



**Riduttori
a vite senza fine**

- RT - Singolo stadio
 TA - Con precoppia
 RT/RT - Doppio stadio

- Potenza da 0,06 a 7,5 kW
- Rapporto di riduzione da 7:1 a 10.000:1
- Coppia uscita da 8 a 1350 Nm



Worm gearboxes

- RT - One stage
 TA - Helical / worm
 RT/RT - Two stage

- Power from 0.06 to 7.5 kW
- Reduction ratio from 7:1 to 10,000:1
- Output torque from 8 to 1350 Nm

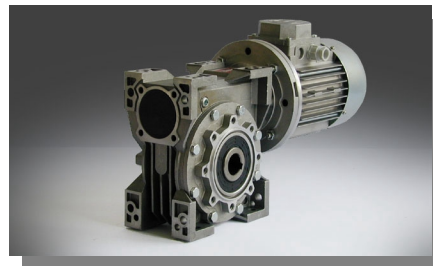


Schneckengetriebe

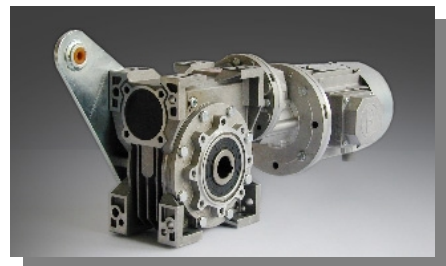
- RT - Einstufige
 TA - mit Stirnrad-Vorstufe
 RT/RT - Doppelstufige

- Leistungen von 0,06 bis 7.5 kW
- Untersetzungen von 7:1 bis 10.000:1
- Ausgangsdrehmoment von 8 bis 1350 Nm

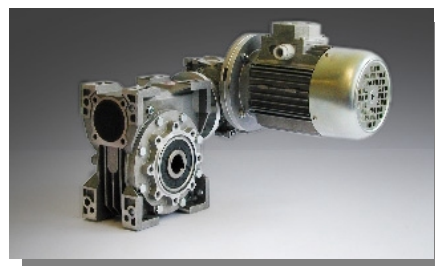
RT



TA



RT/RT



**RIDUTTORI SERIE RT - TA - RT/RT
GEARBOXES SERIES RT - TA - RT/RT
SCHNECKENGETRIEBE BAUREIHE RT - TA - RT/RT**

RT - Vite senza fine

I riduttori della serie RT, specificatamente concepiti per fissaggio universale, sono costruiti con carcassa e coperchi in alluminio pressofuso fino alla grandezza RT85 e in ghisa per la grandezza RT110.

Le coppie indicate nelle tabelle di selezione sono coppie di uscita relative alla grandezza considerata e le potenze sono riferite a 1440 min⁻¹.

I paraolio entrata in Viton, montati su richiesta, rendono possibili senza problemi gli azionamenti con motori a 2 poli o motori c.c. a 3000 min⁻¹.

I riduttori sono spediti già riempiti con lubrificante sintetico a lunga durata (senza tappi), nelle quantità indicate a pag. 6 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.

TA - Vite senza fine con precoppia

I riduttori della serie TA, composti da un riduttore FXA indipendente a una coppia di ingranaggi montato su un riduttore standard del tipo FRT, forniscono una maggior coppia di uscita ed un più elevato rendimento degli equivalenti rapporti del tipo RT.

RT - Worm gears

The worm gearboxes, RT series, specifically designed for universal mounting, are manufactured with die cast housings and covers in aluminium up to the size RT85 and cast iron for the size FRT110.

Torques listed in selection tables are output torque values for the specific size, and motor powers are always referred to 1440 rpm.

Input Viton oil seals, fitted on demand, allow free-trouble operation with 2-pole standard ac motors or 3000 rpm dc motors.

Gearboxes are delivered filled with synthetic long-life oil (without plugs), in quantities as recommended on page 6, 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.

TA - Helical worm gears

The gearboxes, TA series, made up of an independent single stage helical gearbox FXA fitted to a standard FTR gearbox, allow greater output torques and higher efficiency than the FRT gearbox with equivalent ratios.

RT-Schneckengetriebe

Die Getriebe der Serie RT, eigens für die universelle Montageanordnung entwickelt, haben bis zur Baugröße RT85 Gehäuse und Deckel aus Aluminium-Druckguß und aus Guß bei Baugröße RT110, Die in den Auswahltabellen genannten Drehmomente sind jeweils die Ausgangsdrehmomente der entsprechenden Baugröße, und die Leistungen beziehen sich auf eine Nenndrehzahl von 1440 1/min. Wellendichtringe aus Viton, auf Anfrage auf der Eingangsseite montiert, ermöglichen einen problemlosen Einsatz von 2-poligen Motoren oder Gleichstrommotoren bis 3000 1/min 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 und Halt) je Stunde und Umgebungstemperaturen zwischen 15 und 35 °C.

TA - Schneckengetriebe mit Stirnradvorstufe

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

| | SPECIFICHE GENERALI | GENERAL SPECIFICATIONS | ALLGEMEINE EIGENSCHAFTEN |
|--|---|---|---|
| Gamma Range Bereich | 7 grandezze 55 rapporti di riduzione 1350 Nm coppia uscita max | 7 sizes 55 reduction ratios 1350 Nm max. output torque | 7 Baugrößen 55 Übersetzungen 1350 Nm max. Abtriebsmoment |
| Dimensionamento Sizing Auslegung | Secondo BS721. Vita media 15.000 ore con fattore di servizio SF1 | According to BS721. 15,000 hrs average lifetime with service factor SF1 | Entsprechend BS721 15T Stunden Lebensdauer für Verzahnung und Lagerung bei einem Bfaktor SF1 |
| Carcassa, Coperchi Housing, Covers Gehäuse, Flansche | Pressofusione in alluminio AISi12Cu2Fe fino RT85 e ghisa G25 per RT110. | Pressure die cast aluminium AISi12Cu2Fe till size RT85 and cast iron for RT110. | Aluminium-Druckguss AISi12Cu2Fe bis Größe RT85 und G25 für RT110. |
| Parti dentate Toothed parts Verzahnung | Viti in acciaio 20MnCr5 cmt / tmp con profilo ZK rettificato. Ruote in bronzo CuSn12 su mozzo in ghisa. | Worms of steel 20MnCr5 CH and tooth profile ZK ground. Wheels of bronze CuSn12 on CI hub. | Stahl 20MnCr5 einatzgehärtet. Zahnprofil geschliffen. Schneckenrad in Bronze CuSn12 HW Roheisen |
| Alberi & Linguetta Shafts & Keys Wellen u. Passfedern | Acciaio C43 Alberi h6 - Fori E8 Linguetta secondo DIN6885 B1 | Steel C43 Shafts h6 - Bores E8 Keys according to DIN6885 B1 | Stahl C 43 Wellen h6 – Bohrungen E8 Passfedern nach DIN6885 B1 |
| 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 NB - nitril-butadiene con secondo labbro parapolvere secondo DIN 3760 | Type NB - nitril-butadiene with additional anti-dust lip according to DIN 3760 | Typ NB – Nitril-Butadien mit zusätzlicher Staublippe entsprechend DIN 3760 |
| 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 a forno Baking painting Gehäuselackierung | RT110: vernice a polveri epossidiche, colore std RAL 7012. RT28-85: alluminio naturale. | RT110: epoxy powder paint, std colour RAL 7012. RT28-85: real aluminium. | RT110: Epoxypulverfarbe Standardfarbton RAL 7012 RT28-85: Aluminium. |

RIDUTTORI SERIE RT - TA - RT/RT
 GEARBOXES SERIES RT - TA - RT/RT
 SCHNECKENGETRIEBE BAUREIHE RT - TA - RT/RT

RT/RT - Vite senza fine - doppio stadio

I riduttori della serie RT/RT sono composti di due riduttori della serie RT e forniscono un'ampia scelta di elevati rapporti a completamento della serie TA per ottenere rotazioni alle più basse velocità.

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.

BT, BTV - 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 BT o 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 22.

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.

Motori elettrici

I motori elettrici sono forniti con voltaggio trifase 230/400V ($\pm 10\%$) e monofase 230V, frequenza 50Hz, 4 poli, classe di isolamento F con temperatura ambiente di 40°C, grado di protezione IP 55.

A richiesta, motori con caratteristiche diverse, monofasi ad alta coppia di spunto, autofrenanti, a doppia polarità, per azionamento con inverter separato o a bordo.

La morsettiere è posta come standard verso il basso per i tipi a stadio singolo o con precoppia, in ogni modo e nel caso di doppio stadio riferirsi a pag. 5.

RT/RT - Two stage worm gears

The gearboxes, RT/RT series, are made up of two gearboxes RT and offer a full selection of high reduction ratios to obtain the very low output speeds.

AS, AD - Output shafts

All the gearboxes are manufactured with hollow output shaft as standard version and, 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.

BT, BTV - Torque arms

Standard gearboxes are supplied normally with covers on each side allowing torque arm fixing when gearboxes have to operate as shaft mounted units.

The torque arm BT or BTV (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.

Slipping torque, factory preset, can be adjusted from the maximum pre-set torque down to zero, and shaft rotation restarts automatically as soon as torque value is lower than the pre-set value.

Oil quantity of torque limiter TLI are listed at page 22.

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.

Electric motors

The electric motors are supplied with voltage 230/400V ($\pm 10\%$) three-phase and 230V single-phase, frequency 50 Hz, 4 poles, temperature class F at ambient temperature 40 Celsius, protection IP55.

On request, motors according to different specifications, high starting torque single-phase, brake-motors, dual-speed motors, for separate or on board inverter drive.

The terminal box is located downwards as standard in worm or helical/worm gear boxes, however and in case of two-stage types refer at page 5.

RT/RT - Doppelstufige Schneckengetriebe

Die Getriebe der Serie RT/RT sind eine Kombination zweier Schneckengetriebe der RT Baureihe und bieten eine weitgehende Auswahlmöglichkeit an hohen Untersetzungen und somit sehr kleinen Abtriebsdrehzahlen.

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.

BT, BTV - 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 BT oder BTV (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 Stromausfalles. 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 eingestellte Moment wird.

Ölmenge: Seite 22

SL-Drehzahlbegrenzer

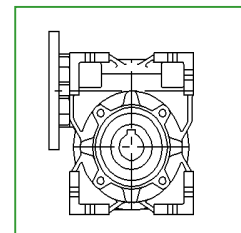
Die SL-Einrichtung stoppt, mittels eingebauten Wegschalter, das Getriebe nach einer bestimmten Zeit. Die Standardgewindespindel, ermöglicht ca. 40 Umdrehungen der Ausgangswelle. Die Wegschalter sind einstellbar und die Betriebszeit ist, abhängig von der Untersetzung, zwischen min. 12" bis max. 170".

Elektromotoren

Als Elektromotoren kommen Dreiphasenmotoren mit 230/400 V ($\pm 10\%$) und Einphasenmotoren mit 230 V, 50 Hz, 4-polig, Isolationsklasse F bei 40°C Umgebungstemperatur in Schutzart IP 55 zum Einsatz. Auf Anfrage sind auch Motoren in Sonderausführungen lieferbar, ebenso wie Bremsmotoren, Einphasenmotoren mit hohem Anlaufmoment, polumschaltbare Motoren als auch Motoren mit separatem oder integriertem Umrichter. Als Standard befindet sich der Klemmkasten auf der rechten Seite bei Blick auf die Eingangsseite des Getriebes (bei Doppelschneckengetrieben bei Blick auf die erste Getriebestufe).

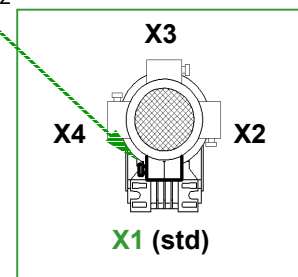
| DESIGNAZIONE DEL RIDUTTORE | GEARBOX DESIGNATION | BEZEICHNUNG GETRIEBE |
|--------------------------------------|---------------------|--|
| F RT [../] 40 B3 28 IEC71 B14 | (OPS, OPP) | |
| | | OPS= Opzioni standard pag.22 - <i>Standard options page 22</i> - Standard Optionen Seite 22 OPP= Opzioni piè pagina - <i>Options at the foot of the page</i> - Optionen siehe Seitenende B5, B14 = Forma motore - <i>Motor form</i> - Motorbauform Grandezza motore elettrico - <i>Electric motor frame</i> - Motorbaugroße Rapporto di riduzione - <i>Reduction ratio</i> - Untersetzungsverhältnis Forma costruttiva - <i>Mounting form</i> - Montageposition (RT = B3, B6, B7, B8, V5, V6, F, Fi) / (TA = 10, 11, 12, 13) / (RT/RT = 20, 21, 22, 23, 24, 25, 26, 27) 28, 40, 50, 60, 70, 85, 110 = Grandezza riduttore RT - <i>Gearbox size RT</i> - Baugröße RT 63/, 71/, 80/ = Grandezza precoppia TA - <i>TA Helical stage size</i> - Baugröße Vorstufe TA 28/, 40/, 50/ = Grandezza 1° riduttore RT/RT - <i>1st RT/RT gearbox size</i> - Baugröße Getriebe 1. RT/RT RT,TA, RT/RT = Tipo riduttore - <i>Gearbox type</i> - Getriebetyp |

- | | | |
|-------------------------------|-----------------------------------|-----------------------|
| M = Motoriduttore | - <i>Geared motor</i> | - Getriebemotor |
| F = Flangia entrata IEC | - <i>IEC input flange</i> | - Eingangsflansch IEC |
| S = Senza flangia IEC | - <i>Without IEC input flange</i> | - Ohne Flansch IEC |
| ... = Senza flangia d'entrata | - <i>Free input shaft</i> | - freie Eingangswelle |



| DESIGNAZIONE DEL MOTORE | MOTOR DESIGNATION | BEZEICHNUNG MOTOR |
|---|-------------------|--|
| MT 0.37kW 71B 4 B14 230/400/50 IP55 F X1 | | |
| | | Posizione morsettiera - <i>Terminal box position</i> - Klemmenkastenlage Cl. F (std) = Classe isolamento - <i>Insulation class</i> - Isolationsklasse IP55 (std) = Grado protezione - <i>Protection class</i> - Schutzart Tensione/frequenza - <i>Voltage/frequency</i> - Spannung/Frequenz Forma costruttiva - <i>Mounting</i> - Bauform Numero poli - <i>Number of poles</i> - Polzahl Grandezza IEC motore - <i>IEC motor size</i> - Baugröße Motor Potenza motore - <i>Motor power</i> - Leistung Motor |

- | | | |
|--------------------------|-----------------------------|--------------------|
| MT = Motore trifase | - <i>Three-phase motor</i> | - Dreiphasen-Motor |
| MM = Motore monofase | - <i>Single-phase motor</i> | - Einphasen-Motor |
| MA = Motore autofrenante | - <i>Brake motor</i> | - Bremsmotor |



| OPZIONI OPP | OPTIONS OPP | OPTIONEN OPP |
|--|--|--|
| 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 - Not std hollow shaft ø.. | ACØ - Sonderhohlwelle ø.. |
| CS - Cuscinetti uscita non std | CS - Not std output bearings | CS - Sonderlager Ausgang |
| F - Flangia uscita F aggiuntiva | F - Additional output flange F | FL - zusätzlicher FL Ausgangsflansch |
| GRI - Gioco ridotto dentatura | GRI - Reduced gearing backlash | GRI - spielarme Verzahnung |
| GRM - Gioco ridotto montaggio | GRM - Reduced end play | GRM - spielarme Montage |
| LNS - Lubrificazione non std | LNS - Not std lubrication | LNS - Sonderschmierung |
| VB - Vite bisporgente | VB - NDE worm shaft extension | VB - Schneckenwelle beidseitig |

POSIZIONI DI MONTAGGIO
STANDARD MOUNTING POSITIONS
MONTAGEPOSITION

| | | | | |
|---|------------------------|-----------------------|------------------|------------------|
| <p>RT TA RT/RT Uscita Output Ausgang</p> | <p>B3 (std)</p> | <p>B6</p> | <p>B7</p> | <p>B8</p> |
| <p>V5</p> | <p>V6</p> | <p>F (std)</p> | <p>Fi</p> | |
| | | | | |
| <p>TA Entrata Input Eingang</p> | <p>10 (std)</p> | <p>11</p> | <p>12</p> | <p>13</p> |
| | | | | |
| <p>RT/RT Entrata Input Eingang</p> | <p>20 (std)</p> | <p>21</p> | <p>22</p> | <p>23</p> |
| | <p>24</p> | <p>25</p> | <p>26</p> | <p>27</p> |

FATTORI DI SERVIZIO - PESI & LUBRIFICANTI - CARICHI ENTRATA SERVICE FACTORS - WEIGHTS & LUBRICANTS - INPUT LOADS BETRIEBSFAKTOREN - GEWICHTE U. SCHMIERMITTEL - EINGANGSKRÄFTE

FATTORI DI SERVIZIO
 SERVICE FACTORS
 BETRIEBSFAKTOREN

| F ₁ | a | b | c | F ₂ | d |
|----------------|-----|-----|-----|----------------|-----|
| 3 - 4 h | 0.8 | 1.0 | 1.5 | 6 | 1.0 |
| 8 - 10 h | 1.0 | 1.2 | 1.8 | 60 | 1.2 |
| 10 - 24 h | 1.4 | 1.6 | 2.0 | 120 | 1.4 |

FS = F₁ x F₂

| | | |
|----------------------|----------------------|------------------------|
| a = Carico uniforme | Uniform load | gleichmäßige Belastung |
| b = Carico variabile | Variable load | variable Belastung |
| c = Carico ad urti | Shock load | Stoßbelastung |
| d = Avviamenti/ora | Start/stops per hour | Schaltungen/Stunde |

- PESI &
 LUBRIFICANTI
 - WEIGHTS &
 LUBRICANTS
 - GEWICHTE &
 SCHMIERMITTEL

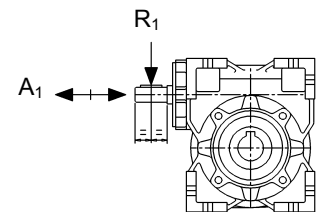
| RT | kg | l | TA | kg | l _{1/2} | RT / RT | kg | l _{1/2} |
|-----|------|------|----------|------|------------------|----------|------|------------------|
| 28 | 1.1 | 0.03 | 63 / 40 | 4.0 | 0.04/0.08 | 28 / 28 | 2.5 | 0.03/0.03 |
| 40 | 2.5 | 0.08 | 63 / 50 | 5.3 | 0.04/0.13 | 28 / 40 | 3.9 | 0.03/0.08 |
| 50 | 3.8 | 0.13 | 63 / 60 | 8.0 | 0.04/0.20 | 28 / 50 | 5.2 | 0.03/0.13 |
| 60 | 6.5 | 0.20 | 71 / 50 | 6.6 | 0.06/0.13 | 28 / 60 | 7.9 | 0.03/0.20 |
| 70 | 9.0 | 0.35 | 71 / 60 | 9.3 | 0.06/0.20 | 40 / 70 | 12.0 | 0.08/0.35 |
| 85 | 13.5 | 0.60 | 71 / 70 | 11.8 | 0.06/0.35 | 40 / 85 | 16.5 | 0.08/0.60 |
| 110 | 39.0 | 1.50 | 71 / 85 | 16.3 | 0.06/0.60 | 50 / 110 | 45.0 | 0.13/1.50 |
| | | | 80 / 60 | 10.5 | 0.10/0.20 | | | |
| | | | 80 / 70 | 13.0 | 0.10/0.35 | | | |
| | | | 80 / 85 | 17.5 | 0.10/0.60 | | | |
| | | | 80 / 110 | 43.0 | 0.10/1.50 | | | |

CARICHI RADIALI ENTRATA **R₁** [daN]

INPUT RADIAL LOADS **R₁** [daN]

RADIALKRÄFTE EINGANG **R₁** [daN]

A₁ = 0.2 x R₁

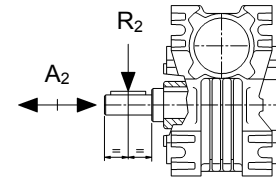


| min ⁻¹ | 2800 | 1400 | 900 | 700 | 500 | 300 |
|-------------------|------|------|-----|-----|-----|-----|
| RT28 | 5 | 7 | 8 | 9 | 10 | 12 |
| RT40 | 11 | 15 | 16 | 17 | 18 | 20 |
| RT50 | 15 | 20 | 22 | 25 | 28 | 30 |
| RT60 | 23 | 30 | 33 | 35 | 37 | 40 |
| RT70 | 26 | 35 | 40 | 44 | 47 | 50 |
| RT85 | 34 | 45 | 52 | 58 | 62 | 70 |
| RT110 | 57 | 75 | 80 | 85 | 92 | 100 |

CARICHI ESTERNI
OUTPUT LOADS
AUSGANGSKRÄFTE

CARICHI RADIALI R_2 [daN] CON CUSCINETTI STANDARD
RADIAL LOADS R_2 [daN] WITH STANDARD BEARINGS
RADIALKRÄFTE R_2 [daN] MIT STANDARDLAGERUNG

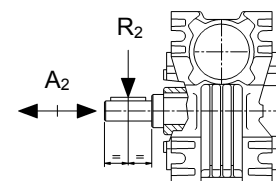
$$A_2 = 0.2 \times R_2$$



| min ⁻¹ | 200 | 140 | 93 | 70 | 50 | 35 | 29 | 25 | 20 | 18 | 14 | Brg No. |
|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|
| RT28 | 45 | 50 | 55 | 60 | 62 | 70 | 75 | 80 | 90 | 95 | 100 | 16005 |
| RT40 | 100 | 110 | 120 | 135 | 150 | 160 | 170 | 180 | 190 | 200 | 230 | 16006 |
| RT50 | 125 | 145 | 170 | 190 | 200 | 230 | 240 | 260 | 280 | 290 | 320 | 16008 |
| RT60 | 240 | 250 | 290 | 330 | 360 | 390 | 430 | 320 | 500 | 420 | 560 | 6208 |
| RT70 | 270 | 290 | 360 | 390 | 420 | 450 | 520 | 550 | 590 | 630 | 670 | 6209 |
| RT85 | 330 | 370 | 440 | 470 | 540 | 550 | 630 | 660 | 710 | 750 | 830 | 6210 |
| RT110 | 390 | 415 | 520 | 540 | 590 | 570 | 750 | 780 | 800 | 880 | 980 | 6212 |

CARICHI RADIALI R_2 [daN] CON CUSCINETTI RINFORZATI
RADIAL LOADS R_2 [daN] WITH HEAVY DUTY BEARINGS
RADIALKRÄFTE R_2 [daN] MIT VERSTÄRKTER LAGERUNG

$$A_2 = 0.2 \times R_2$$



| min ⁻¹ | 200 | 140 | 93 | 70 | 50 | 35 | 29 | 25 | 20 | 18 | 14 | Brg No. |
|-------------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|---------|
| RT28 | 65 | 75 | 82 | 90 | 93 | 105 | 112 | 120 | 130 | 130 | 130 | 6005 |
| RT40 | 150 | 155 | 165 | 190 | 210 | 225 | 240 | 250 | 260 | 260 | 260 | 32006 |
| RT50 | 175 | 200 | 240 | 260 | 300 | 340 | 360 | 390 | 420 | 420 | 420 | 32008 |
| RT60 | 300 | 320 | 370 | 420 | 480 | 510 | 570 | 610 | 660 | 660 | 660 | 30208 |
| RT70 | 330 | 370 | 450 | 516 | 560 | 610 | 690 | 730 | 790 | 790 | 790 | 30209 |
| RT85 | 420 | 460 | 550 | 630 | 720 | 730 | 840 | 870 | 940 | 940 | 940 | 30210 |
| RT110 | 500 | 540 | 670 | 750 | 800 | 930 | 1050 | 1110 | 1110 | 1110 | 1110 | 30212 |

FRT

GRANDEZZE MOTORI
MOTOR FRAMES
BAUGRÖßEN MOTOR

| FRT | min ⁻¹ IEC | i = 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
|-----|--------------------------|-------|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | 200 | 140 | 93 | 70 | 50 | 35 | 29 | 25 | 20 | 18 | 14 |
| 28 | 56 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |
| | 63 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | --- | --- | --- | --- |
| 40 | 56 | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① |
| | 63 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |
| | 71 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | --- | --- | --- | --- |
| 50 | 63 | ① | ① | ① | ① | ① | ① | ① | ① | ★ | ★ | ★ |
| | 71 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |
| | 80 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | --- | --- | --- | --- |
| 60 | 71 | ① | ① | ① | ① | ★ | ★ | ★ | ★ | ★ | ★ | ★ |
| | 80 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |
| | 90 | ★ | ★ | ★ | ★ | ★ | ★ | --- | --- | --- | --- | --- |
| 70 | 71 | ① | ① | ① | ① | ★ | ★ | ★ | ★ | ★ | ★ | ★ |
| | 80 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |
| | 90 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | --- | --- | --- | --- |
| | 100 | ★ | ★ | ★ | --- | --- | --- | --- | --- | --- | --- | --- |
| 85 | 80 | ① | ① | ① | ① | ① | ★ | ★ | ★ | ★ | ★ | ★ |
| | 90 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |
| | 100/112 | ★ | ★ | ★ | ★ | ★ | ★ | --- | --- | --- | --- | --- |
| 110 | 90 | ② | ② | ② | ② | ② | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ |
| | 100/112 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |
| | 132 | ★ | ★ | ★ | ★ | --- | --- | --- | --- | --- | --- | --- |

★ - B5 & B14

☆ - B5

① - Foro con boccia (IEC B5 e B14)

- Bore with bush (IEC B5 and B14)

- Bohrung mit Buchse (IEC B5 und B14)

② - Foro con boccia (IEC solo B5)

- Bore with bush (IEC only B5)

- Bohrung mit Buchse (IEC nur B5)

FTA

GRANDEZZE MOTORI
MOTOR FRAMES
BAUGRÖßEN MOTOR

| FTA | IEC | $i_2 = 7$ | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
|---------------|--------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | * | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** |
| 63/40 | 56 | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① |
| 63/50 | B5&B14 | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① |
| 63/60 | | --- | --- | --- | --- | ① | ① | ① | ① | ① | ① | ① |
| 63/40 | 63 | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① |
| 63/50 | B5&B14 | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① |
| 63/60 | | --- | --- | --- | --- | ① | ① | ① | ① | ① | ① | ① |
| 71/50 | 71 | ② | ② | ② | ② | ② | ② | ② | --- | --- | --- | --- |
| 71/60 | B5&B14 | ② | ② | ② | ② | ② | ② | ② | ② | ② | ② | ② |
| 71/70 | | ② | ② | ② | ② | ② | ② | ② | ② | ② | ② | ② |
| 71/85 | | --- | --- | --- | --- | --- | ② | ② | ② | ② | ② | ② |
| 80/60 | 80 | ③ | ③ | ③ | ③ | ③ | --- | --- | --- | --- | --- | --- |
| 80/70 | B5&B14 | ③ | ③ | ③ | ③ | ③ | ③ | ③ | --- | --- | --- | --- |
| 80/85 | | ③ | ③ | ③ | ③ | ③ | ③ | ③ | ③ | ③ | ③ | ③ |
| 80/110 | | ④ | ④ | ④ | ④ | ③ | ③ | ③ | ③ | ③ | ③ | ③ |
| 80/60 | 90 | ③ | ③ | ③ | ③ | ③ | --- | --- | --- | --- | --- | --- |
| 80/70 | B5&B14 | ③ | ③ | ③ | ③ | ③ | ③ | ③ | --- | --- | --- | --- |
| 80/85 | | ③ | ③ | ③ | ③ | ③ | ③ | ③ | ③ | ③ | ③ | ③ |
| 80/110 | | ④ | ④ | ④ | ④ | ③ | ③ | ③ | ③ | ③ | ③ | ③ |

* - Entrata precoppia

** - Uscita precoppia
& Entrata FRT

① - $\varnothing 105 \times 14$

② - $\varnothing 120 \times 19$

③ - $\varnothing 140 \times 24$

④ - $\varnothing 140 \times 28$

* - Helical stage input

** - Helical stage output
& FRT input

① - $\varnothing 105 \times 14$

② - $\varnothing 120 \times 19$

③ - $\varnothing 140 \times 24$

④ - $\varnothing 140 \times 28$

* - Eingang der Vorstufe

** - Ausgang der Vorstufe
u. Eingang der FRT

① - $\varnothing 105 \times 14$

② - $\varnothing 120 \times 19$

③ - $\varnothing 140 \times 24$

④ - $\varnothing 140 \times 28$

FRT - RT 2800 & 1400 min⁻¹

TABELLA SELEZIONE SELECTION TABLE AUSWAHLTABELLE

| 2800 min ⁻¹ | i = min ⁻¹ | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
|---------------------------|--------------------------|------|------|------|------|------|------|------|------|------|------|------|
| | | 400 | 280 | 187 | 140 | 100 | 70 | 57 | 50 | 40 | 35 | 28 |
| RT28 | kW | 0.63 | 0.49 | 0.35 | 0.25 | 0.23 | 0.16 | 0.13 | 0.12 | 0.09 | 0.08 | 0.04 |
| | Nm | 13 | 14 | 14 | 13 | 15 | 14 | 13 | 12 | 11 | 10 | 7 |
| | eff. | 0.86 | 0.83 | 0.79 | 0.77 | 0.69 | 0.64 | 0.61 | 0.54 | 0.49 | 0.49 | 0.46 |
| RT40 | kW | 1,5 | 1,2 | 0,82 | 0,56 | 0,49 | 0,36 | 0,30 | 0,26 | 0,21 | 0,19 | 0,15 |
| | Nm | 31 | 34 | 34 | 30 | 34 | 32 | 31 | 30 | 29 | 28 | 26 |
| | eff. | 0,87 | 0,85 | 0,81 | 0,78 | 0,72 | 0,66 | 0,62 | 0,6 | 0,57 | 0,54 | 0,51 |
| RT50 | kW | 3,0 | 2,0 | 1,5 | 0,95 | 0,92 | 0,63 | 0,51 | 0,43 | 0,33 | 0,31 | 0,23 |
| | Nm | 62 | 59 | 61 | 52 | 66 | 59 | 56 | 53 | 46 | 49 | 40 |
| | eff. | 0,88 | 0,86 | 0,82 | 0,8 | 0,75 | 0,69 | 0,66 | 0,64 | 0,58 | 0,58 | 0,52 |
| RT60 | kW | 4,4 | 3,5 | 2,6 | 1,9 | 1,6 | 1,1 | 0,72 | 0,73 | 0,60 | 0,52 | 0,34 |
| | Nm | 93 | 104 | 110 | 108 | 116 | 105 | 85 | 92 | 92 | 85 | 68 |
| | eff. | 0,88 | 0,87 | 0,84 | 0,82 | 0,76 | 0,73 | 0,71 | 0,66 | 0,64 | 0,6 | 0,58 |
| RT70 | kW | 5,7 | 4,3 | 3,2 | 2,4 | 2,2 | 1,5 | 1,2 | 1,0 | 0,80 | 0,69 | 0,54 |
| | Nm | 122 | 130 | 139 | 136 | 161 | 155 | 142 | 130 | 120 | 115 | 107 |
| | eff. | 0,89 | 0,88 | 0,85 | 0,83 | 0,78 | 0,74 | 0,7 | 0,68 | 0,63 | 0,61 | 0,58 |
| RT85 | kW | 9,6 | 7,5 | 5,3 | 4,3 | 3,1 | 2,4 | 2,0 | 1,7 | 1,3 | 1,1 | 0,93 |
| | Nm | 205 | 225 | 234 | 237 | 235 | 250 | 242 | 229 | 210 | 200 | 190 |
| | eff. | 0,89 | 0,88 | 0,86 | 0,8 | 0,8 | 0,76 | 0,72 | 0,71 | 0,67 | 0,64 | 0,6 |
| RT110 | 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 |
| 1400 min ⁻¹ | i = min ⁻¹ | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
| | | 200 | 140 | 93 | 70 | 50 | 35 | 29 | 25 | 20 | 18 | 14 |
| RT28 | kW | 0,45 | 0,33 | 0,23 | 0,16 | 0,16 | 0,10 | 0,09 | 0,08 | 0,06 | 0,05 | 0,03 |
| | Nm | 18 | 18 | 18 | 16 | 20 | 17 | 17 | 15 | 12 | 12 | 8 |
| | eff. | 0,84 | 0,81 | 0,77 | 0,74 | 0,66 | 0,62 | 0,57 | 0,51 | 0,45 | 0,45 | 0,43 |
| RT40 | kW | 1,1 | 0,81 | 0,55 | 0,38 | 0,37 | 0,25 | 0,21 | 0,18 | 0,14 | 0,12 | 0,09 |
| | Nm | 45 | 46 | 44 | 39 | 48 | 42 | 41 | 38 | 36 | 32 | 29 |
| | eff. | 0,85 | 0,83 | 0,78 | 0,75 | 0,68 | 0,61 | 0,58 | 0,56 | 0,52 | 0,50 | 0,46 |
| RT50 | kW | 1,8 | 1,3 | 0,93 | 0,63 | 0,63 | 0,41 | 0,37 | 0,31 | 0,25 | 0,20 | 0,13 |
| | Nm | 75 | 75 | 74 | 65 | 85 | 72 | 76 | 71 | 63 | 58 | 43 |
| | eff. | 0,86 | 0,84 | 0,78 | 0,76 | 0,71 | 0,64 | 0,62 | 0,60 | 0,53 | 0,52 | 0,47 |
| RT60 | kW | 2,8 | 2,3 | 1,6 | 1,2 | 1,0 | 0,75 | 0,62 | 0,54 | 0,46 | 0,37 | 0,25 |
| | Nm | 113 | 133 | 130 | 122 | 139 | 135 | 128 | 123 | 122 | 106 | 83 |
| | eff. | 0,86 | 0,84 | 0,81 | 0,77 | 0,71 | 0,66 | 0,62 | 0,60 | 0,55 | 0,53 | 0,49 |
| RT70 | kW | 4,0 | 3,1 | 2,2 | 1,8 | 1,5 | 1,2 | 0,84 | 0,74 | 0,58 | 0,50 | 0,37 |
| | Nm | 166 | 180 | 188 | 194 | 216 | 238 | 189 | 180 | 163 | 154 | 130 |
| | eff. | 0,88 | 0,86 | 0,83 | 0,81 | 0,75 | 0,71 | 0,67 | 0,64 | 0,59 | 0,56 | 0,52 |
| RT85 | kW | 6,2 | 4,6 | 3,4 | 2,9 | 2,2 | 2,0 | 1,4 | 1,2 | 0,96 | 0,86 | 0,55 |
| | Nm | 259 | 268 | 289 | 322 | 319 | 401 | 316 | 305 | 290 | 280 | 210 |
| | eff. | 0,88 | 0,86 | 0,83 | 0,82 | 0,76 | 0,72 | 0,67 | 0,68 | 0,63 | 0,60 | 0,56 |
| RT110 | 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 |

FRT - RT 900 & 700 min⁻¹

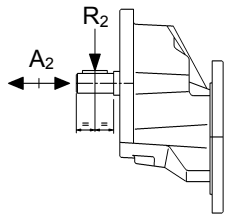
TABELLA SELEZIONE SELECTION TABLE AUSWAHLTABELLE

| 900 min⁻¹ | | i = | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
|-----------------------------|------|-------------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|
| | | min⁻¹ | 128 | 90 | 60 | 45 | 32 | 23 | 19 | 16 | 13 | 11 | 9 |
| RT28 | kW | 0,36 | 0,24 | 0,18 | 0,13 | 0,12 | 0,08 | 0,07 | 0,06 | 0,04 | 0,03 | 0,02 | |
| | Nm | 22 | 20 | 21 | 19 | 22 | 20 | 19 | 16 | 13 | 11 | 8 | |
| | eff. | 0.82 | 0.78 | 0.72 | 0.70 | 0.61 | 0.56 | 0.52 | 0.45 | 0.43 | 0.40 | 0.37 | |
| RT40 | kW | 0,84 | 0,64 | 0,44 | 0,30 | 0,28 | 0,19 | 0,16 | 0,14 | 0,12 | 0,10 | 0,08 | |
| | Nm | 52 | 54 | 52 | 45 | 52 | 46 | 43 | 41 | 40 | 39 | 36 | |
| | eff. | 0.83 | 0.80 | 0.74 | 0.70 | 0.63 | 0.56 | 0.52 | 0.49 | 0.46 | 0.44 | 0.42 | |
| RT50 | kW | 1,5 | 1,1 | 0,75 | 0,52 | 0,51 | 0,35 | 0,28 | 0,25 | 0,19 | 0,17 | 0,12 | |
| | Nm | 95 | 95 | 91 | 79 | 99 | 85 | 81 | 80 | 67 | 67 | 55 | |
| | eff. | 0.85 | 0.81 | 0.76 | 0.72 | 0.65 | 0.58 | 0.56 | 0.54 | 0.47 | 0.46 | 0.42 | |
| RT60 | kW | 2,4 | 1,9 | 1,4 | 1,0 | 0,87 | 0,56 | 0,43 | 0,40 | 0,32 | 0,28 | 0,19 | |
| | Nm | 150 | 163 | 166 | 161 | 175 | 152 | 135 | 130 | 125 | 115 | 94 | |
| | eff. | 0.85 | 0.83 | 0.75 | 0.76 | 0.68 | 0.64 | 0.61 | 0.55 | 0.53 | 0.48 | 0.47 | |
| RT70 | kW | 3,2 | 2,4 | 1,7 | 1,3 | 1,2 | 0,87 | 0,64 | 0,53 | 0,42 | 0,38 | 0,30 | |
| | Nm | 202 | 211 | 218 | 207 | 242 | 240 | 205 | 187 | 170 | 160 | 147 | |
| | eff. | 0.86 | 0.83 | 0.79 | 0.77 | 0.70 | 0.654 | 0.62 | 0.59 | 0.54 | 0.50 | 0.46 | |
| RT85 | kW | 5,0 | 3,9 | 3,0 | 2,1 | 1,8 | 1,5 | 1,0 | 0,83 | 0,73 | 0,64 | 0,51 | |
| | Nm | 320 | 350 | 378 | 355 | 373 | 410 | 350 | 332 | 300 | 290 | 260 | |
| | eff. | 0.86 | 0.84 | 0.80 | 0.78 | 0.71 | 0.66 | 0.672 | 0.671 | 0.55 | 0.53 | 0.48 | |
| RT110 | 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 | |
| | | | | | | | | | | | | | |
| 700 min⁻¹ | | i = | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
| | | min⁻¹ | 100 | 70 | 47 | 35 | 25 | 18 | 15 | 13 | 10 | 8.7 | 7 |
| RT28 | kW | 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 | 22 | 21 | 24 | 21 | 20 | 17 | 13 | 11 | 8 | |
| | eff. | 0.81 | 0.77 | 0.71 | 0.69 | 0.60 | 0.55 | 0.51 | 0.44 | 0.40 | 0.39 | 0.36 | |
| RT40 | kW | 0,74 | 0,54 | 0,39 | 0,26 | 0,24 | 0,17 | 0,14 | 0,12 | 0,10 | 0,09 | 0,07 | |
| | Nm | 58 | 58 | 58 | 49 | 55 | 49 | 46 | 45 | 43 | 41 | 38 | |
| | eff. | 0.82 | 0.79 | 0.73 | 0.68 | 0.59 | 0.53 | 0.50 | 0.48 | 0.44 | 0.42 | 0.39 | |
| RT50 | kW | 1,4 | 0,92 | 0,65 | 0,44 | 0,43 | 0,29 | 0,24 | 0,21 | 0,16 | 0,15 | 0,12 | |
| | Nm | 110 | 100 | 99 | 86 | 106 | 91 | 87 | 83 | 70 | 72 | 62 | |
| | eff. | 0.83 | 0.80 | 0.75 | 0.71 | 0.64 | 0.57 | 0.542 | 0.52 | 0.45 | 0.44 | 0.39 | |
| RT60 | kW | 2,0 | 1,6 | 1,1 | 0,87 | 0,73 | 0,49 | 0,35 | 0,34 | 0,26 | 0,24 | 0,17 | |
| | Nm | 164 | 177 | 178 | 175 | 187 | 165 | 140 | 139 | 128 | 120 | 100 | |
| | eff. | 0.84 | 0.81 | 0.77 | 0.74 | 0.67 | 0.62 | 0.59 | 0.54 | 0.51 | 0.46 | 0.44 | |
| RT70 | kW | 2,7 | 2,1 | 1,4 | 1,1 | 1,0 | 0,71 | 0,55 | 0,46 | 0,36 | 0,32 | 0,24 | |
| | Nm | 216 | 233 | 231 | 225 | 256 | 245 | 220 | 197 | 176 | 167 | 150 | |
| | eff. | 0.85 | 0.82 | 0.78 | 0.75 | 0.68 | 0.63 | 0.60 | 0.56 | 0.51 | 0.48 | 0.45 | |
| RT85 | kW | 4,6 | 3,5 | 2,5 | 1,9 | 1,5 | 1,2 | 0,93 | 0,78 | 0,59 | 0,56 | 0,44 | |
| | Nm | 370 | 400 | 408 | 388 | 400 | 420 | 379 | 353 | 310 | 305 | 275 | |
| | eff. | 0.85 | 0.83 | 0.79 | 0.76 | 0.69 | 0.65 | 0.61 | 0.59 | 0.55 | 0.50 | 0.46 | |
| RT110 | 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 | |

FTA - TA 1400 min⁻¹

TABELLA SELEZIONE SELECTION TABLE AUSWAHLTABELLE

| | FXA – XA 1400 min ⁻¹ | i ₁ = min ⁻¹ | i ₁ | | | | | | | | | |
|--|------------------------------------|---------------------------------------|----------------|------|------|--|--|--|--|--|--|--|
| | | | 3.5 | 6.3 | 8 | | | | | | | |
| | XA63 | kW | 0.50 | 0.23 | 0.18 | | | | | | | |
| | | Nm | 12 | 10 | 9 | | | | | | | |
| | | R ₂ [N] | 390 | 450 | 450 | | | | | | | |
| | XA71 | kW | 1.1 | 0.52 | 0.37 | | | | | | | |
| | | Nm | 26 | 22 | 20 | | | | | | | |
| | | R ₂ [N] | 490 | 560 | 560 | | | | | | | |
| | XA80 | kW | 3.1 | 1.5 | 1.1 | | | | | | | |
| | | Nm | 68 | 65 | 60 | | | | | | | |
| | | R ₂ [N] | 610 | 700 | 700 | | | | | | | |



A₂ = 0.2 x R₂

| i ₁ = 3.5 | i = i ₁ x i ₂ min ⁻¹ | 25 | | 35 | | 53 | | 70 | | 98 | | 140 | | 172 | | 196 | | 245 | | 280 | | 350 | |
|-------------------------------|--|------|------|------|------|------|------|------|------|------|------|------|--|-----|--|-----|--|-----|--|-----|--|-----|--|
| | | 57 | 40 | 27 | 20 | 14 | 10 | 8 | 7 | 6 | 5 | 4 | | | | | | | | | | | |
| | i ₂ | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 | | | | | | | | | | | |
| TA63/40 | kW | 0.55 | 0.40 | 0.28 | 0.20 | 0.19 | 0.13 | 0.11 | 0.10 | 0.06 | 0.05 | 0.03 | | | | | | | | | | | |
| | Nm | 72 | 72 | 70 | 60 | 70 | 64 | 58 | 56 | 42 | 35 | 25 | | | | | | | | | | | |
| | eff. | 0.78 | 0.75 | 0.70 | 0.63 | 0.56 | 0.50 | 0.46 | 0.44 | 0.41 | 0.40 | 0.35 | | | | | | | | | | | |
| TA63/50 TA71/50 | kW | 1.02 | 0.70 | 0.50 | 0.33 | 0.32 | 0.21 | 0.20 | 0.16 | 0.11 | 0.09 | 0.06 | | | | | | | | | | | |
| | Nm | 135 | 127 | 125 | 105 | 125 | 105 | 115 | 100 | 80 | 70 | 50 | | | | | | | | | | | |
| | eff. | 0.79 | 0.76 | 0.70 | 0.66 | 0.59 | 0.52 | 0.50 | 0.46 | 0.42 | 0.40 | 0.35 | | | | | | | | | | | |
| TA63/60 TA71/60 TA80/60 | kW | 1.53 | 1.18 | 0.83 | 0.57 | 0.53 | 0.33 | 0.27 | 0.23 | 0.19 | 0.15 | 0.10 | | | | | | | | | | | |
| | Nm | 205 | 217 | 215 | 192 | 217 | 177 | 170 | 152 | 145 | 110 | 85 | | | | | | | | | | | |
| | eff. | 0.80 | 0.77 | 0.72 | 0.70 | 0.61 | 0.57 | 0.54 | 0.49 | 0.45 | 0.38 | 0.36 | | | | | | | | | | | |
| TA71/70 TA80/70 | kW | 1.96 | 1.48 | 1.08 | 0.77 | 0.72 | 0.50 | 0.43 | 0.36 | 0.30 | 0.26 | 0.19 | | | | | | | | | | | |
| | Nm | 265 | 275 | 285 | 260 | 310 | 270 | 270 | 235 | 225 | 200 | 180 | | | | | | | | | | | |
| | eff. | 0.81 | 0.78 | 0.74 | 0.71 | 0.64 | 0.57 | 0.54 | 0.49 | 0.45 | 0.41 | 0.39 | | | | | | | | | | | |
| TA71/85 TA80/85 | kW | 3.14 | 2.39 | 1.77 | 1.37 | 1.11 | 0.80 | 0.65 | 0.58 | 0.49 | 0.40 | 0.26 | | | | | | | | | | | |
| | Nm | 430 | 450 | 475 | 470 | 475 | 445 | 420 | 410 | 390 | 340 | 250 | | | | | | | | | | | |
| | eff. | 0.82 | 0.79 | 0.75 | 0.72 | 0.64 | 0.58 | 0.55 | 0.53 | 0.48 | 0.44 | 0.40 | | | | | | | | | | | |
| TA80/110 | 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 | | | | | | | | | | | |

| i ₁ = 6.3 | i = i ₁ x min ⁻¹ | 44 | | 63 | | 95 | | 126 | | 176 | | 252 | | 309 | | 353 | | 441 | | 504 | | 630 | |
|-------------------------------|---|------|------|------|------|------|------|------|------|------|------|------|--|-----|--|-----|--|-----|--|-----|--|-----|--|
| | | 32 | 22 | 15 | 11 | 8 | 5.5 | 4.6 | 4 | 3.2 | 2.8 | 2.2 | | | | | | | | | | | |
| | i ₂ | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 | | | | | | | | | | | |
| TA63/40 | kW | 0.35 | 0.25 | 0.17 | 0.12 | 0.11 | 0.08 | 0.06 | 0.06 | 0.05 | 0.04 | 0.03 | | | | | | | | | | | |
| | Nm | 79 | 78 | 74 | 63 | 69 | 63 | 57 | 55 | 53 | 51 | 46 | | | | | | | | | | | |
| | eff. | 0.76 | 0.72 | 0.67 | 0.60 | 0.52 | 0.45 | 0.43 | 0.39 | 0.35 | 0.34 | 0.31 | | | | | | | | | | | |
| TA63/50 TA71/50 | kW | 0.62 | 0.42 | 0.30 | 0.20 | 0.20 | 0.14 | 0.11 | 0.10 | 0.09 | 0.07 | 0.05 | | | | | | | | | | | |
| | Nm | 145 | 133 | 130 | 113 | 138 | 115 | 108 | 100 | 92 | 89 | 72 | | | | | | | | | | | |
| | eff. | 0.78 | 0.74 | 0.67 | 0.63 | 0.55 | 0.48 | 0.45 | 0.42 | 0.36 | 0.36 | 0.31 | | | | | | | | | | | |
| TA63/60 TA71/60 TA80/60 | kW | 0.92 | 0.74 | 0.52 | 0.40 | 0.35 | 0.23 | 0.16 | 0.16 | 0.11 | 0.10 | 0.08 | | | | | | | | | | | |
| | Nm | 218 | 237 | 235 | 230 | 238 | 210 | 160 | 175 | 141 | 130 | 122 | | | | | | | | | | | |
| | eff. | 0.79 | 0.75 | 0.70 | 0.67 | 0.57 | 0.53 | 0.49 | 0.45 | 0.42 | 0.37 | 0.35 | | | | | | | | | | | |
| TA71/70 TA80/70 | kW | 1.2 | 0.95 | 0.68 | 0.50 | 0.44 | 0.32 | 0.26 | 0.23 | 0.18 | 0.17 | 0.12 | | | | | | | | | | | |
| | Nm | 289 | 310 | 310 | 292 | 320 | 295 | 272 | 254 | 221 | 210 | 190 | | | | | | | | | | | |
| | eff. | 0.80 | 0.76 | 0.71 | 0.68 | 0.60 | 0.54 | 0.50 | 0.46 | 0.42 | 0.37 | 0.36 | | | | | | | | | | | |
| TA71/85 TA80/85 | kW | 2.0 | 1.6 | 1.1 | 0.84 | 0.69 | 0.53 | 0.43 | 0.37 | 0.28 | 0.26 | 0.22 | | | | | | | | | | | |
| | Nm | 490 | 526 | 516 | 495 | 501 | 500 | 466 | 449 | 391 | 380 | 345 | | | | | | | | | | | |
| | eff. | 0.80 | 0.77 | 0.72 | 0.69 | 0.60 | 0.55 | 0.51 | 0.50 | 0.46 | 0.42 | 0.36 | | | | | | | | | | | |
| TA80/110 | 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 | | | | | | | | | | | |

FTA - TA
1400 min⁻¹

TABELLA SELEZIONE
SELECTION TABLE
AUSWAHLTABELLE

| i₁ = 8 | i = i ₁ × i ₂ min ⁻¹ | 56 | 80 | 120 | 160 | 224 | 320 | 392 | 448 | 560 | 640 | 800 |
|-------------------------------|--|------|------|------|------|------|------|------|------|------|------|------|
| | | 25 | 18 | 12 | 9 | 6 | 4 | 3.5 | 3 | 2.5 | 2.2 | 1.75 |
| | i ₂ | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
| TA63/40 | kW | 0.32 | 0.23 | 0.16 | 0.11 | 0.11 | 0.08 | 0.06 | 0.05 | 0.03 | 0.03 | 0.02 |
| | Nm | 93 | 89 | 84 | 72 | 85 | 75 | 69 | 59 | 45 | 38 | 27 |
| | eff. | 0.75 | 0.72 | 0.65 | 0.59 | 0.50 | 0.44 | 0.41 | 0.38 | 0.36 | 0.34 | 0.31 |
| TA63/50 TA71/50 | kW | 0.58 | 0.41 | 0.28 | 0.20 | 0.18 | 0.13 | 0.10 | 0.09 | 0.06 | 0.05 | 0.03 |
| | Nm | 170 | 165 | 154 | 130 | 150 | 130 | 120 | 115 | 86 | 73 | 53 |
| | eff. | 0.77 | 0.73 | 0.67 | 0.61 | 0.55 | 0.47 | 0.45 | 0.41 | 0.36 | 0.37 | 0.31 |
| TA63/60 TA71/60 TA80/60 | kW | 0.87 | 0.68 | 0.49 | 0.34 | 0.31 | 0.21 | 0.16 | 0.15 | 0.10 | 0.08 | 0.05 |
| | Nm | 260 | 280 | 275 | 240 | 270 | 235 | 220 | 200 | 155 | 125 | 92 |
| | eff. | 0.78 | 0.75 | 0.69 | 0.65 | 0.57 | 0.51 | 0.50 | 0.43 | 0.41 | 0.37 | 0.35 |
| TA71/70 TA80/70 | kW | 1.26 | 0.88 | 0.63 | 0.44 | 0.48 | 0.28 | 0.24 | 0.20 | 0.16 | 0.12 | 0.05 |
| | Nm | 380 | 365 | 360 | 325 | 440 | 320 | 320 | 275 | 245 | 200 | 145 |
| | eff. | 0.79 | 0.76 | 0.70 | 0.67 | 0.60 | 0.53 | 0.50 | 0.45 | 0.41 | 0.38 | 0.35 |
| TA71/85 TA80/85 | kW | 1.76 | 1.42 | 1.07 | 0.85 | 0.65 | 0.48 | 0.40 | 0.33 | 0.26 | 0.20 | 0.13 |
| | Nm | 530 | 595 | 620 | 620 | 600 | 560 | 550 | 510 | 450 | 360 | 260 |
| | eff. | 0.79 | 0.77 | 0.71 | 0.67 | 0.60 | 0.54 | 0.52 | 0.50 | 0.45 | 0.41 | 0.37 |
| TA80/110 | 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 |

RT/RT
1400 min⁻¹

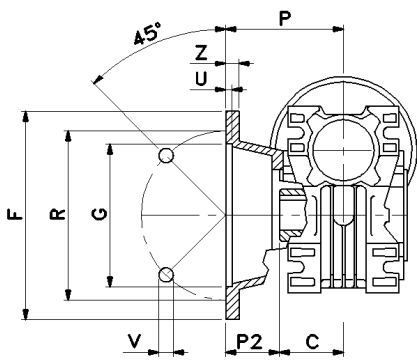
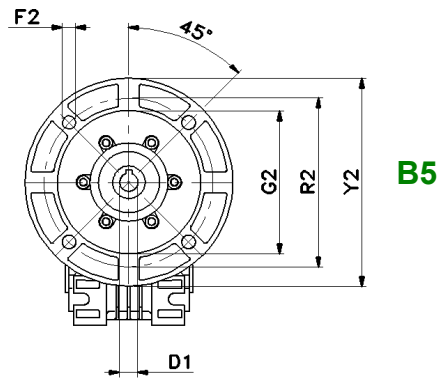
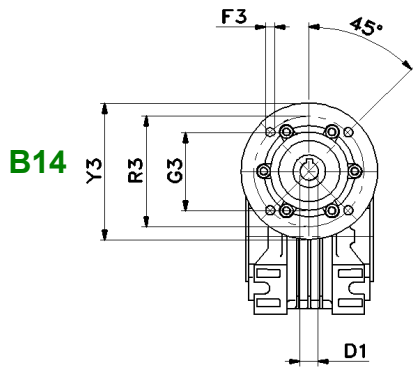
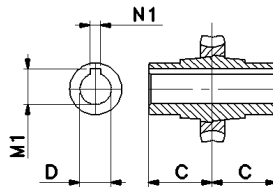
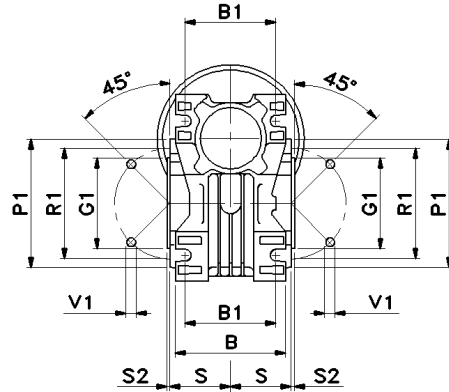
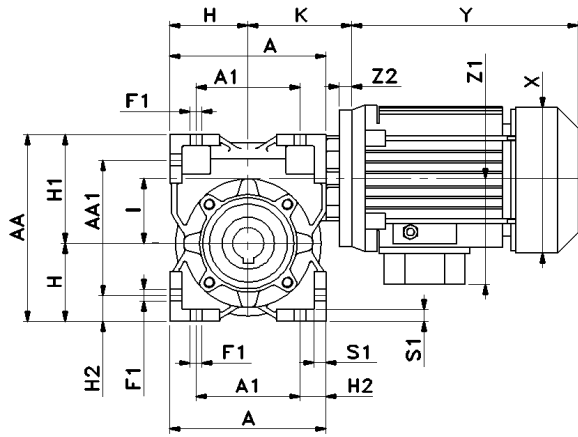
| | i = i ₁ × i ₂ min ⁻¹ | 420 | 560 | 784 | 1120 | 1568 | 2240 | 2800 | 4000 | 5600 | 8000 | 10000 |
|----------|--|------|------|------|------|------|------|------|------|------|------|-------|
| | | 3.3 | 2.5 | 1.8 | 1.25 | 0.9 | 0.6 | 0.5 | 0.35 | 0.25 | 0.17 | 0.14 |
| | i ₁ = | 15 | 20 | 28 | 40 | 56 | 56 | 70 | 100 | 100 | 100 | 100 |
| | i ₂ = | 28 | 28 | 28 | 28 | 28 | 40 | 40 | 40 | 40 | 56 | 80 |
| RT28/28 | W | 32 | 25 | 21 | 16 | 13 | 9 | 8 | 6 | 3 | 1.8 | 1.3 |
| | Nm | 35 | 36 | 36 | 36 | 35 | 30 | 30 | 30 | 16 | 12 | 11 |
| | eff. | 0.38 | 0.37 | 0.32 | 0.30 | 0.25 | 0.21 | 0.20 | 0.18 | 0.14 | 0.12 | 0.13 |
| RT28/40 | W | 75 | 60 | 46 | 34 | 30 | 22 | 22 | 14 | 11 | 5 | 3 |
| | Nm | 85 | 85 | 80 | 80 | 80 | 73 | 76 | 70 | 62 | 41 | 25 |
| | eff. | 0.39 | 0.37 | 0.33 | 0.31 | 0.25 | 0.21 | 0.18 | 0.18 | 0.15 | 0.14 | 0.12 |
| RT28/50 | W | 133 | 106 | 91 | 74 | 60 | 36 | 36 | 28 | 20 | 10 | 6 |
| | Nm | 150 | 150 | 160 | 175 | 160 | 125 | 131 | 147 | 125 | 78 | 49 |
| | eff. | 0.39 | 0.37 | 0.33 | 0.31 | 0.25 | 0.22 | 0.19 | 0.19 | 0.16 | 0.14 | 0.12 |
| RT28/60 | W | 197 | 157 | 132 | 91 | 91 | 67 | 54 | 30 | 32 | 16 | 10 |
| | Nm | 240 | 240 | 245 | 230 | 260 | 245 | 217 | 164 | 195 | 128 | 91 |
| | eff. | 0.42 | 0.40 | 0.35 | 0.33 | 0.27 | 0.23 | 0.21 | 0.20 | 0.16 | 0.14 | 0.13 |
| RT40/70 | W | 298 | 249 | 198 | 157 | 119 | 86 | 72 | 60 | 42 | 24 | 16 |
| | Nm | 380 | 400 | 400 | 395 | 380 | 370 | 345 | 360 | 321 | 201 | 154 |
| | eff. | 0.44 | 0.42 | 0.38 | 0.33 | 0.30 | 0.27 | 0.25 | 0.22 | 0.20 | 0.15 | 0.14 |
| RT40/85 | W | 447 | 372 | 276 | 224 | 180 | 138 | 120 | 90 | 72 | 39 | 26 |
| | Nm | 595 | 625 | 585 | 625 | 610 | 615 | 595 | 565 | 550 | 373 | 264 |
| | eff. | 0.46 | 0.44 | 0.40 | 0.35 | 0.32 | 0.28 | 0.26 | 0.23 | 0.20 | 0.17 | 0.15 |
| RT50/110 | 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 |

MRT, MTA 0.55 - 7.5 kW

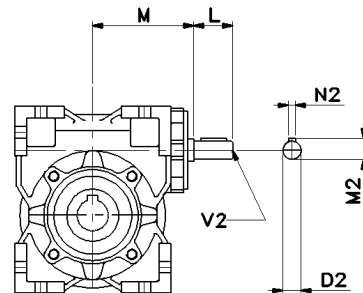
TABELLA SELEZIONE SELECTION TABLE AUSWAHLTABELLE

| 0.55 kW (0.75 HP) | | | | | 1.5 kW (2 HP) | | | | | - Motori : 4 poli, 1400 min ⁻¹ Peso motoriduttore [kg] | | |
|-------------------|-------------------|-----|------|-----|---------------|-----------------|-------------------|-----|------|--|---|--|
| | min ⁻¹ | i = | Nm | SF | kg | | min ⁻¹ | i = | Nm | | SF | kg |
| MTA80/85 | 8.0 | 176 | 396 | 1.3 | 26 | MTA80/110 | 11 | 126 | 915 | 1.2 | 54 | |
| MTA80/85 | 5.5 | 252 | 520 | 1.0 | 26 | MTA80/110 | 8.0 | 176 | 1135 | 1.0 | 54 | |
| MTA80/110 | 4.6 | 309 | 614 | 1.8 | 49 | 2.2 kW (3 HP) | | | | | - Motors : 4 poles, 1400 rpm Weight of motorized unit [kg] | |
| MTA80/110 | 4.0 | 353 | 689 | 1.4 | 49 | MRT70 | 200 | 7 | 92 | 1.8 | | 28 |
| MRT50/110 | 3.3 | 420 | 756 | 1.1 | 49 | MRT70 | 140 | 10 | 129 | 1.4 | 28 | - Motoren: 4 polig, 1400 UpM Gewicht Getriebemotor [kg] |
| MTA80/110 | 3.2 | 441 | 794 | 1.2 | 49 | MRT70 | 93 | 15 | 187 | 1.0 | 28 | |
| MTA80/110 | 2.8 | 504 | 851 | 0.9 | 49 | MRT85 | 70 | 20 | 246 | 1.3 | 33 | |
| MRT50/110 | 2.5 | 570 | 962 | 1.3 | 49 | MRT85 | 50 | 28 | 319 | 1.0 | 33 | |
| MRT50/110 | 1.8 | 784 | 1235 | 1.5 | 49 | MRT110 | 35 | 40 | 438 | 1.6 | 55 | |
| 0.75 kW (1 HP) | | | | | | MRT110 | 29 | 49 | 522 | 1.2 | 55 | |
| MRT50 | 200 | 7 | 31 | 2.4 | 14 | MRT110 | 25 | 56 | 588 | 1.0 | 55 | |
| MRT50 | 140 | 10 | 43 | 1.7 | 14 | MRT110 | 20 | 70 | 704 | 0.9 | 55 | |
| MRT50 | 93 | 15 | 60 | 1.2 | 14 | 3 kW (4 HP) | | | | | | |
| MRT60 | 70 | 20 | 79 | 1.5 | 17 | MRT70 | 200 | 7 | 126 | 1.3 | 30 | |
| MRT60 | 50 | 28 | 102 | 1.4 | 17 | MRT70 | 140 | 10 | 176 | 1.0 | 30 | |
| MRT60 | 35 | 40 | 135 | 1.0 | 17 | MRT85 | 93 | 15 | 255 | 1.1 | 35 | |
| MTA80/60 | 32 | 44 | 178 | 1.2 | 20 | MRT85 | 70 | 20 | 336 | 1.0 | 35 | |
| MRT70 | 29 | 49 | 168 | 1.1 | 19 | MRT85 | 50 | 28 | 435 | 1.5 | 57 | |
| MRT70 | 25 | 56 | 183 | 1.0 | 19 | MRT110 | 35 | 40 | 598 | 1.2 | 57 | |
| MTA80/60 | 22 | 63 | 242 | 1.0 | 20 | MRT110 | 29 | 49 | 712 | 0.9 | 57 | |
| MRT85 | 20 | 70 | 226 | 1.3 | 23 | 4 kW (5.5 HP) | | | | | | |
| MRT85 | 18 | 80 | 246 | 1.1 | 23 | MRT85 | 200 | 7 | 168 | 1.5 | 43 | |
| MTA80/70 | 11 | 126 | 341 | 0.9 | 23 | MRT85 | 140 | 10 | 235 | 1.1 | 43 | |
| MTA80/85 | 8.0 | 176 | 540 | 0.9 | 27 | MRT110 | 93 | 15 | 344 | 1.6 | 65 | |
| MTA80/110 | 5.5 | 252 | 735 | 1.5 | 50 | MRT110 | 70 | 20 | 453 | 1.4 | 65 | |
| MTA80/110 | 4.6 | 309 | 838 | 1.3 | 50 | MRT110 | 50 | 28 | 581 | 1.1 | 65 | |
| MTA80/110 | 4.0 | 353 | 939 | 1.1 | 50 | 5.5 kW (7.5 HP) | | | | | | |
| MRT50/110 | 3.3 | 420 | 1031 | 1.2 | 50 | MRT110 | 200 | 7 | 231 | 2.3 | 79 | |
| MTA80/110 | 3.2 | 441 | 1083 | 0.9 | 50 | MRT110 | 140 | 10 | 326 | 1.6 | 79 | |
| MRT50/110 | 2.5 | 570 | 1289 | 1.0 | 50 | MRT110 | 93 | 15 | 473 | 1.2 | 79 | |
| 1.1 kW (1.5 HP) | | | | | | MRT110 | 70 | 20 | 623 | 1.0 | 79 | |
| MRT60 | 200 | 7 | 45 | 2.5 | 19 | 7.5 kW (10 HP) | | | | | | |
| MRT60 | 140 | 10 | 63 | 2.1 | 19 | MRT110 | 200 | 7 | 315 | 1.7 | 88 | |
| MRT60 | 93 | 15 | 91 | 1.4 | 19 | MRT110 | 140 | 10 | 445 | 1.2 | 88 | |
| MRT60 | 70 | 20 | 116 | 1.1 | 19 | MRT110 | 93 | 15 | 645 | 0.9 | 88 | |
| MRT70 | 50 | 28 | 158 | 1.4 | 21 | 1.5 kW (2 HP) | | | | | | |
| MRT70 | 35 | 40 | 213 | 1.1 | 21 | MRT60 | 200 | 7 | 62 | 1.8 | 20 | |
| MTA80/70 | 32 | 44 | 264 | 1.1 | 25 | MRT60 | 140 | 10 | 86 | 1.5 | 20 | |
| MRT85 | 29 | 49 | 246 | 1.3 | 26 | MRT60 | 93 | 15 | 124 | 1.0 | 20 | |
| MRT85 | 25 | 56 | 286 | 1.1 | 26 | MRT70 | 70 | 20 | 166 | 1.2 | 23 | |
| MTA80/85 | 22 | 63 | 364 | 1.4 | 30 | MRT70 | 50 | 28 | 215 | 1.0 | 23 | |
| MRT110 | 20 | 70 | 352 | 1.8 | 48 | MRT85 | 35 | 40 | 295 | 1.4 | 27 | |
| MRT110 | 18 | 80 | 396 | 1.3 | 48 | MTA80/85 | 32 | 44 | 360 | 1.4 | 31 | |
| MTA80/85 | 15 | 95 | 513 | 1.0 | 30 | MRT85 | 29 | 49 | 336 | 0.9 | 27 | |
| MRT110 | 14 | 100 | 458 | 1.0 | 48 | MRT110 | 29 | 49 | 356 | 1.8 | 50 | |
| MTA80/110 | 11 | 126 | 671 | 1.6 | 52 | MRT110 | 25 | 56 | 401 | 1.5 | 50 | |
| MTA80/110 | 8.0 | 176 | 832 | 1.4 | 52 | MTA80/85 | 22 | 63 | 496 | 1.1 | 31 | |
| MTA80/110 | 5.5 | 252 | 1078 | 1.0 | 52 | MRT110 | 20 | 70 | 480 | 1.3 | 50 | |
| MTA80/110 | 4.6 | 309 | 1229 | 0.9 | 52 | MRT110 | 18 | 80 | 540 | 1.0 | 50 | |
| 1.5 kW (2 HP) | | | | | | MTA80/110 | 15 | 95 | 719 | 1.6 | 54 | |
| MRT60 | 200 | 7 | 62 | 1.8 | 20 | | | | | | | |
| MRT60 | 140 | 10 | 86 | 1.5 | 20 | | | | | | | |
| MRT60 | 93 | 15 | 124 | 1.0 | 20 | | | | | | | |
| MRT70 | 70 | 20 | 166 | 1.2 | 23 | | | | | | | |
| MRT70 | 50 | 28 | 215 | 1.0 | 23 | | | | | | | |
| MRT85 | 35 | 40 | 295 | 1.4 | 27 | | | | | | | |
| MTA80/85 | 32 | 44 | 360 | 1.4 | 31 | | | | | | | |
| MRT85 | 29 | 49 | 336 | 0.9 | 27 | | | | | | | |
| MRT110 | 29 | 49 | 356 | 1.8 | 50 | | | | | | | |
| MRT110 | 25 | 56 | 401 | 1.5 | 50 | | | | | | | |
| MTA80/85 | 22 | 63 | 496 | 1.1 | 31 | | | | | | | |
| MRT110 | 20 | 70 | 480 | 1.3 | 50 | | | | | | | |
| MRT110 | 18 | 80 | 540 | 1.0 | 50 | | | | | | | |
| MTA80/110 | 15 | 95 | 719 | 1.6 | 54 | | | | | | | |

MRT
FRT - RT



F, [FV], {FL}



RT

DIMENSIONI DI INGOMBRO OVERALL DIMENSIONS ABMESSUNGEN

| 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 |
| D _(H7) | 14 | 19 | 24 | 25 | 28 | 32 | 42 |
| D* _(H7) | --- | 18 | 25 | --- | 30 | 35 | --- |
| 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 | 21,8 | 27,3 | 28,3 | 31,3 | 35,3 | 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 |
| 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 |
| 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 |
| 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 |

D* - Foro a richiesta - Bore on demand - Durchmesser auf Anfrage

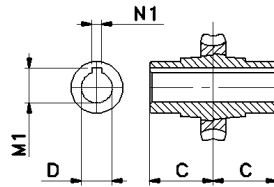
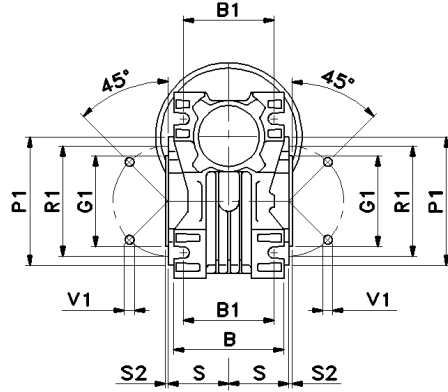
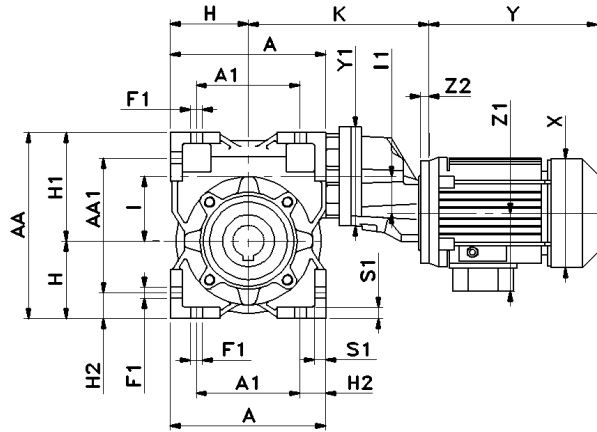
V₁ - 90° per RT28 - 90° for RT28 - 90° nur RT28

(*) - IEC71-B14 (FRS50) - IEC71-B14 (FRS60) - IEC 80-B14 (FRS70) - IEC 90-B14 (FRS85) - IEC100/112-B14 (FRS110)

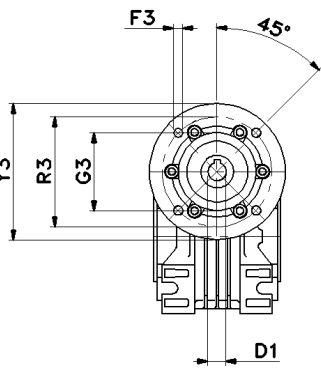
Dimensioni motore: vedi pag. 24 - Motor dimensions: see page 24 - Abmessungen Motor: siehe Seite 24

Dimensioni non impegnative - Not binding dimensions - unverbindliche Abmessungen

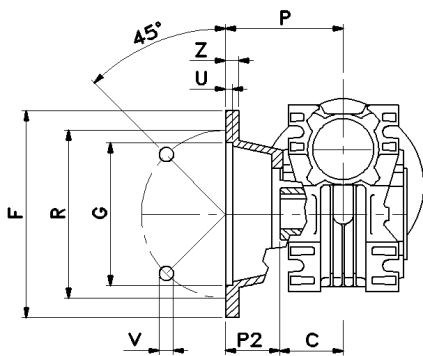
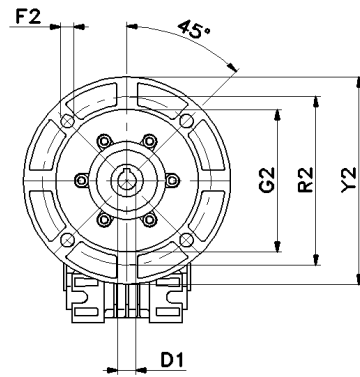
MTA
FTA - TA



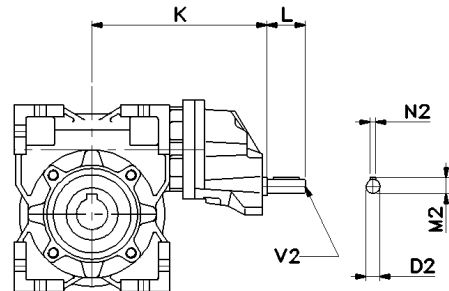
B14



B5



F, [FV], [FL]



TA

DIMENSIONI DI INGOMBRO OVERALL DIMENSIONS ABMESSUNGEN

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

D* - Foro a richiesta

V₁ - 90° per RT28

(*) - IEC71-B14 (FTA 71/....)

Dimensioni motore: vedi pag. 24

Dimensioni non impegnative

- Bore on demand

- 90° for RT28

- Motor dimensions: see page 24

- Not binding dimensions

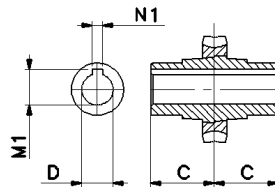
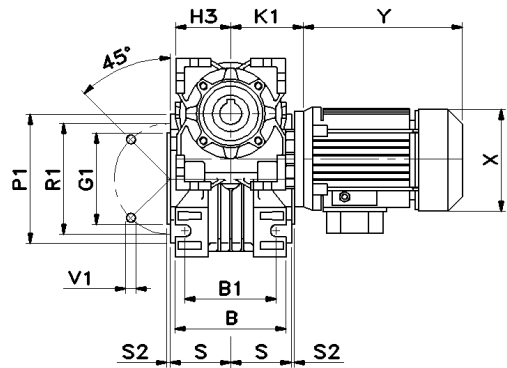
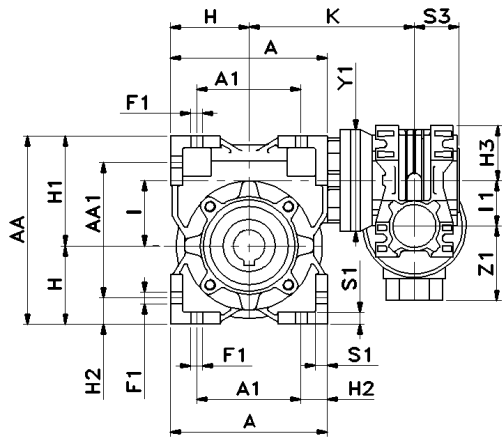
- Durchmesser auf Anfrage

- 90° nur RT28

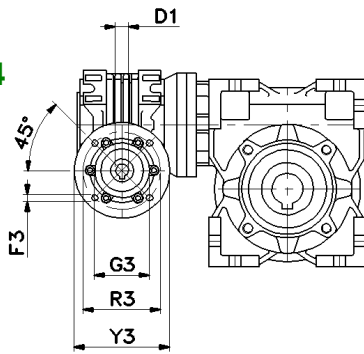
- Abmessungen Motor: siehe Seite 24

- unverbindliche Abmessungen

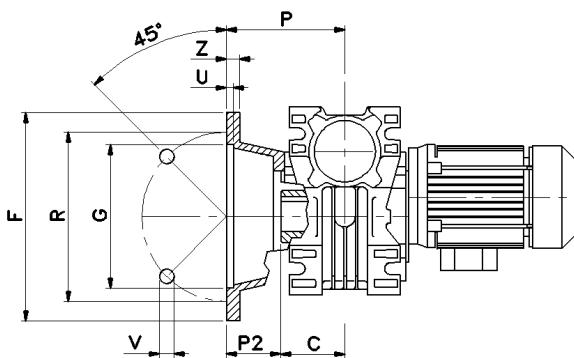
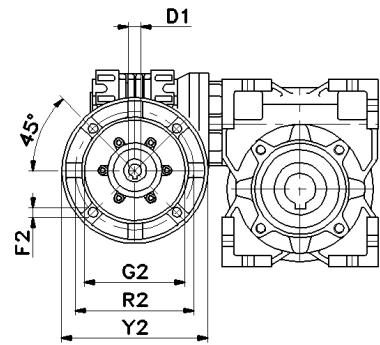
MRT/RT
FRT/RT – RT/RT



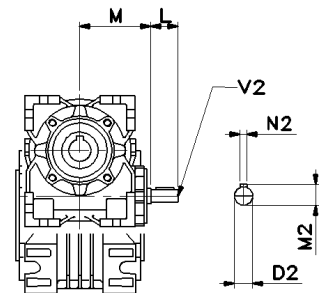
B14



B5



F, [FV], {FL}



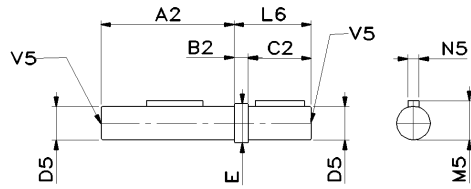
RT/RT

DIMENSIONI DI INGOMBRO
 OVERALL DIMENSIONS
 ABMESSUNGEN

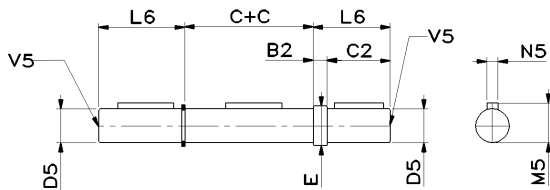
| RT/RT | 28/28 | 28/40 | 28/50 | 28/60 | 40/70 | 40/85 | 50/110 |
|---------------------------------|---------------------------------|-------------------------------------|---------------------------|---------------|-----------|------------|------------|
| A | 80 | 100 | 120 | 144 | 172 | 206 | 255 |
| 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 |
| D (H7) | 14 | 19 | 24 | 25 | 28 | 32 | 42 |
| D* (H7) | --- | 18 | 25 | --- | 30 | 35 | --- |
| 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 | 99,5 | 129 | 145,5 | 143,5 | 164,5 | 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 | 21,8 | 27,3 | 28,3 | 31,3 | 35,3 | 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 |
| D* | - Foro a richiesta | - Bore on demand | - Durchmesser auf Anfrage | | | | |
| V1 | - 90° per RT28 | - 90° for RT28 | - 90° nur RT28 | | | | |
| (*) | - IEC71-B14 (FRS50) | | | | | | |
| Dimensioni motore: vedi pag. 24 | - Motor dimensions: see page 24 | - Abmessungen Motor: siehe Seite 24 | | | | | |
| Dimensioni non impegnative | - Not binding dimensions | - unverbindliche Abmessungen | | | | | |

**ACCESSORI
ACCESSORIES
ZUBEHÖRE**

AS

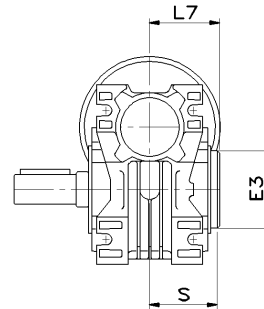


AD

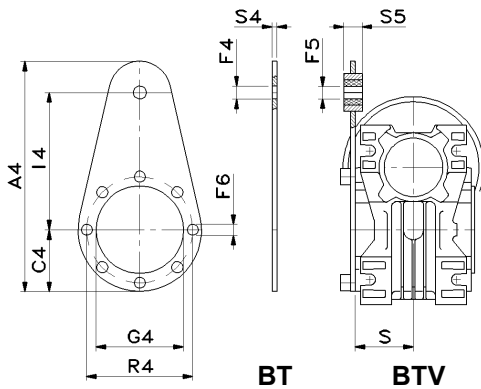


ASC

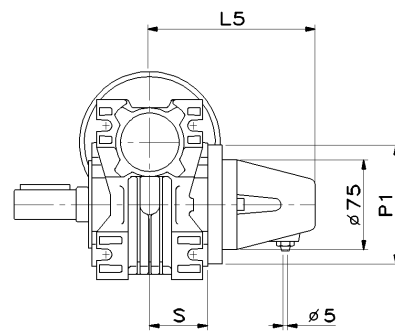
Protezione di sicurezza
per AS
Safety cap for AS
Wellenschutz für AS



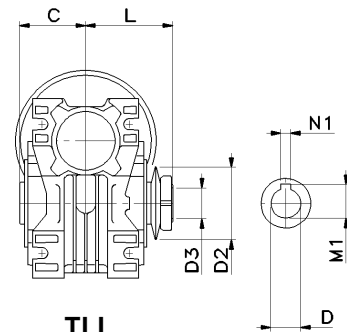
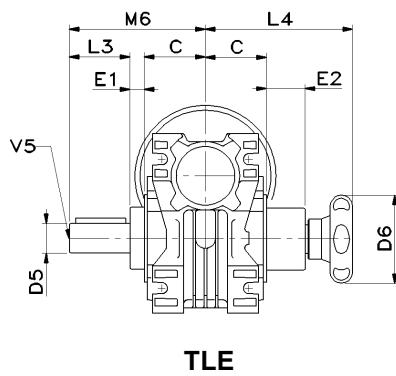
BT



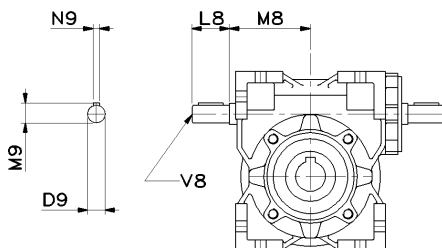
SL



TL



VB



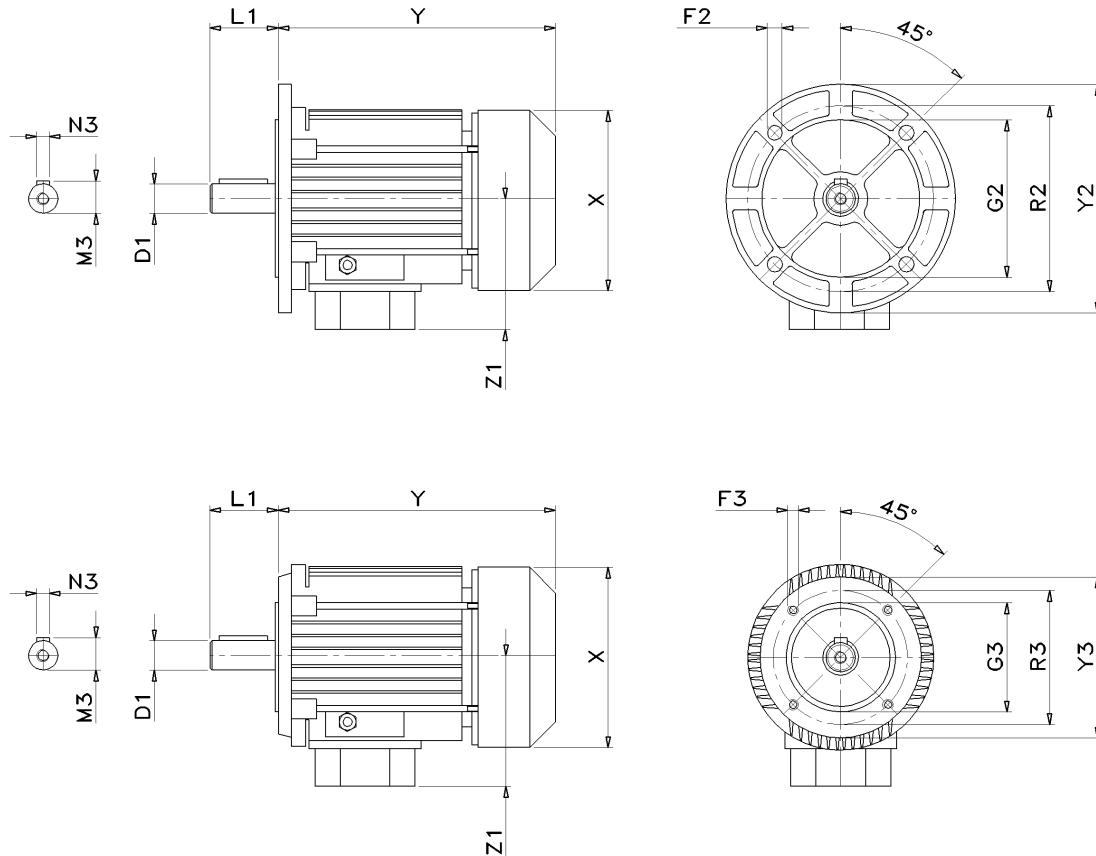
TLI

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

DIMENSIONI DI INGOMBRO OVERALL DIMENSIONS ABMESSUNGEN

| 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 | 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 | 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 | 150 | 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 | 19 | 24 | 25 | 28 | 32 | 42 |
| D ₂ | 40 | 56 | 71 | 71 | 80 | 90 | 125 |
| D ₃ | 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 |
| L | 45 | 61.5 | 77 | 86.5 | 89 | 94 | 109 |
| 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 | 84 | 106.5 | 145 |
| M ₉ | 10.2 | 12.5 | 16 | 22.5 | 22.5 | 27 | 31 |
| N ₉ | 3 | 4 | 5 | 6 | 6 | 8 | 8 |
| V ₈ | M4x10 | M4x10 | M6x15 | M8x20 | M8x20 | M8x20 | M8x20 |

D₅ (...) = Diametro a richiesta - Diameter on demand - Durchmesser auf Anfrage
 * = Chiavetta ribassata - Undersized key - Passfedernut mit geringerer Tiefe



| IEC MOTOR | 56 | 63 | 71 | 80 | 90 S / L | 100 - 112 | 132 S / M |
|--------------------|------|------|------|------|-----------|-----------|-----------|
| D _{1(j6)} | 9 | 11 | 14 | 19 | 24 | 28 | 38 |
| F ₂ | 7 | 9 | 9 | 11 | 11 | 14 | 14 |
| F ₃ | M.5 | M.5 | M.6 | M.6 | M.8 | M.8 | M.10 |
| G _{2(j6)} | 80 | 95 | 110 | 130 | 130 | 180 | 230 |
| G _{3(j6)} | 50 | 60 | 70 | 80 | 95 | 110 | 130 |
| M ₃ | 10.4 | 12.8 | 16.3 | 21.8 | 27.3 | 31.3 | 41.3 |
| N ₃ | 3 | 4 | 5 | 6 | 8 | 8 | 8 |
| R ₂ | 100 | 115 | 130 | 165 | 165 | 215 | 265 |
| R ₃ | 65 | 75 | 85 | 100 | 115 | 130 | 165 |
| X | 110 | 123 | 140 | 159 | 176 | 195 / 219 | 258 |
| Y | 168 | 185 | 215 | 238 | 255 / 280 | 309 / 328 | 368 / 405 |
| Y ₂ | 120 | 140 | 160 | 200 | 200 | 250 | 300 |
| Y ₃ | 80 | 90 | 105 | 120 | 140 | 160 | 200 |
| Z ₁ | 108 | 110 | 121 | 138 | 149 | 160 / 172 | 192 |

Dimensioni non impegnative

- Not binding dimensions

- Durchmesser auf Anfrage

**REVERSIBILITÀ E IRREVERSIBILITÀ
BACK-DRIVING AND SELF-LOCKING
UMKEHRBARKEIT UND 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 selbsthemmend bezeichnet, wenn der Spiralwinkel kleiner ist als der Reibungswinkel (Arkustangens vom Reibungskoeffizient).

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

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

| Elica Lead angle Spiralwinkel | Irreversibilità | Self-locking | Selbsthemmung |
|--|---|---|--|
| $\beta > 20^\circ$ | Reversibilità piena | Full reversibility | Volle Umkehrbarkeit |
| $10^\circ < \beta < 20^\circ$ | Reversibilità elevata | High reversibility | Hohe Umkehrbarkeit |
| $5^\circ < \beta < 10^\circ$ | Reversibilità buona Irreversibilità scarsa | Good reversibility Poor self-locking | Gute Umkehrbarkeit Schwache Selbsthemmung |
| $3^\circ < \beta < 5^\circ$ | Reversibilità scarsa Irreversibilità buona | Poor reversibility Good self-locking | Schwache Umkehrbarkeit Gute Selbsthemmung |
| $1^\circ < \beta < 3^\circ$ | Irreversibilità piena | Full self-locking | Volle Selbsthemmung |

DATI DI DENTATURA E SENSO DI ROTAZIONE GEARING DATA AND DIRECTION OF ROTATION VERZAHNUNGSDATEN UND DREHRICHTUNGEN

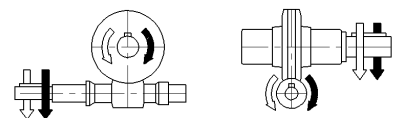
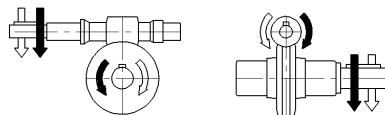
| | i = | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
|--------------|---------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|
| RT28 | m_x | 1.50 | 1.40 | 1.40 | 1.10 | 1.50 | 1.10 | 0.90 | 0.75 | 0.60 | 0.55 | 0.45 |
| | β | 23°11' | 16°41' | 11°18' | 10°23' | 6°06' | 5°14' | 4°19' | 3°03' | 2°27' | 2°37' | 2°20' |
| | z_1 | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| RT40 | m_x | 2.10 | 2.00 | 2.00 | 1.50 | 2.10 | 1.50 | 1.25 | 1.10 | 0.90 | 0.80 | 0.65 |
| | β | 21°36' | 16°41' | 11°18' | 8°31' | 5°39' | 4°17' | 3°48' | 3°25' | 3°01' | 2°51' | 2°38' |
| | z_1 | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| RT50 | m_x | 2.70 | 2.50 | 2.50 | 1.90 | 2.70 | 1.90 | 1.60 | 1.40 | 1.10 | 1.00 | 0.80 |
| | β | 23°52' | 16°41' | 11°18' | 8°59' | 6°19' | 4°31' | 4°14' | 3°42' | 2°44' | 2°51' | 2°17' |
| | z_1 | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| RT60 | m_x | 3.30 | 3.10 | 3.10 | 2.40 | 3.30 | 2.40 | 2.00 | 1.70 | 1.40 | 1.20 | 1.00 |
| | β | 25°33' | 19°0' | 12°55' | 11°18' | 6°49' | 5°42' | 5°11' | 3°55' | 3°38' | 2°51' | 2°51' |
| | z_1 | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| RT70 | m_x | 3.90 | 3.60 | 3.60 | 2.80 | 3.90 | 2.80 | 2.30 | 2.00 | 1.60 | 1.40 | 1.15 |
| | β | 26°51' | 18°38' | 12°40' | 11°18' | 7°12' | 5°42' | 4°48' | 4°05' | 3°16' | 2°51' | 2°38' |
| | z_1 | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| RT85 | m_x | 4.70 | 4.40 | 4.40 | 3.40 | 4.70 | 3.40 | 2.80 | 2.50 | 2.00 | 1.74 | 1.40 |
| | β | 26°05' | 19°09' | 13°02' | 11°18' | 6°58' | 5°52' | 4°52' | 4°45' | 3°48' | 3°14' | 2°40' |
| | z_1 | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| RT110 | m_x | 6.10 | 5.80 | 5.80 | 4.40 | 6.10 | 4.40 | 3.60 | 3.20 | 2.60 | 2.30 | 1.80 |
| | β | 26°22' | 20°43' | 14°09' | 11°18' | 7°04' | 5°42' | 4°43' | 4°29' | 3°54' | 3°39' | 2°34' |
| | z_1 | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

m_x = Modulo assiale
 z_1 = N. principi
 β = Angolo d'elica (dx)
 20° = Angolo di pressione

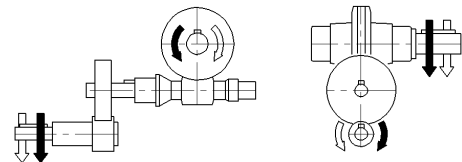
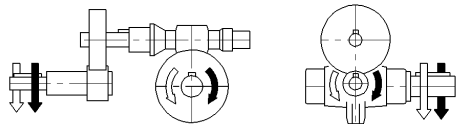
m_x = Axial module
 z_1 = Number of starts
 β = Lead angle (rh)
 20° = Pressure angle

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

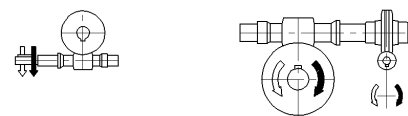
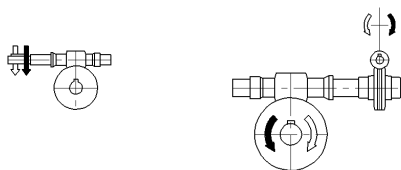
RT



TA

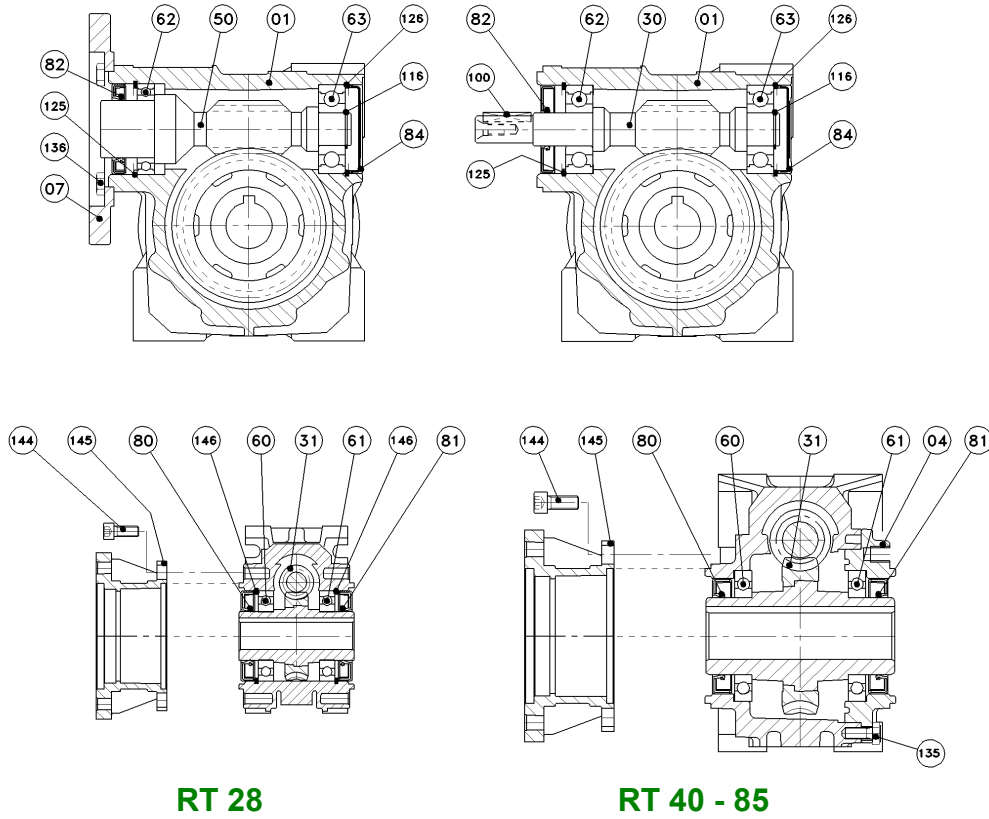


RT/RT



RT 28 - 85

ELENCO PARTI
PART LIST
EINZELTEILE



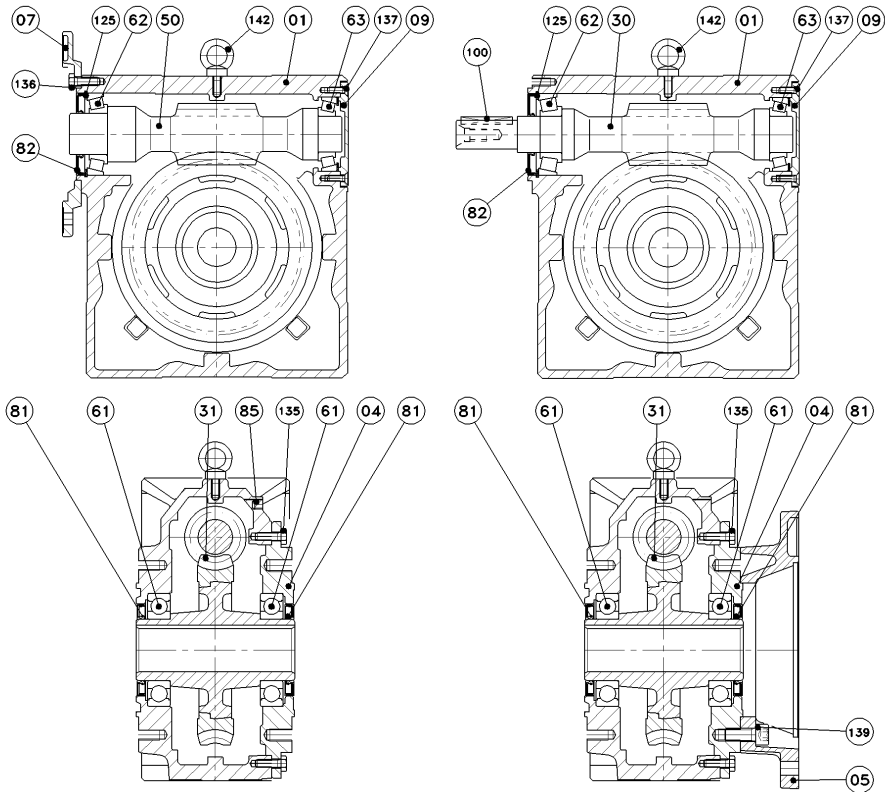
RT 28

RT 40 - 85

| | | | | | |
|-----|-----------------------------------|-----|--------------------------------|-----|----------------------------|
| 1 | Carcassa | 1 | Housing | 1 | Gehäuse |
| 4 | Coperchio Laterale | 4 | Side Cover | 4 | Seitendeckel |
| 7 | Flangia Entrata | 7 | Input Flange | 7 | Eingangsflansch |
| 30 | Vite senza fine RT | 30 | Worm shaft RT | 30 | Schneckenwelle RT |
| 31 | Ruota | 31 | Worm wheel | 31 | Schneckenrad |
| 50 | Vite senza fine FRT | 50 | Worm shaft FRT | 50 | Schneckenwelle FRT |
| 60 | Cuscinetto Ruota | 60 | Worm wheel Bearing | 60 | Lager |
| 61 | Cuscinetto Ruota | 61 | Worm wheel Bearing | 61 | Lager |
| 62 | Cuscinetto Anteriore Vite | 62 | Worm shaft Front Bearing | 62 | Lager |
| 63 | Cuscinetto Posteriore Vite | 63 | Worm shaft Rear Bearing | 63 | Lager |
| 80 | Paraolio Ruota | 80 | Worm wheel Oil seal | 80 | Wellendichtring |
| 81 | Paraolio Ruota/Coperchio Laterale | 81 | Worm wheel/Side-Cover Oil seal | 81 | Wellendichtring |
| 82 | Paraolio Vite | 82 | Worm shaft Oil seal | 82 | Wellendichtring |
| 84 | Tappo RCA Posteriore | 84 | Plain Rear Oil seal | 84 | Abdeckkappe RCA |
| 100 | Chiavetta Vite RT | 100 | Worm shaft Key RT | 100 | Passfeder RT |
| 116 | Seeger Posteriore Vite (e) | 116 | Worm shaft Rear Snap ring (e) | 116 | Seegerring (a) |
| 125 | Seeger Anteriore Vite | 125 | Worm shaft Front Snap ring | 125 | Seegerring |
| 126 | Seeger Posteriore Vite (i) | 126 | Worm shaft Rear Snap ring (i) | 126 | Seegerring (i) |
| 135 | Vite Coperchio Laterale | 135 | Side Cover Screw | 135 | Schraube |
| 136 | Vite Flangia Entrata | 136 | Input Flange Screw | 136 | Schraube Eingangsflansch |
| 144 | Vite Flangia Uscita F | 144 | Output Flange F Screw | 144 | Schraube Ausgangsflansch F |
| 145 | Flangia Uscita | 145 | Output Flange | 145 | Ausgangsflansch |
| 146 | Seeger Ruota | 146 | Worm wheel Snap ring | 146 | Seegerring |

RT 110

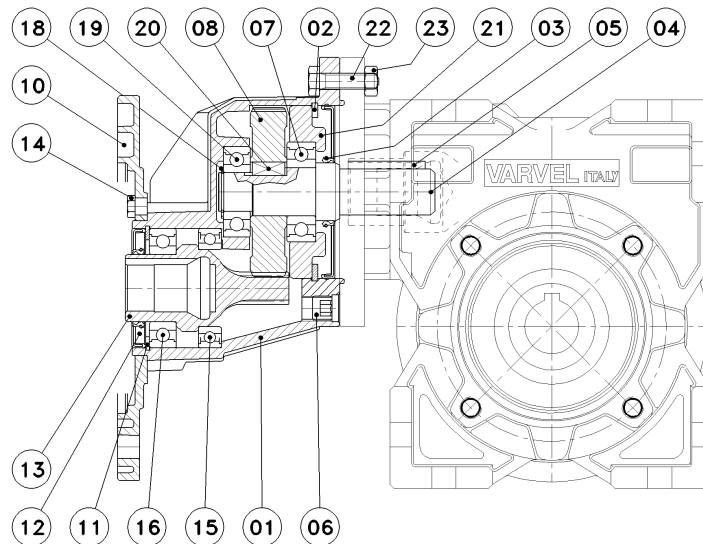
ELENCO PARTI
PART LIST
EINZELTEILE



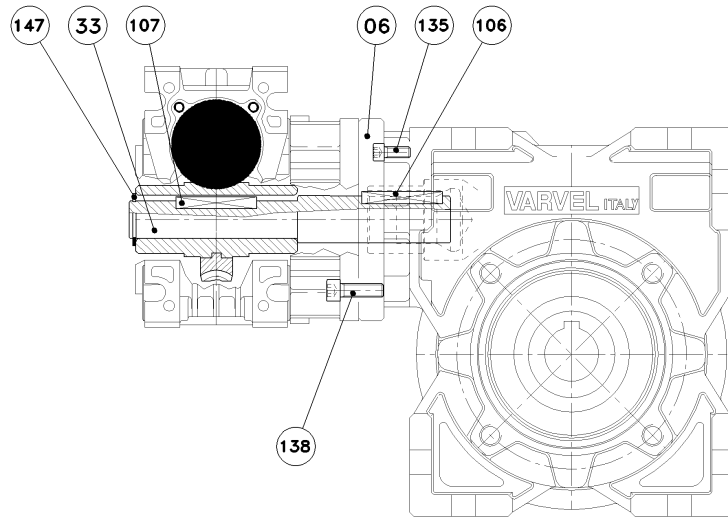
| | | | | | |
|-----|----------------------------|-----|--------------------------------|-----|----------------------------|
| 1 | Carcassa | 1 | Housing | 1 | Gehäuse |
| 4 | Coperchio Laterale | 4 | Side Cover | 4 | Seitendeckel |
| 5 | Flangia Uscita | 5 | Output Flange | 5 | Ausgangsflansch |
| 7 | Flangia Entrata | 7 | Input Flange | 7 | Eingangsflansch |
| 9 | Coperchio Posteriore Vite | 9 | Worm shaft Rear Cover | 9 | Hintere Abdeckung |
| 30 | Vite RT | 30 | Worm shaft RT | 30 | Schneckenwelle RT |
| 31 | Ruota | 31 | Worm wheel | 31 | Schneckenrad |
| 50 | Vite FRT | 50 | Worm shaft FRT | 50 | Schneckenwelle FRT |
| 61 | Cuscinetto Ruota | 61 | Worm wheel Bearing | 61 | Lager |
| 62 | Cuscinetto Anteriore Vite | 62 | Worm shaft Front Bearing | 62 | Lager |
| 63 | Cuscinetto Posteriore Vite | 63 | Worm shaft Rear Bearing | 63 | Lager |
| 81 | Paraolio Ruota | 81 | Worm wheel Oil seal | 81 | Wellendichtring |
| 82 | Paraolio Vite | 82 | Worm wheel Oil seal | 82 | Wellendichtring |
| 100 | Chiavetta Entrata RT | 100 | Worm shaft Key RT | 100 | Passfeder RT |
| 125 | Seeger Anteriore Vite (e) | 125 | Worm shaft Front Snap ring (e) | 125 | Seegerring (a) |
| 135 | Vite Coperchio Laterale | 135 | Side Cover Screw | 135 | Schraube |
| 136 | Vite Flangia Entrata | 136 | Input Flange Screw | 136 | Schraube Eingangsflansch |
| 137 | Vite Coperchio Posteriore | 137 | Worm shaft Rear Cover Screw | 137 | Schraube |
| 139 | Vite Flangia Uscita F | 139 | Output Flange F Screw | 139 | Schraube Ausgangsflansch F |
| 142 | Golfare | 142 | Eyebolt | 142 | Aufhängeöse |
| | | | | | |
| | | | | | |

TA 63 - 80

ELENCO PARTI
PART LIST
EINZELTEILE



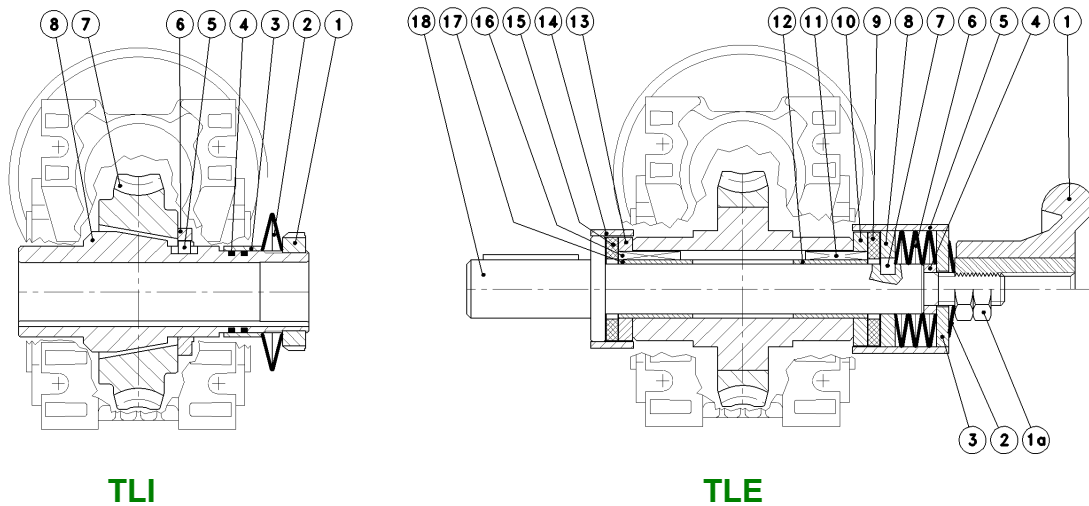
| | | | | | |
|----|-------------------------------|----|----------------------------|----|--------------------------|
| 1 | Carcassa | 1 | Housing | 1 | Gehäuse |
| 2 | Seeger (i) | 2 | Snap ring (i) | 2 | Seegerring (i) |
| 3 | Paraolio Uscita | 3 | Output Oil seal | 3 | Wellendichtring |
| 4 | Albero Uscita | 4 | Output Shaft | 4 | Ausgangswelle |
| 5 | Chiavetta Albero Uscita | 5 | Output Shaft Key | 5 | Passfeder Ausgangswelle |
| 6 | Tappo | 6 | Plug | 6 | Verschlusschraube |
| 7 | Cuscinetto Anteriore Ruota | 7 | Wheel Front Bearing | 7 | Lager |
| 8 | Ruota | 8 | Wheel | 8 | Stirnrad |
| 10 | Flangia Entrata | 10 | Input Flange | 10 | Eingangsflansch |
| 11 | Seeger Entrata (i) | 11 | Input Snap ring (i) | 11 | Seegerring (i) |
| 12 | Paraolio Entrata | 12 | Input Oil seal | 12 | Wellendichtring |
| 13 | Pignone | 13 | Pinion | 13 | Eingangsritzel |
| 14 | Vite Flangia Entrata | 14 | Input Flange Screw | 14 | Schraube Eingangsflansch |
| 15 | Cuscinetto Posteriore Pignone | 15 | Pinion Rear Bearing | 15 | Lager |
| 16 | Cuscinetto Anteriore Pignone | 16 | Pinion Front Bearing | 16 | Lager |
| 18 | Seeger Albero Uscita (e) | 18 | Output Shaft Snap ring (e) | 18 | Seegerring (a) |
| 19 | Cuscinetto Posteriore Ruota | 19 | Wheel Rear Bearing | 19 | Lager |
| 20 | Chiavetta Ruota | 20 | Wheel Key | 20 | Passfeder |
| 21 | Supporto | 21 | Holder | 21 | Abstützung |
| 22 | Vite | 22 | Screw | 22 | Schraube |
| 23 | Dado | 23 | Nut | 23 | Mutter |
| | | | | | |



| | | | | | |
|-----|--------------------------------|-----|--------------------------------------|-----|-----------------------------|
| 6 | Flangia Entrata 2° Riduttore | 6 | 2 nd Gearbox Input Flange | 6 | Eingangsflansch 2. Getriebe |
| 33 | Albero Collegamento | 33 | Adapter Shaft | 33 | Einsteckwelle |
| 106 | Chiavetta Entrata 2° Riduttore | 106 | 2 nd Gearbox Input Key | 106 | Passfeder 2. Getriebe |
| 107 | Chiavetta Uscita 1° Riduttore | 107 | 1 st Gearbox Output Key | 107 | Passfeder 1. Getriebe |
| 135 | Vite | 135 | Screw | 135 | Schraube |
| 138 | Vite | 138 | Screw | 138 | Schraube |
| 147 | Seeger (e) | 147 | Snap ring (e) | 147 | Seegerring (a) |
| | | | | | |
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TLI - TLE
28 - 110

ELENCO PARTI
PART LIST
EINZELTEILE



TLI

| | | | | | |
|---|--------------------|---|---------------------|---|-------------------|
| 1 | Ghiera | 1 | Ring Nut | 1 | Ringmutter |
| 2 | Molla a Tazza | 2 | Belville Spring | 2 | Tellerfeder |
| 3 | Bussola | 3 | Bush | 3 | Hülse |
| 4 | Guarnizione OR | 4 | Oil seal OR | 4 | Dichtung OR |
| 5 | Linguetta | 5 | Key | 5 | Passfeder |
| 6 | Anello | 6 | Thrust Collar | 6 | Druckring |
| 7 | Ruota | 7 | Worm wheel | 7 | Schneckenrad |
| 8 | Albero Uscita Cavo | 8 | Hollow Output Shaft | 8 | Ausgangshohlwelle |

TLE

| | | | | | |
|--------|-------------------------------|--------|---------------------------------|--------|--------------------------|
| 1 / 1a | Volantino / Dado e Controdado | 1 / 1a | Locking Knob / Nut and Lock Nut | 1 / 1a | Handrad / Einstellmutter |
| 2 | Molla a Tazza | 2 | Belville Spring | 2 | Tellerfeder |
| 3 | Anello | 3 | Locking Ring | 3 | Druckring |
| 4 | Spessore di Regolazione | 4 | Adjustment Shim | 4 | Ausgleichsring |
| 5 | Protezione Posteriore | 5 | Rear Cover | 5 | hintere Abdeckung |
| 6 | Molla a Tazza | 6 | Belville Spring | 6 | Tellerfeder |
| 7 | Linguetta | 7 | Key | 7 | Passfeder |
| 8 | Anello di Spinta | 8 | Thrust Collar | 8 | Druckring |
| 9 | Frizione Posteriore | 9 | Rear Friction Ring | 9 | hinterer Reibring |
| 10 | Anello di spinta | 10 | Thrust Collar | 10 | Druckring |
| 11 | Linguetta | 11 | Key | 11 | Passfeder |
| 12 | Boccola Posteriore | 12 | Rear Bush | 12 | hintere Hülse |
| 13 | Anello di Spinta | 13 | Thrust Collar | 13 | Druckring |
| 14 | Protezione Anteriore | 14 | Front Cover | 14 | vordere Abdeckung |
| 15 | Frizione Anteriore | 15 | Front Friction Ring | 15 | vorderer Reibring |
| 16 | Linguetta | 16 | Key | 16 | Passfeder |
| 17 | Boccola Anteriore | 17 | Front Bush | 17 | vordere Hülse |
| 18 | Albero Uscita Semplice | 18 | Single Output Shaft | 18 | Ausgangswelle, einseitig |

Estratto delle ISTRUZIONI D'USO E MANUTENZIONE
 Abstract of OPERATION AND MAINTENANCE INSTRUCTIONS
 Zusammenfassung der BETRIEBS- UND WARTUNGSANWEISUNGEN

I riduttori e i variatori di velocità non ricadono nel campo d'applicazione della Direttiva Macchine, art.1(2) e non possono essere messi in servizio finché la macchina nella quale devono essere incorporati, sia stata dichiarata conforme all'art. 4(2), all. II(B) delle Direttive Macchine 98/37/CEE/22.6.98 e, solo per l'Italia, al DL 459/24.7.96.

Installazione

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

Funzionamento

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

Manutenzione

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

Movimentazione

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

Verniciatura

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

Conservazione prolungata a magazzino

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

Gestione Ambientale del prodotto

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

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

Variable speed and reduction gearboxes are not part of the field of application of the Machinery Directive, art.1(2), and they must not be put into service until the machinery into which they are to be incorporated, has been declared in conformity with the provision of art.4(2), annex II(B) of Machinery Directives 98/37/CEE/22.6.98 and for Italy only, of DL 459/24.7.96.

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 run the unit 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 3 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 deliver to authorized centres for metal object collection;
- oils and lubricants drained from the units to deliver 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.

Varvel-Getriebe und Variatoren fallen nicht unter den Geltungsbereich der Maschinenrichtlinien, Artikel 1 (2): Sie dürfen jedoch nicht in Betrieb gesetzt werden, bevor sich nicht Maschinen, in die sie eingebaut werden, mit Artikel 4 (2), Anhang II (B) der Maschinenrichtlinien 98/37/CEE/22.6.98, und (nur für Italien) DL 459/24.07.96, in Übereinstimmung befinden.

Aufstellung

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

Inbetriebnahme

Die Antriebseinheit kann in beiden Drehrichtungen eingesetzt werden. Die Einheit müsst sofort angehalten werden, wenn ein unzulässiger Lauf oder unerwartete Geräusche auftreten. Das fehlerhafte Teil ist zu ersetzen oder die Einheit ist zur Überprüfung einzuschicken. Falls das fehlerhafte Teil nicht ersetzt wird, kann dies zu weiteren Schäden an anderen Bauteilen führen, was eine Feststellung der Ursachen sehr schwierig machen kann.

Wartung

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

Handhabung und Transport

Beim Heben und Transport ist auf standsichere Lage und sorgfältige Befestigung geeigneter Hebevorrichtungen 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.