	1.8	1.6	1.1	1.0	0.80	0.66	0.51	0.32
	Nm	---	1030	1100	1150	1100	1170	1110	1100	995	950	780	550
	eff.	---	0.81	0.79	0.74	0.71	0.63	0.57	0.53	0.52	0.48	0.45	0.39
RA100/130	kW	---	6.41	4.94	3.72	2.71	2.37	1.65	1.47	1.25	1.02	0.82	0.47
	Nm	---	1600	1700	1800	1700	1800	1700	1700	1600	1600	1300	900
	eff.	---	0.83	0.80	0.75	0.73	0.63	0.60	0.55	0.53	0.52	0.46	0.45
RA100/150	kW	---	8.41	6.61	5.04	3.77	3.02	2.31	1.82	1.41	1.24	1.09	0.84
	Nm	---	2100	2300	2500	2400	2400	2500	2300	2000	1800	1800	1700
	eff.	---	0.83	0.81	0.77	0.74	0.66	0.63	0.60	0.59	0.81	0.48	0.47



**Selezione riduttore - Gearbox selection - Getriebeauswahl**
**RS-RT**

<b>RA-TA - 1400 rpm [FXA i=8]</b>													
$i_n = 8$	$i = i_n \times i_2$	40	56	80	120	160	224	320	392	448	560	640	800
	rpm	35	25	18	12	9	6	4	3.5	3	2.5	2.2	1.75
	$i_2$	5	7	10	15	20	28	40	49	56	70	80	100
RA-TA 63/40	kW	0.43	0.32	0.23	0.16	0.11	0.11	0.08	0.06	0.05	0.03	0.03	0.02
	Nm	90	93	89	84	72	85	75	69	59	45	38	27
	eff.	0.76	0.75	0.72	0.65	0.59	0.50	0.44	0.41	0.38	0.36	0.34	0.31
RA-TA 63/50 RA-TA 71/50	kW	0.76	0.58	0.41	0.28	0.20	0.18	0.13	0.10	0.09	0.06	0.05	0.03
	Nm	165	170	165	154	130	150	130	120	115	86	73	53
	eff.	0.79	0.77	0.73	0.67	0.61	0.55	0.47	0.45	0.41	0.36	0.37	0.31
RA-TA 63/60 RA-TA 71/60 RA-TA 80/60	kW	1.15	0.87	0.68	0.49	0.34	0.31	0.21	0.16	0.15	0.10	0.08	0.05
	Nm	252	260	280	275	240	270	235	220	200	155	125	92
	eff.	0.80	0.78	0.75	0.69	0.65	0.57	0.51	0.50	0.43	0.41	0.37	0.35
RA-TA 71/70 RA-TA 80/70	kW	1.67	1.26	0.88	0.63	0.44	0.48	0.28	0.24	0.20	0.16	0.12	0.05
	Nm	370	380	365	360	325	440	320	320	275	245	200	145
	eff.	0.81	0.79	0.76	0.70	0.67	0.60	0.53	0.50	0.45	0.41	0.38	0.35
RA-TA 71/85 RA-TA 80/85	kW	2.30	1.76	1.42	1.07	0.85	0.65	0.48	0.40	0.33	0.26	0.20	0.13
	Nm	510	530	595	620	620	600	560	550	510	450	360	260
	eff.	0.81	0.79	0.77	0.71	0.67	0.60	0.54	0.52	0.50	0.45	0.41	0.37
RA-TA 80/110 RA-TA 100/110	kW	---	3.42	2.75	1.97	1.52	1.29	0.97	0.73	0.64	0.52	0.43	0.27
	Nm	---	1045	1170	1180	1160	1200	1180	1020	980	920	850	550
	eff.	---	0.80	0.78	0.73	0.70	0.61	0.56	0.52	0.50	0.46	0.45	0.38
RA100/130	kW	---	3.3	3.0	3.2	2.3	1.8	1.2	1.1	0.9	0.7	0.7	0.5
	Nm	---	1000	1240	1840	1765	1760	1700	1660	1600	1435	1330	1160
	eff.	---	0.80	0.78	0.73	0.72	0.62	0.58	0.56	0.54	0.51	0.45	0.43
RA100/150	kW	---	3.7	3.4	3.6	3.4	2.7	2.0	1.7	1.4	1.1	1.0	0.8
	Nm	---	1130	1425	2150	2580	2675	2860	2550	2490	2110	1970	1855
	eff.	---	0.81	0.79	0.75	0.72	0.63	0.61	0.56	0.57	0.49	0.46	0.45

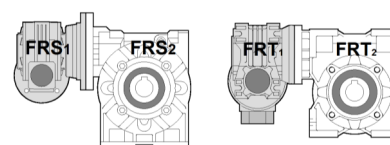


**Selezione riduttore - Gearbox selection - Getriebeauswahl**

<b>RS/RS - RT/RT - 1400 rpm</b>															
$i_1 \times i_2$	150	200	280	420	560	784	1120	1568	2240	2800	4000	5600	8000	10000	
rpm	9.3	7.0	5.0	5.2	3.3	1.8	1.3	0.9	1.0	0.6	0.4	0.3	0.2	0.1	
$i_1$	10	10	10	15	20	28	40	56	56	70	100	100	100	100	
$i_2$	15	20	28	28	28	28	28	28	40	40	40	56	80	100	
28/28	kW	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	
	Nm	31	30	35	35	36	36	36	35	30	30	30	16	12	
	eff.	0.51	0.49	0.40	0.38	0.37	0.32	0.300	0.25	0.21	0.20	0.18	0.14	0.13	0.12
28/40	kW	0.12	0.12	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	
	Nm	64	77	71	68	85	80	80	80	73	76	70	62	41	
	eff.	0.52	0.49	0.41	0.39	0.37	0.33	0.31	0.25	0.21	0.18	0.18	0.15	0.14	0.12
28/50	kW	0.18	0.18	0.18	0.12	0.09	0.09	0.06	0.06	0.06	0.06	0.06	0.06	0.06	
	Nm	93	120	141	136	127	158	157	159	125	131	147	125	78	
	eff.	0.52	0.49	0.41	0.39	0.37	0.33	0.31	0.25	0.22	0.19	0.19	0.16	0.14	0.12
28/60	kW	0.18	0.18	0.18	0.18	0.12	0.12	0.09	0.09	0.06	0.06	0.06	0.06	0.06	
	Nm	100	128	151	219	183	223	227	258	220	217	164	195	128	
	eff.	0.54	0.52	0.44	0.42	0.40	0.35	0.33	0.27	0.23	0.21	0.20	0.16	0.14	0.13
40/40	kW	0.12	0.12	0.12	0.12	0.12	0.12	0.06	0.06	0.06	0.06	0.06	0.06	0.06	
	Nm	65	78	73	81	85	80	80	80	74	74	74	63	38	
	eff.	0.53	0.48	0.43	0.39	0.37	0.34	0.30	0.27	0.23	0.21	0.19	0.06	0.15	0.13
40/50	kW	0.25	0.18	0.18	0.12	0.12	0.12	0.06	0.06	0.06	0.06	0.06	0.06	0.06	
	Nm	136	126	153	136	127	1362	157	171	130	128	128	124	75	
	eff.	0.53	0.50	0.43	0.39	0.37	0.34	0.31	0.27	0.24	0.21	0.19	0.17	0.15	0.13
40/60	kW	0.37	0.37	0.25	0.18	0.18	0.12	0.09	0.09	0.06	0.06	0.06	0.06	0.06	
	Nm	210	252	222	219	270	229	227	277	246	241	246	203	137	
	eff.	0.55	0.53	0.46	0.42	0.40	0.36	0.33	0.29	0.26	0.24	0.21	0.18	0.15	0.14
40/70	kW	0.37	0.37	0.37	0.25	0.25	0.18	0.12	0.12	0.09	0.06	0.06	0.06	0.06	
	Nm	217	278	332	318	400	363	303	382	371	287	360	321	201	
	eff.	0.57	0.55	0.47	0.44	0.42	0.38	0.33	0.30	0.27	0.25	0.22	0.20	0.15	0.14
40/85	kW	0.37	0.37	0.37	0.37	0.37	0.25	0.18	0.18	0.12	0.12	0.09	0.06	0.06	
	Nm	220	278	346	493	622	531	481	611	513	596	565	458	373	
	eff.	0.58	0.55	0.49	0.46	0.44	0.40	0.35	0.32	0.28	0.26	0.23	0.20	0.17	0.15
50/50	kW	0.25	0.25	0.25	0.25	0.25	0.25	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
	Nm	138	126	152	136	145	152	152	152	130	128	128	124	75	
	eff.	0.54	0.50	0.43	0.39	0.38	0.35	0.32	0.29	0.25	0.22	0.20	0.17	0.15	0.13
50/60	kW	0.37	0.37	0.25	0.25	0.25	0.25	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
	Nm	213	252	222	224	275	262	233	280	246	246	246	203	135	
	eff.	0.56	0.53	0.46	0.43	0.41	0.38	0.34	0.31	0.28	0.24	0.22	0.17	0.15	0.14
50/70	kW	0.55	0.37	0.37	0.25	0.25	0.25	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
	Nm	330	278	340	320	400	400	347	378	346	346	346	310	206	
	eff.	0.58	0.55	0.48	0.44	0.42	0.39	0.35	0.32	0.29	0.25	0.23	0.20	0.16	0.15
50/85	kW	0.75	0.75	0.55	0.37	0.37	0.25	0.18	0.12	0.12	0.12	0.12	0.12	0.12	
	Nm	455	573	514	482	620	544	509	469	600	607	607	540	375	
	eff.	0.59	0.56	0.49	0.45	0.44	0.41	0.37	0.34	0.30	0.26	0.24	0.21	0.17	0.15

**Selezione riduttore - Gearbox selection - Getriebeauswahl**
**RS-RT**
**RS/RS - RT/RT - 1400 rpm**

	$i_1 \times i_2$	150	200	280	420	560	784	1120	1568	2240	2800	4000	5600	8000	10000
	rpm	9.3	7.0	5.0	5.2	3.3	1.8	1.3	0.9	1.0	0.6	0.4	0.3	0.2	0.1
	$i_1$	10	10	10	15	20	28	40	56	56	70	100	100	100	100
	$i_2$	15	20	28	28	28	28	28	28	28	40	40	40	56	80
50/110	kW	0.75	0.75	0.75	0.75	0.55	0.55	0.37	0.25	0.25	0.18	0.12	0.12	0.12	0.12
	Nm	162	583	716	998	945	1196	1046	902	1184	928	786	963	821	550
	eff.	0.60	0.57	0.50	0.46	0.45	0.41	0.37	0.34	0.31	0.27	0.24	0.21	0.19	0.16
60/70	kW	0.55	0.55	0.55	0.55	0.55	0.55	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
	Nm	330	278	340	333	410	406	400	378	346	346	346	310	206	150
	eff.	0.58	0.55	0.48	0.46	0.43	0.39	0.36	0.30	0.29	0.26	0.23	0.21	0.16	0.15
60/85	kW	0.75	0.75	0.55	0.55	0.55	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
	Nm	455	573	525	503	620	530	607	607	607	607	607	540	375	268
	eff.	0.59	0.56	0.50	0.47	0.44	0.40	0.38	0.33	0.30	0.27	0.24	0.22	0.18	0.15
60/110	kW	1.8	1.5	1.1	0.75	0.75	0.55	0.37	0.29	0.29	0.29	0.29	0.29	0.29	0.29
	Nm	1110	1166	1050	1042	1285	1196	1074	902	1185	1210	1210	1065	825	580
	eff.	0.60	0.57	0.50	0.48	0.45	0.41	0.38	0.34	0.31	0.28	0.25	0.22	0.20	0.17
60/130	kW	1.8	1.8	1.8	1.5	1.1	0.75	0.55	0.55	0.37	0.25	0.25	0.25	0.25	0.25
	Nm	1110	1450	1750	2010	1930	1670	1530	2015	1830	1410	1770	1850	1420	1255
	eff.	0.60	0.59	0.52	0.50	0.46	0.43	0.40	0.35	0.33	0.30	0.27	0.25	0.21	0.20
70/85	kW	0.75	0.75	0.55	0.55	0.55	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
	Nm	462	583	536	514	620	570	607	607	607	607	607	540	375	268
	eff.	0.60	0.57	0.51	0.48	0.47	0.43	0.41	0.36	0.32	0.29	0.26	0.33	0.19	0.17
70/110	kW	1.8	1.5	1.1	0.75	0.75	0.55	0.37	0.25	0.25	0.25	0.25	0.25	0.25	0.25
	Nm	1127	1187	1093	1063	1300	1270	1159	955	1210	1210	1210	1065	825	580
	eff.	0.62	0.58	0.52	0.49	0.48	0.44	0.41	0.36	0.33	0.30	0.26	0.23	0.21	0.18
70/130	kW	2.2	1.8	1.8	1.5	1.1	0.75	0.55	0.55	0.37	0.25	0.25	0.25	0.25	0.25
	Nm	1400	1498	1780	2200	2055	1747	1644	2187	1940	1528	1615	1615	1550	1370
	eff.	0.62	0.61	0.53	0.51	0.49	0.45	0.43	0.38	0.35	0.32	0.28	0.26	0.23	0.21
70/150	kW	3	3	2.2	1.8	1.05	1.1	0.75	0.75	0.55	0.37	0.37	0.25	0.25	0.25
	Nm	1970	2520	2230	2570	2830	2570	2460	2850	3020	2325	2875	2670	2135	1995
	eff.	0.63	0.60	0.57	0.52	0.50	0.46	0.43	0.38	0.36	0.33	0.31	0.27	0.23	0.22
85/150	kW	4	3	2.2	1.8	1.5	1.1	0.75	0.75	0.55	0.55	0.55	0.55	0.55	0.55
	Nm	2580	2550	2230	2570	2830	2570	2520	3075	2835	2710	2710	2650	2180	1980
	eff.	0.63	0.61	0.57	0.52	0.50	0.46	0.44	0.41	0.38	0.35	0.31	0.29	0.25	0.23





**Selezione Motoriduttore - Geared Motor Selection - Getriebemotorauswahl**

<b>MRS-MRT - 1400 rpm</b>											
<b>0.06 kW</b>	rpm	i =	Nm	SF	kg	<b>0.09 kW</b>	rpm	i =	Nm	SF	kg
MRS-MRT28	280	5	1,8	>3	3,6	MRS-MRT 40	25	56	20	2,1	5,1
MRS-MRT28	200	7	2,4	>3	3,6	MRA-MTA 63 / 40	22	63	28	2,8	6,6
MRS-MRT 28	140	10	3,3	>3	3,6	MRS-MRT 40	20	70	22	1,6	5,1
MRS-MRT 28	93	15	4,7	>3	3,6	MRS-MRT 40	18	80	25	1,3	5,1
MRS-MRT 28	70	20	6,1	2,6	3,6	MRA-MTA 63 / 40	15	95	39	1,9	6,6
MRS-MRT 28	50	28	7,6	2,6	3,6	MRS-MRT 40	14	100	28	1,0	5,1
MRS-MRT 28	35	40	10	1,7	3,6	MRA-MTA 63 / 40	11	126	46	1,4	6,6
MRA-MTA 63 / 40	32	44	14	>3	6,5	MRS-MRT 28 / 40	9,3	150	48	1,3	6,5
MRS-MRT 28	29	49	11	1,5	3,6	MRA-MTA 63 / 40	8,0	176	56	1,2	6,6
MRS-MRT 28	25	56	12	1,3	3,6	MRS-MRT 28 / 40	7,0	200	60	1,3	6,5
MRA-MTA 63 / 40	22	63	19	>3	6,5	MRA-MTA 63 / 40	5,5	252	70	0,9	6,6
MRS-MRT 28	20	70	13	0,9	3,6	MRS-MRT 28 / 40	5,0	280	70	1,0	6,5
MRS-MRT 40	18	80	16	2,0	5,0	MRA-MTA 63 / 50	4,6	309	86	1,3	7,9
MRA-MTA 63 / 40	15	95	26	2,8	6,5	MRA-MTA 63 / 50	4,0	353	91	1,1	7,9
MRS-MRT 40	14	100	19	1,5	5,0	MRS-MRT 28 / 50	3,3	420	101	1,5	7,8
MRA-MTA 63 / 40	11	126	31	2,0	6,5	MRA-MTA 63 / 50	3,2	441	97	0,9	7,9
MRS-MRT 28 / 28	9,3	150	31	1,1	5,0	MRS-MRT 28 / 50	2,5	560	127	1,2	7,8
MRA-MTA 63 / 40	8,0	176	37	1,8	6,5	MRS-MRT 28 / 50	1,8	784	159	1,0	7,8
MRS-MRT 28 / 28	7,0	200	30	0,8	5,0	MRS-MRT 28 / 50	1,3	1120	213	0,8	7,8
MRA-MTA 63 / 40	5,5	252	46	1,4	6,5	MRS-MRT 28 / 60	0,9	1568	260	1,0	11
MRS-MRT 28 / 28	5,0	280	35	0,8	5,0	MRS-MRT 40 / 70	0,6	2240	371	1,0	15
MRA-MTA 63 / 40	4,6	309	54	1,0	6,5	MRS-MRT 40 / 85	0,5	2800	447	1,3	19
MRA-MTA 63 / 40	4,0	353	56	1,0	6,5	MRS-MRT 40 / 85	0,4	4000	565	1,0	19
MRS-MRT 28 / 40	3,3	420	67	1,3	6,4	MRS-MRT 40 / 85	0,3	5600	688	0,8	19
MRA-MTA 63 / 50	3,2	441	65	1,4	7,8						
MRA-MTA 63 / 50	2,8	504	74	1,2	7,8	<b>0,12 kW</b>	rpm	i =	Nm	SF	kg
MRS-MRT 28 / 40	2,5	560	85	1,0	6,4	MRS-MRT 28	280	5	3,6	>3	4,8
MRA-MTA 63 / 50	2,2	630	80	0,9	7,8	MRS-MRT 28	200	7	4,8	>3	4,8
MRS-MRT 28 / 50	1,8	784	106	1,5	7,7	MRS-MRT 28	140	10	6,6	2,7	4,8
MRS-MRT 28 / 50	1,3	1120	142	1,2	7,7	MRS-MRT 28	93	15	9,5	1,9	4,8
MRS-MRT 28 / 50	0,9	1560	160	1,0	7,7	MRS-MRT 28	70	20	12	1,3	4,8
MRS-MRT 28 / 60	0,6	2240	211	1,2	10	MRS-MRT 28	50	28	15	1,3	4,8
MRS-MRT 28 / 60	0,5	2800	241	0,9	10	MRS-MRT 40	35	40	20	2,1	6,2
MRS-MRT 40 / 70	0,4	4000	360	1,0	15	MRA-MTA 63 / 40	32	44	27	2,9	7,7
MRS-MRT 40 / 70	0,3	5600	458	0,7	15	MRS-MRT 40	29	49	23	1,8	6,2
MRS-MRT 40 / 85	0,2	8000	557	0,7	19	MRS-MRT 40	25	56	26	1,5	6,2
MRS-MRT 40 / 85	0,1	10000	614	0,4	19	MRA-MTA 63 / 40	22	63	37	2,1	7,7
						MRS-MRT 40	20	70	30	1,2	6,2
						MRS-MRT 40	18	80	33	1,0	6,2
<b>0,09 kW</b>	rpm	i =	Nm	SF	kg	MRA-MTA 63 / 40	15	95	52	1,4	7,7
MRS-MRT 28	280	5	2,7	>3	3,7	MRS-MRT 50	14	100	38	1,1	7,5
MRS-MRT 28	200	7	3,6	>3	3,7	MRA-MTA 63 / 40	11	126	62	1,0	7,7
MRS-MRT 28	140	10	5,0	>3	3,7	MRS-MRT 28 / 40	9,3	150	64	1,4	7,6
MRS-MRT 28	93	15	7,1	2,5	3,7	MRA-MTA 63 / 40	8,0	176	75	0,9	7,7
MRS-MRT 28	70	20	9,1	1,8	3,7	MRS-MRT 28 / 40	7,0	200	77	1,0	7,6
MRS-MRT 28	50	28	11	1,8	3,7	MRA-MTA 63 //50	5,5	252	99	1,2	9,0
MRS-MRT 28	35	40	15	1,1	3,7	MRS-MRT 28 / 40	5,0	280	94	0,8	7,6
MRA-MTA 63 / 40	32	44	21	>3	6,6	MRA-MTA 63 / /50	4,6	309	114	0,9	9,0
MRS-MRT 28	29	49	17	1,0	3,7						

**Selezione Motoriduttore - Geared Motor Selection - Getriebemotorauswahl**
**RS-RT**

<b>0,12 kW</b>	rpm	i =	Nm	SF	kg	<b>0,25 kW</b>	rpm	i =	Nm	SF	kg
MRS-MRT 28 / 50	3,3	420	134	1,2	8,9	MRA-MTA 71 / 50	95	95	109	1,2	12
MRS-MRT 28 / 50	2,5	560	170	0,9	8,9	MRS-MRT 60	14	100	88	1,0	12
MRS-MRT 28 / 60	1,8	784	225	1,1	12	MRA-MTA 71 / 60	11	126	144	1,6	15
MRS-MRT 28 / 60	1,3	1120	303	0,8	12	MRS-MRT 40 / 70	9,3	150	146	1,5	18
MRS-MRT 40 / 70	0,9	1568	385	1,0	16	MRA-MTA 71 / 60	8,0	176	171	1,4	15
MRS-MRT 40 / 85	0,6	2240	513	1,2	20	MRS-MRT 40 / 70	7,0	200	188	1,5	18
MRS-MRT 40 / 85	0,5	2800	596	1,0	20	MRA-MTA 71 / 70	5,5	252	232	1,3	18
MRS-MRT 40 / 85	0,4	4000	753	0,8	20	MRS-MRT 40 / 70	5,0	280	224	1,5	18
						MRA-MTA 71 / 70	4,6	309	263	1,0	18
						MRA-MTA 71 / 70	4,0	353	277	0,9	18
<b>0,18 kW</b>	rpm	i =	Nm	SF	kg	MRS-MRT 40 / 70	3,3	420	315	1,2	18
MRS-MRT 28	280	5	5,4	>3	5,4	MRS-MRT 40 / 70	2,5	560	401	1,0	18
MRS-MRT 28	200	7	7,2	2,5	5,4	MRS-MRT 40 / 85	1,8	784	535	1,1	22
MRS-MRT 28	140	10	9,9	1,8	5,4	MRS-MRT 50 / 110	1,3	1120	707	1,8	46
MRS-MRT 28	93	15	14	1,3	5,4	MRS-MRT 50 / 110	0,9	1568	882	1,5	46
MRS-MRT 28	70	20	18	0,8	5,4	MRS-MRT 50 / 110	0,6	2240	1146	1,2	46
MRS-MRT 40	50	28	23	2,1	6,8	MRS-MRT 50 / 110	0,5	2800	1289	0,9	46
MRS-MRT 40	35	40	30	1,4	6,8						
MRA-MTA 63 / 40	32	44	41	1,9	8,3	<b>0,37 kW</b>	rpm	i =	Nm	SF	kg
MRS-MRT 40	29	49	35	1,2	6,8	MRS-MRT 40	280	5	11	>3	8,7
MRS-MRT 40	25	56	39	1,0	6,2	MRS-MRT 40	200	7	15	3,0	8,7
MRA-MTA 63 / 40	22	63	56	1,4	8,3	MRS-MRT 40	140	10	21	2,2	8,7
MRS-MRT 50	20	70	46	1,4	8,1	MRS-MRT 40	93	15	30	1,5	8,7
MRS-MRT 50	18	80	51	1,1	8,1	MRS-MRT 40	70	20	38	1,0	8,7
MRA-MTA 63 / 40	15	95	78	0,9	8,3	MRS-MRT 40	50	28	48	1,0	8,7
MRS-MRT 50	14	100	43	0,8	8,1	MRS-MRT 50	35	40	65	1,1	10
MRA-MTA 63 / 50	11	126	97	1,2	9,6	MRA-MTA 71 / 50	32	44	87	1,7	13
MRS-MRT 28 / 50	9,3	150	93	1,6	9,5	MRS-MRT 50	29	49	77	1,0	10
MRA-MTA 63 / 50	8,0	176	119	1,2	9,6	MRS-MRT 60	25	56	85	1,5	13
MRS-MRT 28 / 50	7,0	200	120	1,1	9,5	MRA-MTA 71 / 50	22	63	118	1,1	13
MRS-MRT 28 / 50	5,0	280	141	1,1	9,5	MRS-MRT 60	20	70	97	1,3	13
MRS-MRT 28 / 60	3,3	420	217	1,1	12	MRS-MRT 60	18	80	107	1,0	13
MRS-MRT 40 / 70	2,5	560	289	1,4	16	MRA-MTA 71 / 60	15	95	168	1,4	16
MRS-MRT 40 / 70	1,8	784	366	1,1	16	MRS-MRT 70	14	100	130	1,0	15
MRS-MRT 40 / 85	1,3	1120	481	1,3	21	MRA-MTA 71 / 60	11	126	213	1,1	15
MRS-MRT 40 / 85	0,9	1568	616	1,0	21	MRS-MRT 40 / 70	9,3	150	217	2,1	18
MRS-MRT 40 / 85	0,6	2240	770	0,8	21	MRA-MTA 71 / 60	8,0	176	253	0,9	15
						MRS-MRT 40 / 70	7,0	200	278	1,3	18
						MRA-MTA 71 / 70	5,5	252	343	0,9	18
<b>0,25 kW</b>	rpm	i =	Nm	SF	kg	MRS-MRT 40 / 70	5,0	280	332	1,1	18
MRS-MRT 40	280	5	7,5	>3	8,3	MRS-MRT 40 / 85	3,3	420	488	1,2	23
MRS-MRT 40	200	7	10	>3	8,3	MRS-MRT 40 / 85	2,5	560	622	1,0	23
MRS-MRT 40	140	10	14	>3	8,3	MRS-MRT 50 / 110	1,3	1120	1046	1,2	47
MRS-MRT 40	93	15	20	2,2	8,3	MRS-MRT 50 / 110	0,9	1568	1306	1,1	47
MRS-MRT 40	70	20	26	1,5	8,3						
MRS-MRT 40	50	28	32	1,5	8,3	<b>0,55 kW</b>	rpm	i =	Nm	SF	kg
MRS-MRT 40	35	40	42	1,0	8,3	MRS-MRT 40	280	5	16	2,8	10,7
MRA-MTA 71 / 50	32	44	59	2,5	12	MRS-MRT 50	200	7	23	>3	12
MRS-MRT 50	29	49	52	1,5	9,6	MRS-MRT 50	140	10	32	2,4	12
MRS-MRT 50	25	56	57	1,3	9,6	MRS-MRT 50	70	20	57	1,1	12
MRA-MTA 71 / 50	22	63	80	1,7	12	MRS-MRT 50	50	28	75	1,1	12
MRS-MRT 50	20	70	63	1,0	9,6						
MRS-MRT 60	18	80	72	1,5	12						

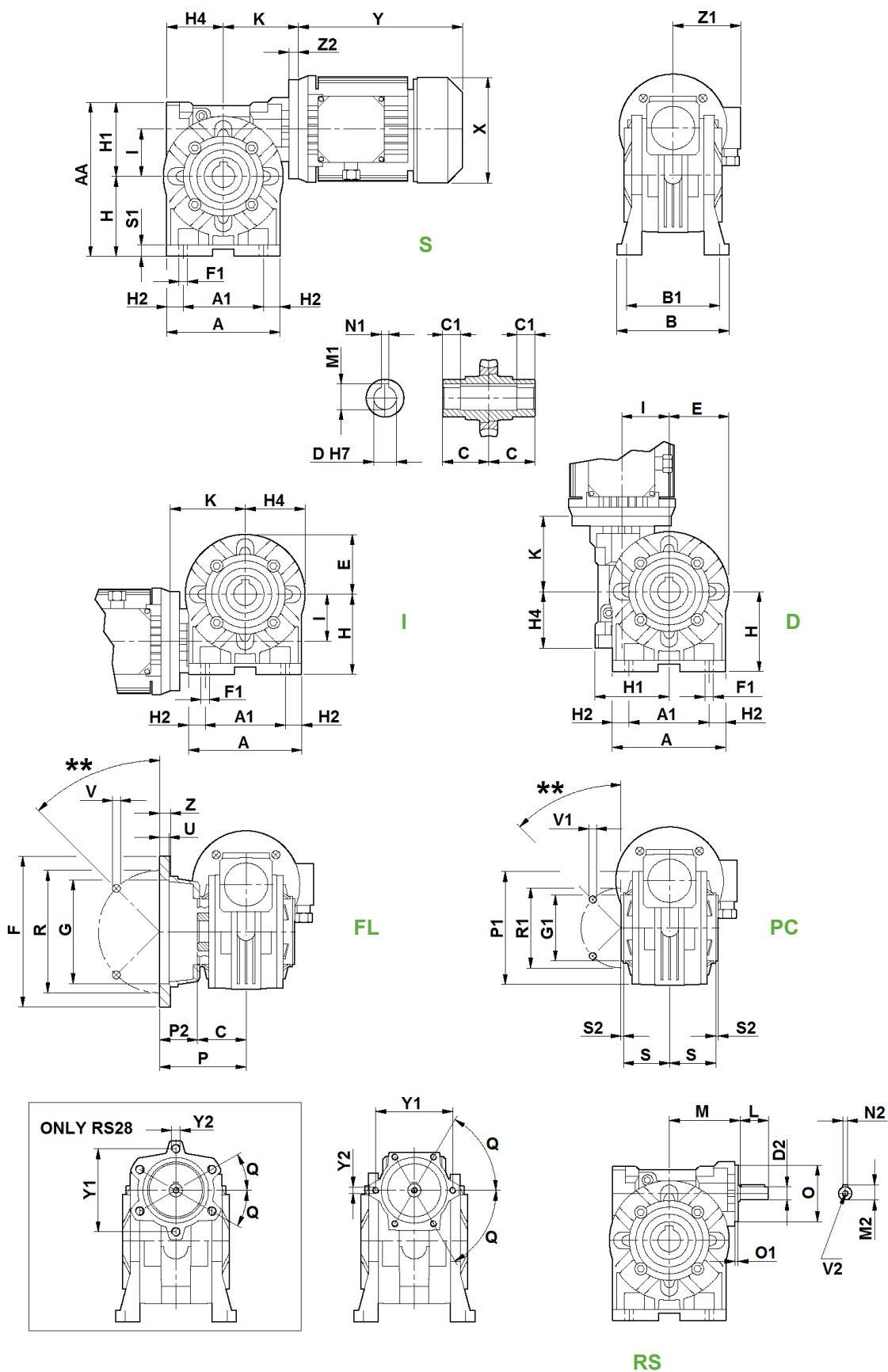


**Selezione Motoriduttore - Geared Motor Selection - Getriebemotorauswahl**

<b>0,55 kW</b>	rpm	i =	Nm	SF	kg	<b>1.1 kW</b>	rpm	i =	Nm	SF	kg
MRS-MRT 60	35	40	99	1,4	15	MRA-MTA 80 / 70	32	44	264	1,1	25
MRA-MTA 80 / 60	32	44	130	1,7	19	MRS-MRT 85	29	49	246	1,3	26
MRS-MRT 60	29	49	114	1,1	15	MRS-MRT 85	25	56	286	1,1	26
MRS-MRT 60	25	56	126	1,0	15	MRA-MTA 80 / 85	22	63	364	1,4	30
MRA-MTA 80 / 60	22	63	177	1,2	19	MRS-MRT 110	20	70	352	1,8	48
MRS-MRT 70	20	70	155	1,1	18	MRS-MRT 110	18	80	396	1,3	48
MRS-MRT 70	18	80	168	1,0	18	MRA-MTA 80 / 85	15	95	513	1,0	30
MRA-MTA 80/60	15	95	249	1,0	19	MRS-MRT 110	14	100	458	1,0	48
MRS-MRT 85	14	100	210	1,0	22	MRA-MTA 80 / 110	11	126	671	1,6	52
MRA-MTA 80 / 70	11	126	321	1,1	22	MRA-MTA 80 / 110	8,0	176	832	1,4	52
MRA-MTA 80 / 85	8,0	176	396	1,3	26	MRA-MTA 80 / 110	5,5	252	1078	1,0	52
MRA-MTA 80 / 85	5,5	252	520	1,0	26	MRA-MTA 80 / 110	4,6	309	1229	0,9	52
MRA-MTA 80 / 110	4,6	309	614	1,8	49	MRA 110 / 130	3,5	400	1681	1,0	94
MRA-MTA 80 / 110	4,0	353	689	1,4	49	MRS-MRT 60 / 130	3,3	420	1576	1,3	69
MRS-MRT 50 / 110	3,3	420	756	1,1	49	MRA 110/150	3,0	448	1916	1,3	99
MRA-MTA 80 / 110	3,2	441	794	1,2	49	MRA 110/150	2,5	560	2059	1,0	99
MRA-MTA 80 / 110	2,8	504	851	0,9	49	MRA 110/150	2,2	640	2209	0,9	99
MRS-MRT 50 / 110	2,5	570	962	1,3	49	MRS-MRT 70 / 150	1,8	784	2706	0,9	102
MRS-MRT 50 / 110	1,8	784	1235	1,5	49						
<b>0,75 kW</b>	rpm	i =	Nm	SF	kg	<b>1,5 kW</b>	rpm	i =	Nm	SF	kg
MRS-MRT 50	200	5	23	>3	14	MRS-MRT 60	280	5	46	2,7	20
MRS-MRT 50	200	7	31	2,4	14	MRS-MRT 60	200	7	62	1,8	20
MRS-MRT 50	140	10	43	1,7	14	MRS-MRT 60	140	10	86	1,5	20
MRS-MRT 50	93	15	60	1,2	14	MRS-MRT 60	93	15	124	1,0	20
MRS-MRT 60	70	20	79	1,5	17	MRS-MRT 70	70	20	166	1,2	23
MRS-MRT 60	50	28	102	1,4	17	MRS-MRT 70	50	28	215	1,0	23
MRS-MRT 60	35	40	135	1,0	17	MRS-MRT 85	35	40	295	1,4	27
MRA-MTA 80 / 60	32	44	178	1,2	20	MRA-MTA 80 / 85	32	44	360	1,4	31
MRS-MRT 70	29	49	168	1,1	19	MRS-MRT 85	29	49	336	0,9	27
MRS-MRT 70	25	56	183	1,0	19	MRS-MRT 110	29	49	356	1,8	50
MRA-MTA 80 / 60	22	63	242	1,0	20	MRS-MRT 110	25	56	401	1,5	50
MRS-MRT 85	20	70	226	1,3	23	MRA-MTA 80 / 85	22	63	496	1,1	31
MRS-MRT 85	18	80	246	1,1	23	MRS-MRT 110	20	70	480	1,3	50
MRA-MTA 80 / 70	11	126	341	0,9	23	MRS-MRT 110	18	80	540	1,0	50
MRA-MTA 80 / 85	8,0	176	540	0,9	27	MRA-MTA 80 / 110	15	95	719	1,6	54
MRA-MTA 80 / 110	5,5	252	735	1,5	50	MRS130	14	100	624	1,2	64
MRA-MTA 80 / 110	4,6	309	838	1,3	50	MRA-MTA 80 / 110	11	126	915	1,2	54
MRA-MTA 80 / 110	4,0	353	939	1,1	50	MRA-MTA 80 / 110	8,0	176	1135	1,0	54
MRS-MRT 50 / 110	3,3	420	1031	1,2	50	MRA100/130	7,0	200	1269	1,0	71
MRA-MTA 80 / 110	3,2	441	1083	0,9	50	MRA100/130	6,3	224	1421	1,2	71
MRS-MRT 50 / 110	2,5	570	1289	1,0	50	MRA100/150	5,0	280	1490	1,1	101
						MRA100/150	3,5	400	2292	1,1	101
<b>1.1 kW</b>	rpm	i =	Nm	SF	kg	<b>2.2 kW</b>	rpm	i =	Nm	SF	kg
MRS-MRT 60	200	5	34	>3	19	MRS-MRT 70	280	5	92	1,9	28
MRS-MRT 60	140	10	63	2,1	19	MRS-MRT 70	200	7	92	1,8	28
MRS-MRT 60	93	15	91	1,4	19	MRS-MRT 70	140	10	129	1,4	28
MRS-MRT 60	70	20	116	1,1	19	MRS-MRT 70	93	15	187	1,0	28
MRS-MRT 70	50	28	158	1,4	21	MRS-MRT 85	70	20	246	1,3	33
MRS-MRT 70	35	40	213	1,1	21	MRS-MRT 85	50	28	319	1,0	33

**Selezione Motoriduttore - Geared Motor Selection - Getriebemotorauswahl**
**RS-RT**

<b>2.2 kW</b>	rpm	i =	Nm	SF	kg	<b>5.5 kW</b>	rpm	i =	Nm	SF	kg
MRS-MRT 110	35	40	438	1,6	55	MRS-MRT 110	200	7	231	2,3	79
MRS-MRT 110	29	49	522	1,2	55	MRS-MRT 110	140	10	326	1,6	79
MRS-MRT 110	25	56	588	1,0	55	MRS-MRT 110	93	15	473	1,2	79
MRS-MRT 110	20	70	704	0,9	55	MRS-MRT 110	70	20	623	1,0	79
MRS130	18	80	756	1,1	69	MRS130	50	28	809	1,4	93
MRS150	14	100	945	1,2	99	MRS130	35	40	1141	1,0	93
MRA100/130	14	98	985	1,5	78	MRS150	29	49	1342	1,1	123
MRA100/130	12	125	1369	1,3	78	MRS150	25	56	1534	0,9	123
MRA100/130	10	140	1324	1,0	78	<b>7,5 kW</b>	rpm	i =	Nm	SF	kg
MRA100/130	8,9	160	1729	1,0	78	MRS-MRT 110	200	7	315	1,7	88
MRA100/150	7,0	200	1861	1,1	108	MRS-MRT 110	140	10	445	1,2	88
MRA100/150	6,3	230	2175	1,2	108	MRS-MRT 110	93	15	645	0,9	88
<b>3 kW</b>	rpm	i =	Nm	SF	kg	MRS130	93	15	652	1,5	102
MRS-MRT 70	280	5	91	1,9	30	MRS 130	70	20	860	1,1	102
MRS-MRT 70	200	7	126	1,3	30	MRS130	50	28	1103	1,0	102
MRS-MRT 70	140	10	176	1,0	30	MRS150	35	40	1576	1,1	132
MRS-MRT 85	93	15	255	1,1	35	<b>11 kW</b>	rpm	i =	Nm	SF	kg
MRS-MRT 85	70	20	336	1,1	35	MRS150	200	7	467	2,3	148
MRS-MRT 110	50	28	435	1,5	57	MRS150	140	10	660	1,9	148
MRS-MRT 110	35	40	598	1,2	57	MRS150	93	15	968	1,5	148
MRS-MRT 110	29	49	712	0,9	57	MRS150	70	20	1261	1,1	148
MRS130	29	49	722	1,3	71	<b>15 kW</b>	rpm	i =	Nm	SF	kg
MRS130	25	56	814	1,2	71	MRS150	200	7	637	1,7	158
MRS150	20	70	974	1,3	101	MRS150	140	10	900	1,4	158
MRA100/130	20	70	1074	1,3	78	MRS150	93	15	1320	1,1	158
MRS150	18	80	1064	1,1	101						
MRA100/130	18	80	1277	1,0	78						
MRA100/130	14	98	1344	1,1	78						
MRS150	14	100	1289	0,9	101						
MRA100/130	12	120	1793	1,0	78						
MRA100/150	10	140	1891	1,1	108						
MRA100/150	8,9	160	2357	1,1	108						
<b>4 kW</b>	rpm	i =	Nm	SF	kg						
MRS-MRT 85	280	5	122	2,3	43						
MRS-MRT 85	200	7	168	1,5	43						
MRS-MRT 85	140	10	235	1,1	43						
MRS-MRT 110	93	15	344	1,6	65						
MRS-MRT 110	50	28	581	1,1	65						
MRS130	35	40	829	1,4	79						
MRS130	29	49	963	1,0	79						
MRS130	25	56	1085	0,9	79						
MRS150	25	56	1115	1,3	109						
MRS150	20	70	1299	0,9	109						
MRA100/130	20	70	1433	0,9	86						
MRA100/150	18	80	1724	0,9	116						
MRA100/150	14	98	1845	1,2	116						
MRA100/150	12	120	2456	0,9	116						





**Dimensioni - Dimensions - Abmessungen [mm]**

RS	28	40	50	60	70	85	110	130	150
A	70	100	120	138	158	193	250	286	336
A <sub>1</sub>	52	70	85	95	120	140	200	235	260
AA	99	138	163	192	221	252	333	400	454
B	78	102	119	136	#	168	200	230	250
B <sub>1</sub>	66	84	99	111	116	140	162	190	210
C	30	41	49	60	60	61	77,5	90	105
C <sub>1</sub>	26.5	26	30.5	39	37.5	38.5	52.5	85	100
D <sub>H7</sub>	14	18-19-20	24-25	25	25-28-30	32-35	42	48	55
D <sub>2 (h6)</sub>	9	11	14	19	19	24	28	38	42
E	34	50	61	70	80	98	125	143	168
F	70	140	160	180	200	200	250	300	350
F <sub>1</sub>	5,5	7	9	11	11	13	14	15	19
G <sub>H8</sub>	40	95	110	115	130	130	180	230	250
G <sub>1 f8</sub>	42	60	70	70	80	110	130	180	180
H	52	71	85	100	115	135	172	200	230
H <sub>1</sub>	47	67	78	92	106	117	161	200	224
H <sub>2</sub>	9	15	17,5	21,5	19	26,5	25	25,5	38
H <sub>4</sub>	40	50	60	72	86	103	139	159	183
I	28	40	50	60	70	85	110	130	150
K	57,5	70,5	83-88*	93-94*	117-118*	134-137*	151-153*	173	191-211*
L	20	23	30	40	40	50	60	80	100
M	50	65	75	87	110	123,5	146	166	195
M <sub>1</sub>	16,3	20,8-21,8-22,8	27,3-28,3	28,3	28,3-31,3-33,3	35,3-38,3	45,3	51,8	59,3
M <sub>2</sub>	10,2	12,5	16	22,5	22,5	27	31	41	45
N <sub>1</sub>	5	6	8	8	8	10	12	14	16
N <sub>2</sub>	3	4	5	6	6	8	8	10	12
O	37	52	60	70	70	80	90	120	120
O <sub>1</sub>	2,5	3,5	3,5	4,75	4,75	5	6	9	9
P	49	82	91,5	116	111	100	150	150	160
P <sub>1</sub>	67	94	100	102	118	150	200	234	250
P <sub>2</sub>	19	41	42,5	56	51	39	72,5	60	55
Q	30°	60°	55°	60°	60°	60°	60°	60°	60°
R	56	115	130	150	165	165	215	265	300
R <sub>1</sub>	56	83	85	85	100	130	165	215	215
S	32	38	49	57,5	57	56,5	75	87	102
S <sub>1</sub>	6	9	12	12	14	15	17	19	20
S <sub>2</sub>	-3	2	2,5	2,5	3	3	2,5	5	5
U	4	6	10	10	12	6	5	5	6
V	6,5 (4)	9 (4)	9 (4)	11 (4)	13 (4)	13 (4)	15 (8)	15 (8)	19 (8)
V <sub>1</sub>	M6x6 (4)	M6x9 (4)	M8x12 (4)	M8x15 (8)	M8x18 (8)	M10x20 (8)	M12x21 (8)	M12x24 (8)	M14x30 (8)
V <sub>2</sub>	M4x10	M4x10	M6x15	M8x20	M8x20	M8x20	M8x20	M10x22	M12x25
Y <sub>1</sub>	47	61	70	80	85	100	106	140	140
Y <sub>2</sub>	M5x8.5 (6)	M5x10 (6)	M6x10 (6)	M6x12 (6)	M8x16 (6)	M8x15 (6)	M8x15,5 (6)	M10x20 (6)	M10x20 (6)
Z	6	10	10	11	14	14	16	22	20

\* - IEC71-B14(FRS50), IEC71-B14(FRS60), IEC80-B14(FRS70), IEC90-B14(FRS85), IEC100/112-B14(FRS110), IEC160-B5(FRS150)

\*\* - 90° per RS28 / 45° per altri tipi

\*\* - 90° for RS28 / 45° for other sizes

\*\* - 90° für RS28 / 45° für andere Typen

# - 137 - Coperchio con Piedi riportati (std)

# - 137 - Cover with bolted feet (std)

# - 137 - Aufgeschraubte Füße (Std)

- 142 - Coperchio con Piedi integrali

- 142 - Cover with integral feet

- 142 - Integrale Füße

S, I, D - Piedi integrali/riportati RS28-110

S, I, D - Integral/bolted feet RS28-110

S, I, D - Integrale/aufgeschraubte Füße RS28-110

- Piedi integrali RS130-150

- Integral feet RS130-150

- Integrale Füße RS130-150

Dimensioni motore: vedi pag. 59

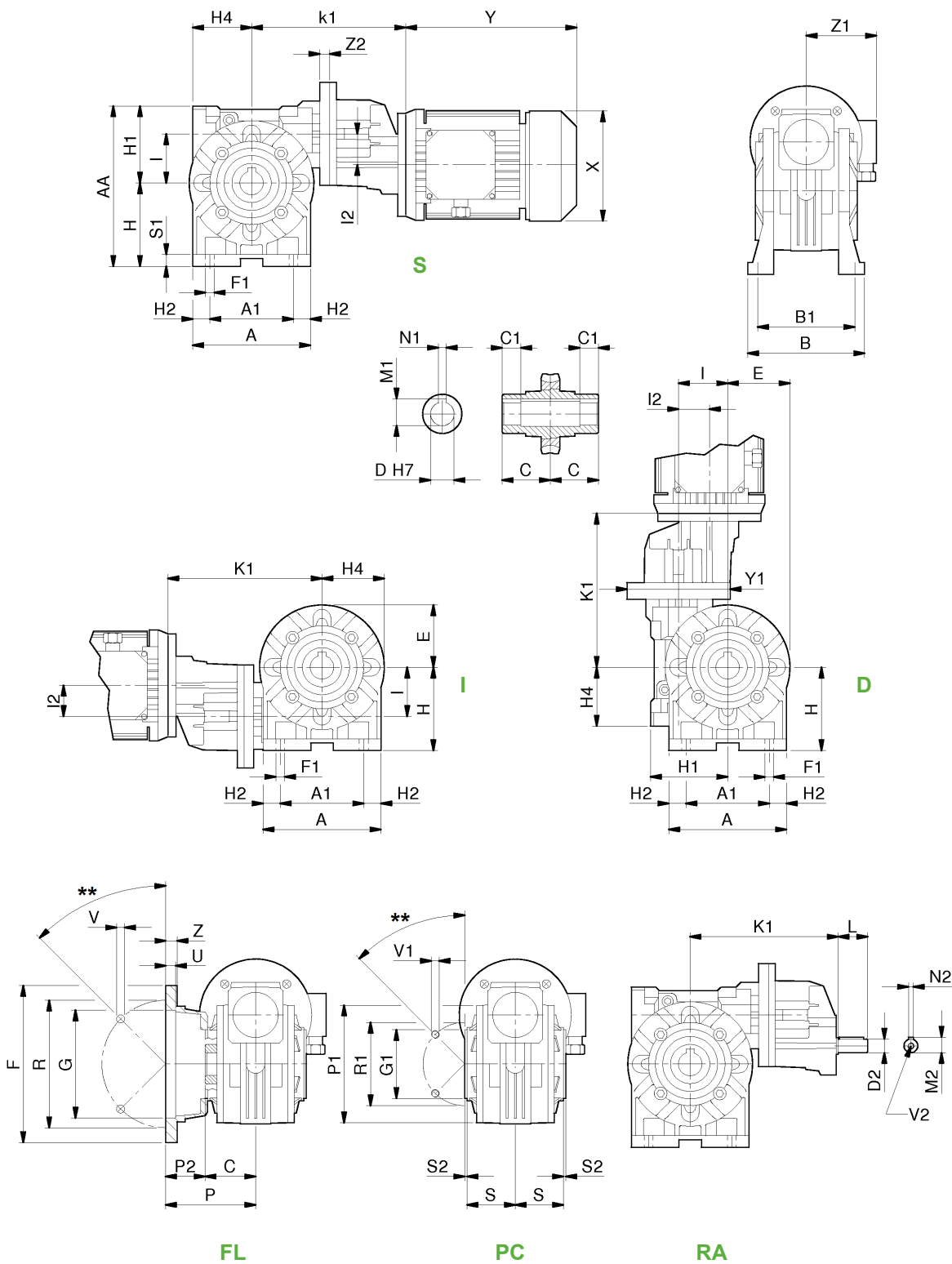
Motor dimensions: see page 59

Motor Abmessungen: siehe Seite 59

Dimensioni non impegnative

Not binding dimensions

unverbindliche Abmessungen



**Dimensioni - Dimensions - Abmessungen [mm]**

RA	63/40	63/50	63/60	71/50	71/60	71/70	71/85	80/60	80/70	80/85	80/110	100/110	100/130	100/150
A	100	120	138	120	138	158	193	138	158	193	250	250	286	336
A <sub>1</sub>	70	85	95	85	95	120	140	95	120	140	200	200	235	260
AA	138	163	192	163	192	221	252	192	221	252	333	333	400	454
B	102	119	136	119	136	#	168	136	#	168	200	200	230	250
B <sub>1</sub>	84	99	111	99	111	116	140	111	116	140	162	162	190	210
C	41	49	60	49	60	60	61	60	60	61	77,5	77,5	90	105
C <sub>1</sub>	26	30,5	39	30,5	39	37,5	38,5	39	37,5	38,5	52,5	52,5	85	100
D <sub>H7</sub>	18-19-20	24-25	25	24-25	25	25-28-30	32	25	25-28-30	32-35	42	42	48	55
D <sub>2h6</sub>	11	11	11	14	14	14	14	19	19	19	19	24	24	24
E	50	61	70	61	70	80	98	70	80	98	125	125	143	168
F	140	160	180	160	180	200	200	180	200	200	250	250	300	350
F <sub>1</sub>	7	9	11	9	11	11	13	11	11	13	14	14	15	19
G <sub>H8</sub>	95	110	115	110	115	130	130	115	130	130	180	180	230	250
G <sub>1 f8</sub>	60	70	70	70	70	80	110	70	80	110	130	130	180	180
H	71	85	100	85	100	115	135	100	115	135	172	172	200	230
H <sub>1</sub>	67	78	92	78	92	106	117	92	106	117	161	161	200	224
H <sub>2</sub>	15	17,5	21,5	17,5	21,5	19	26,5	21,5	19	26,5	25	25	25,5	38
H <sub>4</sub>	50	60	72	60	72	86	103	72	86	103	139	139	159	189
I	40	50	60	50	60	70	85	60	70	85	110	110	130	150
I <sub>2</sub>	32	32	32	40	40	40	40	50	50	50	50	63	63	63
K <sub>1</sub>	153,5	171	177	173	183	209	224	207	232,5	250,5	264,5	328	342	368
	---	---	---	178*	188*	214*	229*	---	---	---	---	---	---	---
L	23	23	23	30	30	30	30	40	40	40	40	50	50	50
M <sub>1</sub>	20,8-21,8-22,8	27,3-28,3	28,3	27,3-28,3	28,3	28,3-31,3-33,3	35,3	28,3	28,3-31,3-33,3	35,3-38,3	45,3	45,3	51,8	59,3
M <sub>2</sub>	12,5	12,5	12,5	16	16	16	16	22,5	22,5	22,5	22,5	27	27	27
N <sub>1</sub>	6	8	8	8	8	8	10	8	8	10	12	12	14	16
N <sub>2</sub>	4	4	4	5	5	5	5	6	6	6	6	8	8	8
P	82	91,5	116	91,5	116	111	100	116	111	100	150	150	150	160
P <sub>1</sub>	94	100	102	100	102	118	150	102	118	150	200	200	234	250
P <sub>2</sub>	41	42,5	56	42,5	56	51	39	56	51	39	72,5	72,5	60	55
R	115	130	150	130	150	165	165	150	165	165	215	215	265	300
R <sub>1</sub>	83	85	85	85	85	100	130	85	100	130	165	165	215	215
S	38	49	57,5	49	57,5	57	56,5	57,5	57	56,5	75	75	87	102
S <sub>1</sub>	9	12	12	12	12	14	15	12	14	15	17	17	19	20
S <sub>2</sub>	2	2,5	2,5	2,5	2,5	3	3	2,5	3	3	2,5	2,5	5	5
U	6	10	10	10	10	12	6	10	12	6	5	5	5	6
V	9 (4)	9 (4)	11 (4)	9 (4)	11 (4)	13 (4) (4)	13 (4)	11 (4)	13 (4)	13 (4)	15 (8)	15 (8)	15 (8)	19 (8)
V <sub>1</sub>	M6x9 (4)	M8x12 (4)	M8x15 (8)	M8x12 (4)	M8x15 (8)	M8x18 (8)	M10x20 (8)	M8x15 (8)	M8x18 (8)	M10x20 (8)	M12x21 (8)	M12x21 (8)	M12x24 (8)	M14x30 (8)
V <sub>2</sub>	M4x10	M4x10	M4x10	M6x15	M6x15	M6x15	M6x15	M8x20	M8x20	M8x20	M8x20	M8x20	M8x20	M8x20
Y <sub>1</sub>	105	105	105	120	120	120	120	140	140	140	140	140	200	200
Z	10	10	11	10	11	14	14	11	14	14	16	16	22	20

\* - IEC71-B14 (FRA 71/50, FRA 71/60, FRA 71/70, FRA 71/85) - IEC100-B5 (FRA 100/130) - IEC100-B5 (FRA 100/150)

\*\* - 90° per RS28 / 45° per altri tipi

# - 137 - Piedi riportati (std)

- 142 - Piedi integrali

S, I, D - Piedi integrali/riportati RS28-110

- Piedi integrali RS130-150

Dimensioni motore: vedi pag. 59

Dimensioni non impegnative

\*\* - 90° for RS28 / 45° for other sizes

# - 137 - Bolted feet version (std)

- 142 - Integral feet version

S, I, D - Integral/bolted feet RS28-110

- Integral feet RS130-150

Motor dimensions: see page 59

Not binding dimensions

\*\* - 90° für RS28 / 45° für andere Typen

# - 137 - Aufgeschraubte FüÙe (Std)

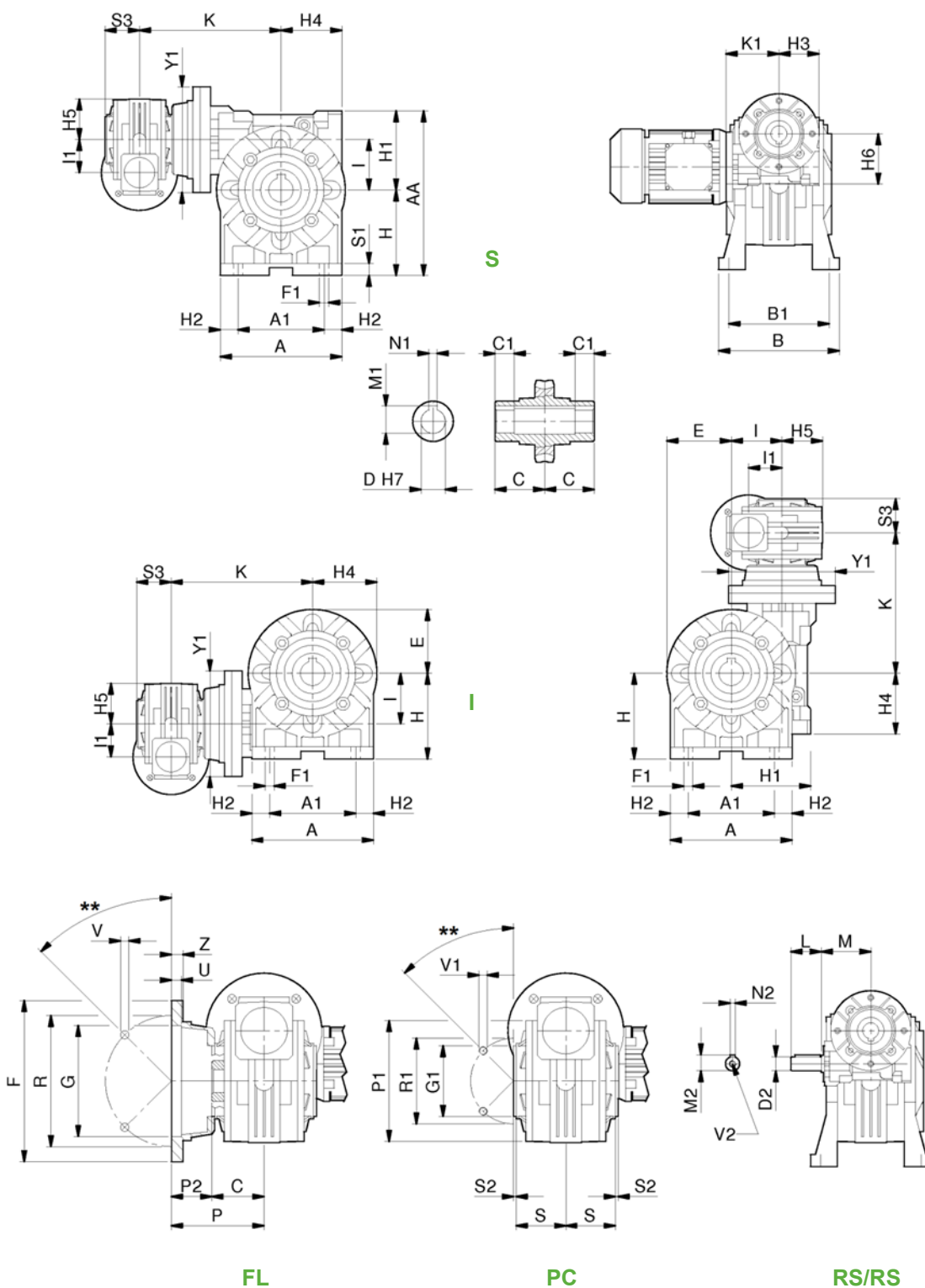
- 142 - Integrale FüÙe

S, I, D - Integrale/aufgeschraubte FüÙe RS28-110

- Integrale FüÙe RS130-150

Motor Abmessungen: siehe Seite 59

unverbindliche Abmessungen



**Dimensioni - Dimensions - Abmessungen [mm]**
**RS-RT**

RS/RS	28/28	28/40	28/50	28/60	40/70	40/85	50/110	60/130	70/150
A	70	100	120	138	158	193	250	286	336
A <sub>1</sub>	52	70	85	95	120	140	200	235	260
AA	99	138	163	192	221	252	333	400	454
B	78	102	119	136	#	168	200	230	250
B <sub>1</sub>	66	84	99	111	116	140	162	190	210
C	30	41	49	60	60	61	77,5	90	105
C <sub>1</sub>	26.5	26	30.5	39	37.5	38.5	52.5	85	100
D <sub>H7</sub>	14	18-19-20	24-25	25	25-28-30	32-35	42	48	55
D <sub>2 h6</sub>	9	9	9	9	11	11	14	38	42
E	34	50	61	70	80	98	125	143	168
F	70	140	160	180	200	200	250	300	350
F <sub>1</sub>	5,5	7	9	11	11	13	14	15	19
G <sub>H8</sub>	40	95	110	115	130	130	180	230	250
G <sub>1 f8</sub>	42	60	70	70	80	110	130	180	180
H	52	71	85	100	115	135	172	200	230
H <sub>1</sub>	47	67	78	92	106	117	161	200	224
H <sub>2</sub>	9	15	17,5	21,5	19	26,5	25	25,5	38
H <sub>3</sub>	40	40	40	40	50	50	60	72	86
H <sub>4</sub>	40	50	60	72	86	103	139	159	189
H <sub>5</sub>	34	34	34	34	50	50	61	70	80
H <sub>6</sub>	47	47	47	47	67	67	78	92	106
I	28	40	50	60	70	85	110	130	150
I <sub>1</sub>	28	28	28	28	40	40	50	60	70
K	99,5	123	138,5	146	182	199	246	246	300
K <sub>1</sub>	57,5	57,5	57,5	57,5	70,5	70,5	83 - 88*	93 - 94*	117-118*
L	20	20	20	20	23	23	30	40	40
M	50	50	50	50	65	65	75	87	110
M <sub>1</sub>	16,3	20.8-21.8-22.8	27,3-28.3	28,3	28.3-31,3-33.3	35,3-38.3	45,3	51,8	59,3
M <sub>2</sub>	10,2	10,2	10,2	10,2	12,5	12,5	16	22,5	22,5
N <sub>1</sub>	5	6	8	8	8	10	12	14	16
N <sub>2</sub>	3	3	3	3	4	4	5	6	6
P	49	82	91,5	116	111	100	150	150	160
P <sub>1</sub>	67	94	100	102	118	150	200	234	250
P <sub>2</sub>	19	41	42,5	56	51	39	72,5	60	55
R	56	115	130	150	165	165	215	265	300
R <sub>1</sub>	56	83	85	85	100	130	165	215	215
S	32	38	49	57,5	57	56,5	75	87	102
S <sub>1</sub>	6	9	12	12	14	15	17	19	20
S <sub>2</sub>	-3	2	2,5	2,5	3	3	2,5	5	5
S <sub>3</sub>	30	30	30	30	41	41	49	60	60
U	4	6	10	10	12	6	5	5	6
V	6,5 (4)	9 (4)	9 (4)	11 (4)	13 (4)	13 (4)	15 (8)	15 (8)	19 (8)
V <sub>1</sub>	M6x6 (4)	M6x9 (4)	M8x12 (4)	M8x15 (8)	M8x18 (8)	M10x20 (8)	M12x21 (8)	M12x24 (8)	M14x30 (8)
V <sub>2</sub>	M4x10	M4x10	M4x10	M4x10	M4x10	M4x10	M6x15	M8x20	M8x20
Y <sub>1</sub>	80	80	80	90	115	115	110	180	200
Z	6	10	10	11	14	14	16	22	20

\* - IEC71-B14 (**FRS50**) - IEC71-B14 (**FRS60**) - IEC 80-B14 (**FRS70**)

\*\* - 90° per RS28 / 45° per altri tipi

# - 137 - Piedi riportati (std)

- 142 - Piedi integrali

S, I, D - Piedi integrali/riportati RS28-110

- Piedi integrali RS130-150

Dimensioni motore: vedi pag. 59

Dimensioni non impegnative

\*\* - 90° for RS28 / 45° for other sizes

# - 137 - Bolted feet (std)

- 142 - Integral feet

S, I, D - Integral/bolted feet RS28-110

- Integral feet RS130-150

Motor dimensions: see page 59

Not binding dimensions

\*\* - 90° für RS28 / 45° für andere Typen

# - 137 - Aufgeschraubte FüÙe (Std)

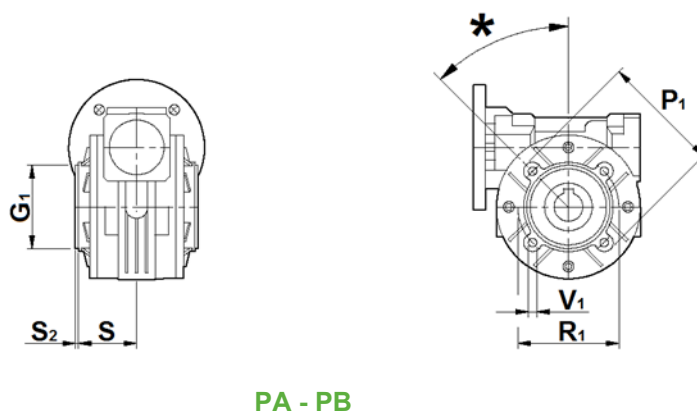
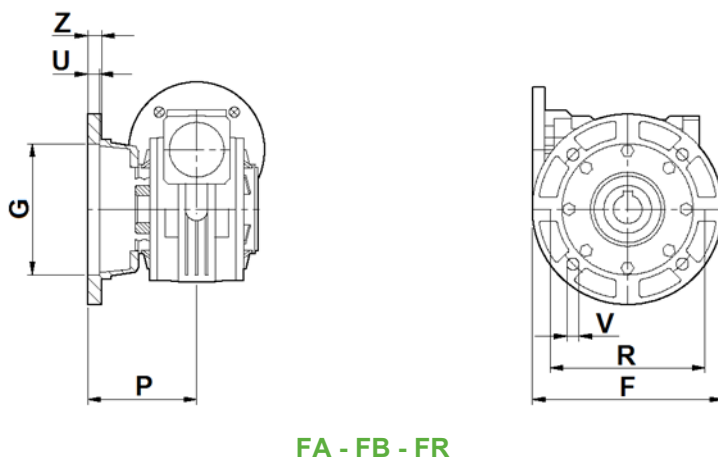
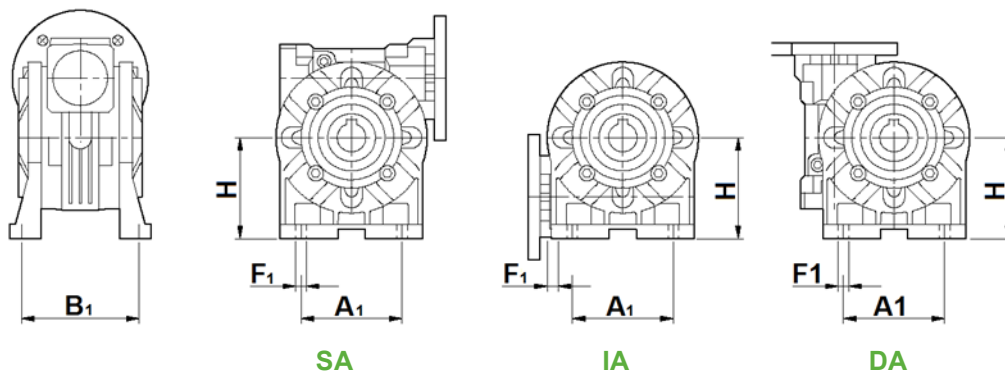
- 142 - Integrale FüÙe

S, I, D - Integrale/aufgeschraubte FüÙe RS28-110

- Integrale FüÙe RS130-150

Motor Abmessungen: siehe Seite 59

unverbindliche Abmessungen

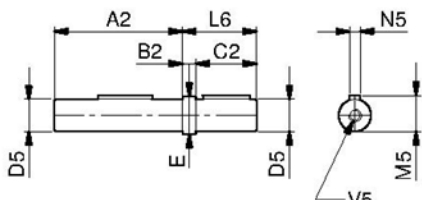


**Dimensioni - Dimensions - Abmessungen [mm]**
**RS-RT**

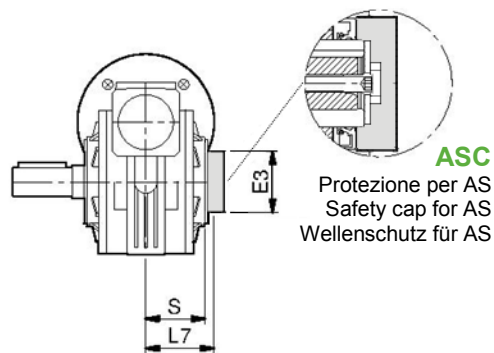
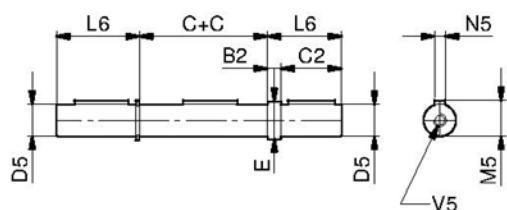
RS	28	40	50	60	70	85	110	130	150
<b>SA - IA - DA</b>									
A <sub>1</sub>	---	52	63	---	---	140	---	---	---
B <sub>1</sub>	---	81	98,5	---	---	146	---	---	---
F <sub>1</sub>	---	8,5	9	---	---	11	---	---	---
H	---	72	82	---	---	142	---	---	---
<b>FA</b>									
F	80	114	125	165	165	---	---	---	---
G <sub>H8</sub>	50	60	70	110	115	---	---	---	---
P	50,5	69	93	90	116	---	---	---	---
R	68	87	90	130	150	---	---	---	---
U	3,5	5	5	10	4,5	---	---	---	---
V	6,5 (4)	9 (4)	11 (4)	10,5 (4)	11 (4)	---	---	---	---
Z	7	8	10	15	10	---	---	---	---
<b>FB</b>									
F	---	120	---	180	---	210	270	---	---
G <sub>H8</sub>	---	80	---	115	---	152	170	---	---
P	---	62	---	86	---	119,5	131,5	---	---
R	---	100	---	150	---	176	230	---	---
U	---	4	---	3,5	---	5	5	---	---
V	---	9 (4)	---	11 (4)	---	11 (4)	13 (4)	---	---
Z	---	9	---	12	---	14	18	---	---
<b>FR</b>									
F	---	---	---	---	160	---	---	---	---
G <sub>H8</sub>	---	---	---	---	110	---	---	---	---
P	---	---	---	---	84,5	---	---	---	---
R	---	---	---	---	130	---	---	---	---
U	---	---	---	---	4,5	---	---	---	---
V	---	---	---	---	11 (4)	---	---	---	---
Z	---	---	---	---	14	---	---	---	---
<b>PA</b>									
G <sub>1 h8</sub>	---	50	68	75	90	---	---	---	---
P <sub>1</sub>	---	95	110	104	125	---	---	---	---
R <sub>1</sub>	---	65	94	90	110	---	---	---	---
S	---	38	49	57,5	57	---	---	---	---
S <sub>2</sub>	---	2	2,5	5,5	3	---	---	---	---
V <sub>1</sub>	---	M6x8 (4)	M6x12,5(4)	M8x14 (4)	M8x14 (4)	---	---	---	---
<b>PB</b>									
G <sub>1 h8</sub>	---	---	60	---	70	---	---	---	---
P <sub>1</sub>	---	---	110	---	116	---	---	---	---
R <sub>1</sub>	---	---	75	---	85	---	---	---	---
S	---	---	49	---	67	---	---	---	---
S <sub>2</sub>	---	---	2,5	---	4	---	---	---	---
V <sub>1</sub>	---	---	M6x12,5(4)	---	M8x14 (4)	---	---	---	---
* - 45° std / 90° su richiesta FA, FB - Flange integrali/riportate RS28-85 FB - Flangia riportata, solamente RS110 FR - Flangia riportata RS70 Dimensioni motore: vedi pag. 59 Dimensioni non impegnative			* - 45° std / 90° on demand FA, FB - Integral/bolted flanges RS28-85 FB - Bolted flange, only RS110 FR - Bolted flange RS70 Motor dimensions: see page 59 Not binding dimensions			* - 45° Std. / 90° auf Anfrage FA, FB - Integrale/aufgeschraubte Flansche RS28-85 FB - Aufgeschraubte Flansch, nur RS110 FR - Aufgeschraubte Flansch RS70 Motor Abmessungen: siehe Seite 59 unverbindliche Abmessungen			



AS

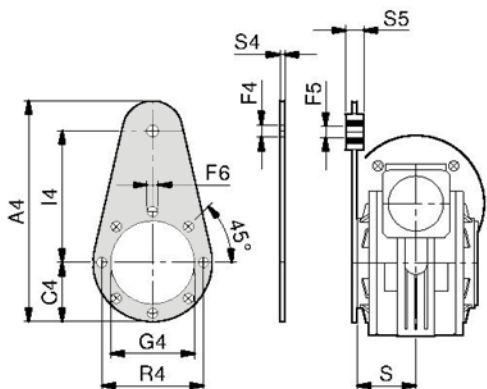


AD

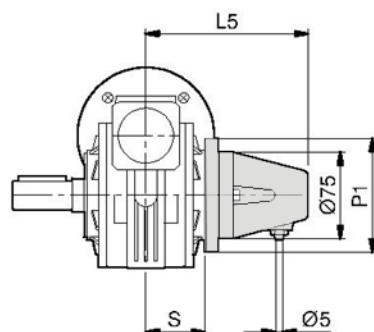


**ASC**  
 Protezione per AS  
 Safety cap for AS  
 Wellenschutz für AS

BR

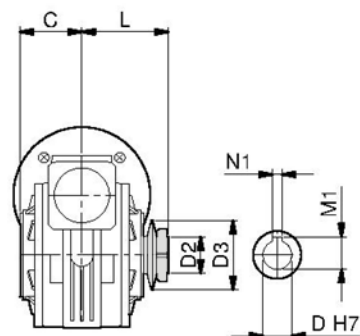
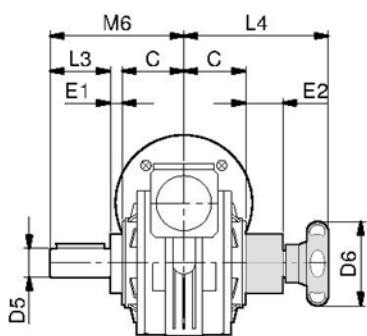


BRV



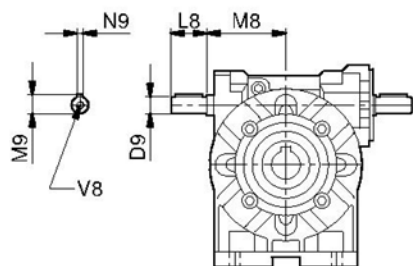
SL

TLE



TLI

VB



**TLI**

**Olio - Oil - Öl**

Litri / Litres / Liter	
RS 28	0.04
RS 40	0.10
RS 50	0.13
RS 60	0.30
RS 70	0.45
RS 85	0.75
RS 110	2.25



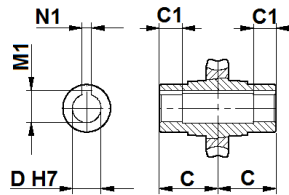
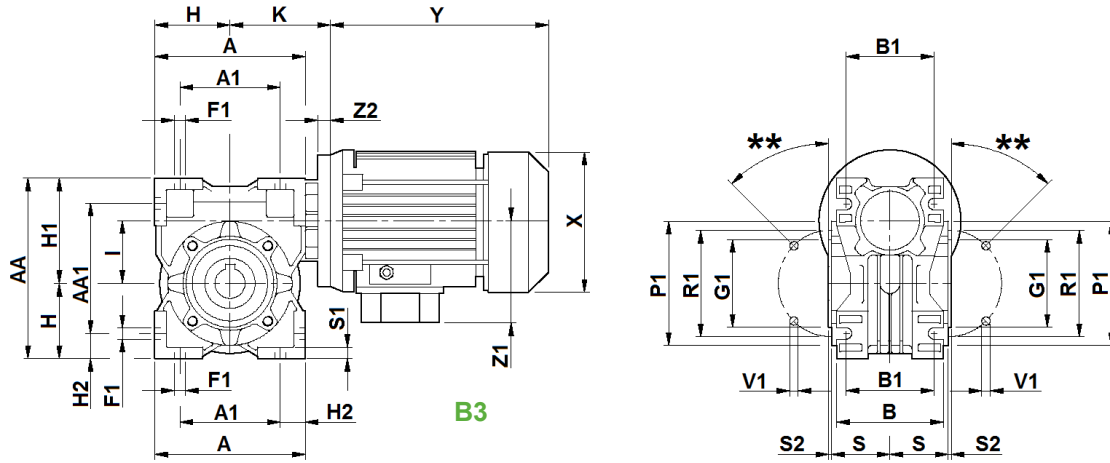
**Dimensioni - Dimensions - Abmessungen [mm]**
**RS-RT**

<b>RS</b>	28	40	50	60	70	85	110	130	150
<b>AS &amp; AD</b> A <sub>2</sub>	58	80	95	117	117	119	153	177	207
B <sub>2</sub>	1	10	10	10	10	10	10	20	20
C	30	41	49	60	60	61	77,5	90	105
C <sub>2</sub>	30	40	45	50	60	70	100	110	110
D <sub>5 g6</sub>	14	19 (18)	24 (25)	25	28	32 (35)	42	48	55
E	14	22	28	30	34	38	50	58	63
L <sub>6</sub>	31	50	55	60	70	80	110	130	130
M <sub>5</sub>	16	21,5	27	28	31	35	45	51,5	59
N <sub>5 h9</sub>	5	6	8	8	8	10	12	14	16
V <sub>5</sub>	M5x10	M8x20	M8x20	M8x20	M8x20	M10x25	M10x25	---	---
<b>ASC</b> E <sub>3</sub>	42	55	62	62	72	90	120	---	---
L <sub>7</sub>	36	48,5	55,5	68,5	67	77	85	---	---
S	32	38	49	57,5	57	56,5	75	---	---
<b>BR &amp; BRV</b> A <sub>4</sub>	133,5	168	185	230	240	313	388	465	525
C <sub>4</sub>	33,5	43	60	50	60	75	100	120	125
F <sub>4</sub>	10,5	10,5	10,5	10,5	10,5	20,5	20,5	26	26
F <sub>5 0/+0.4</sub>	10	10	10	10	10	20	20	25	25,2
F <sub>6</sub>	7	7	9	9	9	11	13	13	15
G <sub>4</sub>	42	60	70	70	80	110	130	180	180
I <sub>4</sub>	80	90	100	150	150	200	250	300	350
R <sub>4</sub>	56	83	85	85	100	130	165	215	215
S <sub>4</sub>	4	4	4	6	6	6	6	6	6
S <sub>5</sub>	15	15	15	20	20	25	25	30	30
<b>SL</b> L <sub>5</sub>	97	114	129	137	133	133	151	---	---
P <sub>1</sub>	67	100	110	102	120	150	200	---	---
S	32	38	49	57,5	57	56,5	75	---	---
<b>TLE</b> D <sub>6</sub>	52	70	70	70	80	100	100	---	---
E <sub>1</sub>	10	12	12	15	14	19	24	---	---
E <sub>2</sub>	28	37	31	40	46	57	71	---	---
L <sub>3</sub>	30	40	50	50	60	70	80	---	---
L <sub>4</sub>	94	116	118	128	146	168	201	---	---
M <sub>6</sub>	70	93	111	125	134	150	181	---	---
<b>TLI</b> D <sub>H7</sub>	14	18-19	24/25	25	28	32/35	42	---	---
D <sub>2</sub>	14,2 x 20	19,5 x 20,5	24,5 x 28	25,5 x 26	28,5 x 22	32,5 x 27	42,5 x 38,5	---	---
D <sub>3</sub>	40	56	71	71	80	90	125	---	---
L	45	61,5	77	86,5	89	94	112,5	---	---
M <sub>1</sub>	15,4*	21,8	27,3	27,3*	31,3	35,3	45,3	---	---
N <sub>1 h9</sub>	5	6	8	8	8	10	12	---	---
<b>VB</b> D <sub>9</sub>	9	11	14	19	19	24	28	38	42
L <sub>8</sub>	20	23	30	40	40	50	60	80	100
M <sub>8</sub>	43	55	65	77	84	106,5	145	166	195
M <sub>9</sub>	10,2	12,5	16	22,5	22,5	27	31	41	45
N <sub>9 h9</sub>	3	4	5	6	6	8	8	10	12
V <sub>8</sub>	M4x10	M4x10	M6x15	M8x20	M8x20	M8x20	M8x20	M10x22	M12x25

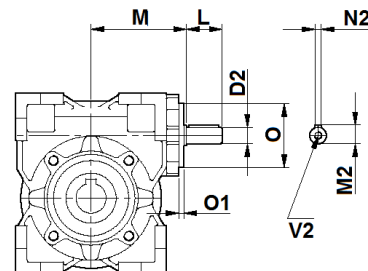
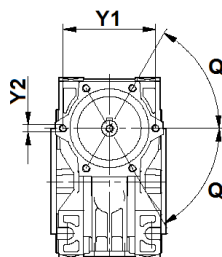
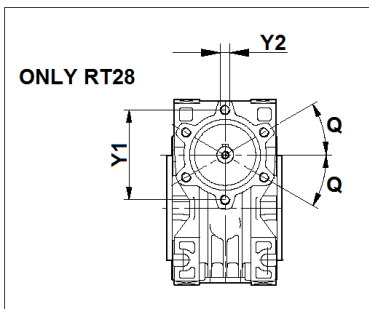
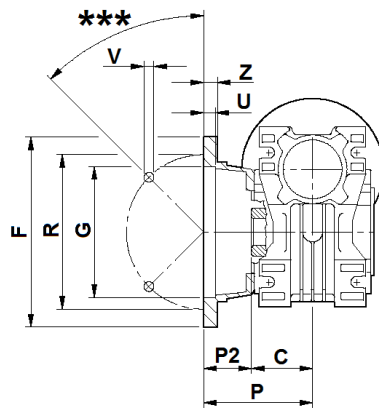
\* = Chiavetta ribassata  
D<sub>5</sub>(.,) = Diametro a richiesta  
Dimensioni non impegnative

\* = Undersized key  
D<sub>5</sub>(..) = Diameter on demand  
Not binding dimensions

\* = Passfedernut mit geringerer Tiefe  
D<sub>5</sub>(..)= Durchmesser auf Anfrage  
unverbindliche Abmessungen



**F, [FV], {FL}**



**RT**

**Dimensioni - Dimensions - Abmessungen [mm]**

RT	28	40	50	60	70	85	110
A	80	100	120	144	172	206	255
A <sub>1</sub>	54	70	80	100	120	140	170
AA	97	121,5	144	174	205	238	295
AA <sub>1</sub>	71	91,5	104	130	153	172	210
B	53	71	85	100	112	130	144
B <sub>1</sub>	44	60	70	85	90	100	115
C	30	41	49	60	60	61	77,5
C <sub>1</sub>	26,5	26	30,5	39	37,5	38,5	52,5
D <sub>H7</sub>	14	18-19-20	24-25	25	25-28-30	32-35	42
D <sub>2 h6</sub>	9	11	14	19	19	24	28
F	80	110 {110}	125 [160] 125}	180 {180}	200	210	270
F <sub>1</sub>	7	7	9	9	11	13	15
G <sub>H8</sub>	50	60 {60}	70 [110] {70}	115 {115}	130	152	170
G <sub>1 h8</sub>	55	60	70	80	95	110	130
H	40	50	60	72	86	103	127,5
H <sub>1</sub>	57	71,5	84	102	119	135	167,5
H <sub>2</sub>	13	15	20	22	26	33	42,5
I	28	40	50	60	70	85	110
K	57,5	70,5	83-88*	93-94*	117-118*	134-137*	151-153*
L	20	23	30	40	40	50	60
M	50	65	75	87	110	123,5	146
M <sub>1</sub>	16,3	20,8-21,8-22,8	27,3-28,3	28,3	28,3-31,3-33,3	35,3-38,3	45,3
M <sub>2</sub>	10,2	12,5	16	22,5	22,5	27	31
N <sub>1</sub>	5	6	8	8	8	10	12
N <sub>2</sub>	3	4	5	6	6	8	8
O	37	52	60	70	70	80	90
O <sub>1</sub>	2,5	3,5	3,5	4,75	4,75	5	6
P	53	69 {99}	93 [90,5] {123}	86 {116}	111	111	131
P <sub>1</sub>	75	86	100	110	130	160	200
P <sub>2</sub>	23	28 {58}	44 [41,5] {74}	25 {56}	51	50	53,5
Q	30°	60°	55°	60°	60°	60°	60°
R	68	87 {87}	90 [130] {90}	150,5 {150,5}	165	175	230
R <sub>1</sub>	65	75	85	95	115	130	165
S	27,5	38,5	46,5	57	57	67	74
S <sub>1</sub>	6	7	8	10	11	14	13
S <sub>2</sub>	2,5	2,5	3	3	3	3	3,5
U	10	4 {4}	5 [11] {5}	6,5 {6,5}	12	6	5
V	7	9 {9}	11 [9] {9}	11 {11}	13	13	14
V <sub>1</sub>	M6x10 (4)	M6x8,5 (4)	M8x10 (4)	M8x16 (8)	M8x16 (8)	M10x18 (8)	M10x21 (8)
V <sub>2</sub>	M4x10	M4x10	M6x15	M8x20	M8x20	M8x20	M8x20
Y <sub>1</sub>	47	61	70	80	85	100	106
Y <sub>2</sub>	M5x8,5 (6)	M5x10 (6)	M6x10 (6)	M6x10 (6)	M8x16 (6)	M8x15 (6)	M8x15,5 (6)
Z	7	6 {8}	10 [13] {10}	10 {10}	14	16	18
Z <sub>2</sub>	13	13	13 - 18,5	14 - 15	15,5 - 17,5	15,5 - 18,5	18-20

\* - IEC71-B14 (**FRT50**) - IEC71-B14 (**FRT60**) - IEC 80-B14 (**FRT70**) - IEC 90-B14 (**FRT85**) - IEC100/112-B14 (**FRT110**)

\*\* - 90° per RT28 / 45° per altri tipi

\*\* - 90° for RT28 / 45° for other sizes

\*\* - 90° für RT28 / 45° für andere Typen

\*\*\* - 45° standard / 90° su richiesta

\*\*\* - 45° standard / 90° on demand

\*\*\* - 45° Standard / 91° auf Anfrage

Dimensioni motore: vedi pag. 59

Motor dimensions: see page 59

Motor Abmessungen: siehe Seite 59

Dimensioni non impegnative

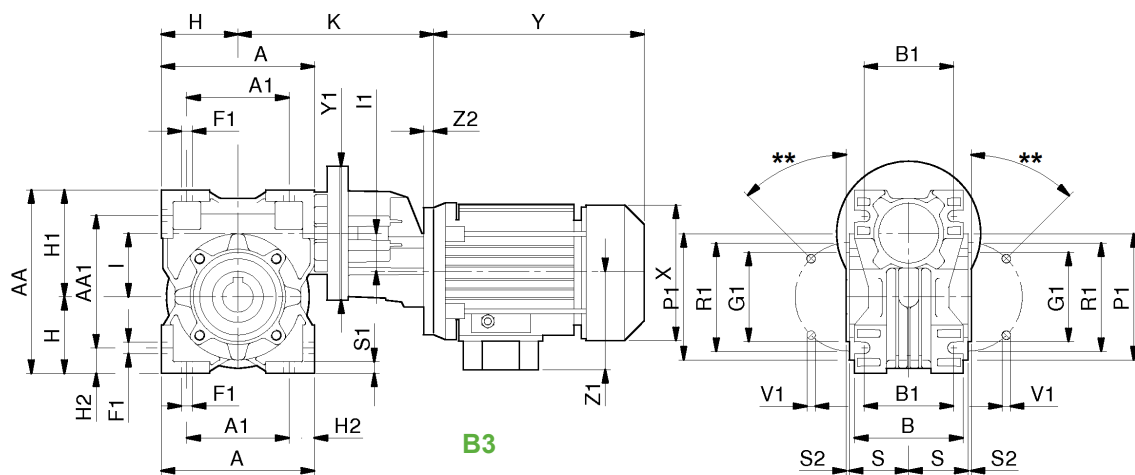
Not binding dimensions

unverbindliche Abmessungen

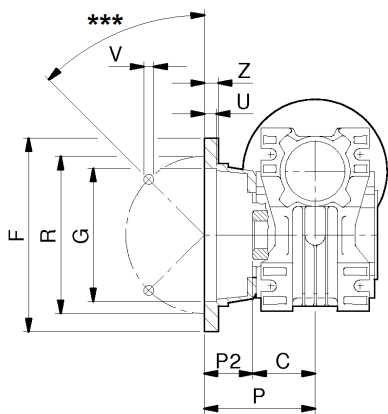
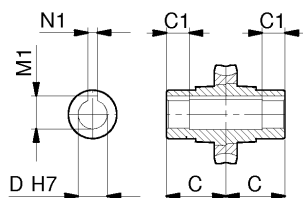
**Nota:** le dimensioni L, M, O, O<sub>1</sub>, Y<sub>1</sub>, Y<sub>2</sub> si riferiscono anche all'entrata SRT

**Note:** dimensions L, M, O, O<sub>1</sub>, Y<sub>1</sub>, Y<sub>2</sub> also apply to SRT input

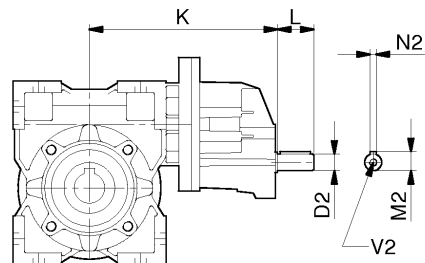
**Anmerkung:** die Abmessungen L, M, O, O<sub>1</sub>, Y<sub>1</sub>, Y<sub>2</sub> entsprechen auch dem SRT-Eingang



B3



F, {FV}, {FL}



TA

**Dimensioni - Dimensions - Abmessungen [mm]**

TA	63/40	63/50	63/60	71/50	71/60	71/70	71/85	80/60	80/70	80/85	80/110	100/110
A	100	120	144	120	144	172	206	144	172	206	255	255
A <sub>1</sub>	70	80	100	80	100	120	140	100	120	140	170	170
AA	121,5	144	174	144	174	205	238	174	205	238	295	295
AA <sub>1</sub>	91,5	104	130	104	130	153	172	130	153	172	210	210
B	71	85	100	85	100	112	130	100	112	130	144	144
B <sub>1</sub>	60	70	85	70	85	90	100	85	90	100	115	115
C	41	49	60	49	60	60	61	60	60	61	77,5	77,5
C <sub>1</sub>	26	30,5	39	30,5	39	37,5	38,5	39	37,5	38,5	52,5	52,5
D (H7)	18-19-20	24-25	25	24-25	25	25-28-30	32-35	25	25-28-30	32-35	42	42
D <sub>2</sub> (h6)	11	11	11	14	14	14	14	19	19	19	19	24
F	110 {110}	125 {160}	180 {180}	125 {160}	180 {180}	200	210	180 {180}	200	210	270	270
	---	{125}	---	{125}	---	---	---	---	---	---	---	---
F <sub>1</sub>	7	9	9	9	9	11	13	9	11	13	15	15
G (H8)	60 {60}	70 {110}	115 {115}	70 {110}	115 {115}	130	152	115 {115}	130	152	170	170
	---	{70}	---	{70}	---	---	---	---	---	---	---	---
G <sub>1</sub> (h8)	60	70	80	70	80	95	110	80	95	110	130	130
H	50	60	72	60	72	86	103	72	86	103	127,5	127,5
H <sub>1</sub>	71,5	84	102	84	102	119	135	102	119	135	167,5	167,5
H <sub>2</sub>	15	20	22	20	22	26	33	22	26	33	42,5	42,5
I	40	50	60	50	60	70	85	60	70	85	110	110
I <sub>1</sub>	32	32	32	40	40	40	40	50	50	50	50	50
K	153,5	171	177	173-178*	183 188*	209-214*	224 229*	207	232,5	250,5	264,5	328
L	23	23	23	30	30	30	30	40	40	40	40	50
M <sub>1</sub>	20,8- 21,8- 22,8	27,3- 28,3	28,3	27,3- 28,3	28,3	28,3	28,3- 31,3- 33,3	28,3	28,3- 31,3- 33,3	35,3- 38,3	45,3	45,3
M <sub>2</sub>	12,5	12,5	12,5	16	16	16	16	22,5	22,5	22,5	22,5	27
N <sub>1</sub>	6	8	8	8	8	8	10	8	8	10	12	12
N <sub>2</sub>	4	4	4	5	5	5	5	6	6	6	6	8
P	69 {99}	93 {90,5}	86 {116}	93 {90,5}	86 {116}	111	111	86 {116}	111	111	131	131
	---	{123}	---	{123}	---	---	---	---	---	---	---	---
P <sub>1</sub>	86	100	110	100	110	130	160	110	130	160	200	200
P <sub>2</sub>	28 {58}	44 {41,5}	25 {56}	44 {41,5}	25 {56}	51	50	25 {56}	51	50	53,5	53,5
	---	{74}	---	{74}	---	---	---	{56}	---	---	---	---
R	87 {87}	90 {130}	150,5	90 {130}	150,5	165	175	150,5	165	175	230	230
		{90}	{150,5}	{90}	{150,5}			{150,5}				
R <sub>1</sub>	75	85	95	85	95	115	130	95	115	130	165	165
S	38,5	46,5	57	46,5	57	57	67	57	57	67	74	74
S <sub>1</sub>	7	8	10	8	10	11	14	10	11	14	13	13
S <sub>2</sub>	2,5	3	3	3	3	3	3	3	3	3	3,5	3,5
U	4 {4}	5 {11} {5}	6,5 {6,5}	5 {11} {5}	6,5 {6,5}	12	6	6,5 {6,5}	12	6	5	5
V	9 {9}	11 {9} {9}	11 {11}	11 {9} {9}	11 {11}	13	13	11 {11}	13	13	14	14
V <sub>1</sub>	M6x8 (4)	M8x10 (4)	M8x16 (8)	M8x10 (4)	M8x16 (8)	M8x16 (8)	M10x18 (8)	M8x16 (8)	M8x16 (8)	M10x18 (8)	M10x21 (8)	M10x21 (8)
V <sub>2</sub>	M4 x 10	M4 x 10	M4 x 10	M6 x 15	M6 x 15	M6 x 15	M6 x 15	M8 x 20	M8 x 20	M8 x 20	M8 x 20	M8 x 20
Y <sub>1</sub>	105	105	105	120	120	120	120	140	140	140	140	140
Z	6 {8}	10 {13} {10}	10 {10}	10 {13} {10}	10 {10}	14	16	10 {10}	14	16	18	18
Z <sub>2</sub>	13	13	13	13 - 18,5	13 - 18,5	13 - 18,5	13 - 18,5	14 - 15	14 - 15	14 - 15	14 - 15	14 - 15

\* - IEC71-B14 (FTA 71/50, FTA71/60, FTA71/70, FTA71/85)

\*\* - 90° per RT28 / 45° per altri tipi

\*\*\* - 45° standard / 90° su richiesta

Dimensioni motore: vedi pag. 59

Dimensioni non impegnative

\*\* - 90° for RT28 / 45° for other sizes

\*\*\* - 45° standard / 90° on demand

Motor dimensions: see page 59

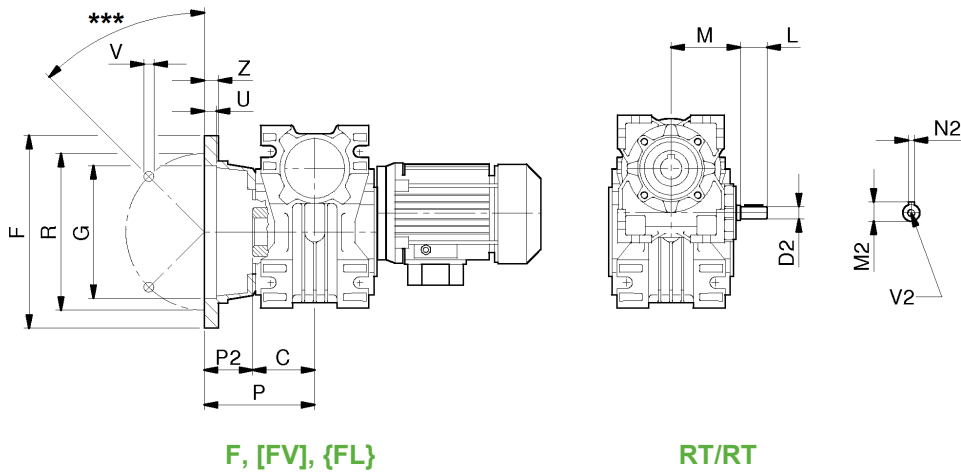
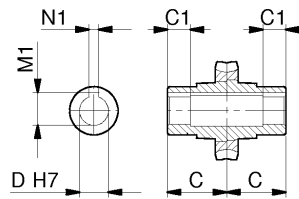
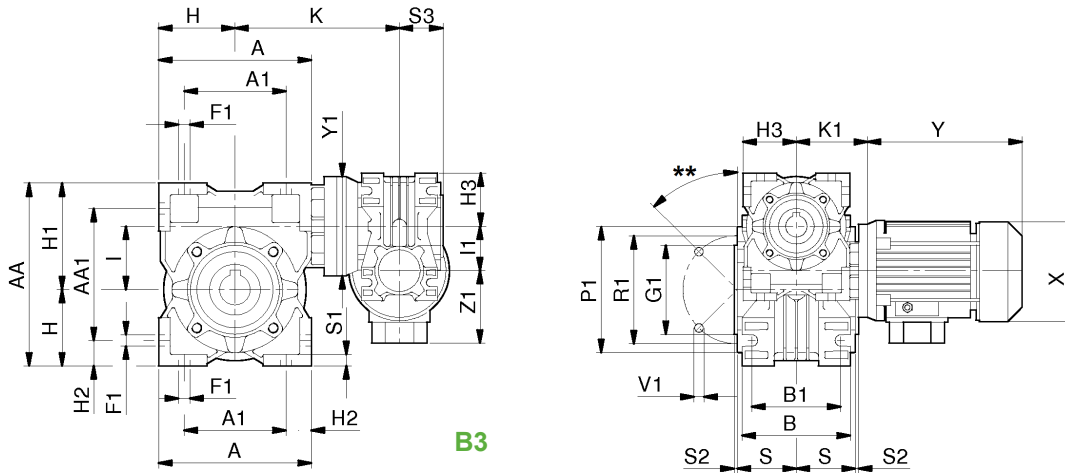
Not binding dimensions

\*\* - 90° für RT28 / 45° für andere Typen

\*\*\* - 45° Standard / 91° auf Anfrage

Motor Abmessungen: siehe Seite 59

unverbindliche Abmessungen



**Dimensioni - Dimensions - Abmessungen [mm]**
**RS-RT**

RT/RT	28/28	28/40	28/50	28/60	40/70	40/85	50/110
A	80	100	120	144	172	206	255
A <sub>1</sub>	54	70	80	100	120	140	170
AA	97	121,5	144	174	205	238	295
AA <sub>1</sub>	71	91,5	104	130	153	172	210
B	53	71	85	100	112	130	144
B <sub>1</sub>	44	60	70	85	90	100	115
C	30	41	49	60	60	61	77,5
C <sub>1</sub>	26,5	26	30,5	39	37,5	38,5	52,5
D H7	14	18-19-20	24-25	25	25-28-30	32-35	42
D <sub>2</sub> h6	9	9	9	9	11	11	14
F	80	110 {110}	125 [160] {125}	180 {180}	200	210	270
F <sub>1</sub>	7	7	9	9	11	13	15
G H8	50	60 {60}	70 [110] {70}	115 [115]	130	152	170
G <sub>1</sub> h8	55	60	70	80	95	110	130
H	40	50	60	72	86	103	127,5
H <sub>1</sub>	57	71,5	84	102	119	135	167,5
H <sub>2</sub>	13	15	20	22	26	33	42,5
H <sub>3</sub>	40	40	40	40	50	50	60
I	28	40	50	60	70	85	110
I <sub>1</sub>	28	28	28	28	40	40	50
K	79,5	115,5	134	145,5	182	199	203
K <sub>1</sub>	57,5	57,5	57,5	57,5	70,5	70,5	83 - 88*
L	20	20	20	20	23	23	30
M	50	50	50	50	65	65	75
M <sub>1</sub>	16,3	20,8-21,8-22,8	27,3-28,3	28,3	28,3-31,3-33,3	35,3-38,3	45,3
M <sub>2</sub>	10,2	10,2	10,2	10,2	12,5	12,5	16
N <sub>1</sub>	5	6	8	8	8	10	12
N <sub>2</sub>	3	3	3	3	4	4	5
P	53	69 {99}	93 [90,5] {123}	86 {116}	111	111	131
P <sub>1</sub>	75	86	100	110	130	160	200
P <sub>2</sub>	23	28 {58}	44 [41,5] {74}	25 {56}	51	50	53,5
R	68	87 {87}	90 [130] {90}	150,5 {150,5}	165	175	230
R <sub>1</sub>	65	75	85	95	115	130	165
S	27,5	38,5	46,5	57	57	67	74
S <sub>1</sub>	6	7	8	10	11	14	13
S <sub>2</sub>	2,5	2,5	3	3	3	3	3,5
S <sub>3</sub>	30	30	30	30	41	41	49
U	10	4 {4}	5 [11] {5}	6,5 {6,5}	12	6	5
V	7	9 {9}	11 [9] {9}	11 {11}	13	13	14
V <sub>1</sub>	M6x10 (4)	M6x8,5 (4)	M8x10 (4)	M8x16 (8)	M8x16 (8)	M10x18 (8)	M10x21 (8)
V <sub>2</sub>	M4x10	M4x10	M4x10	M4x10	M4x10	M4x10	M6x15
Y <sub>1</sub>	80	90	90	90	120	120	120
Z	7	6 {8}	10 [13] {10}	10 {10}	14	16	18

\* - IEC71-B14 (FRT50)

\*\* - 90° per RT28 / 45° per altri tipi

\*\*\* - 45° standard / 90° su richiesta

Dimensioni motore: vedi pag. 59

Dimensioni non impegnative

\*\* - 90° for RT28 / 45° for other sizes

\*\*\* - 45° standard / 90° on demand

Motor dimensions: see page 59

Not binding dimensions

\*\* - 90° für RT28 / 45° für andere Typen

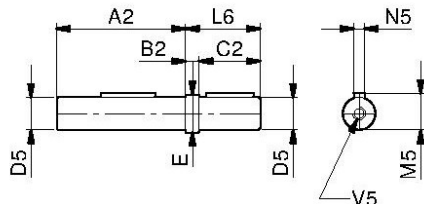
\*\*\* - 45° Standard / 91° auf Anfrage

Motor Abmessungen: siehe Seite 59

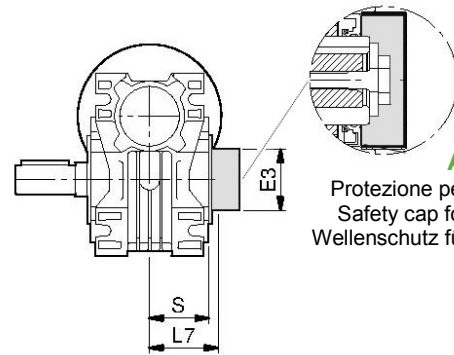
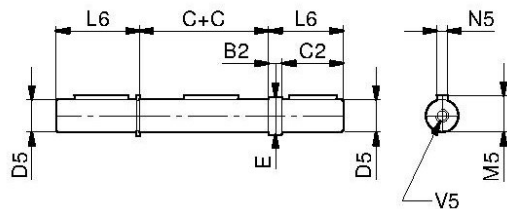
unverbindliche Abmessungen



AS

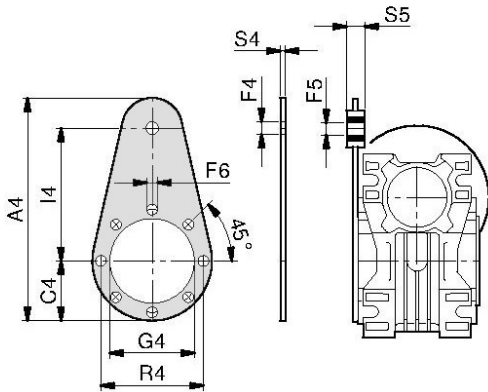


AD

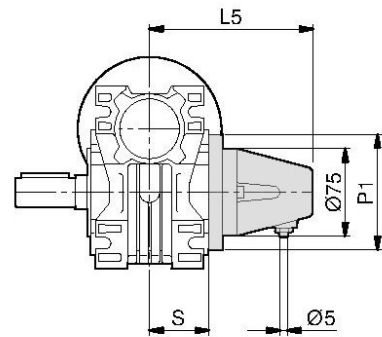


**ASC**  
 Protezione per AS  
 Safety cap for AS  
 Wellenschutz für AS

BT

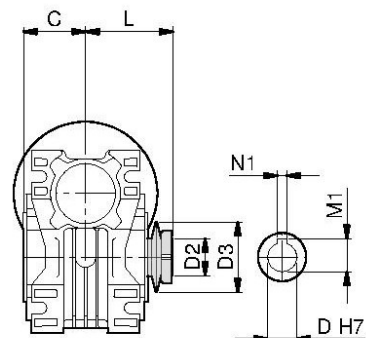
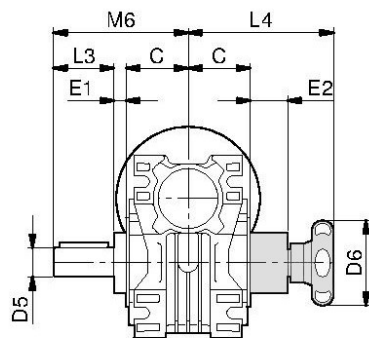


BTV



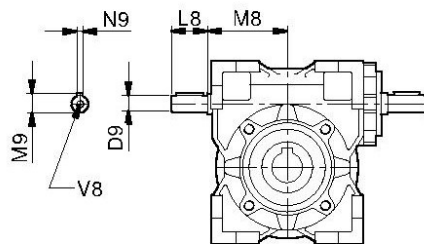
SL

TLE



TLI

VB



**TLI**  
**Olio - Oil - Öl**  
 Litri / Litres / Liter

RT 28	0.04
RT 40	0.10
RT 50	0.13
RT 60	0.30
RT 70	0.45
RT 85	0.75
RT 110	2.25



**Dimensioni - Dimensions - Abmessungen [mm]**
**RS-RT**

RT	28	40	50	60	70	85	110
<b>AS &amp; AD</b> A <sub>2</sub>	58	80	95	117	117	119	153
B <sub>2</sub>	1	10	10	10	10	10	10
C	30	41	49	60	60	61	77,5
C <sub>2</sub>	30	40	45	50	60	70	110
D <sub>5</sub> (g6)	14	19 (18)	24 (25)	25	28	32 (35)	42
E	14	22	28	30	34	38	50
L <sub>6</sub>	31	50	55	60	70	80	110
M <sub>5</sub>	16	21,5	27	28	31	35	45
N <sub>5</sub> (h9)	5	6	8	8	8	10	12
V <sub>5</sub>	M5x10	M8x20	M8x20	M8x20	M8x20	M10x25	M10x25
<b>ASC</b> E <sub>3</sub>	50	52	62	75	90	100	120
L <sub>7</sub>	36	48,5	55,5	68,5	67	77	85
S	27,5	38,5	46,5	57	57	67	74
<b>BT &amp; BTV</b> A <sub>4</sub>	138	168	185	235	295	313	388
C <sub>4</sub>	38	43	60	55	65	75	100
F <sub>4</sub>	10,5	10,5	10,5	10,5	10,5	20,5	20,5
F <sub>5</sub> (0/+0,4)	10	10	10	10	10	20	20
F <sub>6</sub>	7	7	9	9	9	12	13
G <sub>4</sub>	55	60	70	80	95	110	130
I <sub>4</sub>	80	100	100	150	200	200	250
R <sub>4</sub>	65	75	85	95	115	130	165
S <sub>4</sub>	4	4	4	6	6	6	6
S <sub>5</sub>	15	15	15	20	20	25	25
<b>SL</b> L <sub>5</sub>	96	113	123	133	133	139	150
P <sub>1</sub>	78	90	100	110	130	160	200
S	27,5	38,5	46,5	57	57	67	74
<b>TLE</b> D <sub>6</sub>	52	70	70	70	80	100	100
E <sub>1</sub>	10	12	12	15	14	19	24
E <sub>2</sub>	28	37	31	40	46	57	71
L <sub>3</sub>	30	40	50	50	60	70	80
L <sub>4</sub>	94	116	118	128	146	168	201
M <sub>6</sub>	70	93	111	125	134	150	181
<b>TLI</b> D (H7)	14	18/19	24/25	25	28	32/35	42
D <sub>2</sub>	14,2 x 20	19,5 x 20,5	24,5 x 28	25,5 x 26	28,5 x 22	32,5 x 27	42,5 x 38,5
D <sub>3</sub>	40	56	71	71	80	90	125
L	45	61,5	77	86,5	89	94	112,5
M <sub>1</sub>	15,4*	21,8	27,3	27,3*	31,3	35,3	45,3
N <sub>1</sub> (h9)	5	6	8	8	8	10	12
<b>VB</b> D <sub>9</sub>	9	11	14	19	19	24	28
L <sub>8</sub>	20	23	30	40	40	50	60
M <sub>8</sub>	43	55	65	77	89	106,5	145
M <sub>9</sub>	10,2	12,5	16	22,5	22,5	27	31
N <sub>9</sub> (h9)	3	4	5	6	6	8	8
V <sub>8</sub>	M4x10	M4x10	M6x15	M8x20	M8x20	M8x20	M8x20

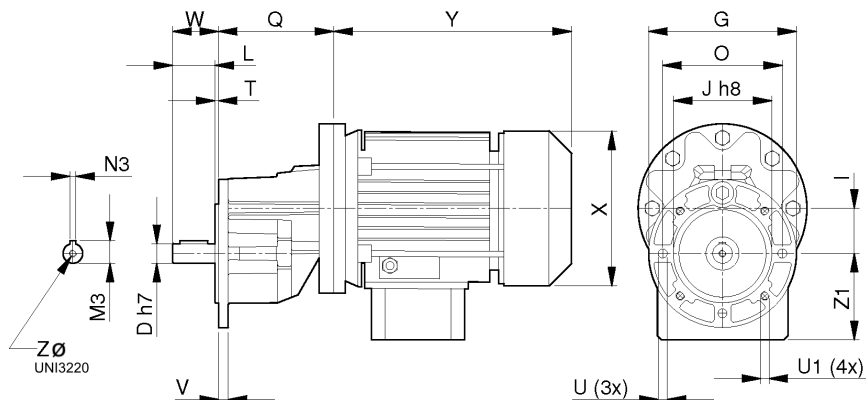
D<sub>5</sub> (,,) = Diametro a richiesta  
Dimensioni non impegnative

D<sub>5</sub> (,,) = Diameter on demand  
Not binding dimensions

D<sub>5</sub> (,,) = Durchmesser auf Anfrage  
unverbindliche Abmessungen



**XA - Dimensioni e Pesì - Dimensions and Weights - Abmessungen u. Gewichte [mm]**



XA	D	G	I	J <sub>h8</sub>	L	M <sub>3</sub>	N <sub>3 h9</sub>	O	Q	U	U1	T	V	W	Z $\emptyset$
<b>63</b>	14 <sub>h8</sub>	105	32	70	30	16	5	85	83	6,5	M6	2,5	7	32,5	R3.15
<b>71</b>	19 <sub>h8</sub>	120	40	80	40	22.5	6	100	90	5,5	M6	2,5	7,5	42,5	R4
<b>80</b>	24 <sub>h8</sub>	140	50	95	49,5	27	8	115	114	9	M8	2,5	10,5	52	R4
<b>100</b>	28 <sub>h7</sub>	200	63	130	57,5	31	8	165	177	10,5	10,5	2,5	12	60	R5

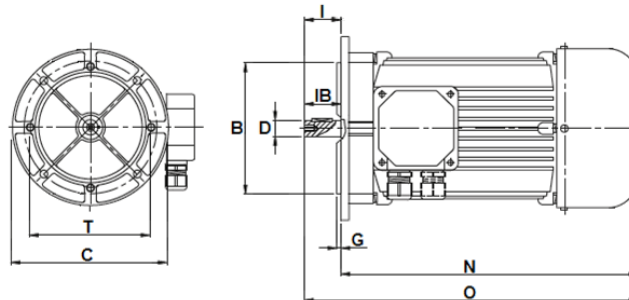
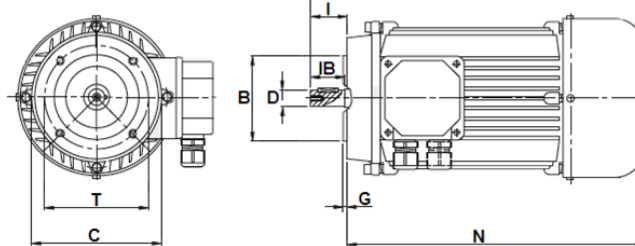
<b>IEC B5</b>	56	63	71	80	S <sup>90</sup> L		100	112
<b>X</b>	110	123	137	156	176	176	194	218
<b>Y</b>	168	190.5	218	242	255	280	312	330
<b>Z<sub>1</sub> + I</b>	95	100	109	123	128	128	140	148

XA	Peso - Weight - Gewicht kg	Olìo - Oil - Öl litri / litres / Liter
<b>63</b>	1.5	0.04
<b>71</b>	2.2	0.06
<b>80</b>	3.0	0.10
<b>100</b>	7.0	0.20

Z - Foro da centro dell'albero di uscita  
Dimensioni e pesì non impegnativi

Z - Output shaft centering hole  
Not binding dimensions and weights

Z - Zentrierbohrung der Abtriebswelle  
unverbindliche Abmessungen u. Gewichte

**IEC - B5**

**IEC - B14**


Taglia Size Größe	2 poli - poles - Polig			4 poli - poles - Polig			6 poli - poles - Polig			Flangia - Flange Flansch  B / C / T	Albero Shaft Welle  D x l	G	IB	N	O
	kW	rpm	kg	kW	rpm	kg	kW	rpm	kg						
T56A T56B	0.09 0.12	2710 2700	2.6 3.0	0.06 0.09	1360 1360	2.9 3.2	---	---	---	B5 - 120 / 100 / 80 B14 - 80 / 65 / 50	9 x 20	3.0 2.5	20	176	196
T63A T63B	0.18 0.25	2710 2710	4.0 4.2	0.12 0.18	1360 1310	3.7 4.2	0.09 0.12	840 850	4.2 4.5	B5 - 140 / 115 / 95 B14 - 90 / 75 / 60	11 x 23	3.0 2.5	23	197	220
T71A T71B	0.37 0.55	2730 2780	5.2 6.0	0.25 0.37	1350 1370	5.0 5.8	0.18 0.25	880 900	5.6 6.0	B5 - 160 / 130 / 110 B14 - 105 / 85 / 70	14 x 30	3.5 2.5	30	211	241
T80A T80B	0.75 1.1	2770 2770	8.7 10	0.55 0.75	1370 1380	8.1 9.1	0.37 0.55	890 900	6.8 9.6	B5 - 200 / 165 / 130 B14 - 120 / 100 / 80	19 x 40	3.5 3.0	40	250	290
T90S T90L	1.5 2.2	2840 2840	12 14.5	1.1 1.5	1400 1400	11.7 14.4	0.75 1.1	920 925	11.3 14.4	B5 - 200 / 165 / 130 B14 - 140 / 115 / 95	24 x 50	3.5 3.0	50	262 287	312 337
T100A T100B	3 4	2840 2850	20 24	2.2 3	1400 1420	17.6 22.5	1.5 2.2	945 950	18.8 19.8	B5 - 250 / 215 / 180 B14 - 160 / 130 / 110	28 x 60	4.0 3.5	60	309	369
T112A	5.5	2880	29.3	4	1430	29.0	3	950	30.0	B5 - 250 / 215 / 180 B14 - 160 / 130 / 110	28 x 60	4.0 3.5	60	335	395
T132S T132M T132ML	7.5 11 ---	2900 2930 ---	38.4 52.5 --	5.5 7.5 9.2	1450 1450 1460	39.0 48.5 56.5	4.5 5 7.5	960 60 960	47.6 50.7 47.6	B5 - 300 / 265 / 230 B14 - 200 / 165 / 130	38 x 80	4.0 4.0 ---	80	357 395 421	437 475 501
T160M T160L	15 18.5	2940 2940	77.5 92	11 15	1460 1445	73 100	7.5 11	960 960	70.0 87.0	B5 - 350 / 300 / 250 B14 - 250 / 215 / 180	42 x 110	5.0 4.0	110	530	640

Dimensioni e pesi non impegnativi

Not binding dimensions and weights

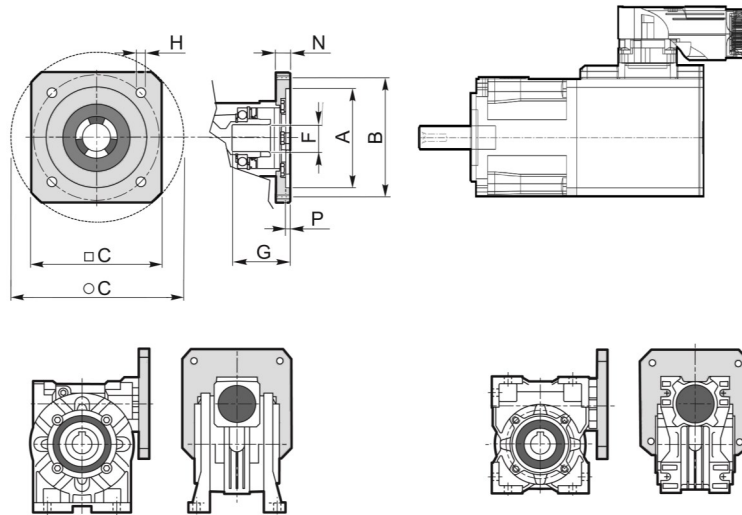
unverbindliche Abmessungen u. Gewichte



Voltaggio e frequenza	Voltage and frequency	Spannung u. Frequenz						
<table border="1"> <thead> <tr> <th>Valori nominali Rated values Nennwerte</th> <th>Valori utilizzabili Usable values Benutzbarwerte</th> </tr> </thead> <tbody> <tr> <td>230/400V 50Hz</td> <td>240/415V 50Hz 220/380V 50Hz</td> </tr> <tr> <td>277/480V 60 Hz</td> <td>265/460V 60Hz 260/440V 60Hz</td> </tr> </tbody> </table>		Valori nominali Rated values Nennwerte	Valori utilizzabili Usable values Benutzbarwerte	230/400V 50Hz	240/415V 50Hz 220/380V 50Hz	277/480V 60 Hz	265/460V 60Hz 260/440V 60Hz	
Valori nominali Rated values Nennwerte	Valori utilizzabili Usable values Benutzbarwerte							
230/400V 50Hz	240/415V 50Hz 220/380V 50Hz							
277/480V 60 Hz	265/460V 60Hz 260/440V 60Hz							
<table border="1"> <tbody> <tr> <td></td> <td>Servizio normale Duty normal</td> <td>Dienst normal</td> </tr> <tr> <td></td> <td>pesante ma limitato heavy but limited</td> <td>schwer aber begrenzt</td> </tr> </tbody> </table>			Servizio normale Duty normal	Dienst normal		pesante ma limitato heavy but limited	schwer aber begrenzt	
	Servizio normale Duty normal	Dienst normal						
	pesante ma limitato heavy but limited	schwer aber begrenzt						

Classe di isolamento	Insulation class	Isolationsklasse
		<p>Temperature - Temperatures - Temperaturen</p> <p>a) margine di sicurezza safety margin Sicherheitspanne</p> <p>b) sovratemperatura ammissibile admissible temperature annehmbare Übertemperatur</p> <p>c) temperatura ambiente convenzionale conventional ambient temperature konventionelle Zimmertemperatur</p>

Coefficienti di Altitudine e Temperatura	Altitude and Temperature Factors	Höhe u. Temperatur Faktoren
		<p>Ambiente convenzionale - Conventional environment Konventionalbedingungen</p> <p>1000 m - altitudine s.l.m. altitude above sea level über dem Meeresspiegel</p> <p>40 °C - temperatura ambiente ambient temperature Zimmertemperatur</p> <p>-15 °C - min. temperatura ambiente dell'aria min. ambient air temperature Minimum Zimmerlufttemperatur</p> <p>≤ 60% - umidità relativa relative humidity relative Feuchtigkeit</p>

**Flange per servomotore - Servomotor flanges - Servomotor Eingangsflansche [mm]**


Codice flangia Flange Code Flansch Kode	FRS-FRT Size	A	B	C □ / ○	F	G	H	N	P	Note Notes Anmerkungen
APP050004	28	22	43,8	56	13	34	Ø5x4	7	4,5	Nema 17
A180043A	28	30	45	50	13	36	M3x4	9	3	
APP050009	28	36	70,7	60	13	36	M4x4	9	4,5	
A180003A	28	36	70,7	60	13	40	M4x4	13	4,5	
APP050006	28	38,1	66,6	56	13	36	M4x4	9	4,5	Nema 23
A180001A	28	38,1	66,6	56	13	41	M4x4	14,5	4,5	Nema 23
A180085A	40	38,1	66,6	65	15	44	M4x4	15	4,5	
APP050003	28	40	63	56	13	36	M5x4	9	4,5	
A180002A	28	40	63	56	13	40	M5x4	13	4,5	
A180083A	28	40	63	56	13	44	M5x4	17	4,5	
APP2258	40	40	63	65	15	44	M5x4	15	3,5	
A180076A	40	40	73,5	65	15	43	M4x4	13,5	4,5	
A180102A	28	50	66,6	57	13	40	M4x4	13	2,5	
A180107A	28	50	66,6	60	13	40	M5x4	13	4,5	
APP050013	28	50	70	60	13	36	M5x4	9	4,5	
APP050022	28	50	70	60	13	48	M4x4	21	4,5	
APP050027	28	50	70	60	13	48	M5x4	21	4,5	
A180005A	28	50	70	60	13	40	M5x4	13	4,5	
A180108A	40	50	66,6	60	15	43	M5x4	13,5	3,5	
A180055A	40	50	70	60	15	43	M5x4	13,5	3,5	
A180008A	40	50	95	80	15	43	M6x4	13,5	4	
A180070A	50	50	70	Ø80	21	59	M4x4	20	3	
A180075A	50	50	70	Ø80	21	59	M5x4	20	3	
A180071A	60	50	70	Ø90	24	58	M4x4	20	3	
APP1987	50	56	130	115	21	64	Ø9x4	25	3,5	

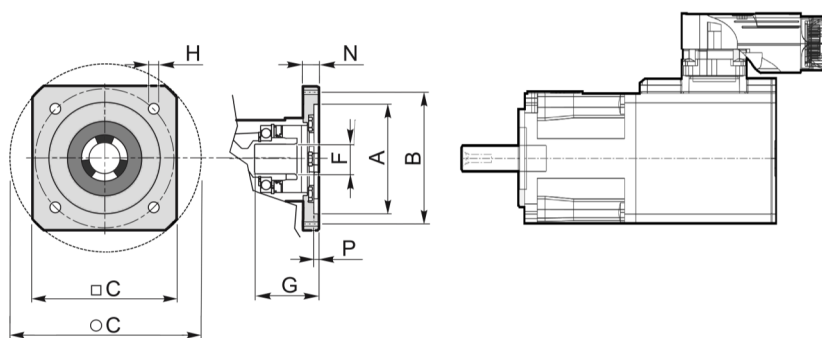
- Tabella ordinata con Centraggio motore (A) in ordine crescente  
- Dimensioni e pesi non impegnativi

- Table sorted by Centering diameter (A) in ascending order  
- Not binding dimensions and weights

- Tabelle der Zentrierung des Motor (A) in aufsteigende Reihenfolge  
- unverbindliche Abmessungen u. Gewichte



**Flange per servomotore - Servomotor flanges - Servomotor Eingangsflansche [mm]**

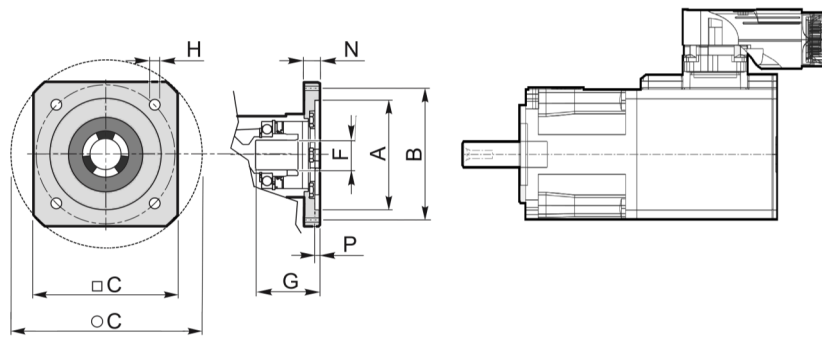


Codice flangia Flange Code Flansch Kode	FRS-FRT Size	A	B	C □ / ○	F	G	H	N	P	Note Notes Anmerkungen
APP050035	28	60	75	65	13	39	M5x4	12	4,5	
APP070006	40	60	75	72	15	43	M5x4	13,5	3	
A180090B	50	60	82	70	21	55	M5x4	16	5	
APP070003	40	70	90	80	15	43	M6x4	13,5	4,5	
A180066A	40	70	90	80	15	49	M6x4	19,5	4,5	
A180056A	50	70	90	80	21	52	M6x4	13,5	7	
APP2144	50	70	90	80	21	55	M6x4	16	9	
A180019A	60	70	90	80	24	53	M6x4	14,5	7	
A180077A	70	70	90	90	28	64	M6x4	14,5	4,5	
A180077A	70	70	90	90x80	28	64	M6x4	14,5	4,5	
APP1829	28	73	98,4	83	13	49	M5x4	22,3	3	Nema 34
APP070011	40	73	98,4	86	15	43	M5x4	13,5	4,5	Nema 34
APP1897	40	73	98,4	83	15	49	M5x5	19,8	3	Nema 34
A180054A	40	73	98,4	87	15	44	M6x4	15	4,5	Nema 34
APP1976	50	73	98,4	83	21	58	M5x5	19,8	3	Nema 34
A180094B	50	73	98,4	87	21	54	M5x4	15	4,5	Nema 34
A180064A	60	73	98,4	86	24	53	M5x4	14,5	4,5	Nema 34
APP070002	40	80	100	85	15	43	M6x4	13,5	4,5	
APP070008	40	80	100	85	15	43	M8x4	13,5	4,5	
A180051A	40	80	100	90	15	43	M6x4	13,5	5,5	
A180035A	50	80	100	85	21	56	M6x4	17,5	6	
APP090009	60	80	100	85	24	53	M6x4	14,5	4,5	
A180037A	60	80	100	90	24	56	M6x4	18	6	
A180088A	70	80	100	82	28	85	M6x4	35	5	
A180086A	70	80	100	105	28	65	M6x4	15,5	10,5	
A180101A	28	83	104	90	13	40	Ø6,5x4	13,5	3,5	
A180089A	85	90	127	125x110	28	65	Ø9x4	15,5	5	
APP070007	40	95	115	98	15	43	M8x4	13,5	4	
A180007A	40	95	115	98	15	54	M8x4	25	4	
APP2259	50	95	115	100	21	52	Ø9x4	13	4	

- Tabella ordinata con Centraggio motore (A) in ordine crescente  
- Dimensioni e pesi non impegnativi

- Table sorted by Centering diameter (A) in ascending order  
- Not binding dimensions and weights

- Tabelle der Zentrierung des Motor (A) in aufsteigende Reihenfolge  
- unverbindliche Abmessungen u. Gewichte

**Flange per servomotore - Servomotor flanges - Servomotor Eingangsflansche [mm]**


Codice flangia Flange Code Flansch Kode	FRS-FRT Size	A	B	C □ / ○	F	G	H	N	P	Note Notes Anmerkungen
A180096A	50	95	115	100	21	59	Ø9x4	20	4	
APP090013	60	95	115	100	24	53	M8x4	14,5	4,5	
APP090014	60	95	115	100	24	57	M6x4	19	4,5	
APP090041	60	95	135	120	24	53	M8x4	14,5	6,5	
APP2132	70	95	115	100	28	72	M6x4	22	9	
A180013A	70	95	130	116	28	65	M8x4	15,5	3,5	
A180078A	85	95	115	110	28	65	M8x4	15,5	5	
A180095A	85	95	115	110	28	65	Ø9x4	15,5	5	
A180098A	85	95	130	120	28	68	M8x4	18,5	5	
APP120001	110	95	115	110	28	65	M8x4	18	5	
APP2134	50	110	145	120	21	55	M8x4	16	5	
A180036A	60	110	130	125	24	63	Ø8,5x4	25	8,5	
APP090012	60	110	145	120	24	53	M8x4	14,5	6,5	
APP090040	60	110	145	120	24	58	M8x4	19,5	6,5	
A180045A	60	110	145	120	24	66	M8x4	28	10	
A180059A	60	110	145	120	24	53	M8x4	14,5	3,5	
A180041A	60	110	145	130	24	57	M8x4	19	11	
A180061A	60	110	145	130	24	53	M8x4	14,5	6,5	
APP2133	70	110	145	130	28	75	M8x4	25	7	
A180040A	110	110	130	126	28	65	M8x4	18	5	
A180011B	70	130	165	140	28	65	M10x4	15,5	4,5	
A180097A	85	130	165	140	28	65	M10x4	15,5	5	
A180053A	85	130	165	155	28	105	M10x4	58	5	
APP120006	110	130	165	140	28	65	M8x4	18	5	
APP120033	110	130	165	140	28	65	M10x4	18	5	
A18.0072A	130	130	165	140	38	83	M10x4	18	5	
A18.0072A	150	130	165	140	42	94	M10x4	18	5	

- Tabella ordinata con Centraggio motore (A) in ordine crescente  
- Dimensioni e pesi non impegnativi

- Table sorted by Centering diameter (A) in ascending order  
- Not binding dimensions and weights

- Tabelle der Zentrierung des Motor (A) in aufsteigende Reihenfolge  
- unverbindliche Abmessungen u. Gewichte



**Irreversibilità - Self-locking - Selbsthemmung**

Azionando al contrario un riduttore a vite senza fine con la ruota come organo motore, il rendimento è inferiore a quello di un azionamento con vite motrice. Il rendimento può essere ridotto a zero, ottenendo l'irreversibilità dell'ingranamento.

In quest'azionamento, l'attrito interno tende a bloccare l'ingranamento e quanto maggior coppia è applicata alla ruota motrice, tanto più l'attrito d'ingranamento aumenta proporzionalmente ostacolando la rotazione.

L'esempio più ovvio è dato dalla frenatura o dall'abbassamento del carico per inerzia, dove la coppia esterna azionerà al contrario la vite.

Un riduttore a vite senza fine è considerato irreversibile quando l'angolo d'elica è inferiore all'angolo d'attrito (arcotangente del coefficiente d'attrito).

Il contatto sulla dentatura è dinamico anche quando la velocità d'ingranamento è zero, in quanto le vibrazioni su un ingranaggio non rotante possono originare il moto nella zona di contatto.

Si consiglia come fattore di sicurezza la scelta di un angolo d'elica di 3° quale condizione di massima irreversibilità e di 10° quale condizione di minima irreversibilità, secondo la tabella a lato delle relazioni fra angolo d'elica ed irreversibilità.

When back-driving a worm gear set using the worm wheel as driver, the efficiency is lower than wormshaft-driving.

Back-drive efficiency can be reduced to zero obtaining a self-locking, or irreversible, gear set.

When back-driving the worm gear, internal friction tends to lock the mesh, and the bigger the applied torque the mesh friction rises proportionally and increases the lockage accordingly.

The most obvious example is braking or slowing down the load by inertia, where external torque will back-drive the worm shaft.

A worm gear is intended as a self-locking unit when the lead angle is less than the friction angle (arc tangent of friction coefficient).

Tooth contact is dynamic even when mesh velocity is zero, as vibrations in a non-rotating gear can induce motion in the tooth contact area.

According to lead angle and self-locking table, a safety factor of 3° lead angle is recommended for full self-locking condition and 10° lead angle for poor self-locking.

Wird das Schneckengetriebe über die Abtriebswelle angetrieben, ist der Wirkungsgrad des Getriebes schlechter als bei Antrieb über die Eingangswelle, Dabei kann in Abhängigkeit von der Verzahnung der Wirkungsgrad bis Null reduziert sein, was eine auftretende Selbsthemmung bis hin zur vollständigen Blockierung zur Folge hat.

Dieser Fall kann beispielsweise bei Abbremsung oder Senkung einer Last auftreten, wenn die Abtriebswelle durch die Last angetrieben wird.

Ein Schneckengetriebe wird als Selbsthemmend bezeichnet, wenn der Spiralwinkel kleiner ist als der Reibungswinkel (Arkustangens vom Reibungskoeffizient).

Der Verzahnungseingriff ist dynamisch, auch wenn die Eingriffsgeschwindigkeit Null ist, da Vibrationen auf ein nicht drehendes Rad eine Bewegung hervorrufen können.

Empfohlen wird, als Sicherheitsfaktor, die Wahl eines Spiralwinkels von 3° als Bedingung einer maximalen Selbsthemmung und von 10° als Bedingung einer geringen Selbsthemmung, wie aus der folgenden Tabelle ersichtlich wird.

<b>Elica Lead angle Spiralwinkel</b>	<b>Irreversibilità statica</b>	<b>Static self-locking</b>	<b>Statische Selbsthemmung</b>
$\beta > 20^\circ$	Reversibilità piena	Full back-driving	Volle Umkehrbarkeit
$10^\circ < \beta < 20^\circ$	Reversibilità elevata	High back-driving	Hohe Umkehrbarkeit
$5^\circ < \beta < 10^\circ$	Reversibilità buona Irreversibilità scarsa	Good back-driving Poor self-locking	Gute Umkehrbarkeit Schwache Selbsthemmung
$3^\circ < \beta < 5^\circ$	Reversibilità scarsa Irreversibilità buona	Poor back-driving Good self-locking	Schwache Umkehrbarkeit Gute Selbsthemmung
$1^\circ < \beta < 3^\circ$	Irreversibilità piena	Full self-locking	Volle Selbsthemmung



**Dati di dentatura - Gearing data - Verzahnungsdaten**

	i =	5	7	10	15	20	28	40	49	56	70	80	100
<b>RS / RT 28</b>	$m_x$ $\beta$ $z_1$	1,38 29°33' 6	1,50 23°11' 4	1,40 16°41' 3	1,40 11°18' 2	1,10 10°23' 2	1,50 6°06' 1	1,10 5°14' 1	0,90 4°19' 1	0,75 3°03' 1	0,60 2°27' 1	0,55 2°37' 1	0,45 2°20' 1
<b>RS / RT 40</b>	$m_x$ $\beta$ $z_1$	2,00 30°57' 6	2,10 21°36' 4	2,00 16°41' 3	2,00 11°18' 2	1,50 8°31' 2	2,10 5°39' 1	1,50 4°17' 1	1,25 3°48' 1	1,10 3°25' 1	0,90 3°01' 1	0,80 2°51' 1	0,65 2°38' 1
<b>RS / RT 50</b>	$m_x$ $\beta$ $z_1$	2,50 30°57' 6	2,70 23°52' 4	2,50 16°41' 3	2,50 11°18' 2	1,90 8°59' 2	2,70 6°19' 1	1,90 4°31' 1	1,60 4°14' 1	1,40 3°42' 1	1,10 2°44' 1	1,00 2°51' 1	0,80 2°17' 1
<b>RS / RT 60</b>	$m_x$ $\beta$ $z_1$	3,15 36°32' 6	3,30 25°33' 4	3,10 19°0' 3	3,10 12°55' 2	2,40 11°18' 2	3,30 6°49' 1	2,40 5°42' 1	2,00 5°11' 1	1,70 3°55' 1	1,40 3°38' 1	1,20 2°51' 1	1,00 2°51' 1
<b>RS / RT 70</b>	$m_x$ $\beta$ $z_1$	3,60 34°01' 6	3,90 26°51' 4	3,60 18°38' 3	3,60 12°40' 2	2,80 11°18' 2	3,90 7°12' 1	2,80 5°42' 1	2,30 4°48' 1	2,00 4°05' 1	1,60 3°16' 1	1,40 2°51' 1	1,15 2°38' 1
<b>RS / RT 85</b>	$m_x$ $\beta$ $z_1$	4,40 34°47' 6	4,70 26°05' 4	4,40 19°09' 3	4,40 13°02' 2	3,40 11°18' 2	4,70 6°58' 1	3,40 5°52' 1	2,80 4°52' 1	2,50 4°45' 1	2,00 3°48' 1	1,74 3°14' 1	1,40 2°40' 1
<b>RS / RT 110</b>	$m_x$ $\beta$ $z_1$	---	6,10 26°22' 4	5,80 20°43' 3	5,80 14°09' 2	4,40 11°18' 2	6,10 7°04' 1	4,40 5°42' 1	3,60 4°43' 1	3,20 4°29' 1	2,60 3°54' 1	2,30 3°39' 1	1,80 2°34' 1
<b>RS 130</b>	$m_x$ $\beta$ $z_1$	---	7,25 26°57' 4	6,90 21°20' 3	6,85 14°06' 2	5,35 13°05' 2	7,25 7°14' 1	5,30 6°18' 1	4,35 5°18' 1	4,00 6°20' 1	3,15 4°33' 1	2,70 3°30' 1	2,25 3°40' 1
<b>RS 150</b>	$m_x$ $\beta$ $z_1$	---	8,25 25°33' 4	8,00 21°48' 3	8,15 16°22' 2	6,20 13°24' 2	8,45 7°35' 1	6,25 7°07' 1	5,10 5°48' 1	4,60 6°11' 1	3,60 4°17' 1	3,15 3°45' 1	2,60 3°43' 1

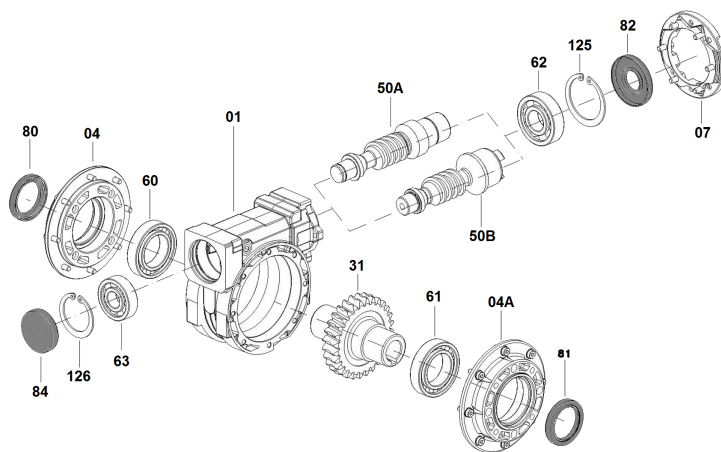
$m_x$  = Modulo assiale  
 $z_1$  = N, principi  
 $\beta$  = Angolo d'elica (dx)  
 $20^\circ$  = Angolo di pressione

$m_x$  = Axial module  
 $z_1$  = Number of starts  
 $\beta$  = Lead angle (r.h.)  
 $20^\circ$  = Pressure angle

$m_x$  = Axialmodul  
 $z_1$  = Steigungen  
 $\beta$  = Spiralwinkel (rechts)  
 $20^\circ$  = Eingriffswinkel

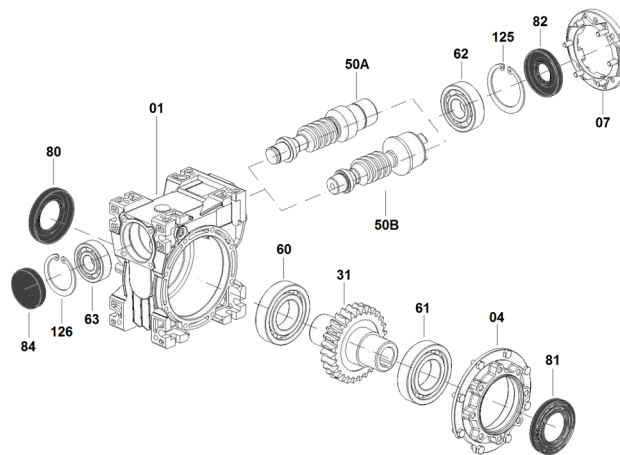


Parti componenti - Component parts - Bauelemente



FRS

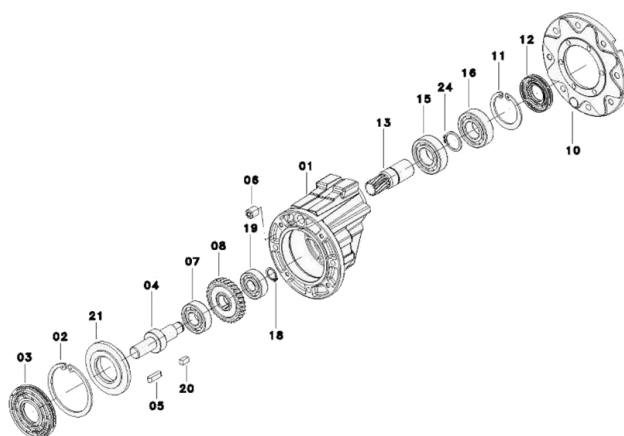
Posizione	Descrizione	Item	Description	Position	Beschreibung
01	Carcassa	01	Housing	01	Gehäuse
04A	Coperchio laterale	04A	Side cover	04A	Seitendeckel
07	Flangia motore	07	Motor flange	07	Motorflansch
31	Ruota	31	Worm wheel	31	Schneckenrad
50A	Vite IEC	50A	Worm shaft IEC	50A	Schneckenwelle IEC
50B	Vite "G"	50B	Worm shaft "G"	50B	Schneckenwelle "G"
60	Cuscinetto	60	Bearing	60	Lager
61	Cuscinetto	61	Bearing	61	Lager
62	Cuscinetto	62	Bearing	62	Lager
63	Cuscinetto	63	Bearing	63	Lager
80	Anello di tenuta	80	Oil seal	80	Wellendichtring
81	Anello di tenuta	81	Oil seal	81	Wellendichtring
82	Anello di tenuta	82	Oil seal	82	Wellendichtring
84	Anello di tenuta RCA	84	Oil seal RCA	84	Abdeckkappe RCA
125	Anello di fermo assiale	125	Snap ring	125	Seegerring
126	Anello di fermo assiale	126	Snap ring	126	Seegerring

**Parti componenti - Component parts - Bauelemente**
**RS-RT**

**FRT**

Posizione	Descrizione	Item	Description	Position	Beschreibung
01	Carcassa	01	Housing	01	Gehäuse
04	Coperchio laterale	04	Side cover	04	Seitendeckel
07	Flangia motore	07	Motor flange	07	Motorflansch
31	Ruota	31	Worm wheel	31	Schneckenrad
50A	Vite IEC	50A	Worm shaft IEC	50A	Schneckenwelle IEC
50B	Vite "G"	50B	Worm shaft "G"	50B	Schneckenwelle "G"
60	Cuscinetto	60	Bearing	60	Lager
61	Cuscinetto	61	Bearing	61	Lager
62	Cuscinetto	62	Bearing	62	Lager
63	Cuscinetto	63	Bearing	63	Lager
80	Anello di tenuta	80	Oil seal	80	Wellendichtring
81	Anello di tenuta	81	Oil seal	81	Wellendichtring
82	Anello di tenuta	82	Oil seal	82	Wellendichtring
84	Anello di tenuta RCA	84	Oil seal RCA	84	Abdeckkappe RCA
125	Anello di fermo assiale	125	Snap ring	125	Seegerring
126	Anello di fermo assiale	126	Snap ring	126	Seegerring



Parti componenti - Component parts - Bauelemente



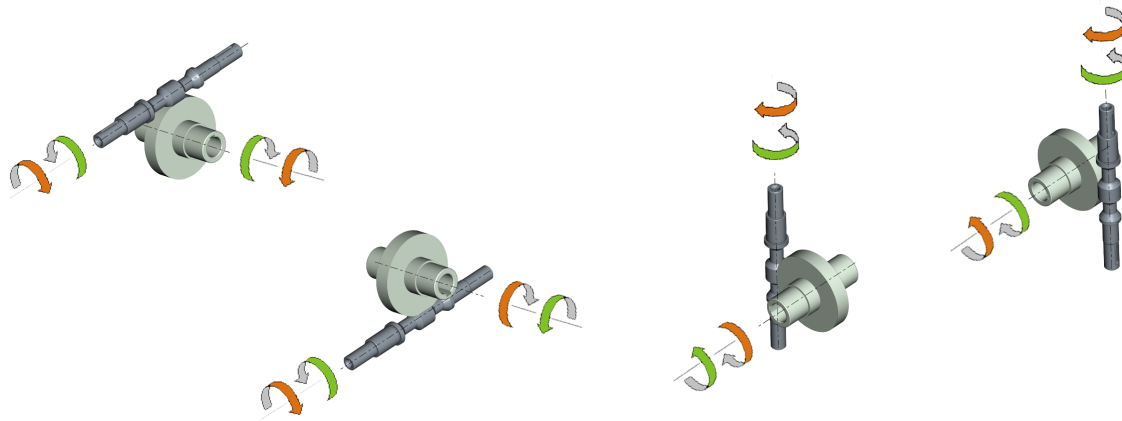
FXA

Posizione	Descrizione	Item	Description	Position	Beschreibung
01	Carcassa	01	Housing	01	Gehäuse
02	Anello di fermo assiale	02	Snap ring	02	Seegerring
03	Anello di tenuta	03	Oil seal	03	Wellendichtring
04	Albero uscita	04	Output shaft	04	Ausgangswelle
05	Linguetta	05	Key	05	Paßfeder
06	Vite	06	Screw	06	Schraube
07	Cuscinetto	07	Bearing	07	Lager
08	Ruota	08	Gear	08	Stirnrad
10	Flangia motore	10	Motor flange	10	Motorflansch
11	Anello di fermo assiale	11	Snap ring	11	Seegerring
12	Anello di tenuta	12	Oil seal	12	Wellendichtring
13	Pignone	13	Pinion	13	Ritzel
15	Cuscinetto	15	Bearing	15	Lager
16	Cuscinetto	16	Bearing	16	Lager
18	Anello di fermo assiale	18	Snap ring	18	Seegerring
19	Cuscinetto	19	Bearing	19	Lager
20	Linguetta	20	Key	20	Paßfeder
21	Anello riduzione	21	Adapter	21	Adapter
24	Anello di fermo assiale	24	Snap ring	24	Seegerring

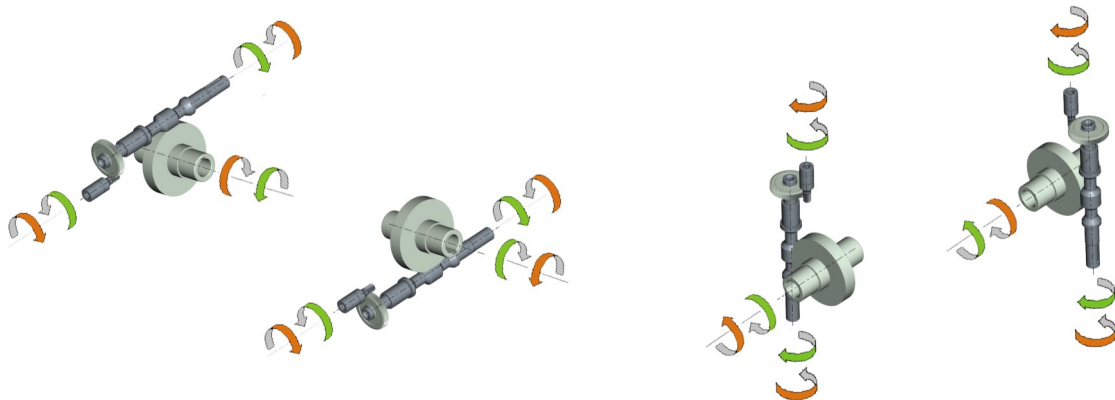
**Senso di rotazione - Direction of rotation - Drehrichtungen**

**RS-RT**

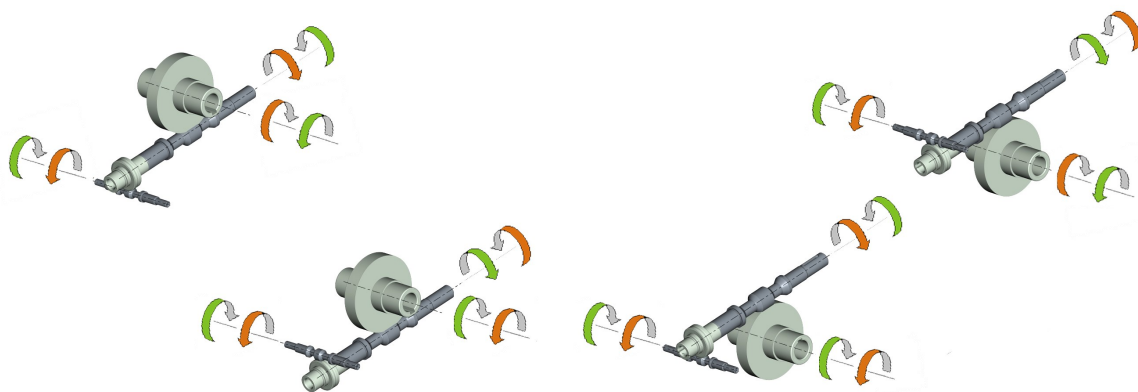
**RS - RT**



**RA - TA**



**RS/RS - RT/RT**



La Direttiva Europea 2014/34/UE-ATEX riguarda non solo gli apparecchi elettrici ma tutte le macchine e gli organi di comando che sono destinati, soli o combinati, ad essere utilizzati in atmosfere potenzialmente esplosive nei territori della Comunità Europea.

I riduttori VARVEL-ATEX sono costruiti con

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

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

Le serie VARVEL RS, RT e XA sono conformi alle specifiche di progetto richieste dal

- Gruppo II
- Categoria 2 e 3
  - zona 1 e zona 2 per funzionamento in zone con pericolo di esplosione in presenza di gas
  - zona 21 e zona 22 per funzionamento in zone con pericolo di esplosione in presenza di polveri combustibili

I prodotti VARVEL-ATEX sono marcati

The European Directive 2014/34/EC-ATEX relates not only to electric devices but to all the machines and driving units destined, alone or combined, to operate in potentially explosive environments within European Community territory.

The gearboxes VARVEL-ATEX are manufactured

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

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

VARVEL RS, RT and XA series conform to design directions required for

- Group II
- Category 2 and 3
  - zones 1 and 2 for operation in zones with risk of explosion in presence of gas
  - zones 21 and 22 for operation in zones with risk of explosion in presence of combustible dust

The VARVEL-ATEX products are marked

Die Europäische Richtlinie 2014/34/EG-ATEX gilt nicht nur für elektrische Ausrüstungen, sondern auch für alle Arten von Maschinen und Steuerungsteile, allein oder kombiniert, für den Gebrauch in potentiell explosiver Atmosphäre in den Gebieten der Europäischen Gemeinschaft.

- Die VARVEL-ATEX Getriebe sind hergestellt mit
- Gehäuse und Deckel in Metall, beinhaltet Getriebe montiert auf Kugel- oder Rollenlager;
- FKM-Fluorelaste (Viton) Dichtungen auf Eingangs- und Ausgangswellen;
- ausreichende Ölmenge, um das Funktionieren des Projekts zu gewährleisten;
- Schrauben sind mit Schraubensicherungs-paste abgedichtet.

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

Die Serie VARVEL RS, RT u. XA sind Übereinstimmung mit die Konstruktionsanforderungen gebeten von

- Gruppe II,
- Kategorie 2 oder 3,
  - Zone 1 und Zone 2 für Betrieb in Zonen mit Explosionsgefahr in der Gegenwart von Gas,
  - Zone 21 und Zone 22 für Betrieb in Zonen mit Explosionsgefahr in der Gegenwart von Brennstaub.

Die Produkte VARVEL-ATEX sind markiert



II 2 G Ex h IIC T4 Gb IP66 T<sub>amb</sub> -20 /+55°C  
II 2 D Ex h IIIC T135°C Db IP66 T<sub>amb</sub> -20 /+55°C

Chiave di lettura del Codice ATEX

- II** - Gruppo II (industrie di superficie)
- 2** - Categoria 2
- G, D** - Atmosfera esplosiva (presenza di gas-vapori-nebbie, polveri)
- Ex h** - Modo di protezione
- IIC, IIIC** - Gruppo di esplosione (gas, polveri)
- T4** - Classe di temperatura (gas)
- T135°C** - Massima temperatura superficiale (polveri)
- Gb, Db** - EPL (Explosion Protection Level: (gas, polveri)
- IP66** - Protezione riduttore
- T<sub>amb</sub>** - Temperatura ambiente (-20 / +55°C)

Key to ATEX Code

- II** - Group II (surface industries)
- 2** - Category 2
- G, D** - Explosive environment (presence of gas-vapours-cloud, dust)
- Ex h** - Mode of protection
- IIC, IIIC** - Group of explosion (gas, dust)
- T4** - Class of temperature (gas)
- T 135°C** - Max. temperature of surface (dust)
- Gb, Db** - EPL (Explosion Protection Level (gas, dust)
- IP66** - Protection of gearbox
- T<sub>amb</sub>** - Ambient temperature (-20/+55°C)

Leseschlüssel des ATEX-Code

- II** - Gruppe II (Oberfläche-Industrien)
- 2** - Kategorie 2
- G, D** - explosionsfähige Atmosphäre (Gegenwart von Gas-Dämpfe-Nebel, Staub)
- Ex h** - Schutzart
- IIC, IIIC** - Gruppe der Explosion (Gas, Staub)
- T4** - Temperatur-Klasse
- T 135°C** - Maximale Oberflächentemperatur (Staube)
- Gb, Db** - EPL (Explosion Protection Level (Gas, Staube)
- IP66** - Getriebes Schütz
- T<sub>max</sub>** - Zimmertemperatur

**ATEX-2006/42/EC - Direttiva Europea - European Directive - Europäische Richtlinie**
**RS-RT**

Sostanze Substances Substanzen	Zone Zones Zonen	Categorie Categories Kategorien			EPL Equipment Protection Level		
Gas, Vapori, Nebbie Gas, Vapours, Cloud Gas, Dämpfe, Nebel	0	1G			Ga		
	1		2G			Gb	
	2			3G			Gc
Polveri Dust Stäube	20	1D			Da		
	21		2D			Db	
	22			3D			Dc

**Chiave di lettura - Key code - Leserschlüssel**

Zona Zone	0	Presenza continua di gas esplosivo Continuous occurrence of explosive gas Dauerndes Vorhandensein explosiver Gase
	1	Presenza occasionale di gas esplosivo Occasional occurrence of explosive gas Gelegentliches Vorhandensein explosiver Gase
	2	Presenza improbabile di gas esplosivo Unlikely occurrence of explosive gas Unwahrscheinliches Vorhandensein explosiver Gase
	20	Presenza continua di polveri esplosive Continuous occurrence of explosive dust Dauerndes Vorhandensein explosiver Staub
	21	Presenza occasionale di polveri esplosive Occasional occurrence of explosive dust Gelegentliches Vorhandensein explosiver Staub
	22	Presenza improbabile di polveri esplosive Unlikely occurrence of explosive Unwahrscheinliches Vorhandensein explosiver Staub
	Categoria Category Kategorie	1
2		Apparecchi a livello di protezione alto (2G, 2D) Equipment with high protection level (2G, 2D) Geräte mit hohem Schutz (2G, 2D)
3		Apparecchi a livello di protezione normale (3G, 3D) Equipment with normal protection level (3G, 3D) Geräte mit normalem Schutz (3G, 3D)
EPL	a	Livello di protezione molto alto (Ga, Da) Very high level of protection (Ga, Da) Sehr hohes Schutzniveau (Ga, Da)
	b	Livello di protezione alto (Gb, Db) High level of protection (Gb, Db) Hohes Schutzniveau (Gb, Db)
	c	Livello di protezione normale (Gc, Dc) Normal level of protection (Gc, Dc) Normales Schutzniveau (Gc, Dc)

**Attenzione !**

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

**Warning !**

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

**Vorsicht !**

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

### ISTRUZIONI D'USO E MANUTENZIONE (manuale completo su [www.varvel.com](http://www.varvel.com))

Ai sensi della Direttiva Macchine 2014/34/CE e relativa Linea Guida, i riduttori e i variatori di velocità sono considerati "elementi separati di macchine che non hanno un'applicazione specifica e che sono destinati ad essere incorporati nella macchina. La macchina completa dotata di questi componenti deve soddisfare i requisiti essenziali pertinenti di sicurezza e tutela della salute" della citata Direttiva.

#### Installazione

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

#### Funzionamento

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

#### Manutenzione

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

#### Movimentazione

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

#### Verniciatura

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

#### Conservazione prolungata a magazzino

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

#### Gestione Ambientale del prodotto

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

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

### OPERATION & MAINTENANCE INSTRUCTIONS (complete manual on [www.varvel.com](http://www.varvel.com))

Under the terms of the Machine Directive 2014/34/EC and relevant Guidelines, the speed gearboxes and variators are considered as "machines' separate elements not having a specific application and meant for being incorporated onto the machine. The complete machine and equipped with such components must comply with the essential and relevant requisites for safety and health preservation" of the mentioned Directive.

#### Installation

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

#### Running

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

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

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

#### Maintenance

Although the units are no-load run tested in the factory before despatch, it is recommended not to run them at maximum load for the first 20-30 running hours to allow the proper running in. The gearboxes are delivered already filled with long-life synthetic oil and, in case of replacement or topping, do not mix with mineral lubricants.

#### Handling

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

#### Painting

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

#### Long-term storage

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

#### Product's Environmental Management

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

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

### BETRIEBS- u. WAR-TUNGSANWEISUNGEN (vollständiges Handbuch auf [www.varvel.com](http://www.varvel.com))

Gemäß der Maschinenrichtlinie 2014/34/EG und der zugehörigen Richtlinie gelten Getriebe und Verstellgetriebe als "separate Elemente von Maschinen, die keine spezifische Anwendung haben und die in der Maschine eingebaut werden sollen. Die gesamte Maschine, die mit diesen Komponenten ausgerüstet ist, muss den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der vorgenannten Richtlinie entsprechen.

#### Aufstellung

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

#### Inbetriebnahme

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

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

#### Wartung

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

#### Handhabung und Transport

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

#### Anstrich

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

#### Langzeitlagerung

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

#### Entsorgung

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

Verpackungen sollten soweit wie möglich wieder verwendet werden.

#### Liberatoria

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