CATALOGO RS•RT
RS•RT CATALOGUE
RS•RT-KATALOG

VARVEL®
KNOW-HOW TO DO IT

L'esperienza al servizio dell'innovazione

IT

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

Experience at the service of innovation

EN

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

Erfahrung im Dienste der Innovation

DE

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

UNI EN ISO 9001:2015
UNI EN ISO 14001:2015
BS OHSAS 180001:2007

EC DIRECTIVE 2014/34/EC (ATEX)

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

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RS-RT - Riduttori - Gearboxes - Getriebe

Descrizione - Description - Beschreibung

RS, RT - Vite senza fine a singolo stadio
I riduttori della serie RS-RT sono costruiti con carcassa e coperchi in alluminio presso fuso fino alla grandezza 85 e in ghisa dalla grandezza 110.
Le coppie indicate nelle tabelle di selezione sono coppie di uscita relative alla grandezza considerata e le potenze sono riferite a 1440 rpm.
I paraolio entrata montati su richiesta in Viton per azionamenti con motori a 2 poli o motori c.c. a 3000 rpm oppure in Silicone per applicazioni a basse temperature.
I riduttori sono spediti già riempiti con lubrificante sintetico a lunga durata (senza tappi), nelle quantità indicate a pag. 17 e valide per qualunque posizione di funzionamento.
I valori delle tabelle di selezione sono intesi per fattore di servizio FS1.0, vale a dire con funzionamento di 8-10 ore al giorno, con carico uniforme, avviamenti inferiori a 6 all'ora e temperatura ambiente fra 15 e 35 °C.

RS, RT - Single-stage worm gear boxes
The worm gearboxes, RS and RT series, specifically designed for universal mounting, are manufactured with aluminium die cast housings and covers up to size 85 and cast iron from the 110.
Torques listed in selection tables are output torque values and motor powers are always referred to 1440 rpm.
On request, input Viton oil seals allow trouble-free operation with 2-pole standard AC, brushless or 3000 rpm DC motors and Silicone oil seals are recommended for low temperatures.
Gearboxes are delivered filled with synthetic long-life oil (without plugs), see filling quantities at page 17, and valid for all mounting positions.
Selection table data are intended for service factor SF1.0, i.e. 8-10 running hours per day, uniform load, less than 6 start/ stops per hour, and room temperature ranging from 15 to 35 °C.

RS, RT - Einstufige Schneckengetriebe
Die Getriebe der Serien RS u. RT, eigens für die universelle Montageanordnung entwickelt, haben bis zur Baugröße 85 Gehäuse und Deckel aus Aluminium-Druckguß und aus Guß bei Baugröße 110.
Die in den Auswahltabellen genannten Drehmomente sind jeweils die Ausgangsdrehmomente der entsprechenden Baugröße, und die Leistungen beziehen sich auf eine Nenndrehzahl von 1440 UpM.
Wellendichtringe aus Viton, auf Anfrage auf der Eingangsseite montiert, ermöglichen einen problemlosen Einsatz von 2-poligen Motoren oder Gleichstrommotoren bis 3000 UpM im Dauerbetrieb.
Die Getriebe werden ausgeliefert mit Langzeitschmiermittelfüllung (ohne zusätzliche Verschlußschrauben) und sind für alle Montagepositionen ausreichend befüllt.
Die Tabellenwerte berücksichtigen einen Betriebsfaktor von FS 1.0, d.h. Betrieb 8-10 Stunden/Tag, gleichmäßige Belastung, weniger als 6 Schaltvorgängen (Start u. Halt) je Stunde und Umgebungstemperaturen zwischen 15 und 35 °C.

RA, TA - Vite senza fine con precoppia
I riduttori della serie RA-TA, composti da un riduttore FXA indipendente a una coppia di ingranaggi montato su un riduttore standard del tipo FRS o FRT, forniscono una maggior coppia di uscita ed un più elevato rendimento degli equivalenti rapporti del tipo RS-RT.

RA, TA - Helical/worm gear boxes
The helical/worm gearboxes, RA and TA series, made of an independent single stage helical gearbox FXA fitted to a standard FRS or FTR gearbox, allow greater output torques and higher efficiency than the FRS and FRT gearbox with equivalent ratios.

RA, TA - Schneckengetriebe mit Stirnradvorstufe
Die Getriebe der Serien RA u. TA, bestehen aus einer Kombination eines separaten einstufigen Stirnradgetriebes FXA, mit einem Standard FRS oder FRT Schneckengetriebe und erlauben ein größeres Abtriebsdrehmoment bei besserem Wirkungsgrad als einstufige FRS- u. FRT-Schneckengetriebe mit gleicher Übersetzung.

RS/RS, RT/RT - Vite senza fine doppio stadio
I riduttori della serie RS/RS o RT/RT sono composti di due riduttori della serie RS o RT e forniscono un'ampia scelta di elevati rapporti a completamento della serie RA-TA per ottenere rotazioni alle più basse velocità.

RS/RS, RT/RT - Two-stage worm gear boxes
The gearboxes, RS/RS and RT/RT series, are made of two gearboxes RS or RT and offer a full selection of high reduction ratios to obtain low output speeds and high output torques.

RS/RS, RT/RT - Doppelstufige Schneckengetriebe
Die Getriebe der Serie RS/RS u. RT/RT sind eine Kombination zweier Schneckengetriebe der RS oder RT Baureihe und bieten eine weitgehende Auswahlmöglichkeit an hohen Untersetzungen und somit sehr kleinen Abtriebsdrehza-hlen.

Getriebe - Gearboxes - Riduttori - RS-RT

Beschreibung - Description - Descrizione

RS

RT

AS, AD - Albero di uscita
Tutti i tipi di riduttori sono normalmente costruiti con albero uscita cavo e, a richiesta, l'albero lento sporgente in acciaio C43 può essere fornito semplice AS o doppio AD. Su richiesta è disponibile una protezione di sicurezza ASC dell'estremità non utilizzata dell'albero AS.

BR, BT - Braccio di reazione
I riduttori standard sono forniti normalmente su entrambi i lati con coperchi che permettono il fissaggio del braccio di reazione, quando essi debbono funzionare come riduttori pendolari. Il braccio reazione BR-BT o BRV-BTV (con boccola antivibrante in Vulkollan) è costruito in lamiera ad elevato spessore e zincato bianco.

TLI/TLE - Limitatore 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 disotto del valore prefissato. Le quantità d'olio del limitatore TLI sono riportate a pagina 48 e 56.

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

AS, AD - Output shafts
All gearboxes are manufactured with hollow output shaft as standard. Optionally, a single AS or double AD solid output shaft - made of steel C43 - can be supplied.
An ASC safety shield for the opposite side of a single output shaft AS, is available on demand.

BR, BT - Torque arms
Standard gearboxes are normally supplied with covers on each side to allow the torque arm fixing when gearboxes have to operate as shaft mounted units.
The torque arm, standard or with Vulkollan vibration damping, is made of extra thick plate and white galvanized.

TLI/TLE - Torque limiters
The torque limiter and safeguard device - TLI built-in inside the gearbox and TLE fitted outside - 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 slipping torque can be adjusted from the maximum preset torque down to zero. Shaft rotation restarts automatically as soon as torque value is lower than the preset value.
Oil quantity of torque limiters TLI are listed on page 48 and 56

SL - Travel limiters
The SL travel limiter device stops - by means of built-in limit switches - the gearbox after a given operation time.
Standard thread allows approx. 40 turns of the output shaft. Limit switch travel is adjustable and operation time varies upon the used reduction ratio from min. 12 to max. 170 seconds.

AS, AD - Ausgangswelle
Alle Getriebe werden in Hohlwellen-Ausführung hergestellt. Als Zubehör können Einsteckwellen in der Version AS als einseitige Welle oder AD als beidseitige Welle geliefert werden. Diese Einsteckwellen sind aus C43 Stahl gefertigt. Auf Anfrage ist auch ein Wellenschutz ASC als Abdeckung eines Hohlwellenendes lieferbar.

BR, BT - Drehmomentstütze
Die Getriebe werden normalerweise mit Deckeln auf beiden Abtriebsseiten geliefert, die Bohrungen und Zentrierung für die Befestigung einer Drehmomentstütze besitzen, wenn das Getriebe in der Aufsteckversion eingesetzt wird. Die Drehmomentstütze, Standard oder mit Dämpfungsbuchse aus Vulkollan, ist aus starkem verzinkten Blech hergestellt.

TLI/TLE - Drehmomentbegrenzer
Die TL Einrichtung ermöglicht die Einstellung der übertragbaren Drehmomente, die Absicherung vom Getriebe gegen Spitzenbelastungen, die einfache Ausschaltung der Antriebseinheit und die manuelle Bedienung im Falle eines Stromausfall.
Das Rutschmoment ist vom max. Einstellmoment bis zum Nullwert einstellbar und die Drehbewegung der Abtriebswelle setzt wieder ein, sobald das Drehmoment wieder kleiner als das ein-gestellte Moment wird.
Ölmenge: Seite 48 u. 56

SL - Drehzahlbegrenzer
Die SL-Einrichtung stoppt, mittels eingebauten Wegschalter, das Getriebe nach einer bestimmten Zeit. Die Standardgewindespindel, ermöglicht ca. 40 Umdrehungen der Ausgangswelle. Die Wegschalter sind einstellbar und die Betriebszeit ist, abhängig von der Untersetzung, zwischen min. 12" bis max. 170".

RS-RT - Riduttori - Gearboxes - Getriebe

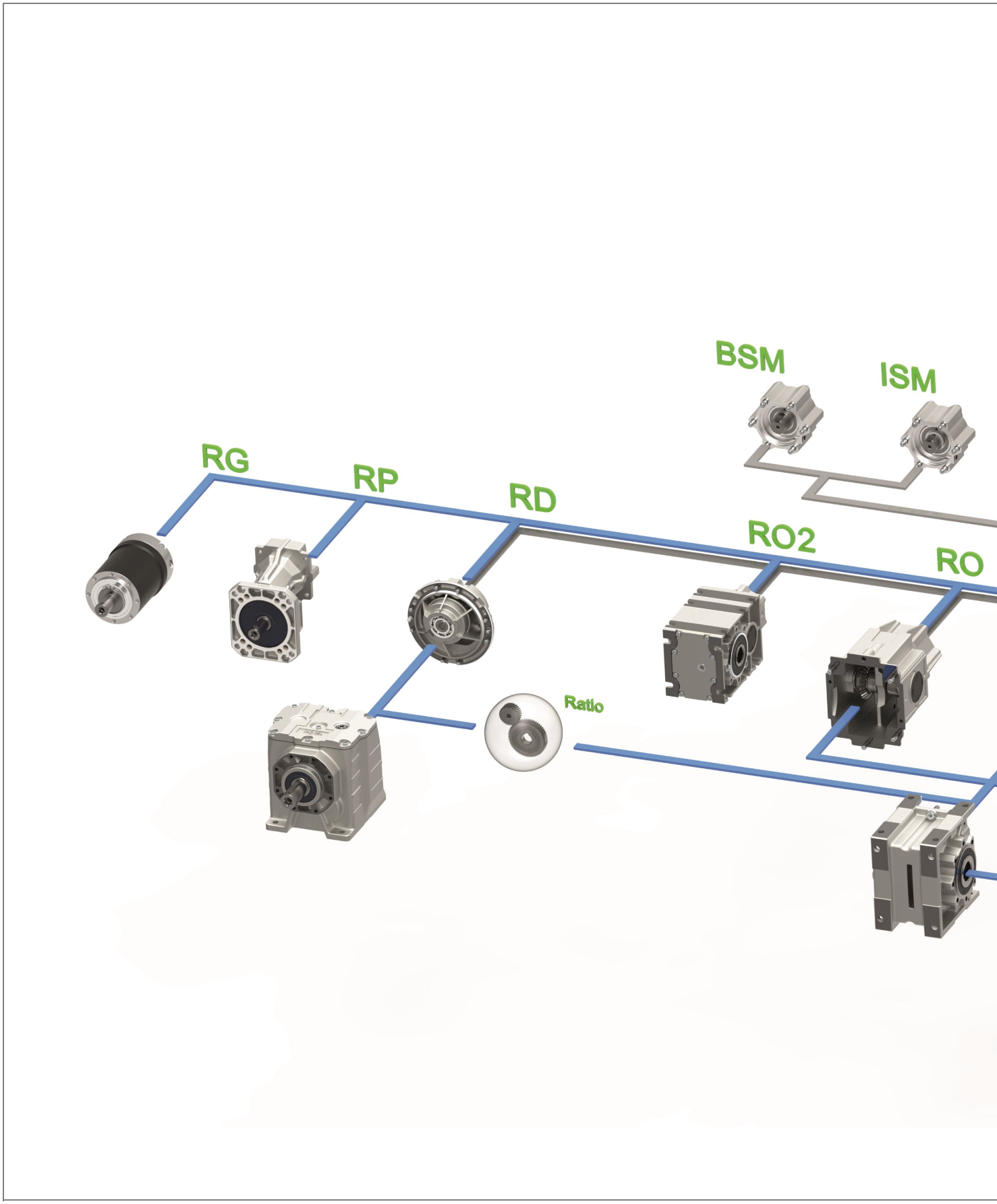
Descrizione - Description - Beschreibung

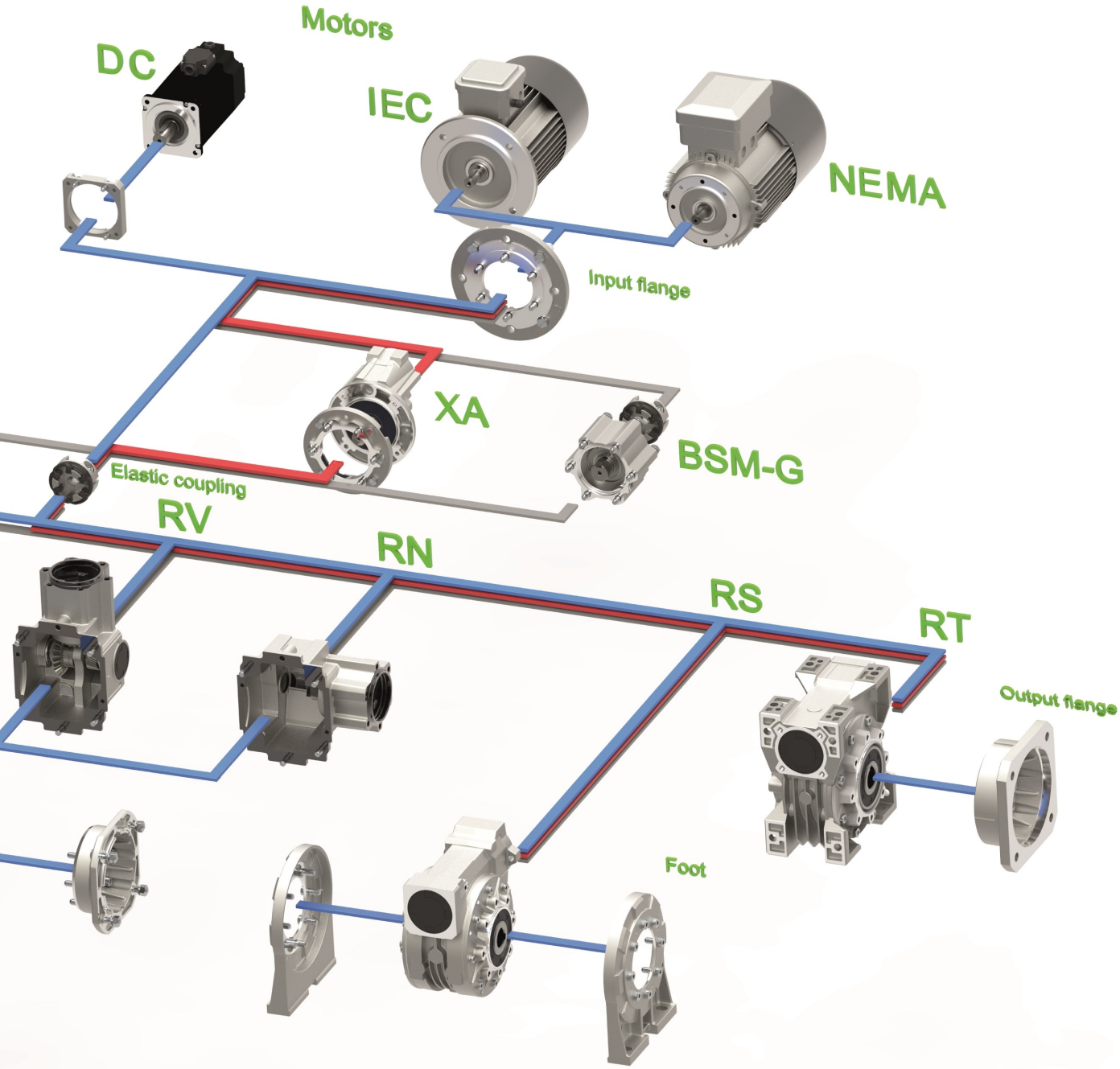
SPECIFICHE GENERALI - GENERAL SPECIFICATIONS - ALLGEMEINE EIGENSCHAFTEN			
Gamma Range Bereich	Grandezze: RS (9) - RT (7) 55 rapporti 3020 Nm coppia uscita max.	Sizes: RS (9) - RT (7) 55 ratios 3020 Nm max. output torque	Baugrößen: RS (9) - RT (7) 55 Übersetzungen 3020 Nm max. Abtriebsmoment
Dimensionamento Sizing Auslegung	Secondo BS721. Vita media 10.000 ore con fattore di servizio SF1	According to BS721. 10,000 hrs average lifetime with service factor SF1	Laut BS721. 10.000 durchschnittlich-Stunden Lebensdauer für Verzahnung und Lagerung bei einem Betriebsfaktor SF1
Carcassa, Coperchi Housing, Covers Gehäuse, Flansche	Pressofusione in alluminio fino taglia 85 Ghisa dalla taglia 110	Pressure die cast aluminium up to size 85 Cast iron from size 110	Aluminium-Druckguss bis 85 Grauguss ab Größe 110
Entrata con giunto G Coupling G input Kupplungseingang G	Pressofusione in alluminio per taglie G3, G5, G6. Acciaio per taglia GS8	Pressure die cast aluminium for sizes G3, G5, G6. Alloyed steel for size GS8	Aluminium-Druckguss Größen G3, G5, G6. Stahl für Größe GS8
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
Alberi & Linguette Shafts & Keys Wellen	Acciaio Tolleranze: Alberi h6, Fori E8 Linguette secondo DIN6885 B1	Steel Tolerances: Shafts h6, Bores E8 Keys according to DIN6885 B1	Stahl Toleranzen: Wellen h6, Bohrungen E8 Passfedern nach DIN6885 B1
Albero cavo di uscita Hollow output shaft Ausgangshohlwelle	Acciaio, ghisa grigia o sferoidale GS400	Steel, grey or GS400 ferritic cast iron	Stahl, Grau- oder GS400-guss
Cuscinetti Bearings Lagerung	Sfere o rulli secondo grandezza e specifiche tecniche	Ball- or roller-types according to sizes and technical requirements	Kugel- oder Rollenlager entsprechend den technischen Vorschriften
Paraolio Oil seals Dichtungen	Tipo NBR - Nitril-Butadiene Rubber con secondo labbro parapolvere secondo DIN 3760 Tipo FKM - Fluoro-elastomero Viton a richiesta	Type NBR - Nitril-Butadiene Rubber with additional anti-dust lip according to DIN 3760 Type FKM - Fluor elastomer Viton on demand	Typ NBR - Nitril-Butadien Rubber mit zusätzlicher Staublippe entsprechend DIN 3760 Typ FKM - Fluorelaste Viton 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 Gehäuselackierung	Alluminio naturale fino taglia 85 Vernice a polveri epossidiche colore standard RAL 7012 dalla taglia 110	Aluminium until size 85 Epoxy powder paint Standard colour RAL 7012 from size 110	Aluminium bis Größe 85 Epoxydpulverfarbe Standard-farbton RAL 7012 ab Größe 110
Grado di protezione Protection grade Schutzgrad	Corpo del riduttore: IP66 Flange di collegamento: IP20; grado aumentato su richiesta	Gearbox body: IP66 Motor flanges and adapters: IP20; increased grade on demand	Getriebe Gehäuse: IP66 Motor- u. Verbindungsflansch: IP20; Schutzart erhöht nach Anfrage
ATEX	A richiesta	On demand	Auf Anfrage

Simbolo Symbol Abkürzung	Descrizione - Description - Beschreibung		
F_r [N]	Carico radiale dell'applicazione	Application radial load	Radialkraft der Anwendung
F_{r1} [N]	Carico radiale di catalogo (entrata)	Catalogue radial load (input)	Radialkraft aus dem Katalog (Eingang)
F_{r2} [N]	Carico radiale di catalogo (uscita)	Catalogue radial load (output)	Radialkraft aus dem Katalog (Ausgang)
FS	Fattore di servizio Service factor Betriebsfaktor	$FS = \frac{M2}{M(app)}$	
i_n	Rapporto di riduzione nominale	Nominal reduction ratio	Nominale Übersetzung
i_r	Rapporto di riduzione reale	Actual reduction ratio	Reale Übersetzung
J_1 [kgm^2]	Momento d'inerzia del riduttore all'albero di entrata del riduttore	Moment of inertia of the gearbox at gearbox input shaft	Trägheitsmoment des Getriebes an der Eingangswelle
Lub [l]	Lubrificante (litri) H - Montaggio orizzontale V - Montaggio verticale	Lubricant (litres) H - Horizontal mounting V - Vertical mounting	Schmierstoff (Liter) H - waagrechte Einbaulage V - senkrechte Einbaulage
M_2 [Nm]	Coppia massima di uscita del riduttore Gearbox maximum output torque Abtriebsdrehmoment des Getriebes	$M2 = \frac{9550 * P1 * \eta}{n2}$	
$M_{(app)}$ [Nm]	Coppia dell'applicazione	Application torque	Erforderliches Drehmoment der Anwendung
n_1 [min^{-1}]	Velocità di entrata	Input speed	Eingangsdrehzahl
n_2 [min^{-1}]	Velocità di uscita	Output speed	Ausgangsdrehzahl
P_1 [kW]	Potenza in entrata Input power Motorleistung	$P1 = \frac{M2 * n2}{9550 * \eta}$	
$P_{(kg)}$ [kg]	Peso	Weight:	Gewicht
η	Rendimento	Efficiency	Wirkungsgrad

RS-RT - Riduttori - Gearboxes - Getriebe

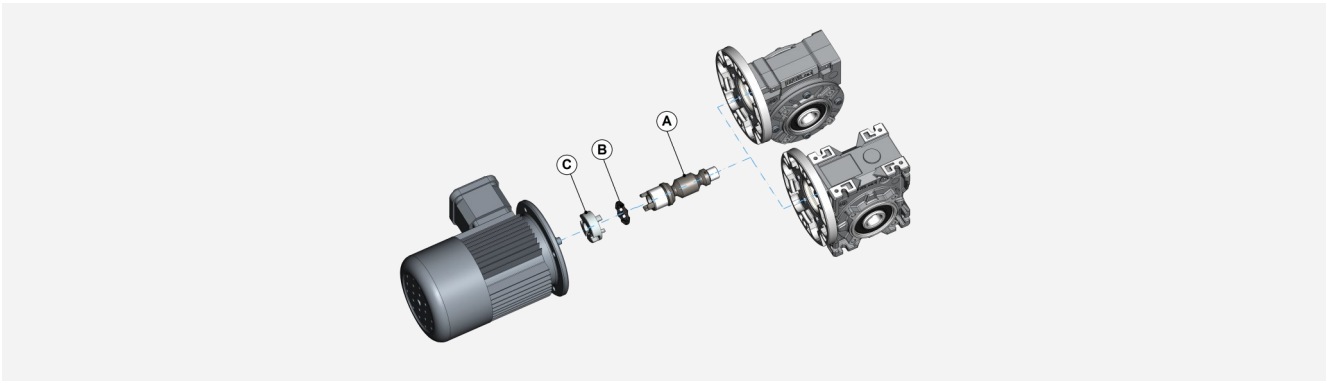
Sistema modulare - Modular System - Modularsystem




Motors
DC
IEC
NEMA
Input flange
XA
BSM-G
Elastic coupling
RV
RN
RS
RT
Output flange
Foot

RS-RT - Riduttori - Gearboxes - Getriebe

"G" - Descrizione Giunto - Coupling Description - Kupplung Beschreibung



A) Semi-giunto riduttore
- Materiale: acciaio
- Integrale con albero entrata
- Supportato con due cuscinetti
- Dimensioni lato entrata invariate

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

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

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

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

A) Reducer-side coupling hub
- Material: steel
- One piece machined on input shaft
- Two bearing setting
- Unchanged casing dimensions

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

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

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

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

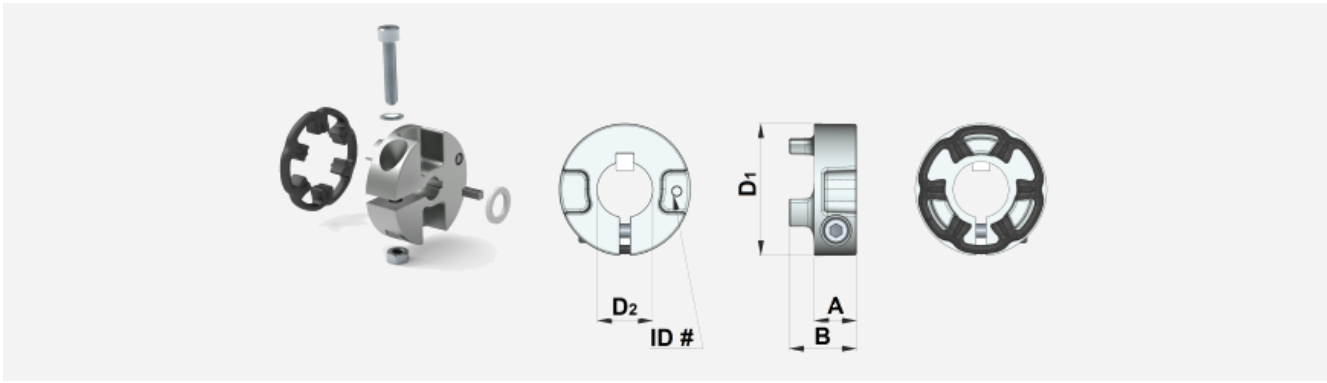
A) Getriebekupplungshäfte
- Material: Stahl
- integrierte Eingangswelle
- Zwei-Lager-Anordnung
- unveränderte Eingang Abmessungen

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

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

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

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



Tipo Type Typ	IEC NEMA	Codice Kit Kit Part No. Kit Teil Nr.	RS - RT	Mt [Nm]	Mt_1 [Nm]	Mt_2 [Nm]	A [mm]	B [mm]	D_1 [mm/ inch]	D_2 [mm/ inch]	ID#
G3	IEC	KG3.009/X KG3.011/X KG3.014/X	28-40 28-40 40	4.5 - 6 4.5 - 6 7 - 8.5	15 15 28	8-10 8-10 18-22	11	19	30 30 36	9 11 14	309 311 314
	NEMA	KG3.N42/X KG3.N48/X KG3.N56/X	28-40 40 40	4.5 - 6 4.5 - 6 7 - 8.5	16 18 30	8-10 10-12 20-24			30 36 36	3/8" 1/2"	3N42 3N48
G5	IEC	KG5.011/X KG5.014/X KG5.019/X KG5.024/X	50-60 50-60 50-60 60	8.9 - 10	15 30 40 70	8-10 12-17 20-25 30-40	19.5	31.5	45 45 45 52	11 14 19 24	511 514 519 524
	NEMA	KG5.N56/X KG5.N140/X	50-60 60		45 60	30-35 40-45			45 52	1/2" 5/8" 7/8"	5N48 5N56 5N140
G6	IEC	KG6.014/X KG6.019/X KG6.024/X KG6.028/X	70 70-85-110 70-85-110 70-85-110	15.3 - 18	60 90 130 180	30-40 50-65 85-100 100-120	19.5	31.5	58	14 19 24 28	614 619 624 628
	NEMA	KG6.N56/X KG6.N140/X KG6.N180/X	70-85-110 70-85-110 70-85-110		50 85 200	- - - - - - - - -				5/8" 7/8" 1-1/8"	6N56 6N140 6N180

Mt - Coppia di serraggio vite
Mt_1 - Coppia trasmissibile con chiavetta
Mt_2 - Coppia trasmissibile senza chiavetta
* - Giunto GS8: serraggio con chiavetta e grano di bloccaggio assiale
../X - Codice giunto con elemento elastico nero IXEF

Mt - Screw locking torque
Mt_1 - Transmissible torque with key
Mt_2 - Transmissible torque without key
* - Coupling GS8: steel, key fit and grub screw
../X - Code of coupling with IXEF black-spider

Mt - Schraubenklemmenngrehmoment
Mt_1 - übertragbar Drehmoment mit Keil
Mt_2 - übertragbar Drehmoment ohne Keil
* - Kupplung GS8: Stahl, Keilverkeilung u. gewindestift
../X - Kupplungscode mit schwarzen IXEF-Ring

RS-RT - Riduttori - Gearboxes - Getriebe

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

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/X KG3.011/X
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/X KG3.011/X KG3.014/X
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/X KG5.014/X KG5.019/X
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/X KG5.019/X KG5.024/X
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/X KG6.019/X KG6.024/X KG6.028/X
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/X KG6.024/X KG6.028/X
RS-RT 110	FM 110	IEC90 IEC100/112 IEC132	K535.206.200 K535.206.250 K535.206.300	- - - K535.206.160 K535.206.200	G6 ø24 G6 ø28 # ø38	KG6.024/X KG6.028/X - - -
RS 130	FM 130	IEC100/112 IEC 132	K536.206.250 K537.206.300	- - - K536.206.200	# ø28 # ø38	- - - - - -
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 - - -	# ø28 # ø38 # ø42	- - - - - - - - -
XA 63	FM 40	IEC56 IEC63	K531.206.120 K531.206.140	K531.206.080 K531.206.090	# ø9 # ø11	- - - - - -
XA 71	FM 50	IEC71	K532.206.160	K532.206.105	# ø14	- - -
XA 80	FM 70	IEC80 IEC90	K533.206.200 K533.206.200	K533.206.120 K533.206.140	# ø19 # ø24	- - - - - -
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/X KG6.024/X KG6.028/X

- Accoppiamento motore con chiavetta
../X - Codice del giunto con anello nero IXEF

- Key / keyway motor fitting
../X - Code of coupling with IXEF black-spider

- Motormontage mit Keil / Keilriemen
../X - Kupplungscode mit schwarzen IXEF-Ring

Getriebe - Gearboxes - Riduttori - RS-RT

NEMA-Flansche u. Kupplung - NEMA Flanges & Coupling - Flange NEMA e Giunto

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	K530.207.N048	G3 ø 3/8”	KG3.N042/X
RS-RT 40	FM 40	42 C 48 C 56 C	K531.227.N048 K531.227.N048 K531.227.N056	G3 ø 3/8” G3 ø 1/2” G3 ø 5/8”	KG3.N042/X KG3.N048/X KG3.N056/X
RS-RT 50	FM 50	56 C	K532.227.N056	G5 ø 5/8	KG5.N056/X
RS-RT 60	FM 60	56 C 140 TC	K539.227.N056 K539.227.N056	G5 ø 5/8” G5 ø 7/8”	KG5.N056/X KG5.N140/X
RS-RT 70	FM 70	56 C 140 TC 180 TC	K533.227.N056 K533.227.N056 K533.227.N180	G6 ø 5/8” G6 ø 7/8” G6 ø 1-1/8”	KG6.N056/X KG6.N140/X KG6.N180/X
RS-RT 85	FM 85	56 C 140 TC 180 TC	K534.227.N056 K534.227.N056 K534.227.N180	G6 ø 5/8” G6 ø 7/8” G6 ø 1-1/8”	KG6.N056/X KG6.N140/X KG6.N180/X
RS-RT 110	FM 110	56 C 140 TC 180 TC	K535.227.N056 K535.227.N056 K535.227.N180	G6 ø 5/8” G6 ø 7/8” G6 ø 1-1/8”	KG6.N056/X KG6.N140/X KG6.N180/X
RS 130	FM 130	56 C 140 TC 180 TC	K536.227.N056 K536.227.N056 K536.227.N180	# ø 5/8” # ø 7/8” # ø 1-1/8”	- - - - - - - - -
RS 150	FM 130	56 C 140 TC 180 TC 210 TC	K537.227.N056 K537.227.N056 K537.227.N180 K537.227.N180	# ø 5/8” # ø 7/8” # ø 1-1/8” # ø 1-1/8”	- - - - - - - - - - - -
XA 63	FM 40	* IEC56 * IEC63	K531.206.120 K531.206.140	# ø9 mm # ø11 mm	- - - - - -
XA 71	FM 50	* IEC71	K532.206.160	# ø14 mm	- - -
XA 80	FM 70	* IEC80 * IEC90	K533.206.200 K533.206.200	# ø19 mm # ø24 mm	- - - - - -
XA 100	FM 85	56 C 140 TC 180 TC	K334.227.N056 K334.227.N056 K334.227.N180	G6 ø 5/8” G6 ø 7/8” G6 ø 1-1/8”	KG6.N056/X KG6.N140/X KG6.N180/X

- Accoppiamento motore con chiavetta
* - Entrata solo IEC
../X - Codice del giunto con anello nero IXEF

- Key / keyway motor fitting
* - IEC input only
../X - Code of coupling with IXEF black-spider

- Motormontage mit Keil / Keilriemen
* - Nur IEC-Eingang
../X - Kupplungscode mit schwarzen IXEF-Ring

RS-RT - Riduttori - Gearboxes - Getriebe

Designazione Riduttore e Motore - Gearbox & Motor Designation - Getriebe- u. Motorbezeichnungen

DESIGNAZIONE DEL RIDUTTORE - GEARBOX DESIGNATION - GETRIEBEBEZEICHNUNG

F	RT	-G - - -	[../]	40	B3	28	IEC71	B14	(OPS, OPP)

OPS = Opzioni standard pag. 56 e 64 - Standard options pages 56 and 64 - Standard Optionen Seite 56 u. 64
OPP = Opzioni piè pagina - Options at the foot of the page - Optionen siehe Seitenende

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 Getriebe 1.

-G = entrata con giunto G - input with Coupling G - Eingang mit Kupplung G
- - - = Cava & chiavetta - Keyway & key - Keil Einschnitt u. Keil

RS, RT, RA, TA, RS/RS, RT/RT = Tipo riduttore - Gearbox type - Getriebetyp

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- MOTOR DESIGNATION - MOTORBEZEICHNUNG

MT	0.37 kW	71 B	4	B14	230/400/50	IP55	F	X4

Posizione della morsettiera - Terminal box position - Klemmkastenposition

Classe isolamento - Insulation class - Isolationsklasse

Grado di protezione - Protection class - Schutzart

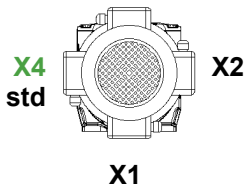
Tensione / Frequenza - Voltage/frequency - Spannung/Frequenz

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



MT	= Motore trifase	- Three-phase motor	- Dreiphasenmotor
MM	= Motore monofase	- Single-phase motor	- Einphasenmotor
MA	= Motore autofrenante	- Brake motor	- Bremsmotor

"OPP" OPZIONI - OPTIONS - OPTIONEN

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

VARsize by VARVEL

Modularità e la flessibilità
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 **VARsize®** disponibile nel sito web
www.varvel.com
permette un facile dimensionamento dei prodotti VARVEL.

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

Configurazione assistita
Indentifica, 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.

Modularity and flexibility
have been leading the design of VARVEL products since the years 2000: this way, the gearbox-kit concept was carried out allowing anyone to assemble the unit in few minutes with standard tooling.
This feature provides the highest flexibility to VARVEL's distributors and resellers who - thanks to a limited kit selection - are able to immediately configure the required product.
VARsize® selection program, available from our web-site
www.varvel.com
allows a friendly sizing of VARVEL product range.

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

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

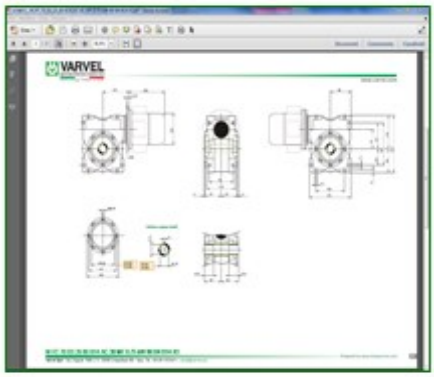
Bausteinprinzip und Flexibilität
bestimmen die Gestaltung der VARVEL Produkte seit 2000. Dieses Konzept ermöglicht jedermann in kurzer Zeit mit Standardwerkzeugen das gewünschte Getriebe zu montieren.
Damit wird allen Verkäufern von VARVEL Antrieb ein Höchstmaß an Flexibilität gegeben, um mit wenigen Bauteilen ein gewünschtes Getriebe zu konfigurieren.
VARsize® als Auswahlprogramm auf unserer Internetseite
www.varvel.com
bietet eine angepasste Antriebsauslegung.

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

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



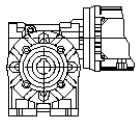
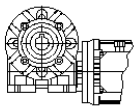
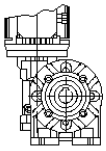
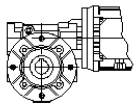
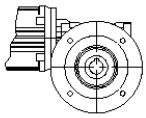
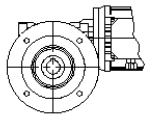
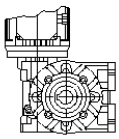
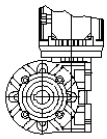
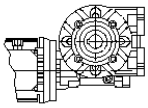
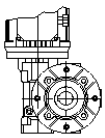
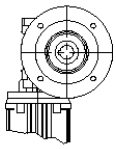
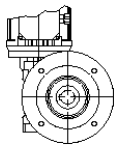
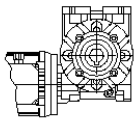
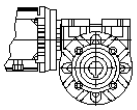
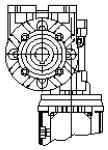
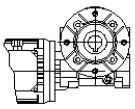
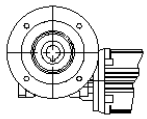
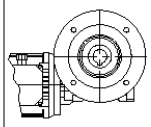
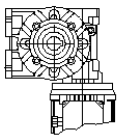
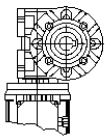
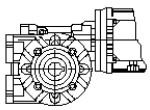
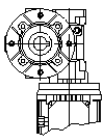
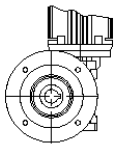
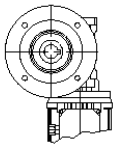
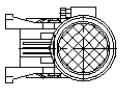
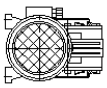
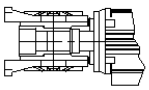
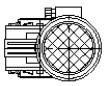
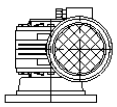
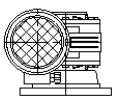
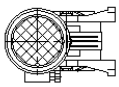
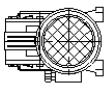
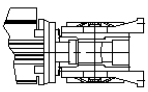
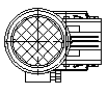
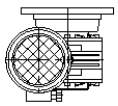
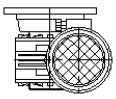




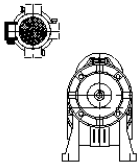
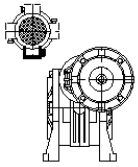
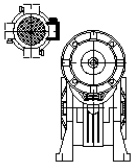
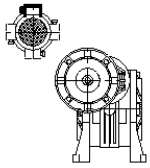

RS-RT - Riduttori - Gearboxes - Getriebe

Posizioni di montaggio - Mounting positions - Einbaulagen

RS, RA, RS/RS
Fissaggio riduttore - Gearbox fixing - Befestigung des Getriebe

S (SA)	**I** (IA)	**D** (DA)	**PC** (PA, PB)	FL (FA, FB, FR)	
 B3 (std)	 B3 (std)	 B3 (std)	 B5 (std)	 B5 (std)	 B5i
 V5	 V5	 V5	 B5a	 B5a	 B5ai
 B8	 B8	 B8	 B5b	 B5b	 B5bi
 V6	 V6	 V6	 B5c	 B5c	 B5ci
 B6	 B6	 B6	 V1	 V1	 V1i
 B7	 B7	 B7	 V3	 V3	 V3i

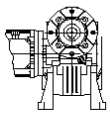
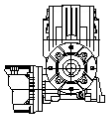
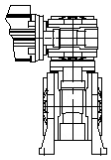
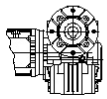
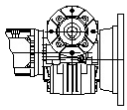
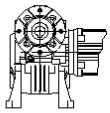
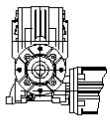
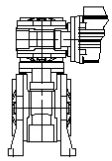
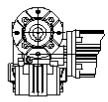
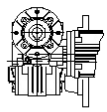
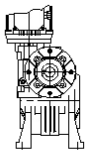
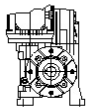
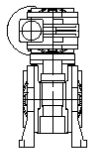
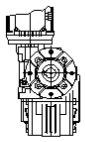
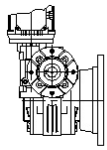
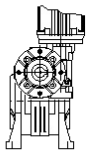
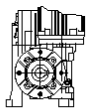
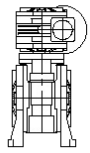
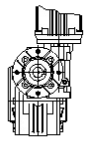
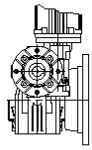
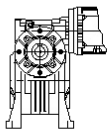
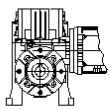
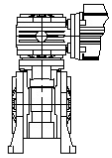
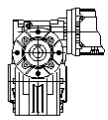
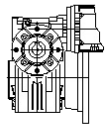
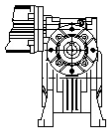
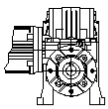
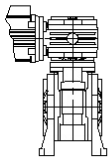
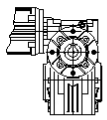
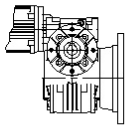
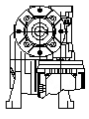
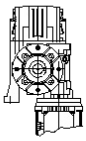
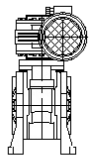
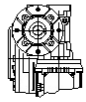
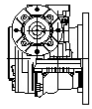
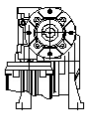
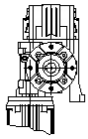
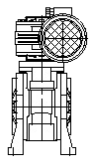
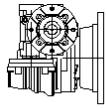
RA
Posizione precoppia - Helical stage position - Position der Vorstufe

10 (std)	**11**	**12**	**13**	
				

Getriebe - Gearboxes - Riduttori - RS-RT

Einbaulagen - Mounting positions - Posizioni di montaggio

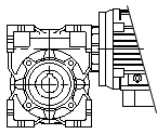
RS/RS
Posizione primo riduttore - First gearbox position - Position des ersten Getriebe

	S (SA)	**I** (IA)	**D** (DA)	**PC** (PA, PB)	FL (FA, FB, FR)
11					
12					
13					
14					
15					
16					
17					
18					

RS-RT - Riduttori - Gearboxes - Getriebe

Posizioni di montaggio - Mounting positions - Einbaulagen

RT, TA, RT/RT
- Fissaggio riduttore
- Gearbox fixing
- Befestigung des Getriebe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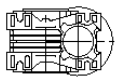
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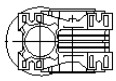
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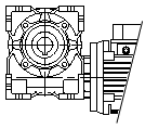
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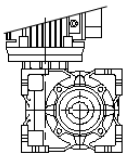
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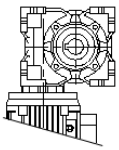
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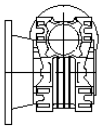
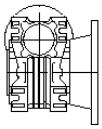
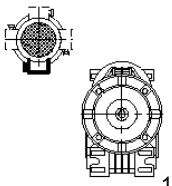

F (std)


Fi

TA
- Posizione precoppia
- Helical stage position
- Position der Vorstufe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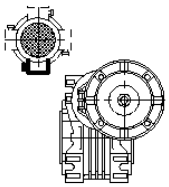
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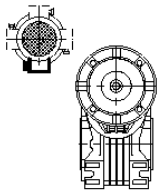
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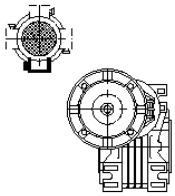
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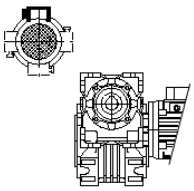
RT/RT
- Posizione primo riduttore
- First gearbox position
- Position des ersten Getriebe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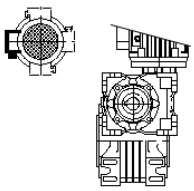
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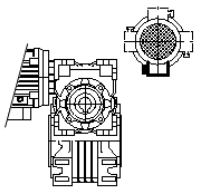
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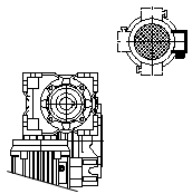
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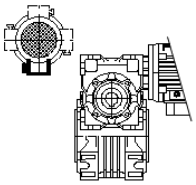
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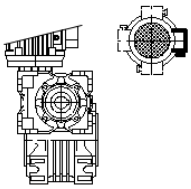
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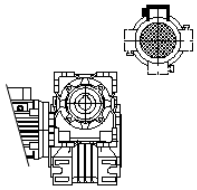
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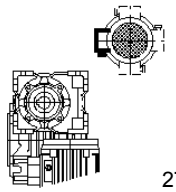

27

PESI - WEIGHTS - GEWICHTE

RS RT	kg	RA TA	kg	RS / RS RT /RT	kg
28	1.1	63 / 40	4.0	28 / 28	2.5
40	2.5	63 / 50	5.3	28 / 40	3.9
50	3.8	63 / 60	8.0	28 / 50	5.2
60	6.5	71 / 50	6.6	28 / 60	7.9
70	9.0	71 / 60	9.3	40 / 70	12.0
85	13.5	71 / 70	11.8	40 / 85	16.5
110	39.0	71 / 85	16.3	50 / 110	45.0
RS 130	50.0	80 / 60	10.5	RS60 / 130	57.0
RS 150	80.0	80 / 70	13.0	RS70 / 150	90.0
		80 / 85	17.5		
		80 / 110	43.0		
		100 /110	46.0		
		RS100 / 130	64.0		
		RS 100 / 150	94.0		

LUBRIFICANTI - LUBRICANTS - SCHMIERMITTEL
[l, l_1, l_2 = litri, litres, Liter]

RS RT	l	RA TA	l_1/l_2	RS / RS RT / RT	l_1/l_2
28	0.03	63 / 40	0.04 / 0.08	28 / 28	0.03 / 0.03
40	0.08	63 / 50	0.04 / 0.13	28 / 40	0.03 / 0.08
50	0.13	63 / 60	0.04 / 0.25	28 / 50	0.03 / 0.13
60	0.25	71 / 50	0.05 / 0.13	28 / 60	0.03 / 0.25
70	0.35	71 / 60	0.05 / 0.25	40 / 70	0.08 / 0.35
85	0.60	71 / 70	0.05 / 0.35	40 / 85	0.08 / 0.60
110	1.50	71 / 85	0.05 / 0.60	50 / 110	0.13 / 1.50
RS 130	2.75	80 / 60	0.10 / 0.25	RS60 / 130	0.23 / 2.75
RS 150	4.40	80 / 70	0.10 / 0.35	RS70 / 150	0.35 / 4.40
		80 / 85	0.10 / 0 .60		
		80 / 110	0.10 / 1.50		
		100 /110	0.20 / 1.50		
		RS100 / 130	0.20 / 2.75		
		RS 100 /150	0.20 / 4.40		

RS-RT - Riduttori - Gearboxes - Getriebe

Fattori di servizio - Service factors - Betriebsfaktoren

FATTORE DI SERVIZIO - SERVICE FACTOR - BETRIEBSFAKTOR
del riduttore of the gearbox des Getriebes

Il fattore di servizio FS1.0 è inteso come rappresentativo di un funzionamento di 8-10 ore al giorno, con carico uniforme e avviamenti inferiori a 6 all'ora e temperatura ambiente fra 15 e 35 °C.

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

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

Service factor FS1.0 is meant as typical of 8-10 hours/day operation, with uniform load and starts/ stops lower than 6 per hour and ambient temperature between 15 and 35 Celsius.

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

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

Für den Servicefaktor FS1.0 gilt ein 8- bis 10 -stündiger Betrieb mit gleichförmiger Last und bis zu 6 Start/Stopp je Stunde und Umgebungstemperaturen zwischen 15° und 35 °C.

Das Verhältnis zwischen dem maximalen Ausgangsdrehmoment des Getriebes M_2 und des erfragtem Drehmoment der Anwendung $M_{(app)}$, bestimmt den Ausnutzungsfaktor der Gruppe, der gleich oder größer als der Betriebsfaktor SF sein muss.

Für max. Umgebungstemperatur über 40° C oder unter 0° C, fragen Sie bitte unseren Vorverkauft Kundenservice.

Fattore di Servizio - Service Factor - Betriebsfaktor
SF

Tipo di Carico / Charge Type / Belastung-Typ				Avviamenti / Ora / Start-Stops per Hour / Schaltungen pro Stunde		
ore hours Stunden	uniforme uniform gleichmäßige **SF_1**	variabile variable variabel **SF_1**	a urti with shocks **mit Stöße** **SF_1**	numero number Anzahl	**SF_2**	**$SF = SF_1 \times SF_2$**
8	0.8	1.1	1.4	6	1.0	
16	1.0	1.3	1.5	60	1.2	
24	1.2	1.4	1.6	120	1.3	

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

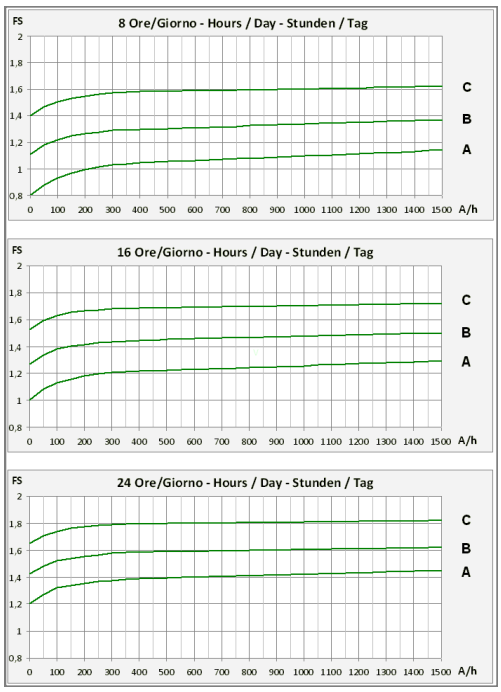
Classi di carico
Load class
Belastungsklassen

A - Carico uniforme
Uniform load $k_{(a)} \leq 0.2$
Gleichförmige Last

B - Carico con urti moderati
Moderate shock load $0.2 < k_{(a)} \leq 3$
Ungleichförmige Last

C - Carico con forti urti
Severe shock load $3 < k_{(a)} \leq 10$
Stark ungleichförmige Last

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



TIPO DI SERVIZIO del motore	DUTY TYPE of the motor	BETRIEBSARTEN des Motors
I vari tipi di servizi sono definiti dalle norme CEI EN60034-1/IEC34-1.	Duty types are defined by CEI EN 60034-1 / IEC34-1 Standard.	Die Betriebsarten sind definiert in den Normen CEI EN 60034-1 / IEC34-1.

Servizio continuo S1 - S1 Continuous duty - S1-Dauerbetrieb

Funzionamento a carico costante per un periodo di tempo indefinito (N), comunque sufficiente a raggiungere l'equilibrio ter-mico.	Steady load operation for an indefinite period (N), but long enough to achieve ther-mal balancing.	Betrieb mit konstanter Belastung über eine unbestimmte Zeit (N), ohne dass der thermische Beharrungszustand der Maschine beeinträchtigt wird.

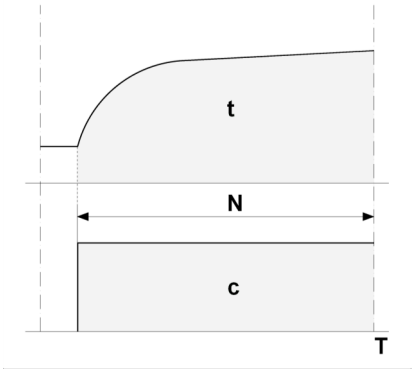
FS = 1.0

N = Tempo di lavoro
Operation time
Betriebszeit

c = Carico
Load
Belastung

t = Temperatura
Temperature
Temperatur

T = Tempo
Time
Zeit



Servizio intermittente periodico S3 - S3 Periodic intermittent duty- S3-Aussetzbetriebe

Funzionamento secondo un ciclo (C) comprendente un periodo di tempo a carico costante (N) ed un periodo di tempo di riposo (R). Gli avviamenti non influiscono sulle temperature. Il ciclo (C) di riferimento è di 10 minuti complessivi. Il rapporto di intermittenza viene determinato secondo la formula seguente.	Operation according to cycle (C) including steady load time (N) and rest time (R). Starts/stops do not affect temperature. The reference cycle (C) is up to a total of 10 minutes. Intermittence ratio is calculated according the following formula.	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. Die Intermittenzübersetzung wird nach die folgende Formel bestimmt.

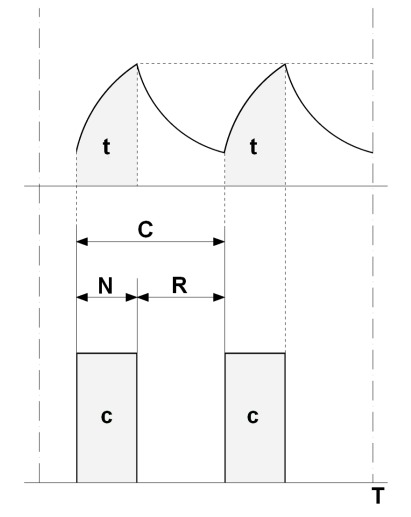
$$\frac{N}{(N+R)} * 100 =$$

60% **FS 1.1**
40% **FS 1.2**
25% **FS 1.3**
15% **FS 1.4**

N = Tempo di lavoro
Operation time
Betriebsdauer

R = Tempo di riposo
Rest time
Pause

C = Ciclo di lavoro
Duty cycle
Zyklusdauer



RS-RT - Riduttori - Gearboxes - Getriebe

Carichi esterni - External Loads - Außere Kräfte

CARICHI RADIALI USCITA - OUTPUT RADIAL LOADS (OHL) - AUSGANGSRADIALKRÄFTE

I carichi radiali riportati nelle tabelle debbono essere verificati in base alla velocità di uscita, alla posizione di montaggio e al tipo di elemento di trasmissione montato sull'albero di uscita del riduttore tramite il relativo fattore $k_{(t)}$.

Radial (overhung) loads - as shown in the following tables - should be checked according to output speed, mounting position and type of the transmission element fitted on the gearbox output shaft by the appropriate $k_{(t)}$. rating factor.

Die Radialkräfte in den Tabellen müssen mit entsprechender Abtriebs-Drehzahl, der Montageposition und dem Übertragungselement montiert auf der Getriebe-Ausgangswelle durch entsprechendem Faktor kt verglichen werden.

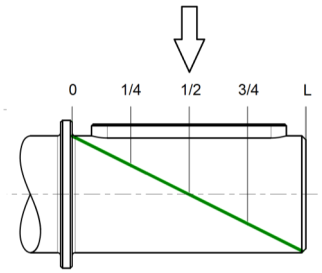
Punto di applicazione del carico radiale - Application point of radial load - Anwendung-Punkt der Radialbelastung

Il carico radiale (F_{r2}) è considerato applicato alla mezzeria dell'albero di uscita.
Altre posizioni originano carichi da correggere con l'appropriato fattore k_L.
Esempi della distanza da spallamento dell'albero:

OHL (F_{r2}) is considered as applied at the output shaft mid-point.
Other positions origin loads to be adjusted with the appropriate factor k_L.
Examples of the distance from the shaft shoulder:

Die Radialbelastung (F_{r2}) wird auf der Mitte der Ausgangswelle angelegt.
Andere Positionen erzeugen Lasten, die mit dem entsprechendem Faktor k_L zu korrigieren sind. Beispiele für den Abstand der Stufenwelle:

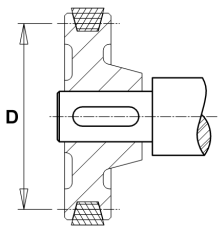
k_L	L
1.1	1/4 * L
1.0	1/2 * L
0.9	3/4 * L
0.8	L



Elemento della trasmissione - Transmission element - Übertragungselement

k_T	Tipo	Type	Typ
1.15	Ingranaggio n. denti < 17	Gear tooth No. < 17	Zahnrad Zähnezahl < 17
1.40 1.25 1.00	Pignone catena n. denti < 13 n. denti < 20 n. denti > 20	Chain sprocket tooth No. < 13 tooth No. < 20 tooth No. > 20	Kettenrad Zähnezahl < 13 Zähnezahl < 20 Zähnezahl > 20
2.50 1.25	Puleggia per cinghie "V" cinghie dentate	Pulley for V-belt toothed-belt	Riemen für Keilriemen "V" Zahnriemen

$$Fr = \frac{2000 * M2}{D} * k_T$$

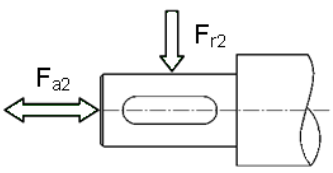


CARICHI ASSIALI USCITA - OUTPUT AXIAL LOADS - AUSGANGSAXIALKRÄFTE

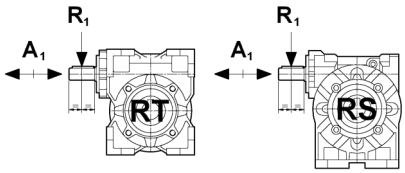
Valore del carico assiale
$F_{a2} = F_{r2} \times 0.2$
sia a trazione che a compressione e in presenza di carico radiale.

Axial load value
$F_{a2} = F_{r2} \times 0.2$
both on tensile and compressive stress. and with radial load.

Axialkräfte
$F_{a2} = F_{r2} \times 0.2$
auf Zug- und Druck bei gleichzeitiger Radialkraft.



CARICHI RADIALI ENTRATA - INPUT RADIAL LOADS - EINGANGSRADIALKRÄFTE
R_1 [daN]



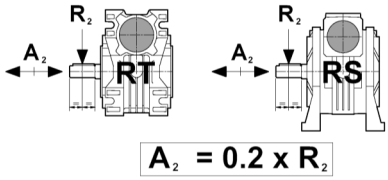
$A_1 = 0.2 \times R_1$

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

RS-RT - Riduttori - Gearboxes - Getriebe

Carichi esterni - External loads - Außere Kräfte

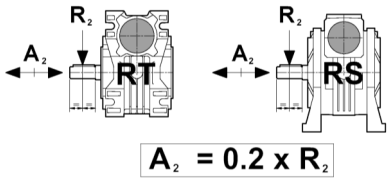
CARICHI RADIALI USCITA - OUTPUT RADIAL LOADS - AUSGANGSRADIALKRÄFTE
con cuscinetti standard with standard bearings mit Standardlagerung
R_2 [daN]



i rpm	5 280	7 200	10 140	15 93	20 70	28 50	40 35	49 29	56 25	70 20	80 18	100 14	Brg No.
RS-RT 28	50	45	50	55	60	62	70	75	80	90	95	100	16005
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	①
RS-RT 70	260	270	290	360	390	420	450	520	550	590	630	670	②
RS-RT 85	330	330	370	440	470	540	550	630	660	710	750	830	③
RS-RT 110	- - -	390	415	520	540	590	570	750	780	800	880	980	④
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

Cuscinetto Bearing Lager	RS	RT
① ② ③ ④	6008 6009 6010 6012	6208 6209 6210 6212

CARICHI RADIALI USCITA - OUTPUT RADIAL LOADS - AUSGANGSRADIALKRÄFTE
con cuscinetti rinforzati with heavy duty bearings mit verstärkter Lagerung
R_2 [daN]



i rpm	5 280	7 200	10 140	15 93	20 70	28 50	40 35	49 29	56 25	70 20	80 18	100 14	Brg No.
RS-RT 28	75	65	75	82	90	93	105	112	120	130	130	130	6005
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	①
RS-RT 85	410	420	460	550	630	720	730	840	870	940	940	940	②
RS-RT 110	- - -	500	540	670	750	800	930	1050	1110	1110	1110	1110	③
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

Cuscinetto Bearing Lager	RS	RT
① ② ③	32009 32010 32012	30209 30210 30212

RS-RT - Riduttori - Gearboxes - Getriebe

FRS FRT	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	④	- - -	- - -	- - -	- - -	- - -
150	100/112	- - -	④	④	④	④	④	④	④	④	④	④	④
	132	- - -	④	④	④	④	④	④	④	④	④	- - -	- - -
	160	- - -	④	④	④	④	④	④	④	- - -	- - -	- - -	- - -

		Flangia entrata con	Input flange with	Eingangsflansch mit
①	B5&B14	giunto elastico	flexible coupling	Kupplung
③	B5			
②	B5&B14	foro e cava / chiavetta	bore and key / keyway	Bohrung u. Keil / Keilriemen
④	B5			

FRA FTA	i =	5	7	10	15	20	28	40	49	56	70	80	100
	IEC (✶)	(✶✶✶)											
63/40	56 B5 & B14	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	63 B5 & B14	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	71 B5 & B14	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	80 B5 & B14	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	90 B5 & B14	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 (✶✶)	90 B5 & B14	---	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤
	100 B5 & B14	---	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤
100/150 (✶✶)	90 B5&B14	---	⑥	⑥	⑥	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤
	100 B5 & B14	---	⑥	⑥	⑥	⑤	⑤	⑤	⑤	⑤	⑤	⑤	⑤

(✶)	FRA, FTA entrata IEC	FRA, FTA IEC input frame	FRA, FTA IEC Eingangsgroße
(✶✶)	solo FRA	FRA only	nur FRA
(✶✶✶)	Uscita precoppia e Entrata FRS/FRT	Helical stage output and FRS/FRT input	Ausgang der Vorstufe u. Eingang der Getriebe FRS/FRT
①	ø105 x 14	ø105 x 14	ø105 x 14
②	ø120 x 19	ø120 x 19	ø120 x 19
③	ø140 x 24	ø140 x 24	ø140 x 24
④	ø140 x 28	ø140 x 28	ø140 x 28
⑤	ø200 x 28	ø200 x 28	ø200 x 28
⑥	ø200 x 28 (Foro vite ø38 mm + Boccola ø28/38 mm)	ø200 x 28 (Wormshaft bore ø38 mm + Bore adapter ø28/38 mm)	ø200 x 28 (Schneckebohrung ø38 mm + Bohrungsbuchse ø28/38 mm)

RS-RT - Riduttori - Gearboxes - Getriebe

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: 560 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: 560 UpM bis 1.4 UpM

FRS, FRT

- Riduttori a singolo stadio, con precoppia, a doppio stadio con flangia motore entrata, albero d'entrata cavo e giunto elastico
  Flange motore: IEC 56 a IEC 160 e NEMA 56C a NEMA 210TC
  Coppia: 7 Nm [62 in-lb] a 3020 Nm [26730 in-lb]
  Rapporti di riduzione: 5:1 a 10000:1

- Gearboxes w/single stage worm, helical/worm, double stage worm and with input motor flange, input quill and flexible coupling
  Motor flanges: IEC 56 to IEC 160 and NEMA 56C to NEMA 210TC
  Output torque: 7 Nm [62 in-lb] to 26730 Nm [20350 in-lb]
  Reduction ratios: 5:1 to 10000:1

- Einstufig, mit Stirnradvorstufe, Doppelstufig mit Motorflansch, Eingangs hohl-welle und Kupplung
  Motorflansche: IEC 56 bis IEC 160 u. NEMA 56C bis NEMA 210TC
  Ausgangsdrehmoment: 7 Nm [62 in-lb] bis 10000 Nm [20350 in-lb]
  Untersetzungsverhältnis: 5:1 bis 10000:1

SRS, SRT

- Riduttori a singolo stadio, con precoppia, a doppio stadio senza flangia motore di entrata, ma con albero entrata cavo e giunto elastico
  Coppia: 7 Nm [62 in-lb] a 3020 Nm [26730 in-lb]
  Rapporti di riduzione: 5:1 a 10000:1

- Gearboxes w/single stage worm, helical/worm, double stage worm with out input motor flange, but with input hollow shaft and flexible coupling
  Output torque: 7 Nm [62 in-lb] to 26730 Nm [20350 in-lb]
  Reduction ratios: 5:1 to 10000:1

- Einstufig, mit Stirnradvorstufe, Doppelstufig ohne Motorflansch, aber mit Hohl- eingangswelle und Kupplung
  Ausgangsdrehmoment: 7 Nm [62 in-lb] bis 10000 Nm [20350 in-lb]
  Untersetzungsverhältnis: 5:1 bis 10000:1

RS, RT

- Riduttori a singolo stadio, con precoppia, a doppio stadio con albero entrata sporgente
  Coppia: 7 Nm [62 in-lb] a 3020 Nm [26730 in-lb]
  Rapporti di riduzione: 5:1 a 10000:1

- Gearboxes w/single stage worm, helical/worm, double stage worm and input solid shaft
  Output torque: 7 Nm [62 in-lb] to 26730 Nm [20350 in-lb]
  Reduction ratios: 5:1 to 10000:1

- Einstufig, mit Stirnradvorstufe, Doppelstufig mit Eingangswelle
  Ausgangsdrehmoment: 7 Nm [62 in-lb] bis 10000 Nm [20350 in-lb]
  Untersetzungsverhältnis: 5:1 bis 10000:1

Getriebe - Gearboxes - Riduttori - RS-RT

RS - RT — Getriebeauswahl - Speed Reducer Selection - Selezione Riduttore - 2800 rpm

RS RT	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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-3}	- - -	8,1739	6,9606	6,3130	6,0863	5,9436	5,8678	5,8435	5,8321	5,8187	5,8131	5,8066

RS-RT - Riduttori - Gearboxes - Getriebe

RS - RT — Selezione Riduttore - Speed Reducer Selection - Getriebeauswahl - 1400 rpm

RS RT	i =	5	7	10	15	20	28	40	49	56	70	80	100
	rpm	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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-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	238	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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-3}	- - -	8,1739	6,9606	6,3130	6,0863	5,9436	5,8678	5,8435	5,8321	5,8187	5,8131	5,8066

Getriebe - Gearboxes - Riduttori - RS-RT

RS - RT Getriebeauswahl - Speed Reducer Selection -Selezione Riduttore - 900 rpm

RS RT	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_1x10^{-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_1x10^{-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	056	0.54	0.47	0.46	042
	J_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-3}	- - -	8,1739	6,9606	6,3130	6,0863	5,9436	5,8678	5,8435	5,8321	5,8187	5,8131	5,8066

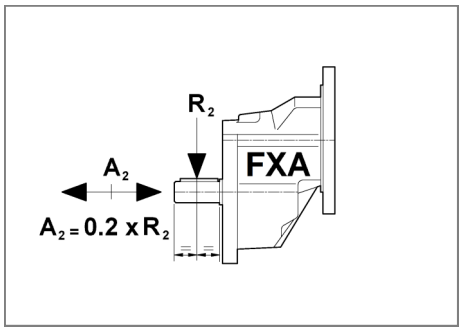
RS-RT - Riduttori - Gearboxes - Getriebe

RS - RT **Selezione Riduttore - Speed Reducer Selection - Getriebeauswahl - 700 rpm**

RS RT	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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-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_1x10^{-3}	- - -	8,1739	6,9606	6,3130	6,0863	5,9436	5,8678	5,8435	5,8321	5,8187	5,8131	5,8066

Precoppia FXA - FXA Attachment - FXA-Vorstufe

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



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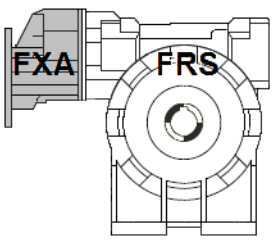
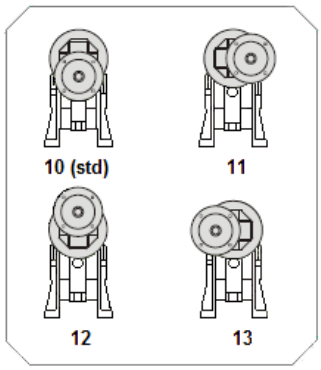
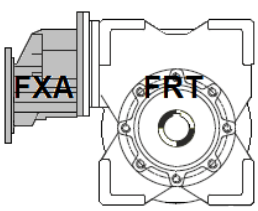
Posizioni precoppia - Attachment positions - Position der Vorstufe

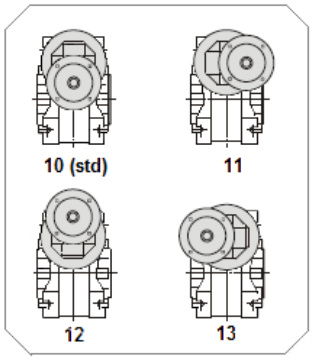


FRA





FTA



RS-RT - Riduttori - Gearboxes - Getriebe

RA - TA Selezione Riduttore- Speed Reducer Selection - Getriebeauswahl - 1400 rpm - i = 3.5

RA TA 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

RA TA 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

RS-RT - Riduttori - Gearboxes - Getriebe

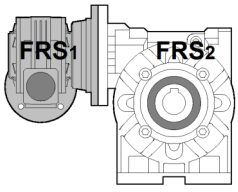
RA - TA Selezione Riduttore - Speed Reducer Selection - Getriebeauswahl - 1400 rpm - i = 8

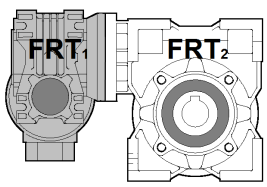
RA TA $i_n = 8$	$i = i_n \times i_2$	40	56	80	120	160	224	320	392	448	560	640	800
	rpm	35	25	18	12	9	6	4	3.5	3	2.5	2.2	1.75
	i_2	5	7	10	15	20	28	40	49	56	70	80	100
RA-TA 63/40	kW	0.43	0.32	0.23	0.16	0.11	0.11	0.08	0.06	0.05	0.03	0.03	0.02
	Nm	90	93	89	84	72	85	75	69	59	45	38	27
	eff.	0.76	0.75	0.72	0.65	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

Getriebe - Gearboxes - Riduttori - RS-RT

RS/RS - RT/RT Getriebeauswahl - Speed Reducer Selection - Selezione Riduttore - 1400 rpm

RS RT	$i = i_1 \times i_2$	280	420	560	784	1120	1568	2240	2800	4000	5600	8000	10000
	rpm	5	3.3	2.5	1.8	1.25	0.9	0.6	0.5	0.35	0.25	0.17	0.14
	i_1 =	10	15	20	28	40	56	56	70	100	100	100	100
	i_2 =	28	28	28	28	28	28	40	40	40	56	80	100
RS-RT 28/28	W	45	32	25	21	16	13	9	8	6	3	1.8	1.3
	Nm	36	36	36	36	36	35	30	30	30	16	12	11
	eff.	0.40	0.38	0.37	0.32	0.30	0.25	0.21	0.20	0.18	0.14	0.12	0.13
RS-RT 28/40	W	108	75	60	46	34	30	22	22	14	11	5	3
	Nm	85	85	85	80	80	80	73	76	70	62	41	25
	eff.	0.41	0.39	0.37	0.33	0.31	0.25	0.21	0.18	0.18	0.15	0.14	0.12
RS-RT 28/50	W	187	133	106	91	74	60	36	36	28	20	10	6
	Nm	150	150	150	160	175	160	125	131	147	125	78	49
	eff.	0.30. 42	0.39	0.37	0.33	0.31	0.25	0.22	0.19	0.19	0.16	0.14	0.12
RS-RT 28/60	W	279	197	157	132	91	91	67	54	30	32	16	10
	Nm	240	240	240	245	230	260	245	217	164	195	128	91
	eff.	0.45	0.42	0.40	0.35	0.33	0.27	0.23	0.21	0.20	0.16	0.14	0.13
RS-RT 40/70	W	423	298	249	198	157	119	86	72	60	42	24	16
	Nm	380	380	400	400	395	380	370	345	360	321	201	154
	eff.	0.47	0.44	0.42	0.38	0.33	0.30	0.27	0.25	0.22	0.20	0.15	0.14
RS-RT 40/85	W	635	447	372	276	224	180	138	120	90	72	39	26
	Nm	595	595	625	585	625	610	615	595	565	550	373	264
	eff.	0.49	0.46	0.44	0.40	0.35	0.32	0.28	0.26	0.23	0.20	0.17	0.15
RS-RT 50/110	W	- - -	865	756	579	453	382	292	235	163	128	82	51
	Nm	- - -	1190	1300	1300	1280	1350	1340	1210	1070	980	810	560
	eff.	- - -	0.48	0.45	0.42	0.37	0.33	0.30	0.27	0.24	0.20	0.18	0.16
RS 60/130	kW	- - -	1.5	1.1	0.75	0.55	0.55	0.37	0.25	0.25	0.25	0.25	0.25
	Nm	- - -	2015	1930	1670	1530	2015	1830	1410	1770	1850	1420	1225
	eff.	- - -	0.50	0.46	0.43	0.40	0.35	0.33	0.30	0.27	0.25	0.21	0.20
RS 70/150	kW	- - -	1.8	1.5	1.1	0.75	0.75	0.55	0.37	0.37	0.25	0.25	0.25
	Nm	- - -	2570	2830	2570	2460	2850	3020	2325	2875	2670	2135	1995
	eff.	- - -	0.52	0.50	0.46	0.43	0.39	0.36	0.33	0.31	0.27	0.23	0.22





Altri rapporti di riduzione e combinazioni di grandezze riduttori sono disponibili a richiesta.

Other reduction ratios and gearbox size combinations are available on demand.

Auf Anfrage sind auch andere Untersetzungsverhältnisse und Kombinierte Getriebe lieferbar.

RS-RT - Riduttori - Gearboxes - Getriebe

MRS - MRT Selezione Motoriduttore - Geared Motor Selection - Getriebemotorauswahl - 1400 rpm

0.06 kW	rpm	i =	Nm	SF	kg
MRS-MRT28	280	5	1,8	>3	3.6
MRS-MRT28	200	7	2,4	>3	3,6
MRS-MRT 28	140	10	3,3	>3	3,6
MRS-MRT 28	93	15	4,7	>3	3,6
MRS-MRT 28	70	20	6,1	2,6	3,6
MRS-MRT 28	50	28	7,6	2,6	3,6
MRS-MRT 28	35	40	10	1,7	3,6
MRA-MTA 63/40	32	44	14	>3	6,5
MRS-MRT 28	29	49	11	1,5	3,6
MRS-MRT 28	25	56	12	1,3	3,6
MRA-MTA 63/40	22	63	19	>3	6,5
MRS-MRT 28	20	70	13	0,9	3,6
MRS-MRT 40	18	80	16	2,0	5,0
MRA-MTA 63/40	15	95	26	2,8	6,5
MRS-MRT 40	14	100	19	1,5	5,0
MRA-MTA 63/40	11	126	31	2,0	6,5
MRS-MRT 28 / 28	9,3	150	31	1,1	5,0
MRA-MTA 63/40	8,0	176	37	1,8	6,5
MRS-MRT 28 / 28	7,0	200	30	0,8	5,0
MRA-MTA 63/40	5,5	252	46	1,4	6,5
MRS-MRT 28 / 28	5,0	280	35	0,8	5,0
MRA-MTA 63/40	4,6	309	54	1,0	6,5
MRA-MTA 63/40	4,0	353	56	1,0	6,5
MRS-MRT 28/ / 40	3,3	420	67	1,3	6,4
MRA-MTA 63/50	3,2	441	65	1,4	7,8
MRA-MTA 63/50	2,8	504	74	1,2	7,8
MRS-MRT 28/ / 40	2,5	560	85	1,0	6,4
MRA-MTA 63/50	2,2	630	80	0,9	7,8
MRS-MRT 28 / 50	1,8	784	106	1,5	7,7
MRS-MRT 28 / 50	1,3	1120	142	1,2	7,7
MRS-MRT 28 / 50	0,9	1560	160	1,0	7,7
MRS-MRT 28 / 60	0,6	2240	211	1,2	10
MRS-MRT 28 / 60	0,5	2800	241	0,9	10
MRS-MRT 40 / 70	0,4	4000	360	1,0	15
MRS-MRT 40 / 70	0,3	5600	458	0,7	15
MRS-MRT 40 / 85	0,2	8000	557	0,7	19
MRS-MRT 40 / 85	0,1	10000	614	0,4	19

0,09 kW	rpm	i =	Nm	SF	kg
MRS-MRT 28	280	5	2,7	>3	3.7
MRS-MRT 28	200	7	3,6	>3	3,7
MRS-MRT 28	140	10	5,0	>3	3,7
MRS-MRT 28	93	15	7,1	2,5	3,7
MRS-MRT 28	70	20	9,1	1,8	3,7
MRS-MRT 28	50	28	11	1,8	3,7
MRS-MRT 28	35	40	15	1,1	3,7
MRA-MTA 63/40	32	44	21	>3	6,6
MRS-MRT 28	29	49	17	1,0	3,7

0.09 kW	rpm	i =	Nm	SF	kg
MRS-MRT 40	25	56	20	2,1	5,1
MRA-MTA 63/40	22	63	28	2,8	6,6
MRS-MRT 40	20	70	22	1,6	5,1
MRS-MRT 40	18	80	25	1,3	5,1
MRA-MTA 63/40	15	95	39	1,9	6,6
MRS-MRT 40	14	100	28	1,0	5,1
MRA-MTA 63/40	11	126	46	1,4	6,6
MRS-MRT 28 / 40	9,3	150	48	1,3	6,5
MRA-MTA 63/40	8,0	176	56	1,2	6,6
MRS-MRT 28 / 40	7,0	200	60	1,3	6,5
MRA-MTA 63/40	5,5	252	70	0,9	6,6
MRS-MRT 28 / 40	5,0	280	70	1,0	6,5
MRA-MTA 63/50	4,6	309	86	1,3	7,9
MRA-MTA 63/50	4,0	353	91	1,1	7,9
MRS-MRT 28 / 50	3,3	420	101	1,5	7,8
MRA-MTA 63/50	3,2	441	97	0,9	7,9
MRS-MRT 28 / 50	2,5	560	127	1,2	7,8
MRS-MRT 28 / 50	1,8	784	159	1,0	7,8
MRS-MRT 28 / 50	1,3	1120	213	0,8	7,8
MRS-MRT 28 / 60	0,9	1568	260	1,0	11
MRS-MRT 40 / 70	0,6	2240	371	1,0	15
MRS-MRT 40 / 85	0,5	2800	447	1,3	19
MRS-MRT 40 / 85	0,4	4000	565	1,0	19
MRS-MRT 40 / 85	0,3	5600	688	0,8	19

0,12 kW	rpm	i =	Nm	SF	kg
MRS-MRT 28	280	5	3,6	>3	4.8
MRS-MRT 28	200	7	4,8	>3	4,8
MRS-MRT 28	140	10	6,6	2,7	4,8
MRS-MRT 28	93	15	9,5	1,9	4,8
MRS-MRT 28	70	20	12	1,3	4,8
MRS-MRT 28	50	28	15	1,3	4,8
MRS-MRT 40	35	40	20	2,1	6,2
MRA-MTA 63/40	32	44	27	2,9	7,7
MRS-MRT 40	29	49	23	1,8	6,2
MRS-MRT 40	25	56	26	1,5	6,2
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
MRA-MTA 63/40	15	95	52	1,4	7,7
MRS-MRT 50	14	100	38	1,1	7,5
MRA-MTA 63/40	11	126	62	1,0	7,7
MRS-MRT 28 / 40	9,3	150	64	1,4	7,6
MRA-MTA 63/40	8,0	176	75	0,9	7,7
MRS-MRT 28 / 40	7,0	200	77	1,0	7,6
MRA-MTA 63//50	5,5	252	99	1,2	9,0
MRS-MRT 28 / 40	5,0	280	94	0,8	7,6
MRA-MTA 63//50	4,6	309	114	0,9	9,0

Getriebe - Gearboxes - Riduttori - RS-RT

MRS - MRT Getriebemotorauswahl - Geared Motor Selection - Selezione Motoriduttore - 1400 rpm

0,12 kW	rpm	i =	Nm	SF	kg
MRS-MRT 28 / 50	3,3	420	134	1,2	8,9
MRS-MRT 28 / 50	2,5	560	170	0,9	8,9
MRS-MRT 28 / 60	1,8	784	225	1,1	12
MRS-MRT 28 / 60	1,3	1120	303	0,8	12
MRS-MRT 40 / 70	0,9	1568	385	1,0	16
MRS-MRT 40 / 85	0,6	2240	513	1,2	20
MRS-MRT 40 / 85	0,5	2800	596	1,0	20
MRS-MRT 40 / 85	0,4	4000	753	0,8	20
0,18 kW	rpm	i =	Nm	SF	kg
MRS-MRT 28	280	5	5,4	>3	5.4
MRS-MRT 28	200	7	7,2	2,5	5,4
MRS-MRT 28	140	10	9,9	1,8	5,4
MRS-MRT 28	93	15	14	1,3	5,4
MRS-MRT 28	70	20	18	0,8	5,4
MRS-MRT 40	50	28	23	2,1	6,8
MRS-MRT 40	35	40	30	1,4	6,8
MRA-MTA 63/40	32	44	41	1,9	8,3
MRS-MRT 40	29	49	35	1,2	6,8
MRS-MRT 40	25	56	39	1,0	6,2
MRA-MTA 63/40	22	63	56	1,4	8,3
MRS-MRT 50	20	70	46	1,4	8,1
MRS-MRT 50	18	80	51	1,1	8,1
MRA-MTA 63/40	15	95	78	0,9	8,3
MRS-MRT 50	14	100	43	0,8	8,1
MRA-MTA 63/50	11	126	97	1,2	9,6
MRS-MRT 28 / 50	9,3	150	93	1,6	9,5
MRA-MTA 63/50	8,0	176	119	1,2	9,6
MRS-MRT 28 / 50	7,0	200	120	1,1	9,5
MRS-MRT 28 / 50	5,0	280	141	1,1	9,5
MRS-MRT 28 / 60	3,3	420	217	1,1	12
MRS-MRT 40 / 70	2,5	560	289	1,4	16
MRS-MRT 40 / 70	1,8	784	366	1,1	16
MRS-MRT 40 / 85	1,3	1120	481	1,3	21
MRS-MRT 40 / 85	0,9	1568	616	1,0	21
MRS-MRT 40 / 85	0,6	2240	770	0,8	21
0,25 kW	rpm	i =	Nm	SF	kg
MRS-MRT 40	280	5	7,5	>3	8,3
MRS-MRT 40	200	7	10	>3	8,3
MRS-MRT 40	140	10	14	>3	8,3
MRS-MRT 40	93	15	20	2,2	8,3
MRS-MRT 40	70	20	26	1,5	8,3
MRS-MRT 40	50	28	32	1,5	8,3
MRS-MRT 40	35	40	42	1,0	8,3
MRA-MTA 71/50	32	44	59	2,5	12
MRS-MRT 50	29	49	52	1,5	9,6
MRS-MRT 50	25	56	57	1,3	9,6

0,25 kW	rpm	i =	Nm	SF	kg
MRA-MTA 71/50	22	63	80	1,7	12
MRS-MRT 50	20	70	63	1,0	9,6
MRS-MRT 60	18	80	72	1,5	12
MRA-MTA 71/50	95	95	109	1,2	12
MRS-MRT 60	14	100	88	1,0	12
MRA-MTA 71/60	11	126	144	1,6	15
MRS-MRT 40 / 70	9,3	150	146	1,5	18
MRA-MTA 71/60	8,0	176	171	1,4	15
MRS-MRT 40 / 70	7,0	200	188	1,5	18
MRA-MTA 71/70	5,5	252	232	1,3	18
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
MRS-MRT 40 / 70	3,3	420	315	1,2	18
MRS-MRT 40 / 70	2,5	560	401	1,0	18
MRS-MRT 40 / 85	1,8	784	535	1,1	22
MRS-MRT 50 / 110	1,3	1120	707	1,8	46
MRS-MRT 50 / 110	0,9	1568	882	1,5	46
MRS-MRT 50 / 110	0,6	2240	1146	1,2	46
MRS-MRT 50 / 110	0,5	2800	1289	0,9	46
0,37 kW	rpm	i =	Nm	SF	kg
MRS-MRT 40	280	5	11	>3	8,7
MRS-MRT 40	200	7	15	3,0	8,7
MRS-MRT 40	140	10	21	2,2	8,7
MRS-MRT 40	93	15	30	1,5	8,7
MRS-MRT 40	70	20	38	1,0	8,7
MRS-MRT 40	50	28	48	1,0	8,7
MRS-MRT 50	35	40	65	1,1	10
MRA-MTA 71/50	32	44	87	1,7	13
MRS-MRT 50	29	49	77	1,0	10
MRS-MRT 60	25	56	85	1,5	13
MRA-MTA 71/50	22	63	118	1,1	13
MRS-MRT 60	20	70	97	1,3	13
MRS-MRT 60	18	80	107	1,0	13
MRA-MTA 71/60	15	95	168	1,4	16
MRS-MRT 70	14	100	130	1,0	15
MRA-MTA 71/60	11	126	213	1,1	15
MRS-MRT 40 / 70	9,3	150	217	2,1	18
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
MRS-MRT 40 / 70	5,0	280	332	1,1	18
MRS-MRT 40 / 85	3,3	420	488	1,2	23
MRS-MRT 40 / 85	2,5	560	622	1,0	23
MRS-MRT 50 / 110	1,3	1120	1046	1,2	47
MRS-MRT 50 / 110	0,9	1568	1306	1,1	47

RS-RT - Riduttori - Gearboxes - Getriebe

MRS - MRT Selezione Motoriduttore - Geared Motor Selection - Getriebemotorauswahl - 1400 rpm

0,55 kW	rpm	i =	Nm	SF	kg	1.1 kW	rpm	i =	Nm	SF	kg
MRS-MRT 40	280	5	16	2,8	10,7	MRS-MRT 60	200	5	34	>3	19
MRS-MRT 50	200	7	23	>3	12	MRS-MRT 60	140	10	63	2,1	19
MRS-MRT 50	140	10	32	2,4	12	MRS-MRT 60	93	15	91	1,4	19
MRS-MRT 50	70	20	57	1,1	12	MRS-MRT 60	70	20	116	1,1	19
MRS-MRT 50	50	28	75	1,1	12	MRS-MRT 70	50	28	158	1,4	21
MRS-MRT 60	35	40	99	1,4	15	MRS-MRT 70	35	40	213	1,1	21
MRA-MTA 80/60	32	44	130	1,7	19	MRA-MTA 80/70	32	44	264	1,1	25
MRS-MRT 60	29	49	114	1,1	15	MRS-MRT 85	29	49	246	1,3	26
MRS-MRT 60	25	56	126	1,0	15	MRS-MRT 85	25	56	286	1,1	26
MRA-MTA 80/60	22	63	177	1,2	19	MRA-MTA 80/85	22	63	364	1,4	30
MRS-MRT 70	20	70	155	1,1	18	MRS-MRT 110	20	70	352	1,8	48
MRS-MRT 70	18	80	168	1,0	18	MRS-MRT 110	18	80	396	1,3	48
MRA-MTA 80/60	15	95	249	1,0	19	MRA-MTA 80/85	15	95	513	1,0	30
MRS-MRT 85	14	100	210	1,0	22	MRS-MRT 110	14	100	458	1,0	48
MRA-MTA 80/70	11	126	321	1,1	22	MRA-MTA 80/110	11	126	671	1,6	52
MRA-MTA 80/85	8,0	176	396	1,3	26	MRA-MTA 80/110	8,0	176	832	1,4	52
MRA-MTA 80/85	5,5	252	520	1,0	26	MRA-MTA 80/110	5,5	252	1078	1,0	52
MRA-MTA 8 0/110	4,6	309	614	1,8	49	MRA-MTA 80/110	4,6	309	1229	0,9	52
MRA-MTA 80/110	4,0	353	689	1,4	49	MRA 110/130	3,5	400	1681	1,0	94
MRS-MRT 50 / 110	3,3	420	756	1,1	49	MRS-MRT 60 / 130	3,3	420	1576	1,3	69
MRA-MTA 80/110	3,2	441	794	1,2	49	MRA 110/150	3,0	448	1916	1,3	99
MRA-MTA 80/110	2,8	504	851	0,9	49	MRA 110/150	2,5	560	2059	1,0	99
MRS-MRT 50 / 110	2,5	570	962	1,3	49	MRA 110/150	2,2	640	2209	0,9	99
MRS-MRT 50 / 110	1,8	784	1235	1,5	49	MRS-MRT 70 / 150	1,8	784	2706	0,9	102
0,75 kW	rpm	i =	Nm	SF	kg	**1,5 kW**	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 8 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

Getriebe - Gearboxes - Riduttori - RS-RT

MRS - MRT Getriebemotorauswahl - Geared Motor Selection - Selezione Motoriduttore - 1400 rpm

2.2 kW	rpm	i =	Nm	SF	kg
MRS-MRT 70	280	5	92	1,9	28
MRS-MRT 70	200	7	92	1,8	28
MRS-MRT 70	140	10	129	1,4	28
MRS-MRT 70	93	15	187	1,0	28
MRS-MRT 85	70	20	246	1,3	33
MRS-MRT 85	50	28	319	1,0	33
MRS-MRT 110	35	40	438	1,6	55
MRS-MRT 110	29	49	522	1,2	55
MRS-MRT 110	25	56	588	1,0	55
MRS-MRT 110	20	70	704	0,9	55
MRS130	18	80	756	1,1	69
MRS150	14	100	945	1,2	99
MRA100/130	14	98	985	1,5	78
MRA100/130	12	125	1369	1,3	78
MRA100/130	10	140	1324	1,0	78
MRA100/130	8,9	160	1729	1,0	78
MRA100/150	7,0	200	1861	1,1	108
MRA100/150	6,3	230	2175	1,2	108

3 kW	rpm	i =	Nm	SF	kg
MRS-MRT 70	280	5	91	1,9	30
MRS-MRT 70	200	7	126	1,3	30
MRS-MRT 70	140	10	176	1,0	30
MRS-MRT 85	93	15	255	1,1	35
MRS-MRT 85	70	20	336	1,1	35
MRS-MRT 110	50	28	435	1,5	57
MRS-MRT 110	35	40	598	1,2	57
MRS-MRT 110	29	49	712	0,9	57
MRS130	29	49	722	1,3	71
MRS130	25	56	814	1,2	71
MRS150	20	70	974	1,3	101
MRA100/130	20	70	1074	1,3	78
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

4kW	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

4 kW	rpm	i =	Nm	SF	kg
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

5,5 kW	rpm	i =	Nm	SF	kg
MRS-MRT 110	200	7	231	2,3	79
MRS-MRT 110	140	10	326	1,6	79
MRS-MRT 110	93	15	473	1,2	79
MRS-MRT 110	70	20	623	1,0	79
MRS130	50	28	809	1,4	93
MRS130	35	40	1141	1,0	93
MRS150	29	49	1342	1,1	123
MRS150	25	56	1534	0,9	123

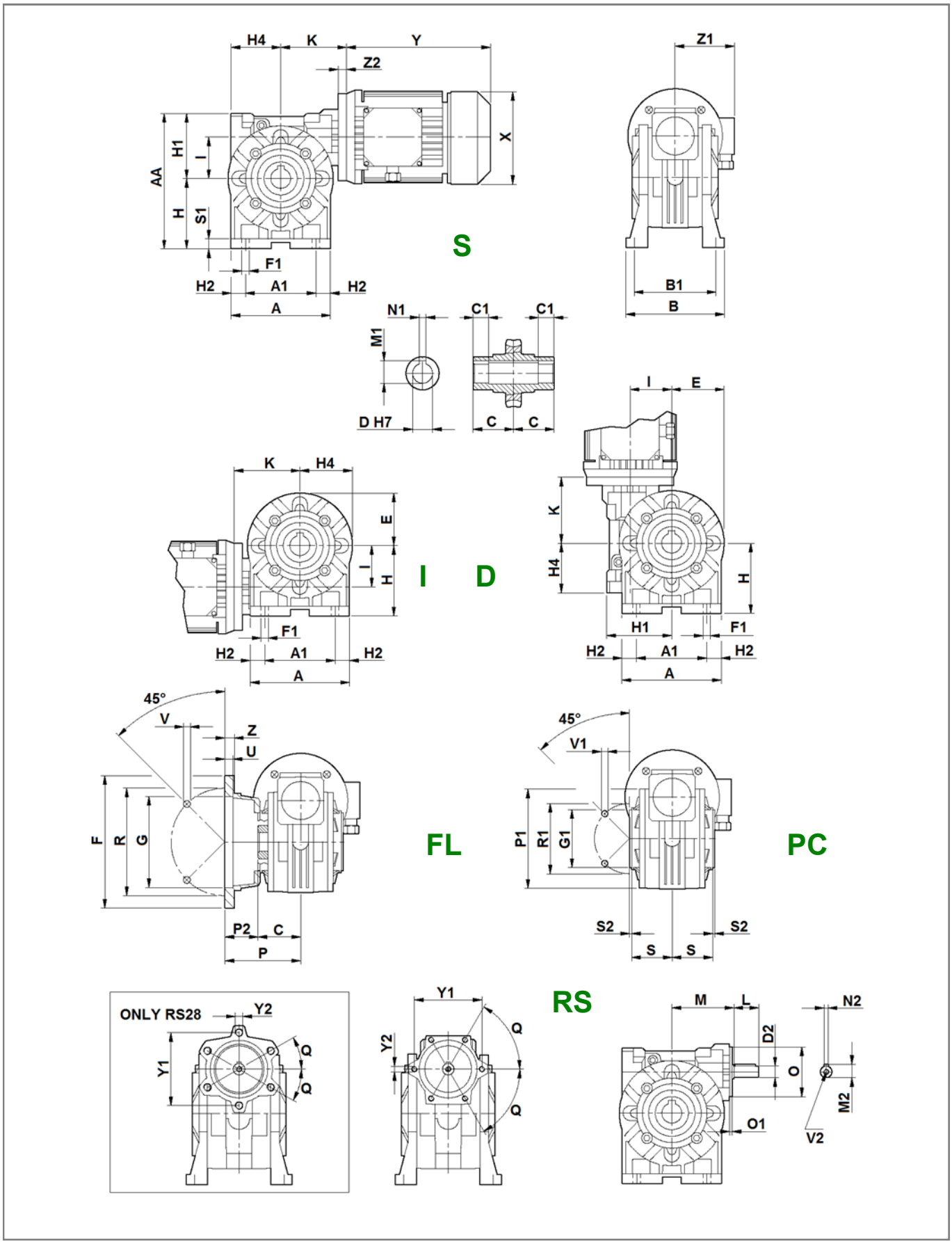
7,5 kW	rpm	i =	Nm	SF	kg
MRS-MRT 110	200	7	315	1,7	88
MRS-MRT 110	140	10	445	1,2	88
MRS-MRT 110	93	15	645	0,9	88
MRS130	93	15	652	1,5	102
MRS 130	70	20	860	1,1	102
MRS130	50	28	1103	1,0	102
MRS150	35	40	1576	1,1	132

11 kW	rpm	i =	Nm	SF	kg
MRS150	200	7	467	2,3	148
MRS150	140	10	660	1,9	148
MRS150	93	15	968	1,5	148
MRS150	70	20	1261	1,1	148

15 kW	rpm	i =	Nm	SF	kg
MRS150	200	7	637	1,7	158
MRS150	140	10	900	1,4	158
MRS150	93	15	1320	1,1	158

RS-RT - Riduttori - Gearboxes - Getriebe

RS Vite senza fine a singolo stadio - Single-stage worm box - Einstufig Schneckengetriebe



Getriebe - Gearboxes - Riduttori - RS-RT

RS — Abmessungen - Dimensions - Dimensioni

RS	28	40	50	60	70	85	110	130	150
A	70	100	120	138	158	193	250	286	336
A_1	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_1	66	84	99	111	116	140	162	190	210
C	30	41	49	60	60	61	77,5	90	105
C_1	26.5	26	30.5	39	37.5	38.5	52.5	85	100
D (H7)	14	18-19-20	24-25	25	25-28-30	32-35	42	48	55
D_2 (h6)	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_1	5,5	7	9	11	11	13	14	15	19
G (H8)	40	95	110	115	130	130	180	230	250
G_1 (f8)	42	60	70	70	80	110	130	180	180
H	52	71	85	100	115	135	172	200	230
H_1	47	67	78	92	106	117	161	200	224
H_2	9	15	17,5	21,5	19	26,5	25	25,5	38
H_4	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_1	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_2	10,2	12,5	16	22,5	22,5	27	31	41	45
N_1	5	6	8	8	8	10	12	14	16
N_2	3	4	5	6	6	8	8	10	12
O	37	52	60	70	70	80	90	120	120
O_1	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_1	67	94	100	102	118	150	200	234	250
P_2	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_1	56	83	85	85	100	130	165	215	215
S	32	38	47,5	57,5	56,5	71	75	87	102
S_1	6	9	12	12	14	15	17	19	20
S_2	-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_1	M6x6 (4)	M6x9 (4)	M8x12 (4)	M8x15 (8)	M8x18 (8)	M10x20 (8)	M12x21 (8)	M12x24 (8)	M14x30 (8)
V_2	M4x10	M4x10	M6x15	M8x20	M8x20	M8x20	M8x20	M10x22	M12x25
Y_1	47	61	70	80	85	100	106	140	140
Y_2	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**) - IEC 80-B14 (**FRS70**)

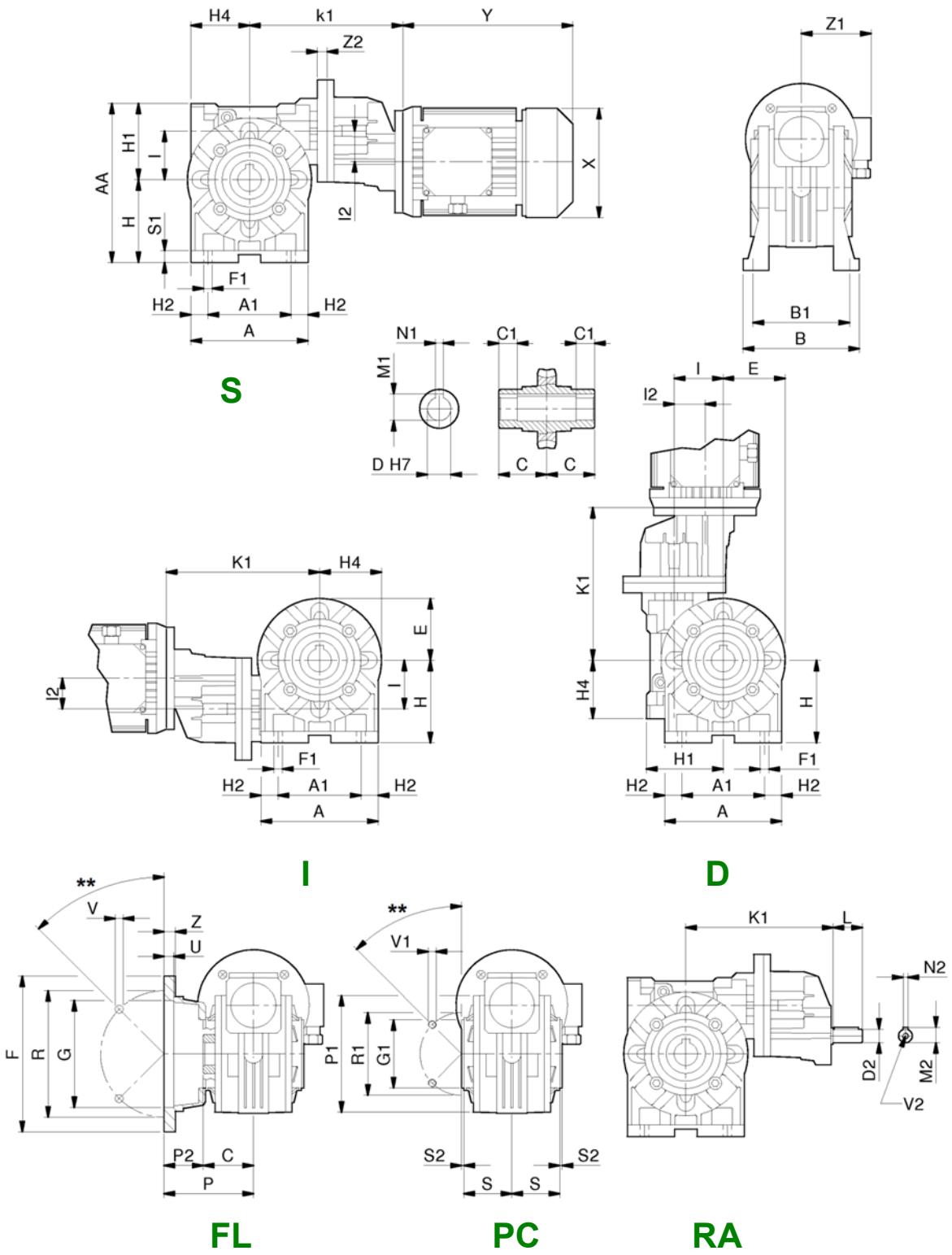
** - 90° per RS28 / 45° per altri tipi
# - 137 - Coperchio con Piedi riportati (std)
- 142 - Coperchio con Piedi integrali
Dimensioni motore: vedi pag. 67
Dimensioni non impegnative

** - 90° for RS28 / 45° for other sizes
# - 137 - Cover with bolted feet (std)
- 142 - Cover with integral feet
Motor dimensions: see page 67
Not binding dimensions

** - 90° für RS28 / 45° für die andere Type
# - 137 - geschraubt Füße Ausführung (Std)
- 142 - integral Füße Ausführung
Abmessungen Motor: siehe Seite 67
unverbindliche Abmessungen

RS-RT - Riduttori - Gearboxes - Getriebe

RA Vite senza fine con precoppia - Helical/worm gearbox- Schneckengetriebe mit Stirnradvorstufe



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_1	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_1	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_1	26	30.5	39	30.5	39	37.5	38.5	39	37.5	38.5	52.5	52.5	85	100
$D_{(H7)}$	18-19-20	24-25	25	24-25	25	25-28-30	32	25	25-28-30	32-35	42	42	48	55
D_2 (h6)	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_1	7	9	11	9	11	11	13	11	11	13	14	14	15	19
G (H8)	95	110	115	110	115	130	130	115	130	130	180	180	230	250
G_1 (f8)	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_1	67	78	92	78	92	106	117	92	106	117	161	161	200	224
H_2	15	17,5	21,5	17,5	21,5	19	26,5	21,5	19	26,5	25	25	25,5	38
H_4	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_2	32	32	32	40	40	40	40	50	50	50	50	63	63	63
K_1	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_1	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_2	12,5	12,5	12,5	16	16	16	16	22,5	22,5	22,5	22,5	27	27	27
N_1	6	8	8	8	8	8	10	8	8	10	12	12	14	16
N_2	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_1	94	100	102	100	102	118	150	102	118	150	200	200	234	250
P_2	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_1	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	74,5	74,5	87	102
S_1	9	12	12	12	12	14	15	12	14	15	17	17	19	20
S_2	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_1	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_2	M4x10	M4x10	M4x10	M6x15	M6x15	M6x15	M6x15	M8x20	M8x20	M8x20	M8x20	M8x20	M8x20	M8x20
Y_1	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

Dimensioni motore: vedi pag. 67

Dimensioni non impegnative

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

\# - 137 - Bolted feet version (std)
- 142 - Integral feet version

Motor dimensions: see page 67

Not binding dimensions

** - 90° für RS28 / 45° für die andere Type

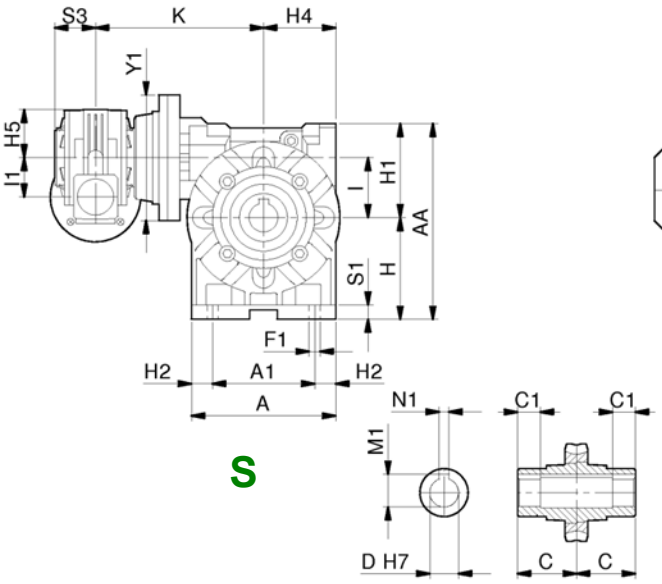
\# - 137 - geschraubt Füße Ausführung Std
- 142 - integral Füße

Abmessungen Motor: siehe Seite 67

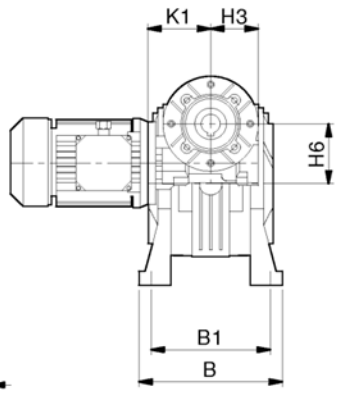
unverbindliche Abmessungen

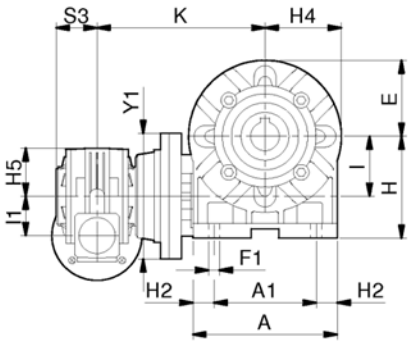
RS-RT - Riduttori - Gearboxes - Getriebe

RS/RS Vite senza fine a doppio stadio - Two-stage worm box - Doppelstufige Schneckengetriebe

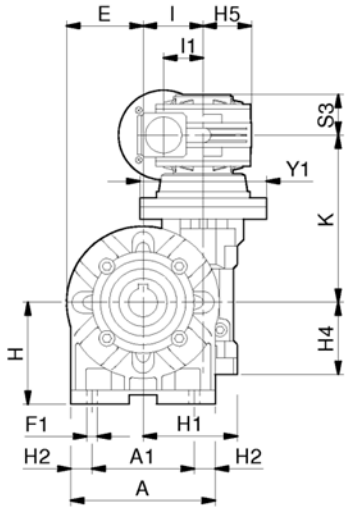


S

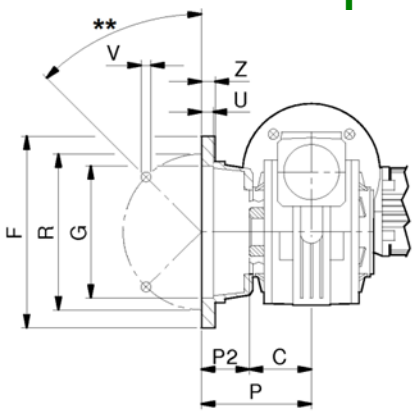




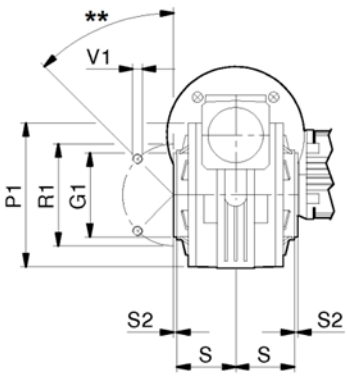
I



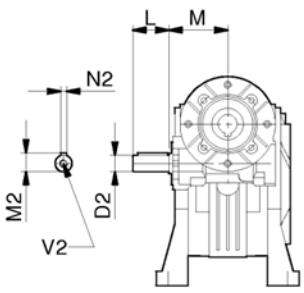
D



FL



PC



RS/RS

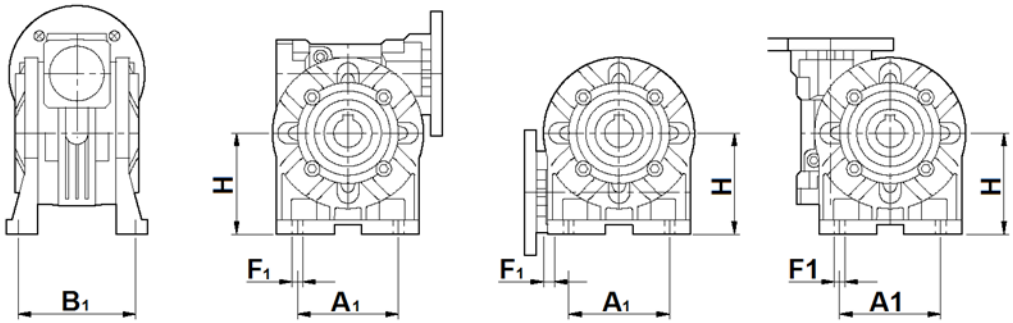
Getriebe - Gearboxes - Riduttori - RS-RT

RS/RS — Abmessungen - Dimensions - Dimensioni

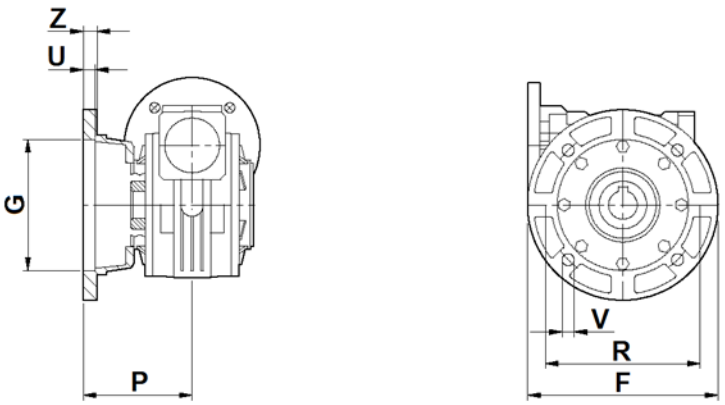
RS/RS	28/28	28/40	28/50	28/60	40/70	40/85	50/110	60/130	70/150
A	70	100	120	138	158	193	250	286	336
A_1	52	70	85	95	120	140	200	235	260
AA	99	138	163	192	221	252	333	400	454
B	78	102	119	136	#	168	200	230	250
B_1	66	84	99	111	116	140	162	190	210
C	30	41	49	60	60	61	77,5	90	105
C_1	26.5	26	30.5	39	37.5	38.5	52.5	85	100
D (H7)	14	18-19-20	24-25	25	25-28-30	32-35	42	48	55
D_2 (h6)	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_1	5,5	7	9	11	11	13	14	15	19
G (H8)	40	95	110	115	130	130	180	230	250
G_1 (f8)	42	60	70	70	80	110	130	180	180
H	52	71	85	100	115	135	172	200	230
H_1	47	67	78	92	106	117	161	200	224
H_2	9	15	17,5	21,5	19	26,5	25	25,5	38
H_3	40	40	40	40	50	50	60	72	86
H_4	40	50	60	72	86	103	139	159	189
H_5	34	34	34	34	50	50	61	70	80
H_6	47	47	47	47	67	67	78	92	106
I	28	40	50	60	70	85	110	130	150
I_2	28	28	28	28	40	40	50	60	70
K	99,5	123	138,5	146	182	199	246	246	300
K_1	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_1	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_2	10,2	10,2	10,2	10,2	12,5	12,5	16	22,5	22,5
N_1	5	6	8	8	8	10	12	14	16
N_2	3	3	3	3	4	4	5	6	6
P	49	82	91,5	116	111	100	150	150	160
P_1	67	94	100	102	118	150	200	234	250
P_2	19	41	42,5	56	51	39	72,5	60	55
R	56	115	130	150	165	165	215	265	300
R_1	56	83	85	85	100	130	165	215	215
S	32	38	49	57,5	57	56,5	74,5	87	102
S_1	6	9	12	12	14	15	17	19	20
S_2	-3	2	2,5	2,5	3	3	2,5	5	5
S_3	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_1	M6x6 (4)	M6x9 (4)	M8x12 (4)	M8x15 (8)	M8x18 (8)	M10x20 (8)	M12x21 (8)	M12x24 (8)	M14x30 (8)
V_2	M4x10	M4x10	M4x10	M4x10	M4x10	M4x10	M6x15	M8x20	M8x20
Y_1	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**)

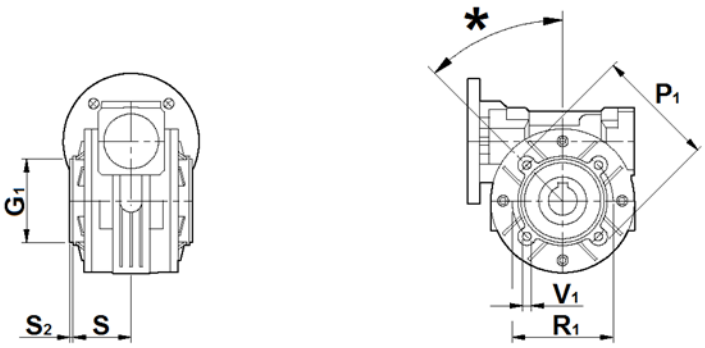
** - 90° per RS28 / 45° per altri tipi	** - 90° for RS28 / 45° for other sizes	** - 90° für RS28 / 45° für die andere Type
# - 137 - Piedi riportati (std) - 142 - Piedi integrali	# - 137 - Bolted feet (std) - 142 - Integral feet	# - 137 - geschraubt Füße Ausführung (Std) - 142 - integral Füße Ausführung
Dimensioni motore: vedi pag. 67 Dimensioni non impegnative	Motor dimensions: see page 67 Not binding dimensions	Abmessungen Motor: siehe Seite 67 unverbindliche Abmessungen



SA **IA** **DA**



FA - FB - FR



PA - PB

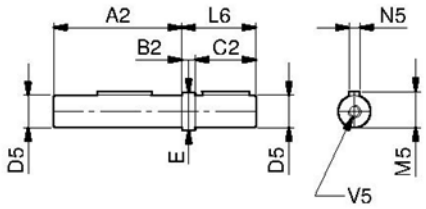
RS	28	40	50	60	70	85	110	130	150
SA – IA - DA									
A_1	- - -	52	63	- - -	- - -	140	- - -	- - -	- - -
B_1	- - -	81	98,5	- - -	- - -	146	- - -	- - -	- - -
F_1	- - -	8,5	9	- - -	- - -	11	- - -	- - -	- - -
H	- - -	72	82	- - -	- - -	142	- - -	- - -	- - -
FA									
F	80	114	125	165	165	- - -	- - -	- - -	- - -
G (H8)	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	- - -	- - -	- - -	- - -
FB									
F	- - -	120	- - -	180	- - -	210	270	- - -	- - -
G (H8)	- - -	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	- - -	- - -
FR									
F	- - -	- - -	- - -	- - -	160	- - -	- - -	- - -	- - -
G (H8)	- - -	- - -	- - -	- - -	110	- - -	- - -	- - -	- - -
P	- - -	- - -	- - -	- - -	84,5	- - -	- - -	- - -	- - -
R	- - -	- - -	- - -	- - -	130	- - -	- - -	- - -	- - -
U	- - -	- - -	- - -	- - -	4,5	- - -	- - -	- - -	- - -
V	- - -	- - -	- - -	- - -	11 (4)	- - -	- - -	- - -	- - -
Z	- - -	- - -	- - -	- - -	14	- - -	- - -	- - -	- - -
PA									
G_1 (h8)	- - -	50	68	75	90	- - -	- - -	- - -	- - -
P_1	- - -	95	110	104	125	- - -	- - -	- - -	- - -
R_1	- - -	65	94	90	110	- - -	- - -	- - -	- - -
S	- - -	38	49	47,5	55	- - -	- - -	- - -	- - -
S_2	- - -	2	2,5	5,5	3	- - -	- - -	- - -	- - -
V_1	- - -	M6x8 (4)	M6x12,5(4)	M8x14 (4)	M8x14 (4)	- - -	- - -	- - -	- - -
PB									
G_1 (h8)	- - -	- - -	60	- - -	70	- - -	- - -	- - -	- - -
P_1	- - -	- - -	110	- - -	116	- - -	- - -	- - -	- - -
R_1	- - -	- - -	75	- - -	85	- - -	- - -	- - -	- - -
S	- - -	- - -	49	- - -	67	- - -	- - -	- - -	- - -
S_2	- - -	- - -	2,5	- - -	4	- - -	- - -	- - -	- - -
V_1	- - -	- - -	M6x12,5(4)	- - -	M8x14 (4)	- - -	- - -	- - -	- - -

* - 45° std / 90° su richiesta
Dimensioni non impegnative

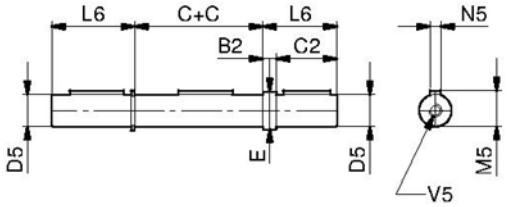
* - 45° std / 90° on demand
Not binding dimensions

* - 45° Std. / 90° auf Anfrage
unverbindliche Abmessungen

AS

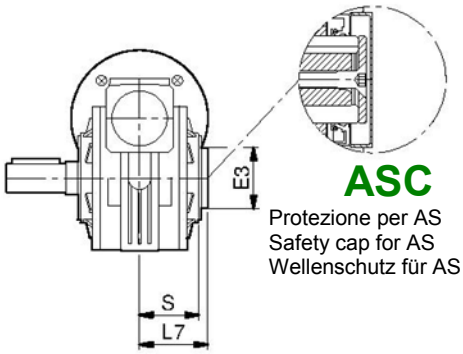


AD

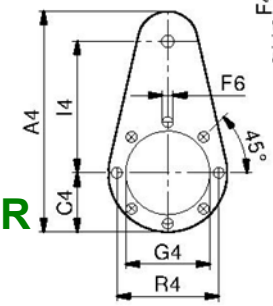


ASC

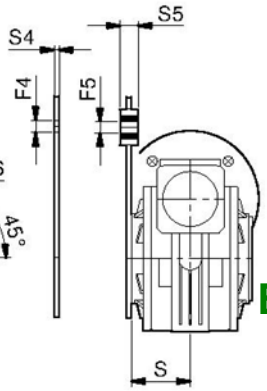
Protezione per AS
Safety cap for AS
Wellenschutz für AS



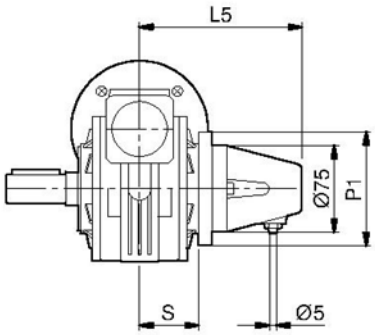
BR



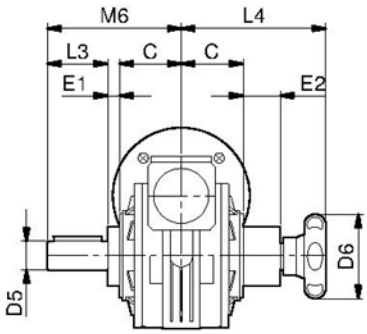
BRV



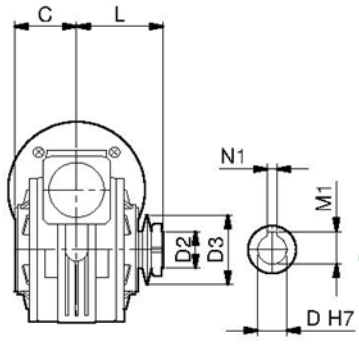
SL



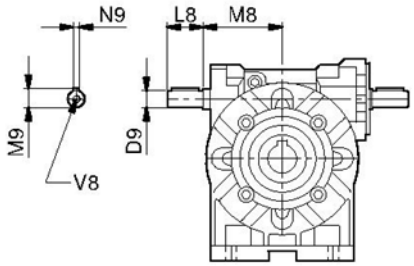
TLE



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

RS		28	40	50	60	70	85	110	130	150
AS & AD	A_2	58	80	95	117	117	119	153	177	207
	B_2	1	10	10	10	10	10	10	20	20
	C	30	41	49	60	60	61	77,5	90	105
	C_2	30	40	45	50	60	70	100	110	110
	$D_{5\ (g6)}$	14	19 (18)	24 (25)	25	28	32 (35)	42	48	55
	E	14	22	28	30	34	38	50	58	63
	L_6	31	50	55	60	70	80	110	130	130
	M_5	16	21,5	27	28	31	35	45	51,5	59
	$N_{5\ (h9)}$	5	6	8	8	8	10	12	14	16
	V_5	M5x10	M8x20	M8x20	M8x20	M8x20	M10x25	M10x25	- - -	- - -
ASC	E_3	42	55	62	62	72	90	120	- - -	- - -
	L_7	36	48,5	55,5	68,5	67	77	85	- - -	- - -
	S	32	38	47,5	57.5	56,5	71	75	- - -	- - -
BR & BRV	A_4	133,5	168	185	230	240	313	388	465	525
	C_4	33,5	43	60	50	60	75	100	120	125
	F_4	10,5	10,5	10,5	10,5	10,5	20,5	20,5	26	26
	$F_{5\ (0/+0.4)}$	10	10	10	10	10	20	20	25	25.2
	F_6	7	7	9	9	9	11	13	13	15
	G_4	42	60	70	70	80	110	130	180	180
	I_4	80	90	100	150	150	200	250	300	350
	R_4	56	83	85	85	100	130	165	215	215
	S_4	4	4	4	6	6	6	6	6	6
	S_5	15	15	15	20	20	25	25	30	30
SL	L_5	97	114	129	137	133	133	151	- - -	- - -
	P_1	67	100	110	102	120	150	200	- - -	- - -
	S	32	38	47,5	57,5	56,5	71	75	- - -	- - -
TLE	D_6	52	70	70	70	80	100	100	- - -	- - -
	E_1	10	12	12	15	14	19	24	- - -	- - -
	E_2	28	37	31	40	46	57	71	- - -	- - -
	L_3	30	40	50	50	60	70	80	- - -	- - -
	L_4	94	116	118	128	146	168	201	- - -	- - -
	M_6	70	93	111	125	134	150	181	- - -	- - -
TLI	$D_{(H7)}$	14	18-19	24/25	25	28	32/35	42	- - -	- - -
	D_2	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_3	40	56	71	71	80	90	125	- - -	- - -
	L	45	61,5	77	86,5	89	94	112.5	- - -	- - -
	M_1	15,4*	21,8	27,3	27,3*	31,3	35,3	45,3	- - -	- - -
	$N_{1\ (h9)}$	5	6	8	8	8	10	12	- - -	- - -
VB	D_9	9	11	14	19	19	24	28	38	42
	L_8	20	23	30	40	40	50	60	80	100
	M_8	43	55	65	77	84	106,5	145	166	195
	M_9	10,2	12,5	16	22,5	22,5	27	31	41	45
	$N_{9\ (h9)}$	3	4	5	6	6	8	8	10	12
	V_8	M4x10	M4x10	M6x15	M8x20	M8x20	M8x20	M8x20	M10x22	M12x25

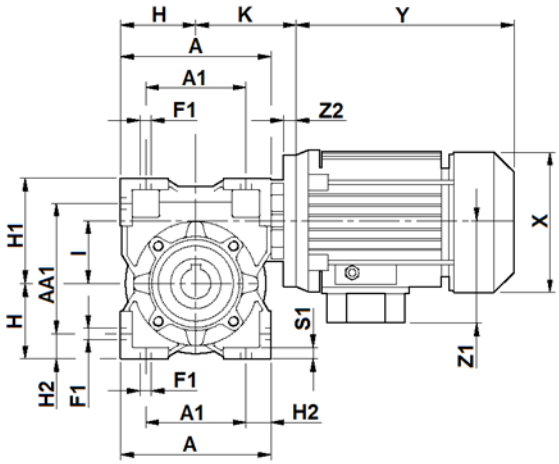
* = Chiavetta ribassata
D_5 (,,) = Diametro a richiesta
Dimensioni non impegnative

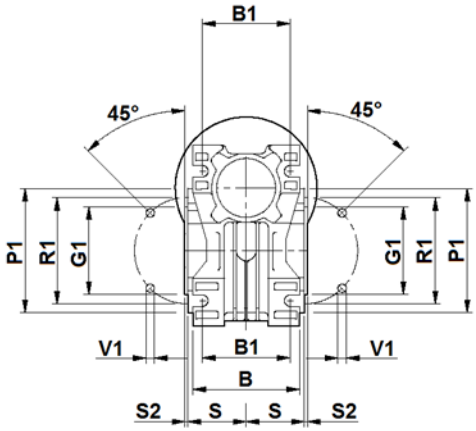
* = Undersized key
D_5(..) = Diameter on demand
Not binding dimensions

* = Passfedernut mit geringerer Tiefe
D_5(..).= Durchmesser auf Anfrage
unverbindliche Abmessungen

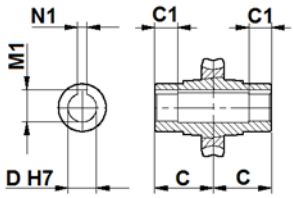
RS-RT - Riduttori - Gearboxes - Getriebe

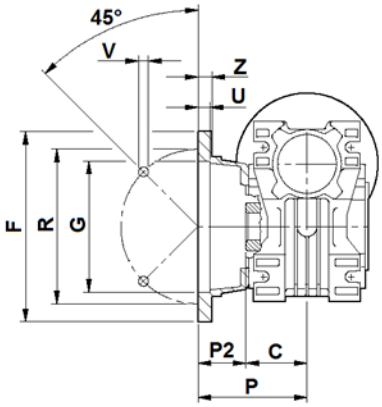
RT Vite senza fine a singolo stadio - Single-stage worm box - Einstufig Schneckengetriebe





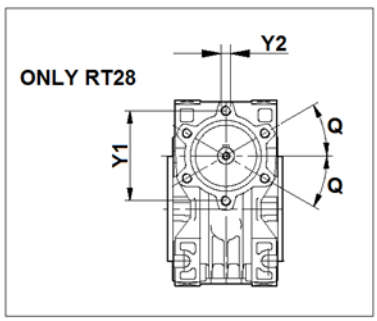
B3

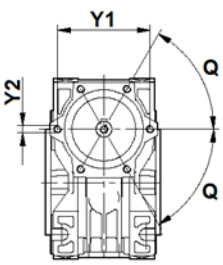


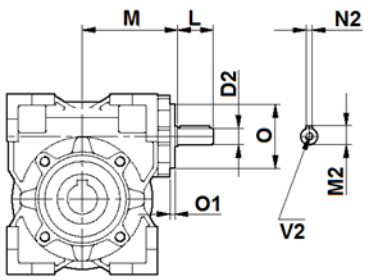


F, [FV], {FL}

RT







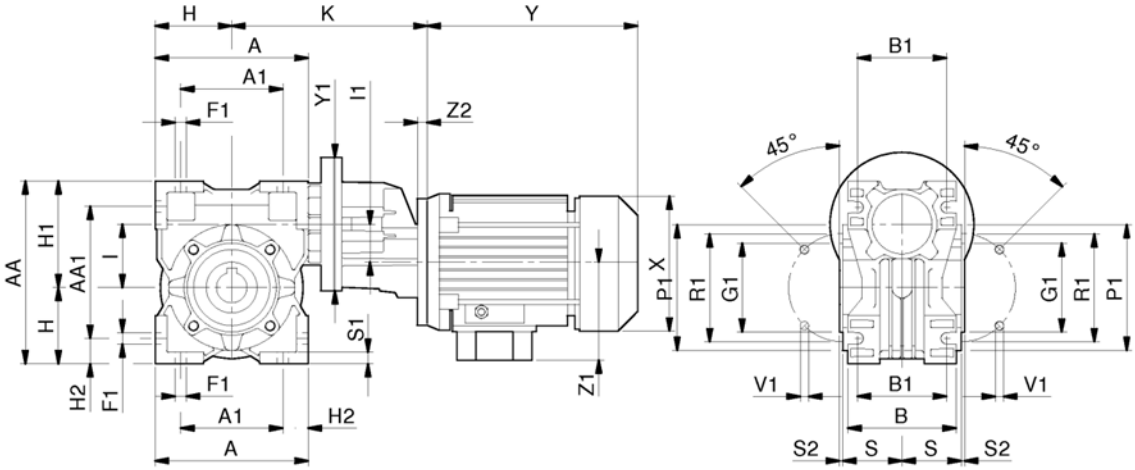
RT	28	40	50	60	70	85	110
A	80	100	120	144	172	206	255
A_1	54	70	80	100	120	140	170
AA	97	121,5	144	174	205	238	295
AA_1	71	91,5	104	130	153	172	210
B	53	71	85	100	112	130	144
B_1	44	60	70	85	90	100	115
C	30	41	49	60	60	61	77,5
C_1	26.5	26	30.5	39	37.5	38.5	52.5
D (H7)	14	18-19-20	24-25	25	25-28-30	32-35	42
D_2 (h6)	9	11	14	19	19	24	28
F	80	110 {110}	125 [160] 125}	180 {180}	200	210	270
F_1	7	7	9	9	11	13	15
G (H8)	50	60 {60}	70 [110] {70}	115 {115}	130	152	170
G_1 (h8)	55	60	70	80	95	110	130
H	40	50	60	72	86	103	127,5
H_1	57	71,5	84	102	119	135	167,5
H_2	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_1	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_2	10,2	12,5	16	22,5	22,5	27	31
N_1	5	6	8	8	8	10	12
N_2	3	4	5	6	6	8	8
O	37	52	60	70	70	80	90
O_1	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_1	75	86	100	110	130	160	200
P_2	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_1	65	75	85	95	115	130	165
S	27,5	38,5	46,5	57	57	67	74
S_1	6	7	8	10	11	14	13
S_2	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_1	M6x10 (4)	M6x8,5 (4)	M8x10 (4)	M8x16 (8)	M8x16 (8)	M10x18 (8)	M10x21 (8)
V_2	M4x10	M4x10	M6x15	M8x20	M8x20	M8x20	M8x20
Y_1	47	61	70	80	85	100	106
Y_2	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_2	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**)

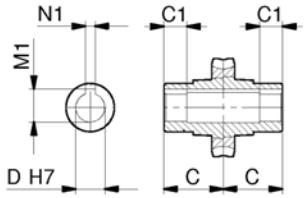
** - 90° per RT28 / 45° per altri tipi	** - 90° for RT28 / 45° for other sizes	** - 90° für RT28 / 45° für die andere Type
Dimensioni motore: vedi pag., 67	- Motor dimensions: see page 67	- Abmessungen Motor: siehe Seite 67
Dimensioni non impegnative	- Not binding dimensions	- unverbindliche Abmessungen
Nota: le dimensioni L, M, O, O_1, Y_1, Y_2 si riferiscono anche all'entrata SRT	**Note**: dimensions L, M, O, O_1, Y_1, Y_2 also apply to SRT input	**Anmerkung**: die Abmessungen L, M, O, O_1, Y_1, Y_2 entsprechen auch dem SRT-Eingang

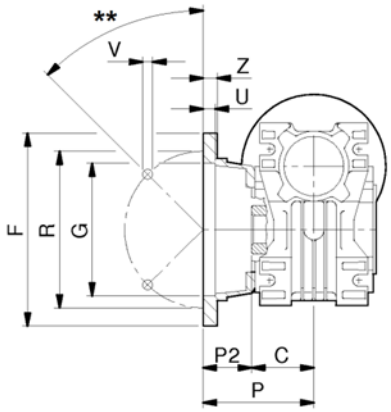
RS-RT - Riduttori - Gearboxes - Getriebe

TA Vite senza fine con precoppia - Helical/worm gearbox- Schneckengetriebe mit Stirnradvorstufe

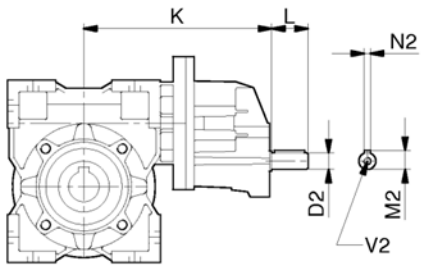


B3





F, [FV], {FL}



TA

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_1	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_1	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_1	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_1	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_2 (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_1	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_1 (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_1	71,5	84	102	84	102	119	135	102	119	135	167,5	167,5
H_2	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_1	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_1	20.8-21,8-22.8	27,3-28.3	28,3	27,3-28.3	28,3	28.3-31,3-33.3	35,3-38.3	28,3	28.3-31,3-33.3	35,3-38.3	45,3	45,3
M_2	12,5	12,5	12,5	16	16	16	16	22,5	22,5	22,5	22,5	27
N_1	6	8	8	8	8	8	10	8	8	10	12	12
N_2	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_1	86	100	110	100	110	130	160	110	130	160	200	200
P_2	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] {90}	150,5 {150,5}	90 [130] {90}	150,5 {150,5}	165	175	150,5 {150,5}	165	175	230	230
R_1	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_1	7	8	10	8	10	11	14	10	11	14	13	13
S_2	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_1	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_3	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_1	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_2	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**)

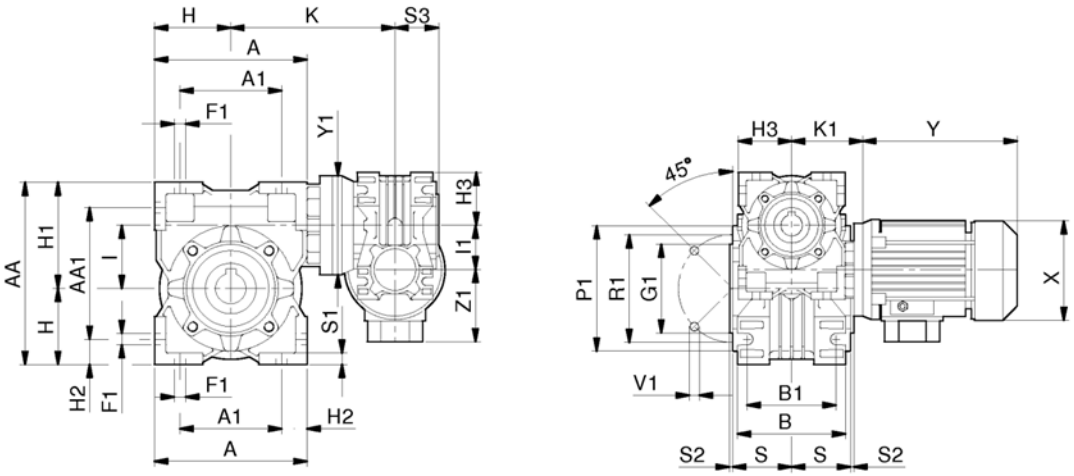
** - 90° per RT28 / 45° per altri tipi
Dimensioni motore: vedi pag., 67
Dimensioni non impegnative

** - 90° for RT28 / 45° for other sizes
Motor dimensions: see page 67
Not binding dimensions

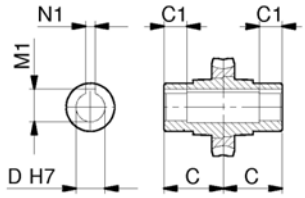
** - 90° für RT28 / 45° für die andere Type
Abmessungen Motor: siehe Seite 67
unverbindliche Abmessungen

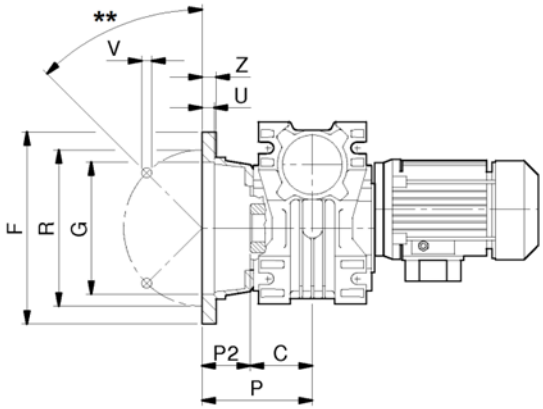
RS-RT - Riduttori - Gearboxes - Getriebe

RT/RT Vite senza fine a doppio stadio - Two-stage worm box - Doppelstufige Schneckengetriebe

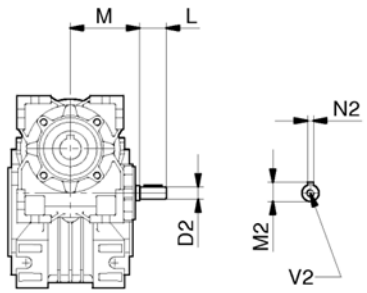


B3





F, [FV], {FL}



RT/RT

Getriebe - Gearboxes - Riduttori - RS-RT

RT/RT — Abmessungen - Dimensions - Dimensioni

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_1	54	70	80	100	120	140	170
AA	97	121,5	144	174	205	238	295
AA_1	71	91,5	104	130	153	172	210
B	53	71	85	100	112	130	144
B_1	44	60	70	85	90	100	115
C	30	41	49	60	60	61	77,5
C_1	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_2 (h6)	9	9	9	9	11	11	14
F	80	110 {110}	125 [160] {125}	180 {180}	200	210	270
F_1	7	7	9	9	11	13	15
G (H8)	50	60 {60}	70 [110] {70}	115 {115}	130	152	170
G_1 (h8)	55	60	70	80	95	110	130
H	40	50	60	72	86	103	127,5
H_1	57	71,5	84	102	119	135	167,5
H_2	13	15	20	22	26	33	42,5
H_3	40	40	40	40	50	50	60
I	28	40	50	60	70	85	110
I_1	28	28	28	28	40	40	50
K	79,5	115,5	134	145,5	182	199	203
K_1	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_1	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_2	10,2	10,2	10,2	10,2	12,5	12,5	16
N_1	5	6	8	8	8	10	12
N_2	3	3	3	3	4	4	5
P	53	69 {99}	93 [90,5] {123}	86 {116}	111	111	131
P_1	75	86	100	110	130	160	200
P_2	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_1	65	75	85	95	115	130	165
S	27,5	38,5	46,5	57	57	67	74
S_1	6	7	8	10	11	14	13
S_2	2,5	2,5	3	3	3	3	3,5
S_3	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_1	M6x10 (4)	M6x8,5 (4)	M8x10 (4)	M8x16 (8)	M8x16 (8)	M10x18 (8)	M10x21 (8)
V_2	M4x10	M4x10	M4x10	M4x10	M4x10	M4x10	M6x15
Y_1	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

Dimensioni motore: vedi pag, 67

Dimensioni non impegnative

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

- Motor dimensions: see page 67

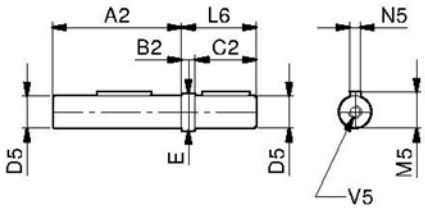
- Not binding dimensions

** - 90° für RT28 / 45° für die andere Type

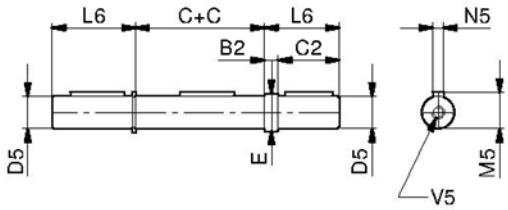
- Abmessungen Motor: siehe Seite 67

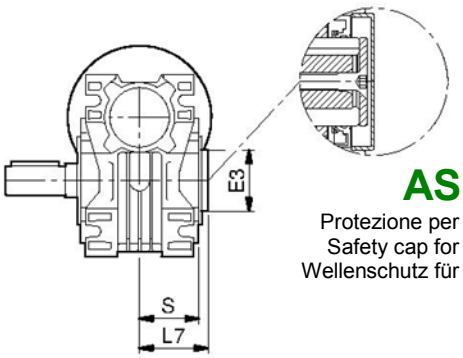
- unverbindliche Abmessungen

AS



AD

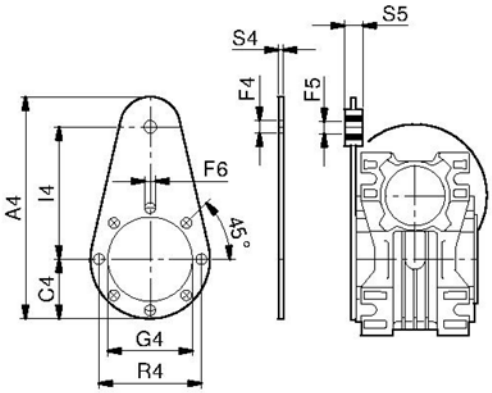




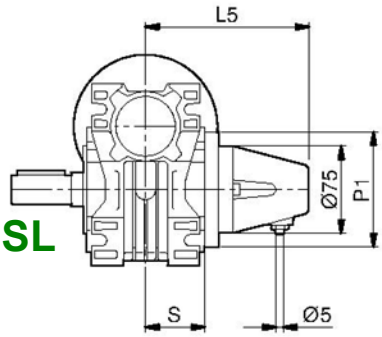
ASC

Protezione per AS
Safety cap for AS
Wellenschutz für AS

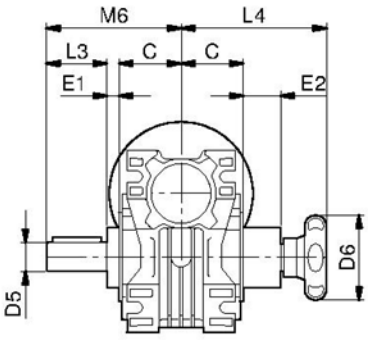
BT

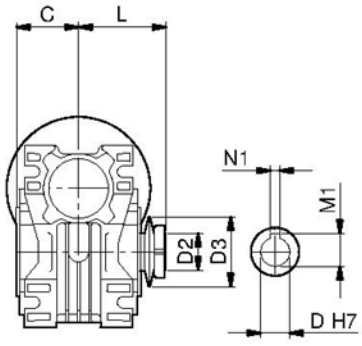


BTV SL

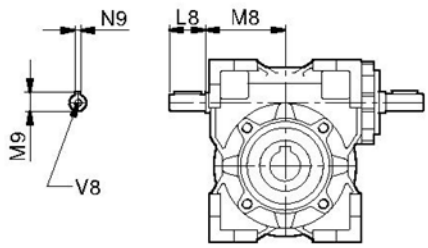


TLE TLI





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

RT		28	40	50	60	70	85	110
AS & AD	A_2	58	80	95	117	117	119	153
	B_2	1	10	10	10	10	10	10
	C	30	41	49	60	60	61	77,5
	C_2	30	40	45	50	60	70	110
	$D_{5\ (g6)}$	14	19 (18)	24 (25)	25	28	32 (35)	42
	E	14	22	28	30	34	38	50
	L_6	31	50	55	60	70	80	110
	M_5	16	21,5	27	28	31	35	45
	$N_{5\ (h9)}$	5	6	8	8	8	10	12
	V_5	M5x10	M8x20	M8x20	M8x20	M8x20	M10x25	M10x25
ASC	E_3	50	52	62	75	90	100	120
	L_7	36	48,5	55,5	68,5	67	77	85
	S	27,5	38,5	46,5	57	57	67	74
BT & BTV	A_4	138	168	185	235	295	313	388
	C_4	38	43	60	55	65	75	100
	F_4	10,5	10,5	10,5	10,5	10,5	20,5	20,5
	$F_{5\ (0/+0.4)}$	10	10	10	10	10	20	20
	F_6	7	7	9	9	9	12	13
	G_4	55	60	70	80	95	110	130
	I_4	80	100	100	150	200	200	250
	R_4	65	75	85	95	115	130	165
	S_4	4	4	4	6	6	6	6
	S_5	15	15	15	20	20	25	25
SL	L_5	96	113	123	133	133	139	150
	P_1	78	90	100	110	130	160	200
	S	27,5	38,5	46,5	57	57	67	74
TLE	D_6	52	70	70	70	80	100	100
	E_1	10	12	12	15	14	19	24
	E_2	28	37	31	40	46	57	71
	L_3	30	40	50	50	60	70	80
	L_4	94	116	118	128	146	168	201
	M_6	70	93	111	125	134	150	181
TLI	$D_{(H7)}$	14	18/19	24/25	25	28	32/35	42
	D_2	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_3	40	56	71	71	80	90	125
	L	45	61,5	77	86,5	89	94	112.5
	M_1	15,4*	21,8	27,3	27,3*	31,3	35,3	45,3
	$N_{1\ (h9)}$	5	6	8	8	8	10	12
VB	D_9	9	11	14	19	19	24	28
	L_8	20	23	30	40	40	50	60
	M_8	43	55	65	77	89	106,5	145
	M_9	10,2	12,5	16	22,5	22,5	27	31
	$N_{9\ (h9)}$	3	4	5	6	6	8	8
	V_8	M4x10	M4x10	M6x15	M8x20	M8x20	M8x20	M8x20

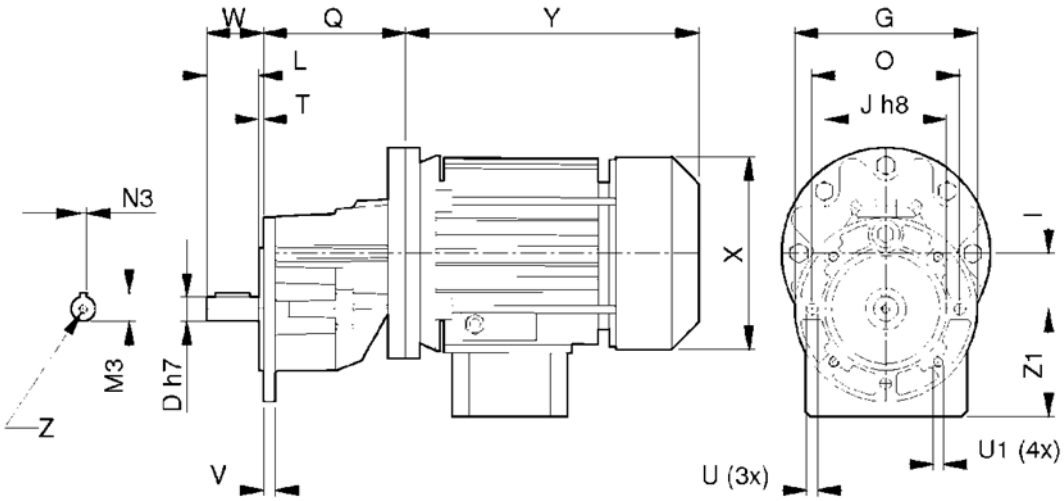
D_5 (,,) = Diametro a richiesta
Dimensioni non impegnative

D_5 (,,) = Diameter on demand
Not binding dimensions

D_5 (,,) = Durchmesser auf Anfrage
unverbindliche Abmessungen

RS-RT - Riduttori - Gearboxes - Getriebe

XA — Dimensioni e Pesi - Dimensions and Weights - Abmessungen u. Gewichte

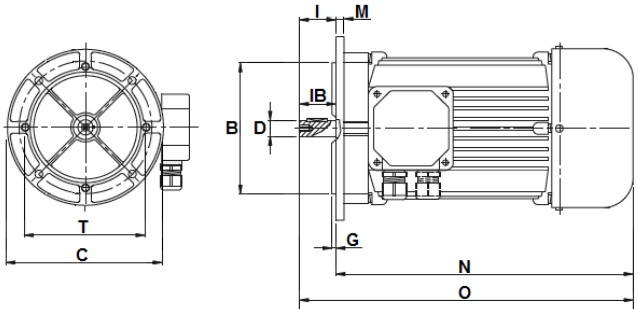


XA	D_{H7}	G	I	J_{h8}	L	M_3	$N_{3\ h9}$	O	Q	U	U1	T	V	W	Z
63	14	105	32	70	30	16	5	85	83	6,5	M6	2,5	7	32,5	M5x10
71	19	120	40	80	40	22.5	6	100	90	5,5	M6	2,5	7,5	42,5	M8x20
80	24	140	50	95	49,5	27	8	115	114	9	M8	2,5	10,5	52	M8x20
100	28	200	63	130	57,5	31	8	165	177	10,5	10,5	2,5	12	60	M10 x 22

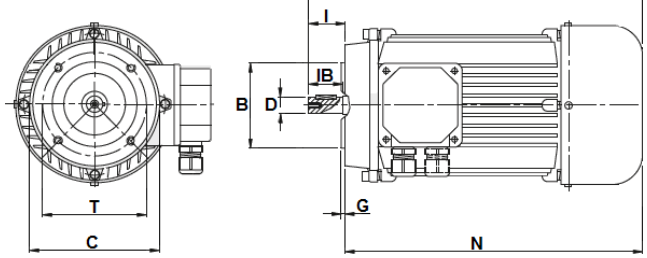
IEC B5	56	63	71	80	90 S	90 L	100	112
X	110	123	137	156	176	176	194	218
Y	168	190.5	218	242	255	280	312	330
Z_1 + I	95	100	109	123	128	128	140	148

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

IEC - B5



IEC - B14



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

Dimensioni e pesi non impegnativi | Not binding dimensions and weights | unverbindliche Abmessungen u. Gewichte

RS-RT - Riduttori - Gearboxes - Getriebe

Reversibilità e Irreversibilità - Back-Driving and Self-Locking - Umkehrbarkeit u. 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 e, agendo sui dati di progetto, il rendimento può essere ridotto a zero, ottenendo l'irreversibilità dell'ingranamento.

In quest'azionamento al contrario, 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 delle relazioni fra angolo d'elica ed irreversibilità.

When back-driving a worm gear set using the worm wheel as input, the efficiency is lower than forward-driving and, by varying the design data, 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 is, the more mesh friction increases proportionally augmenting the lockage at the same time.

The most obvious example is during braking or slowing-down where the inertial load will try to 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 the mesh velocity is zero, as vibrations in a non-rotating gear set can induce motion in the tooth contact.

To provide a safety factor, a 3° lead angle is recommended for full self-locking condition, and 10° lead angle for poor self-locking condition, according to the table of relations between lead angles and 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 Selbst hemmend bezeichnet, wenn der Spiral Winkel 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.

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

Getriebe - Gearboxes - Riduttori - RS-RT

Verzahnungsdaten - Gearing data - Dati di dentatura

	i =	5	7	10	15	20	28	40	49	56	70	80	100
RS/RT 28	m_x β 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
RS/RT 40	m_x β 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
RS/RT 50	m_x β 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
RS/RT 60	m_x β 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
RS/RT 70	m_x β 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
RS/RT 85	m_x β 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
RS/RT 110	m_x β 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
RS 130	m_x β 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
RS 150	m_x β 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
β = Angolo d’elica (dx)
20° = Angolo di pressione

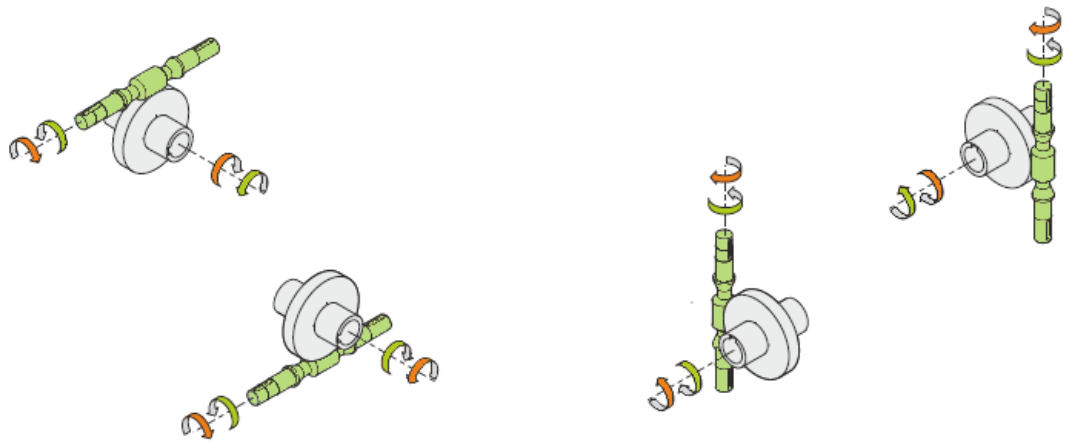
m_x = Axial module
z_1 = Number of starts
β = Lead angle (r.h.)
20° = Pressure angle

m_x = Axialmodul
z_1 = Steigungen
β = Spiralwinkel (rechts)
20° = Eingriffswinkel

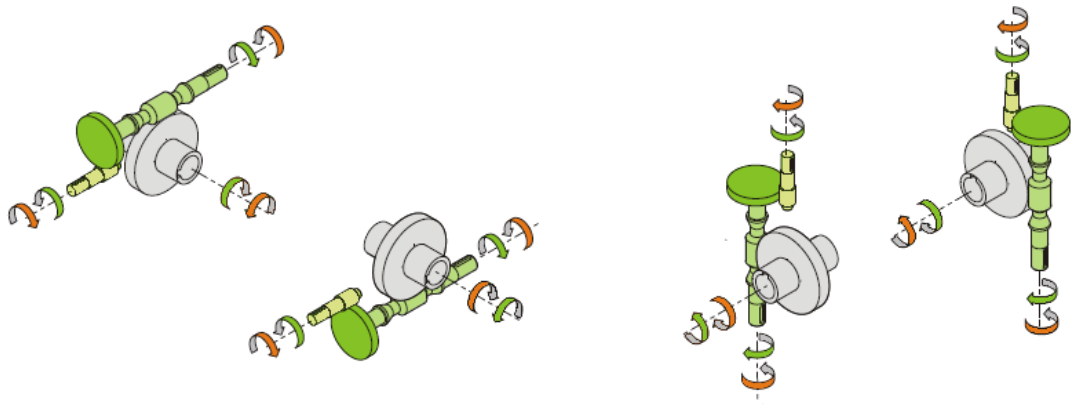
RS-RT - Riduttori - Gearboxes - Getriebe

Senso di rotazione - Direction of rotation - Drehrichtungen

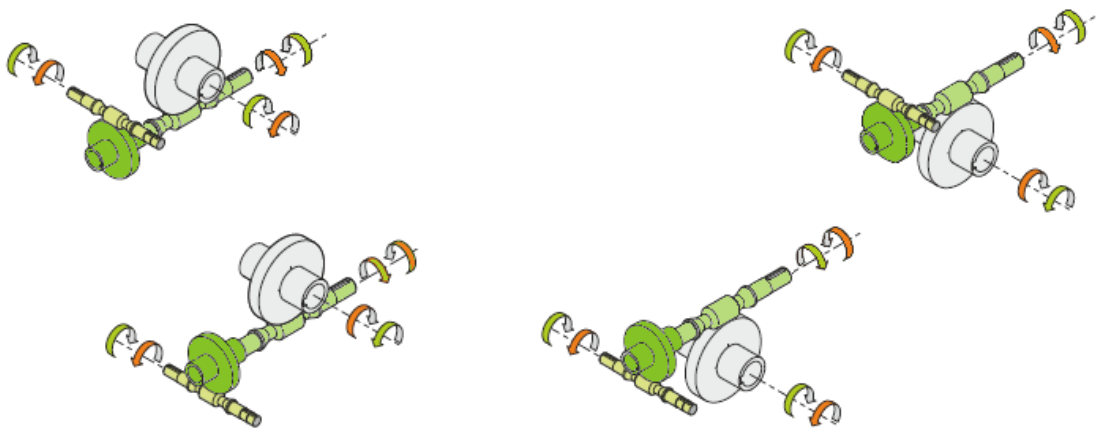
RS - RT

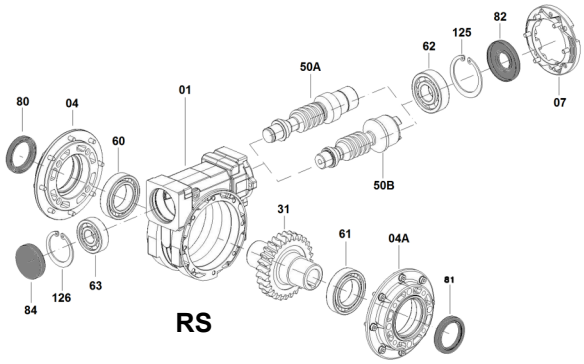


RA - TA

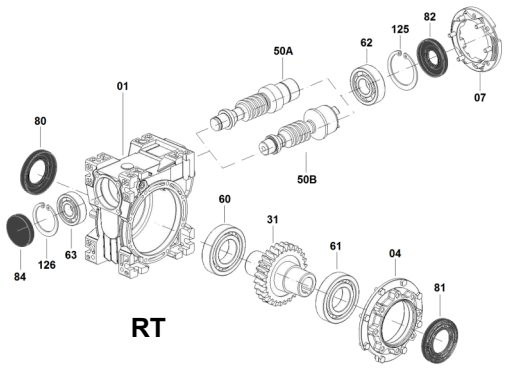


RS/RS - RT/RT





RS

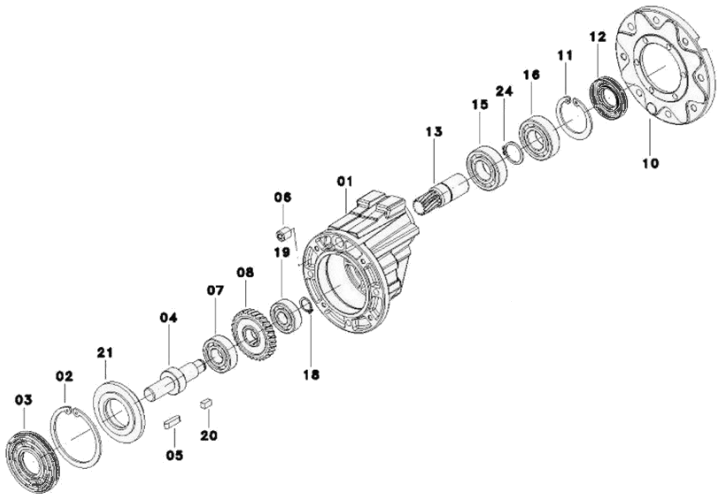


RT

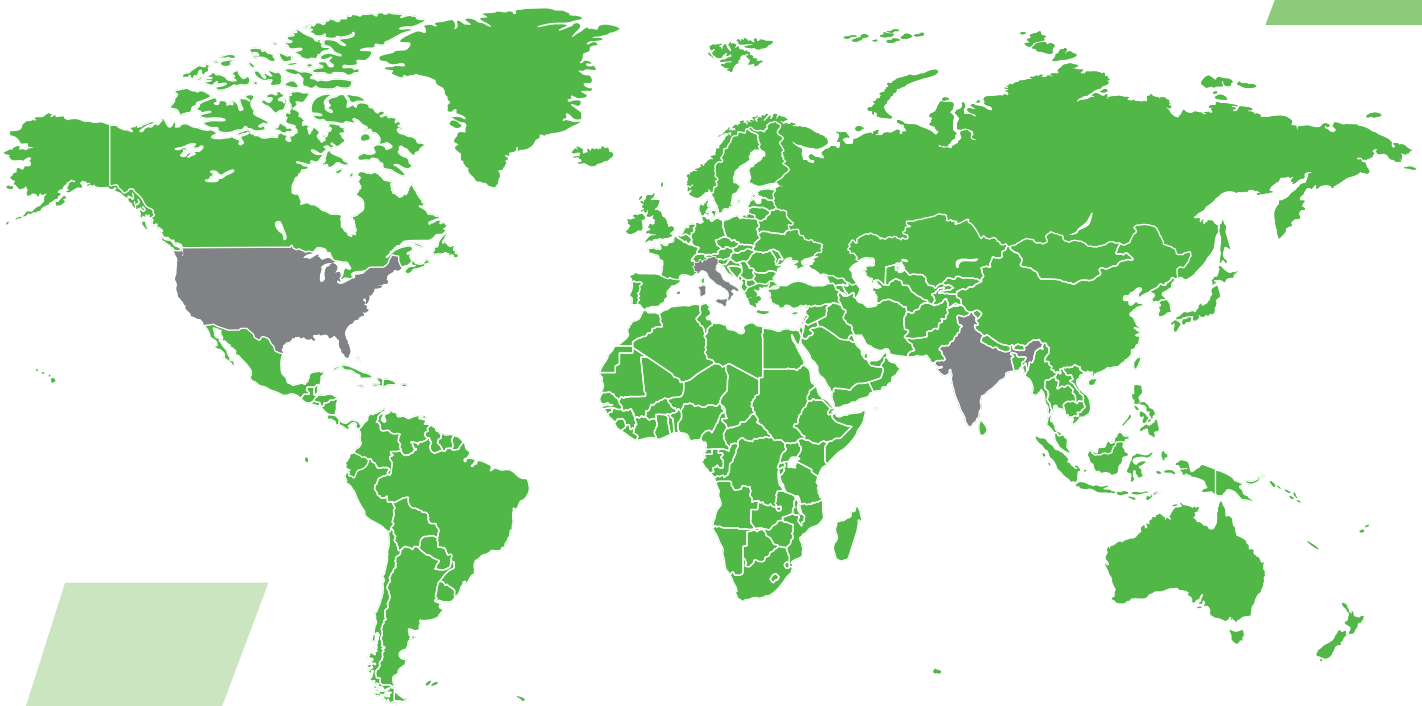
Posizione	Descrizione	Item	Description	Position	Beschreibung
01	Carcassa	01	Body	01	Gehäuse
04	Coperchio laterale RT	04	Side cover RT	04	Seitendeckel RT
04A	Coperchio laterale RS	04A	Side cover RS	04A	Seitendeckel RS
07	Flangia motore	07	Motor flange	07	Motorflansch
31	Ruota	31	Worm wheel	31	Schneckenrad
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

RS-RT - Riduttori - Gearboxes - Getriebe

FXA — **Parti componenti - Component parts - Bauelemente**



Posizione	Descrizione	Item	Description	Position	Beschreibung
01	Carcassa	01	Body	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



2 **Filiali estere in India e USA**
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Chennai - 600 095 | Tamil Nadu | INDIA
info@mgmvarvelindia.com
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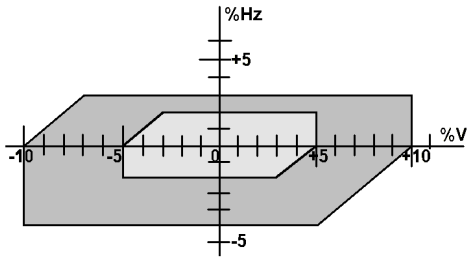
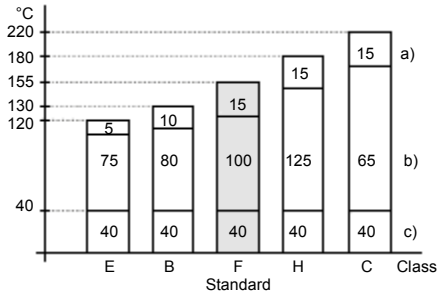
Voltaggio e frequenza - Voltage and frequency - Spannung u. Frequenz



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

- Servizio normale - Normal duty - Normaldienst
- Servizio pesante e limitato - Heavy duty but limited - Schwerdienst aber begrenzt

Classe di isolamento - Insulation class - Isolationsklasse

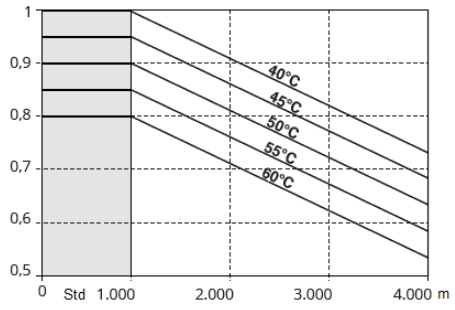


a) margine di sicurezza
safety margin
Sicherheitspanne

b) sovratemperatura ammissibile
admissible temperature
Annehmbar Übertemperatur

c) temperatura ambiente convenzionale
conventional ambient temperature
Konventionelle Zimmertemperatur

Coefficienti di Altitudine - Altitude and Temperature - Höhe u. Temperatur e di Temperatura Factors Faktoren



- Condizioni convenzionali
Conventional conditions
Konventionalbedingungen

1000 m [3285 ft]	- altitudine s.l.m. altitude above sea level über dem Meeresspiegel
40 °C	- temperatura ambiente [104 °F] ambient temperature Zimmertemperatur
-15 °C [5 °F]	- min. temperatura ambiente dell'aria min. ambient air temperature Minimum Zimmerlufttemperatur
≤ 60%	- umidità relativa relative humidity Relative Feuchtigkeit

RS-RT - Riduttori - Gearboxes - Getriebe

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

La Direttiva Europea 2006/42/CE-ATEX riguarda non solo gli apparecchi elettrici ma tutte le macchine e gli organi di comando che sono destinati, soli o combinati, ad essere utilizzati in atmosfere potenzialmente esplosive nei territori della Comunità Europea.

I riduttori VARVEL-ATEX sono costruiti con

- carcassa e coperchi in materiale metallico, contenenti gli elementi di trasmissione montati su cuscinetti a sfere o a rulli;
- paraolio in 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 VARVEL-ATEX sono identificati nella Direttiva come «componenti», pertanto privati di loro funzione autonoma, ma essenziali per il funzionamento di apparecchi e di sistemi di protezione destinati alla produzione, trasporto, immagazzinamento, misurazione, regolazione e conversione d'energia e trasformazione dei materiali che, per le loro proprie potenzialità d'infiammabilità, rischiano di provocare l'innesco di un'esplosione.

Specifica Codice Direttiva ATEX

- **Gruppo**
  I - uso in miniera
  II - uso in industrie di superficie
- **Categoria**
  1 - esposizione continuata in ambiente possibilmente esplosivo con durata >1000 ore/anno o con frequenti malfunzionamenti
  2 - esposizione occasionale in ambiente possibilmente esplosivo con durata fra 10 e 1000 ore/anno o con saltuari malfunzionamenti
  3 - esposizione poco probabile in ambiente possibilmente esplosivo e se avvenuta, si verifica per un breve periodo con durata inferiore a 10 ore/anno
- **Lettere "G" e "D"**
  G - presenza di gas
  D - presenza di polveri
- **Lettere "c" e "k"**
  c - indice di sicurezza di costruzione
  k - indice di sicurezza di immersione in liquido
- **IP66 (IP4X Nema)**
  IP - International Protection
  1a cifra (6) - totalmente protetto contro la polvere
  2a cifra (6) - protetto da ondate
- **T_{max} e T_{amb}**
  T_{max} - temperatura max della superficie
  T_{amb} - temperatura max dell'ambiente

The European Directive 2006/42/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 VARVEL-ATEX are identified in the Directive as «components», therefore stripped away any autonomous function, but fundamental to operation of units and protection systems destined to production, transport, storage, measuring, adjusting and conversion of energy and material transformation that because of their own inflammable potentiality, risk to induce an explosion trigger.

ATEX-Directive Code Breakdown

- **Group**
  I - mining operation
  II - surface industry operation
- **Category**
  1 - continuous exposure in possibly explosive environment for more than 1000 hrs/year or with frequent malfunctioning
  2 - occasional exposure in possibly explosive environment for 10 to 1000 hrs/year or with sporadic malfunctioning
  3 - not very likely exposure in possibly explosive environment and if happened, not longer than 10 hours/year
- **Letters "G" and "D"**
  G - gas presence
  D - dust presence
- **Letters "c" and "k"**
  c - safety indication of construction
  k - safety indication of immersion in liquid
- **IP66 (IP4X Nema)**
  IP - International Protection
  1st digit (6) - dust tight protection
  2nd digit (6) - against powerful water jet protection
- **T_{max} and T_{amb}**
  T_{max} - surface max. temperature
  T_{amb} - ambient max. temperature

Die Europäische Richtlinie 2006/42/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 Schraubensicherungspaste abgedichtet.

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

Richtlinie ATEX Kode Erläuterung

- **Gruppe**
  I - Verwendung in Minen
  II - Verwendung in Oberflächen Branchen
- **Kategorien**
  1 - kontinuierliche Exposition in möglicher explosiver Umgebung bei Dauer >1000 Stunden/Jahr oder mit häufigen Störungen
  2 - gelegentliche Exposition in möglicher explosiver Umgebung mit Dauer zwischen 10 und 1000 Stunden/Jahr oder mit gelegentlichen Fehlfunktionen
  3 - unwahrscheinliche Exposition, in möglicher explosiver Umgebung und wenn dies eintrifft, bei einem kurzen Zeitraum mit Dauer von weniger als 10 Stunden/Jahr
- **Buchstaben "G" und "D"**
  G - Vorhandensein von Gas
  D - Vorhandensein von Staub
- **Buchstaben "c" und "k"**
  c - Indiz der Bausicherheit
  k - Indiz der Eintauchen in Flüssigkeit
- **IP66 (IP4X Nema)**
  IP - International Protection
  1. Ziffer (6) - Staubdicht
  2. Ziffer (6) - Schutz gegen starkem Wasser-Strahl
- **T_{max} u. T_{amb}**
  T_{max} - Maximale Oberflächentemperatur
  T_{amb} - Umgebungstemperatur

Getriebe - Gearboxes - Riduttori - RS-RT

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

Le serie VARVEL RD, RS, RT, RN, RO, RV, RP680 e XA100 sono conformi alle richieste di progetto esatte dal

- Gruppo II,
- Categoria 2 o 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 polveri combustibili.

I prodotti VARVEL-ATEX sono marcati

Ex II 2 GD ck IP66 CE
T_{max}=135°C

VARVEL RD, RS, RT, RN, RO, RV, RP680 and XA100 series are conforming with design requirements asked by

- Group II,
- Category 2 or 3,
- zones 1 and 2 for operation in possible hazardous zones in presence of gas,
- zones 21 and 22 for operation in possible hazardous zones in presence of combustible dust.

The VARVEL-ATEX products are marked

Ex II 2 GD ck IP66 CE
T_{max}=135°C

Die Serie VARVEL RD, RS, RT, RN, RO, RV, RP680 u. XA100 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 Staub.

Die Produkte VARVEL-ATEX sind markiert

Ex II 2 GD ck IP66 CE
T_{max}=135°C

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

Attenzione !	**Warning !**	**Vorsicht !**
I riduttori VARVEL-ATEX **non sono certificati** per funzionamento nelle aree in **colore grigio.**	The VARVEL-ATEX gearboxes **are not certified** for operation in **shaded areas**.	Die Getriebe VARVEL-ATEX sind für den Anbau in die **Graufarbezone nicht zertifiziert.**
(a) - Miniere	(a) - Mines	(a) - Bergwerke
(b) - Industrie di superficie	(b) - Surface industries	(b) - Oberfläche-Industrien
(c) - Livello di protezione: molto elevato	(c) - Protection level: very high	(c) - Schutzklasse: sehr hoch
(d) - Livello di protezione: elevato	(d) - Protection level: high	(d) - Schutzklasse: hoch
(e) - Livello di protezione: normale	(e) - Protection level: normal	(e) - Schutzklasse: normal
(0) - Presenza continua di gas	(0) - Continuous presence of gas	(0) - ständige Gegenwart von gas
(1) - Presenza discontinua di gas	(1) - Discontinuous presence of gas	(1) - nicht ständige Gegenwart von gas
(2) - Presenza occasionale di gas	(2) - Occasional presence of gas	(2) - gelegentliche Gegenwart von gas
(20) - Presenza continua di polveri	(20) - Continuous presence of dust	(20) - ständige Gegenwart von Stäube
(21) - Presenza discontinua di polveri	(21) - Discontinuous presence of dust	(21) - nicht ständige Gegenwart von Stäube
(22) - Presenza occasionale di polveri	(22) - Occasional presence of dust	(22) - gelegentliche Gegenwart von Stäube

RS-RT - Riduttori - Gearboxes - Getriebe

Estratto delle
ISTRUZIONI D'USO E MANUTENZIONE
(manuale completo su **www.varvel,com**)

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

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

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

Manutenzione
Sebbene i gruppi siano provati con funzionamento senza carico prima della spedizione, è consigliabile non usarli a carico massimo durante le prime 20-30 ore di funzionamento affinché le parti interne possano adattarsi reciprocamente. I riduttori sono spediti già riempiti con olio sintetico a lunga durata e, se occorre 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 au-torizzati 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.

Abstract of
OPERATION & MAINTENANCE INSTRUCTIONS
(complete manual on **www.varvel.com**)

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

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

Running
The unit may be connected for clockwise or counter-clockwise rotation.
The unit must be stopped as soon as defective running or unexpected noise occur, remove the faulty part or return the unit to the factory for checking.
If the faulty part is not replaced, other parts can also be affected, causing more severe damage and making the identification of initial cause more difficult.

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

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

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

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

Product's Environmental Management
In conformity with Environmental Certification ISO 14001, we recommend the following to dispose of our products:
- scraped components of the units to be delivered to authorized centres for metal object collection;
- oils and lubricants drained from the units to be delivered to Exhausted Oil Unions;
- packages (pallets, carton boxes, paper, plastic, etc.,) to lead into regeneration/recycling circuits as far as possible, by delivering separate waste classes to authorized companies.

Zusammenfassung der
BETRIEBS- u. WAR-TUNGSANWEISUNGEN
(vollständiges Handbuch auf **www.varvel.com**)

Gemäß der Maschinenrichtlinie 2006/42/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 Volllast zu betreiben, um ein einwandfreies Einlaufen zu gewährleisten. Die Einheiten werden entsprechend den Angaben auf dem Typenschild mit synthetischem Schmierstoff Lebensdauer geschmiert ausgeliefert. Bei einem eventuellen Ölwechsel oder Nachfül -len 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.