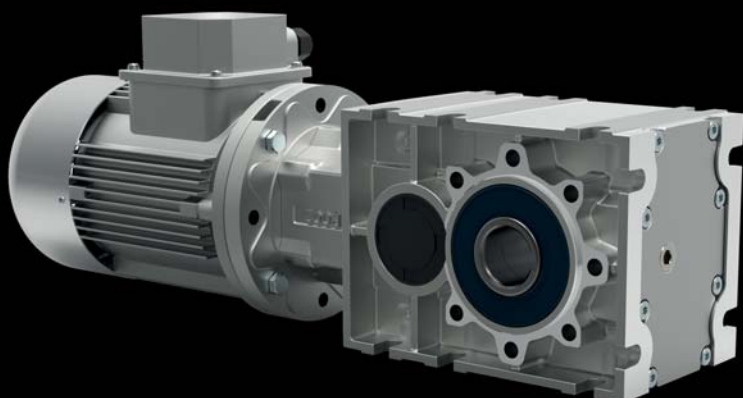


VARVEL®

MOTION CONTROL SINCE 1955

technology made in Italy



IT

GB

DE

RO-2



Tecnologia Made in Italy

IT

Dal 1955 Varvel progetta e realizza riduttori e variatori per applicazioni fisse di piccola e media potenza. Partner affidabile nella produzione e vendita di organi di trasmissione grazie a un elevato livello di servizio, offre anche soluzioni personalizzate operando nel rispetto dei valori dell'impresa socialmente responsabile. Modularità e flessibilità guidano la progettazione dei prodotti Varvel nella realizzazione di kit comuni a tutte le famiglie di riduttori, agevolando così l'attività di distributori e rivenditori che possono configurare in pochi minuti il prodotto richiesto dal singolo cliente.

Technology Made in Italy

GB

Since 1955 Varvel has been making speed reducers and variators for light industry applications. Reliable partner in power transmission equipment offers also customized solutions always according to a socially responsible company values. Modularity and flexibility lead Varvel products by a unique kit form, common to all gearbox series. This feature allows distributors an easier job to set up required products in few minutes.

Technologie Made in Italy

DE

Seit 1955 plant und stellt Varvel Getriebe und Verstellgetriebe für feste Kleinleistungsanwendungen her. Dank dem hohen Dienstniveau ist Varvel ein zuverlässiger Partner für Herstellung und Verkauf von Getriebewerkteilen und bietet massgeschneiderte Lösungen an, in Verbindung mit sozialverträglicher Handlungsweise. Modularität und Flexibilität sind Kennzeichen für Varvel-Produkte. Die Firma produziert Teile, die sich für alle Getriebetypen eignen. Distributoren und Verkäufer können somit den Kundenanforderungen gerecht werden.



Technologie Made in Italy

FR

Depuis 1955 Varvel projette et réalise réducteur et variateur mécaniques dédiés à la petite et moyenne industrie. Partner fiable dans la production et la vente d'organes de transmission grâce à un très bon niveau de service, Varvel offre également des solutions personnalisées tout en respectant les valeurs de l'entreprise socialement responsable. Modularité et flexibilité guide la conception des produits Varvel en réalisant des kits communs pour toutes les familles de réducteurs, favorisant ainsi l'activité des distributeurs et revendeurs qui peuvent réaliser en quelques minutes le produit sur demande du client.

Tecnologia Made in Italy

PT

Desde 1955 que a Varvel projecta e fabrica redutores e variadores para aplicações de pequena e média potências. Parceiro de confiança na produção e comercialização de equipamentos de transmissão de potência graças a um elevado nível de serviço, oferece ainda soluções personalizadas operando sempre no respeito pelos valores da empresa socialmente responsável. Modularidade e flexibilidade guiam os projectos dos produtos Varvel através da realização de um kit único comum a todas as famílias de redutores. Esta característica permite aos distribuidores montarem facilmente os produtos pretendidos em poucos minutos.

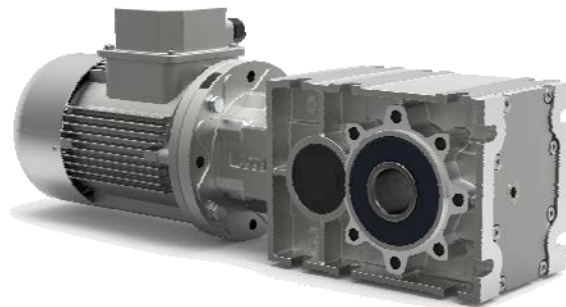
Tecnología Made in Italy

ES

Desde 1955 Varvel proyecta y fabrica reductores y variadores de velocidad para aplicaciones de pequeña y mediana potencia. Socio fiable para la producción y venta de órganos de transmisión gracias a un elevado nivel de servicio, ofrece también soluciones personalizadas actuando con el respeto a los valores de la empresa socialmente responsable. Modularidad y flexibilidad guían el diseño de los productos Varvel mediante la realización de kits comunes a toda la familia de reductores, facilitando así la gestión de los distribuidores y revendedores que pueden configurar en pocos minutos el producto solicitado por cada cliente.

RO-2

**RIDUTTORI AD ASSI ORTOGONALI A DUE COPPIE
TWO-STAGE BEVEL/HELICAL GEARBOXES
ZWEISTUFIGE KEGELSTIRNRADGETRIEBE**



RO-2 Riduttori - Gearboxes - Getriebe

Descrizione - Description - Beschreibung

Serie RO2	Series RO2	Baureihe RO2.
<p>I riduttori ortogonali a due coppie. Serie RO-2. sono costruiti con carcassa monolitica. ingranaggi conici all'entrata ed una coppia cilindrica in uscita per sopportare importanti carichi esterni.</p> <p>La Serie RO-2 è concepita secondo le norme di progettazione ISO con l'ausilio di analisi strutturale per verifica della deformata e dello stress.</p> <p>La robusta struttura monolitica non subisce deformazioni sotto effetto della coppia di funzionamento e dei carichi esterni con positivi risultati sulle superfici di tenuta.</p> <p>La versione pendolare permette la conversione in forma flangiata B5 applicando semplicemente una delle diverse flange di uscita disponibili.</p> <p>Diverse dimensioni e tipi di alberi di uscita (cavo con chiavetta, cavo con calettatore, cavo scanalato e pieno con una o due sporgenze) sono disponibili per la più ampia possibilità di applicazioni.</p> <p>La serie RO-2 è prevista in 4 grandezze. 20 rapporti e momenti torcenti fra 120 e 550 Nm.</p>	<p>The two-stage bevel/helical gearboxes Series RO-2. are made of compact and robust one-piece-cast housing. input bevel gears and output helical stage to withstand important external loads.</p> <p>RO-2 Series is designed according to latest ISO engineering specifications with the help of computer aided structural analysis for displacement and stress field.</p> <p>The one-piece framework does not deflect under the effect of torque and external loads with effective results on sealing surfaces.</p> <p>A shaft mount version allows the flange mount B5 conversion by simply fitting one of the many output flanges available.</p> <p>Various dimensions and types of output shafts (hollow with through keyway, hollow with shrink disk, hollow splined and solid with single or double end) are available for the majority of applications.</p> <p>RO-2 Series is made in 4 sizes. 20 reduction ratios and output torques between 120 and 550 Nm.</p>	<p>Die zweistufigen Kegelstirnradgetriebe der Serien RO-2. wurden aus einem kompakten und robusten einteiligen Gussgehäusen mit Eingangs- Kegelradstufe und Ausgangs-Stirnradstufe konzipiert. um erhebliche externen Belastungen standzuhalten.</p> <p>Die RO-2-Serie ist nach den neuesten ISO-technischen Spezifikationen. mit Unterstützung einer computergestützten Strukturanalyse zur Verformung und Kräfteeinwirkung. entwickelt worden.</p> <p>Das einteilige Gehäuse wird weder durch die Einwirkung des Drehmoments noch der Wirkkraft externer Lasten in Bezug der Dichtflächen beeinflusst.</p> <p>Die Aufsteckversion ermöglicht eine Umsetzung in B5-Flanschbefestigung durch einen einfachen Anbau der vielen unterschiedlichen Abtriebsflansche.</p> <p>Verschiedene Größen und Arten an Abtriebswellen (Hohlwelle mit Nut, mit Schrumpfscheibe oder mit Keilprofil und als Vollwelle als einseitige oder doppelseitige Ausführung) stehen für die Mehrzahl der Anwendungen zur Verfügung.</p> <p>Die RO-2-Serie wird in 4 Größen. 20 Unter-setzungen und Abtriebsdrehmomente zwischen 120 und 550 Nm gefertigt</p>



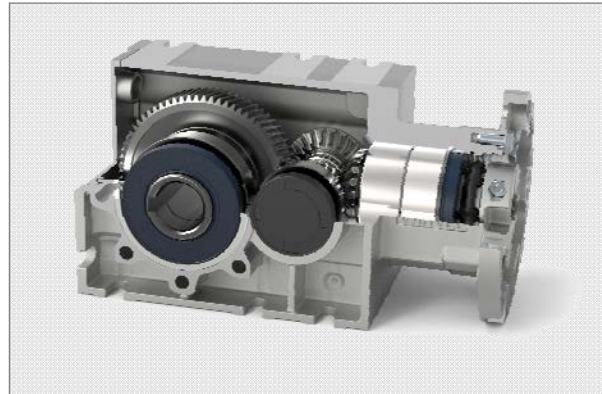
Getriebe - Gearboxes - Riduttori RO-2

Beschreibung - Description - Descrizione

Serie RO2

Series RO2

Baureihe RO2.



Carcassa multiuso

Montaggio con Piedi e Piedi/Flangia
Unica carcassa con 2 coppie di ingranaggi

Carcasse e Coperchi

Alluminio in pressofusione

Entrata

Flange NEMA e IEC
con giunto elastico
o foro tradizionale con chiavetta

Ingranaggi

Acciaio legato
Cementato e temprato
Profilo dei denti rettificato/sbarbato

Paraoli

Nitrile Butadiene Rubber - NBR
come standard;
Viton e Silicone a richiesta.

Cuscinetti

A sfera o a rulli
Secondo le grandezze
e caratteristiche tecniche.

Uscita

Alberi metrici;
in pollici a richiesta.

Lubrificazione

Olio Sintetico di lunga durata.
Gradazione ISO VG 320.
Senza tappi.
Riempimento in fabbrica.

Multipurpose Housing

Foot & Foot/Flange Mountings
One housing for 2 gear-stages

Housing & Covers

Aluminium die cast

Input

NEMA and IEC motor adapters
with universal elastic coupling
or conventional bore and keyway.

Gearing

Alloy steel
Case hardened
Profile ground or shaved

Oil seals

NBR - Nitrile Butadiene Rubber
as standard;
Viton and Silicone on demand

Bearings

Ball or roller types
according to sizes
and technical requirements.

Output

Solid shafts.
metric and imperial

Lubrication

Synthetic long-life
Grade ISO VG 320.
No oil/vent plugs.
In-house filling

Mehrzweckgehäuse

Montage mit Fuß und Fuß/Flansch
einheitliches Gehäuse für 2-Stufen

Gehäuse u. Deckeln

Aluminium-Druckguß

Eingang

Flansche in NEMA- u. IEC-Ausführung
mit elastischer Kupplung oder
Hochwelle mit Paßfederverbindung

Verzahnungen

Stahl 20MnCr5
Vergütet u. gehärtet
Zahnprofil geschliffen u. geschabt

Wellendichtringe

Nitributadien NBR
als Standard
Viton u. Silikon auf Anfrage

Lager

Kegel- oder Rollenlager
nach die Größen
u. technische Spezifikationen

Ausgang




metrische Wellen;
Zollmaß auf Anfrage.

Schmierung

Langzeitschmiermittelfüllung:
ISO VG 320. ohne zusätzliche
Verschlußschrauben.
Füllung im Werk

RO-2 Riduttori - Gearboxes - Getriebe

Descrizione - Description - Beschreibung

	SPECIFICHE GENERALI	GENERAL SPECIFICATIONS	ALLGEMEINE EIGENSCHAFTEN
Gamma Range Bereich	4 grandezze 20 rapporti in 2 coppie 550 Nm coppia uscita max.	4 sizes 20 ratios in 2 stages 550 Nm max. output torque	4 Baugrößen 30 Übersetzungen 2-stufig 550 Nm max. Abtriebsmoment
Dimensionamento Sizing Auslegung	Secondo ISO6336 / DIN3990. Vita media 10.000 ore con fattore di servizio SF1	According to ISO6336/DIN3990. 10.000 hrs average lifetime with service factor SF1	Laut ISO6336/DIN3990. 10.000 Stunden Lebensdauer für Verzahnung und Lagerung bei ei-nem Betriebsfaktor SF1
Carcassa. Coperchi Housing. Covers Gehäuse. Flansche	Pressofusione in alluminio	Pressure die cast aluminium	Aluminium-Druckguss
Entrata con giunto G Coupling G input Kupplungseingang G	Pressofusione in alluminio Acciaio su richiesta	Pressure die cast aluminium Steel on demand	Aluminium-Druckguss für Größen Stahl auf Anfrage
Parti dentate Toothed parts Verzahnung	Acciaio cmt / tmp Evolvente rettificato o sbarbato Coppie coniche rodate	Steel case hardened Tooth profile ground or shaved Run-in bevel gears	Stahl einsatzgehärtet Zahnprofil geschliffen Kegelräder eingelaufen
Alberi & Linguetta Shafts & Keys Wellen	Acciaio Alberi h6 - Fori E8 Linguetta secondo DIN6885 B1	Steel Shafts h6 - Bores E8 Keys according to DIN6885 B1	Stahl 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 NBR - Nitril-Butadiene Rubber con secondo labbro parapolvere secondo DIN 3760 Tipo FKM - Fluoro-elastomero Viton a richiesta	Type NBR - Nitril-Butadiene Rubber with additional anti-dust lip according to DIN 3760 Type FKM - Fluor elastomer Viton on demand	Typ NBR - Nitril-Butadien Rubber mit zusätzlicher Staublippe entsprechend DIN 3760 Typ FKM - Fluoroelastomer Viton auf Anfrage
Lubrificante Lubricant Schmierung	Olio sintetico a lunga durata Gradazione ISO VG 320	Synthetic long-life oil Grade ISO VG 320	Synthetisches Getriebeöl ISO VG 320 als Langzeit-Füllung
Verniciatura a forno Powder coating Gehäuselackierung	Alluminio naturale	Natural aluminium	Aluminium Natur
ATEX	A richiesta  II 2 GD ck IP66 T _{max} =135 °C	On demand  II 2 GD ck IP66 T _{max} =135 °C	Auf Anfrage  II 2 GD ck IP66 T _{max} =135 °C

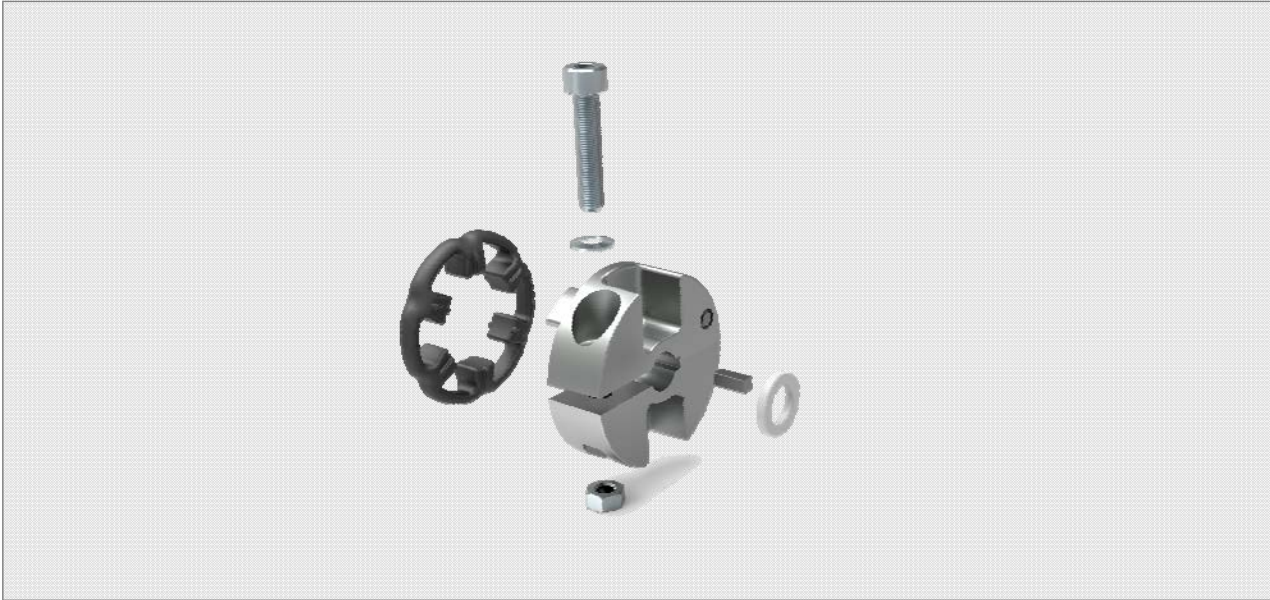
Getriebe - Gearboxes - Riduttori RO-2

Abkürzungen - Symbols - Simboli

D [mm]	Diametro primitivo dell'elemento di trasmissione $k_{(t)}$	PCD of transmission element $k_{(t)}$	Wirkkreisdurchmesser des Übertragungselementes $k_{(t)}$
F_r [N]	Carico radiale dell'applicazione	Application radial load	Radialkraft der Anwendung
F_{r1} [N]	Carico radiale di catalogo (entrata)	Catalogue radial load (input)	Radialkraft aus dem Katalog (Eingang).
F_{r2} [N]	Carico radiale di catalogo (uscita)	Catalogue radial load (output)	Radialkraft aus dem Katalog (Ausgang).
$F_{r2b(x)}$ [N]	Carico radiale ammissibile in posizione "X" sull'albero di uscita. Basato sulla vita dei cuscinetti.	Permissible radial load at position "X" on output shaft. Based on bearing lifetime.	Zulässige Radialkraft an der Position "X" der Ausgangswelle. basierend auf der Lagerlebensdauer.
$F_{r2s(x)}$ [N]	Carico radiale ammissibile come $F_{r2b(x)}$. Basato sulla resistenza a flessione e torsione dell'albero.	Permissible radial load same as $F_{r2b(x)}$. Based on shaft bending and torsional stress.	Zulässige Radialkraft wie $F_{r2b(x)}$ aber basierend auf Biegung und Verdrehung der Ausgangswelle.
FS	Fattore di servizio Service factor Betriebsfaktor	$FS = \frac{M_2}{M_{(app)}}$	
i_n	Rapporto di riduzione nominale	Nominal reduction ratio	Nominelle Übersetzung
i_r	Rapporto di riduzione reale	Actual reduction ratio	Tatsächliche Übersetzung
J_1 [kgcm ²]	Momento d'inerzia del riduttore all'albero di entrata del riduttore	Moment of inertia of the gearbox at gearbox input shaft	Trägheitsmoment des Getriebes an der Eingangswelle
J_2 [kgcm ²]	Momento d'inerzia dell'applicazione	Moment of inertia of the application	Trägheitsmoment der Anwendung
J_m [kgcm ²]	Momento d'inerzia del motore	Moment of inertia of the motor	Trägheitsmoment des Motors
$k_{(a)}$	Fattore d'accelerazione delle masse	Mass acceleration factor	Beschleunigungsfaktor der Massen
$k_{(t)}$	Fattore dell'elemento della trasmissione	Transmission element factor	Kennwert des Übertragungselements
Lub H/V [l]	Lubrificante (litri) H - Montaggio orizzontale V - Montaggio verticale	Lubricant (litres) H - Horizontal mounting V - Vertical mounting	Schmierstoff (Liter) H - waagrechte Einbaulage V - senkrechte Einbaulage
M_2 [Nm]	Coppia massima di uscita del riduttore Gearbox maximum output torque Abtriebsdrehmoment des Getriebes	$M_2 = \frac{9550 * P_1 * \eta}{n_2}$	
$M_{(app)}$ [Nm]	Coppia dell'applicazione	Application torque	Erforderliches Drehmoment der Anwendung
n_1 [min ⁻¹]	Velocità di entrata	Input speed	Eingangsdrehzahl
n_2 [min ⁻¹]	Velocità di uscita	Output speed	Ausgangsdrehzahl
P_1 [kW]	Potenza in entrata Input power Motorleistung	$P_1 = \frac{M_2 * n_2}{9550 * \eta}$	
$P_{(kg)}$ [kg]	Peso per montaggio B3H e rapporto di riduzione medio	Weight: for mounting B3H and average reduction ratio	Gewicht für Bauform B3H und durch durchschnittliche Getriebeübersetzungen
η	Rendimento Efficiency Wirkungsgrad	$\eta = 0.96$	

RO-2 Riduttori - Gearboxes - Getriebe

Descrizione Giunto - Coupling Description - Kupplung Beschreibung



Semigiunto riduttore

- Materiale: Acciaio
- Integrale con albero entrata
- Supportato con due cuscinetti
- Dimensioni lato entrata invariate

Anello elastico

- Denti: collegati esternamente
- Materiale: Elastomero Termoplastico Hytrel® TPE - Poli Estere
- Durezza: Shore D
- Temperatura: -30/+100°C
-22 / +212°F

Semigiunto motore

- Materiale: Alluminio pressofuso
Acciaio su richiesta
- Bilanciatura dinamica
- Calettamento:
Morsetto (G5, G6 alluminio)
Chiavetta (GS5, GS6 acciaio)
- Fori:
IEC 72/DIN42948
NEMA C e TC

Vantaggi:

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

Flange entrata:

- Materiale:
Alluminio fino IEC112 e NEMA C180

Reducer Half-coupling

- Material: Steel
- Input shaft built-in
- Two bearing setting
- Unchanged casing dimensions

Spider

- External tooth connection
- Material: Thermoplastic Elastomer: Hytrel® TPE - Polyester
- Hardness: 72 Shore D
- Temperature range: -30/+100°C
-22 / +212°F

Motor Half-coupling

- Material: Aluminium pressure die cast
Steel on demand
- Dynamic balancing
- Fitting:
Clamp (G3, G5 aluminium)
Key (GS5, GS6 steel)
- Bores:
IEC 72/DIN42948
NEMA C and TC

Advantages:

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

Input flanges:

- Material:
Aluminium to IEC112 & NEMA C180

Getriebekupplungshäfte

- Material: Stahl
- integrata Eingangswelle
- Zwei-Lager-Anordnung
- unveränderte Eingang Abmessungen

Kupplungsscheibe

- Äußerliche Zahnverbindung
- Material: Thermoplastisch Elaste: Hytrel® TPE - Polyester
- Härte: 72 Shore D
- Temperaturbereich: -30/+100°C
-22 / +212°F

Motorkupplungshäfte

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

Vorzüge:

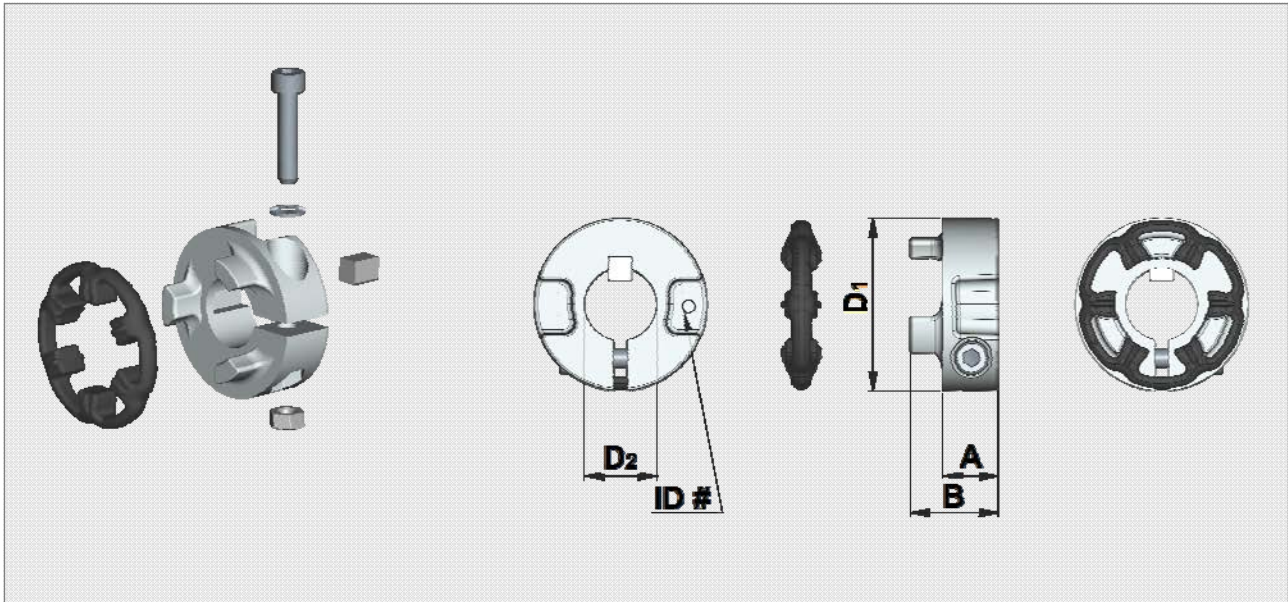
- nur eine Getriebekomponente je Übersetzung
- gesteigerte Flexibilität
- höher Lagerumschlag
- Vermeidung von Passungsost zwischen Keil u. Keil Einschnitt
- Getriebe / Motor Spielfrei Verkeilung
- erlaubt Winkelausgleich bis 1°
- hohe Verdrehsteifigkeit
- hohe Dämpfung von Schwingungen

Eingangsfalnsche:

- Material:
Aluminium bis IEC112 u. NEMA C180

Getriebe - Gearboxes - Riduttori RO-2

Kupplungsauswahl - Elastic Coupling Selection - Selezione Giunto elastico



Tipo Type Typ	IEC NEMA	Codice Kit Kit Part No. Kit Teil Nr.	RO 2	Mt [Nm]	Mt ₁ [Nm]	Mt ₂ [Nm]	A [mm]	B [mm]	D ₁ [mm/ inch]	D ₂ [mm/ inch]	ID#
G5	IEC	KG5.009 KG5.011 KG5.014 KG5.019 KG5.024	RO02	10	14	10	14.5	23	45	9	509
					15	10			45	11	511
					30	17			45	14	514
					40	25			45	19	519
					70	40			52	24	524
	NEMA	KG5.N56 KG5.N140			45	35			1.77	5/8"	5N56
					60	45			2.05	7/8"	5N140
G6	IEC	KG6.014 KG6.019 KG6.024 KG6.028	RO12-RO22-RO32	18	60	40	19.5	31.5	58	14	614
					90	65				19	619
					130	100			24	624	
					180	120			28	628	
	NEMA	KG6.N56 KG6.N140 KG6.N180	RO12-RO22-RO32 RO12-RO22-RO32 RO32		50	---			2.28	5/8"	6N56
					85	---				7/8"	6N140
					200	---				1-1/8"	6N180

Mt - Coppia di serraggio vite
 Mt₁ - Coppia trasmissibile con chiavetta
 Mt₂ - Coppia trasmissibile senza chiavetta

- Screw locking torque
 - Transmissible torque with key
 - Transmissible torque without key

- Schraubenklemmenmoment
 - übertragbar Drehmoment mit Keil
 - übertragbar Drehmoment ohne Keil

RO-2 Riduttori - Gearboxes - Getriebe

Selezione Flangia e Giunto - Flange & Coupling Selection - Flansch- u. Kupplungsauswahl

IEC

RO 2	Tipo Flangia Flange Type Flanschtyp	IEC	Codice Kit - Kit Part No. - Kit Teil Nr.		Giunto - Coupling - Kupplung	
			Flange B5	Flange B14	Tipo - Type - Typ	Kit Part No.
RO02	FM 50	IEC56	K532.206.120	---	G5 ø9	KG5.009
		IEC63	K532.206.140	K532.206.090	G5 ø11	KG5.011
		IEC71	K532.206.160	K532.206.105	G5 ø14	KG5.014
		IEC80	K532.206.200	K532.206.120	G5 ø19	KG5.019
		IEC90	K532.206.200	K532.206.140	G5 ø24	KG5.024
RO12	FM 70	IEC71	K533.206.160	K533.206.105	G6 ø14	KG6.014
		IEC80	K533.206.200	K533.206.120	G6 ø19	KG6.019
		IEC90	K533.206.200	K533.206.140	G6 ø24	KG6.024
		IEC 100/112	K533.206.250	K533.206.160	G6 ø28	KG6.028
RO22	FM 85	IEC71	K534.206.160	---	G6 ø14	KG6.014
		IEC80	K534.206.200	K534.206.120	G6 ø19	KG6.019
		IEC90	K534.206.200	K534.206.140	G6 ø24	KG6.024
		IEC 100/112	K534.206.250	K534.206.160	G6 ø28	KG6.028
RO32	FM 110	IEC71	K535.206.160	---	G6 ø14	KG6.014
		IEC80	K535.206.200	---	G6 ø19	KG6.019
		IEC90	K535.206.200	---	G6 ø24	KG6.024
		IEC 100/112	K535.206.250	K535.206.160	G6 ø28	KG6.028

NEMA

RO 2	Tipo Flangia Flange Type Flanschtyp	NEMA	Codice Kit Flangia Flange Kit Part No. Flansch Kit Teil Nr.	Giunto - Coupling - Kupplung	
				Tipo - Type - Typ	Kit Part No.
RO02	FM 50	56 C 140 TC	K532.227.N56	G5 ø5/8" G5 ø7/8"	KG5.N56 KG5.N140
RO12	FM 70	56 C 140 TC	K533.227.N56	G6 ø5/8" G6 ø7/8"	KG6.N56 KG6.N140
RO22	FM 85	56 C 140 TC	K534.227.N56	G6 ø5/8" G6 ø7/8"	KG6.N56 KG6.N140
RO23	FM 110	56 C 140 TC 180 TC	K535.227.N56 K535.227.N56 K535.227.N180	G6 ø5/8" G6 ø7/8" G6 ø1-1/8"	KG6.N56 KG6.N140 KG6.N180

Getriebe - Gearboxes - Riduttori RO-2

Betriebsfaktoren - Service factors - Fattori di servizio

FATTORE DI SERVIZIO del riduttore	SERVICE FACTOR of the gearbox	BETRIEBSFAKTOR des Getriebes
<p>Il fattore di servizio FS1.0 è inteso come rappresentativo di un funzionamento di 8 ore al giorno, con carico uniforme e fattore di accelerazione delle masse $k_{(a)} \leq 0.2$, avviamenti inferiori a 300 all'ora e temperatura ambiente fra 15 e 35 °C.</p> <p>Le prestazioni riportate nelle tabelle permettono di calcolare il fattore di servizio come rapporto fra la coppia massima di uscita del riduttore M_2 e la coppia richiesta dalla applicazione $M_{(app)}$.</p>	<p>Service factor FS1.0 is meant as typical of 8 hours/day operation, with uniform load and mass acceleration factor $k_{(a)} \leq 0.2$, starts/stops lower than 300 per hour and ambient temperature between 15 and 35 Celsius.</p> <p>The performance shown in the tables gives the service factor calculation as a ratio between gearbox maximum output torque M_2 and application torque $M_{(app)}$.</p>	<p>Für den Servicefaktor FS1.0 gilt ein 8- bis 10-stündiger Betrieb mit gleichförmiger Last und einem Massenbeschleunigungs Faktor $k_{(a)} J_2 \leq 2$, bis zu 300 Starts/Stops je Stunde und Umgebungstemperaturen zwischen 15° und 35 °C.</p> <p>Die in den Tabellen dargestellten Daten ermöglichen eine Bestimmung des genauen Betriebsfaktors aus dem max. Abtriebsmoment des Getriebes M_2 und dem erforderlichen Moment der Anwendung $M_{(app)}$.</p>

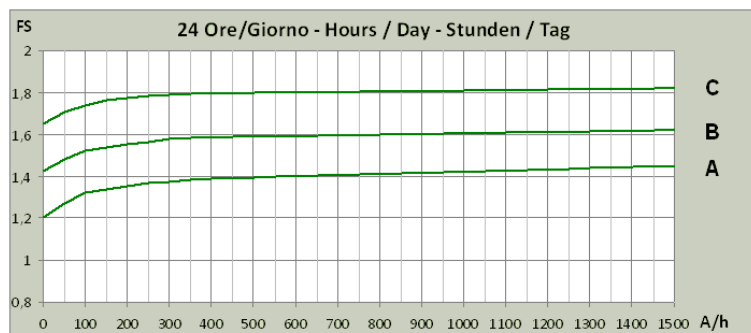
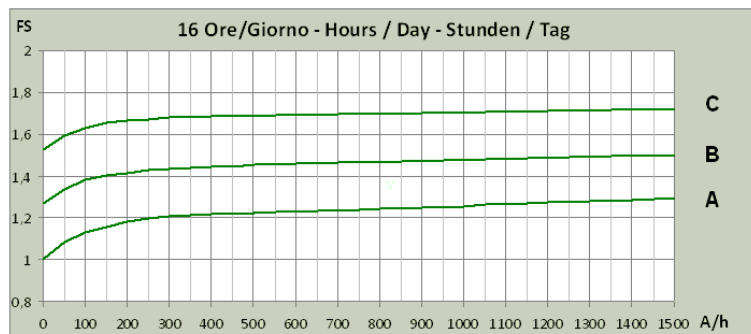
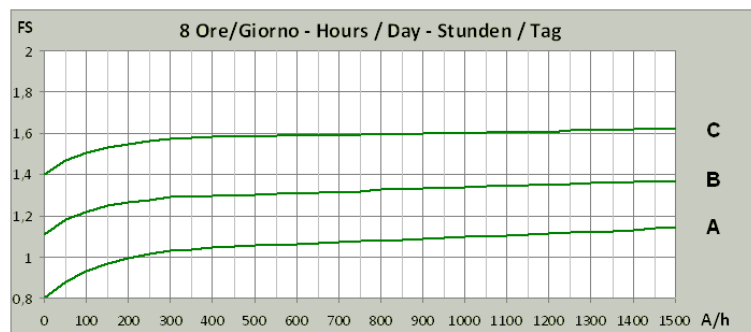
Fattore di accelerazione delle masse Mass acceleration factor Beschleunigungsfaktor der Massen

$$k_{(a)} = \frac{J_2}{J_m} + J_1$$

Classi di carico
Load class
Belastungsklassen

- A - Carico uniforme
Uniform load
Gleichförmige Last
 $k_{(a)} \leq 0.2$
- B - Carico con urti moderati
Moderate shock load
Ungleichförmige Last
 $0.2 < k_{(a)} \leq 3$
- C - Carico con forti urti
Severe shock load
Stark ungleichförmige Last
 $3 < k_{(a)} \leq 10$

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



RO-2 Riduttori - Gearboxes - Getriebe

Fattori di servizio - Service factors - Betriebsfaktoren

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

S1 - Servizio continuo

Funzionamento a carico costante per un periodo di tempo indefinito (N), comunque sufficiente a raggiungere l'equilibrio termico.

S1 - Continuous duty

Steady load operation for an indefinite period (N), but long enough to achieve thermal balancing.

S1 - Dauerbetrieb

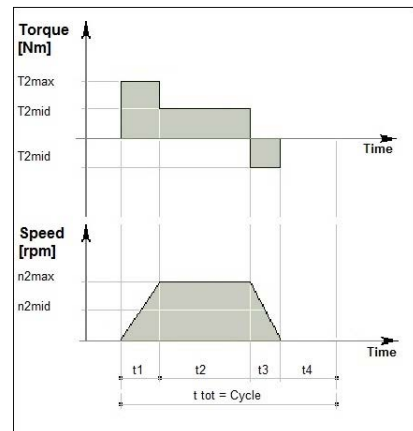
Betrieb mit konstanter Belastung über eine unbestimmte Zeit (N), ohne dass der thermische Beharrungszustand der Maschine beeinträchtigt wird.

FS = 1.0

N = Tempo di lavoro
Operation time
Betriebszeit

c = Carico
Load
Belastung

t = Temperatura
Temperature
Temperatur



S3 - Servizio intermittente periodico

Funzionamento secondo un ciclo (C) comprendente un periodo di tempo a carico costante (N) ed un periodo di tempo di riposo (R). Gli avviamenti non influiscono sulle temperature. Il ciclo (C) di riferimento è di 10 minuti complessivi. Il rapporto di intermittenza viene determinato secondo la formula.

S3 - Periodic intermittent duty

Operation according to cycle (C) including steady load time (N) and rest time (R). Starts/stops do not affect temperature. The reference cycle (C) is up to a total of 10 minutes. Intermittence ratio is calculated as follows.

S3 - Aussetzbetriebe

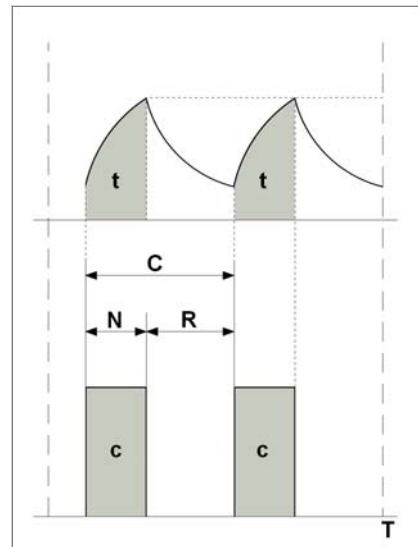
Betrieb als Folge (C) gleichartiger Spiele mit konstanter Last während der Zeit (N) und einer folgenden Pause (R). Start und Stop beeinflussen nicht die Temperatur. Für die Zyklusdauer (C) gilt eine Zeit von 10 Minuten.

$$\frac{N}{(N+R)} * 100 = \begin{matrix} 60\% & \mathbf{FS = 0.90} \\ 40\% & \mathbf{FS = 0.85} \\ 25\% & \mathbf{FS = 0.75} \\ 15\% & \mathbf{FS = 0.70} \end{matrix}$$

N = Tempo di lavoro
Operation time
Betriebsdauer

R = Tempo di riposo
Rest time
Pause

C = Ciclo di lavoro
Duty cycle
Zyklusdauer



Getriebe - Gearboxes - Riduttori RO-2

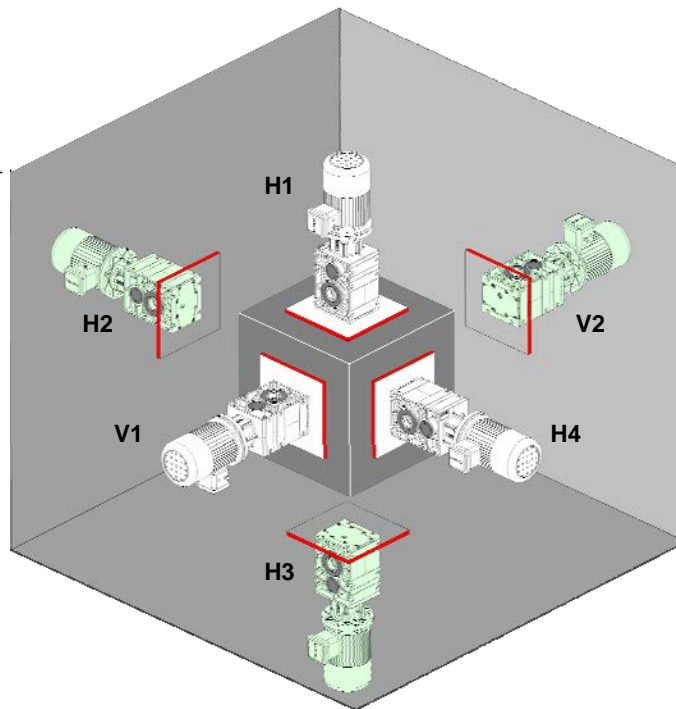
Einbaulagen - Mounting positions - Posizioni di montaggio

La posizione di montaggio è riferita all'albero di uscita e non al fissaggio con piedi o con flangia.

Mounting position is referred to the output shaft and not to foot or flange fixing.

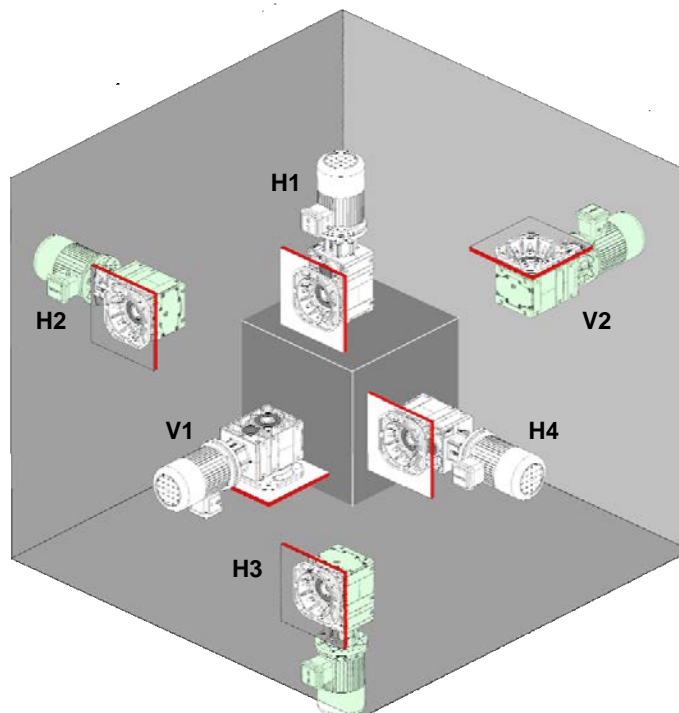
Die Montageposition bezieht sich auf die Ausgangswelle und nicht der Fußbefestigungen oder Flansches.

B3
Montaggio a piedi
Foot mounting
Fußbauformen



RO 2

B5
Montaggio a flangia
Flange mounting
Flanschbauformen

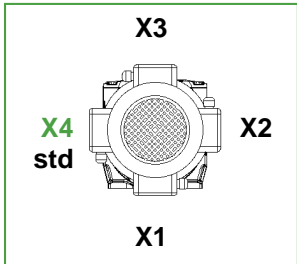


RO-2 Riduttori - Gearboxes - Getriebe

Designazione - Designation - Bezeichnungen

DESIGNAZIONE DEL RIDUTTORE					GEARBOX DESIGNATION			GETRIEBEBEZEICHNUNG	
F	RO	12	/B3	H	31.5	IEC71	-B14	AU30	DFU200
									Flangia uscita \varnothing - Output flange - Ausgangsflansch
									Albero uscita \varnothing - Output shaft \varnothing - Ausgangswelle \varnothing
									B5. B14 = Forma del motore - Motor form - Motorbauform
									Grandezza del motore elettrico - Electric motor frame - Motorbaugröße
									Rapporto di riduzione - Reduction ratio - Getriebeübersetzung
									H. V = Posizione di montaggio del riduttore - Gearbox mounting position - Einbaulage des Getriebes
									B3. B5. B3/B5 = Forma costruttiva del riduttore - Gearbox form - Bauform des Getriebes
									Grandezza e coppie del riduttore - Gearbox size and stages - Baugröße u. Stufen des Getriebes
									RO = Tipo del riduttore - Gearbox type - Getriebetyp
M = Motoriduttore			- Geared motor			- Getriebemotor			
F = Riduttore con entrata IEC			- Gearbox with input flange			- Getriebe mit Eingangsflansch			
S = Riduttore senza flangia entrata IEC			- Gearbox without input flange			- Getriebe ohne Eingangsflansch			
... = (nulla) Riduttore con albero entrata sporgente			- (nothing) Gearbox with input free shaft			- (kein) Freie Eingangswelle			

DESIGNAZIONE DEL MOTORE				MOTOR DESIGNATION			MOTORBEZEICHNUNG		
MT	0.37 kW	71 B	4	B14	230/400/50	IP55	F	X4	
									Posizione della morsettiere Terminal box position Klemmkastenposition
									Classe F (std) = Classe isolamento Insulation class Isolationsklasse
									IP55 (std) = Grado di protezione - Protection class - Schutzart
									Tensione / Frequenza - Voltage/frequency - Spannung/Frequenz
									B5 o B14 = Forma costruttiva - Mounting form - Bauform
									Numero poli - Number of poles - Polzahl
									Grandezza IEC del motore - IEC motor frame - IEC-Motorbaugröße
									Potenza del motore - Motor power - Motorleistung
MT = Motore trifase			- Three-phase motor			- Dreiphasenmotor			
MM = Motore monofase			- Single-phase motor			- Einphasenmotor			
MA = Motore autofrenante			- Brake motor			- Bremsmotor			



Getriebe - Gearboxes - Riduttori RO-2

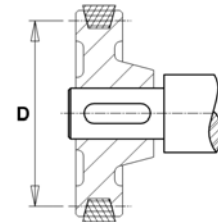
Ausgangskräfte - External Loads - Carichi esterni

CARICHI RADIALI USCITA	OUTPUT RADIAL LOADS (OHL)	AUSGANGSRADIALKRÄFTE
I carichi radiali riportati nelle tabelle di selezione dei riduttori debbono essere verificati anche in base al tipo di elemento di trasmissione montato sulla estremità d'albero tramite il relativo fattore $k_{(t)}$.	Radial (overhung) loads must to be checked with the catalogue rating factor given. The $k_{(t)}$ rating factor varies according to the transmission element fitted on the gearbox output shaft.	Radialkräfte müssen mit den zulässigen Werten der Auswahltabellen für Getriebe verglichen werden, wobei der Faktor $k_{(t)}$ des jeweiligen Übertragungselementes berücksichtigt werden muss.

- Carico radiale dell'applicazione

Application radial load
Radialbelastung der Anwendung

$$F_r = \frac{2000 * M_2}{D} * k_{(t)}$$



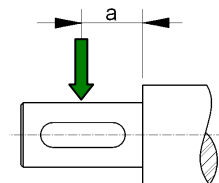
$k_{(t)}$	Elemento della trasmissione	Transmission element	Übertragungselement
1.15	Ingranaggio - N. denti < 17	Gear - Tooth No. < 17	Zahnrad - Zähnezahl < 17
1.40	Pignone per catena - N. denti < 13	Chain sprocket - Tooth No. < 13	Kettenrad - Zähnezahl < 13
1.25	Pignone per catena - N. denti < 20	Chain sprocket - Tooth No. < 20	Kettenrad - Zähnezahl < 20
1.00	Pignone per catena - N. denti > 20	Chain sprocket - Tooth No. > 20	Kettenrad - Zähnezahl > 20
2.50	Puleggia per cinghie "V"	V-belt pulley	Keilriemen "V"
1.25	Puleggia per cinghie dentate	Toothed-belt pulley	Zahnriemen

- Carico radiale di catalogo a metà albero

Catalogue radial load at shaft centre
Katalogwert der Radialbelastung Wellenmitte

[mm]	1	2	3	4	5	6
a	22.5	30.0	30.0	40.0	41.0	52.5

$$F_{r2} \geq F_r$$



- Carico radiale in posizione generica

Radial load offset from centre
Radialbelastung für allgemeine Positionen

Verificare entrambi i confronti (*) e (**).
Check both (*) and (**) comparisons.
Überprüfe beide Ergebnisse (*) und (**)

[mm]	1	2	3	4	5	6
a	22.5	30.0	30.0	40.0	41.0	52.5
b	21.5	24.5	23.5	30.5	32.0	33.0
c	44.0	54.5	53.5	70.5	73.0	85.5

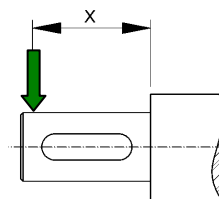
$$(*) \quad F_{r2b(x)} \geq F_r$$

$$F_{r2b(x)} = F_{r2} * \frac{c}{x + b}$$

$$(**) \quad F_{r2s(x)} \geq F_r$$

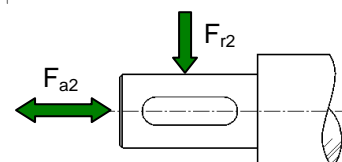
$$F_{r2s(x)} = F_{r2} * \frac{a}{x}$$

'b, c' = costanti / constants / Konstanten



CARICHI ASSIALI USCITA	OUTPUT AXIAL LOADS	EINGANGSAXIALKRÄFTE
Valore del carico assiale, sia a trazione che a compressione, e in presenza di carico radiale:	Axial load value, both on tensile and compressive stress, and with radial load:	Axialkräfte auf Zug- und Druck bei gleichzeitiger Radialkraft:

$$F_{a2} = F_{r2} * 0.2$$



RO-2 Riduttori - Gearboxes - Getriebe

Configurazione assistita - Guided Selection - Unterstützte Auswahl



La modularità e la flessibilità che hanno guidato il progetto dei prodotti VARVEL fino dagli anni 2000 sono ora affiancate dalla compattezza e rigidità strutturale: così come le serie di riduttori in kit ha permesso una rapida disponibilità utilizzando una normale attrezzatura. la Serie RO 2 completa i riduttori ortogonali RO 3 con maggiori prestazioni in robustezza e versatilità.

Il programma di selezione **VARSIZE®** disponibile nel sito web

www.varvel.com

permette un facile dimensionamento dei prodotti VARVEL.

Disegni 2D/3D

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

Configurazione assistita

Identifica, fra tutte le serie, i riduttori che sono adeguati per soddisfare i parametri di funzionamento richiesti (potenza, coppia, velocità, fattore di servizio, ecc.). Definita la grandezza del riduttore, un documento è generato dai dati della richiesta, così come il disegno dimensionale PDF, il modello 3D e il disegno 2D.

Modularity and flexibility that have been leading the design of VARVEL products since the years 2000, are now joined by compactness and structural rigidity: as the gearbox-kit concept Series was carried out allowing to assemble the unit in few minutes with standard tooling, now the Series RO 2 completes the bevel/helical RO 3 with higher performance in solidity and versatility..

VARSIZE® selection program, available from our web-site

www.varvel.com

allows a friendly sizing of VARVEL product range.

2D/3D Drawings

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

Guided selection

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

Die Modularität und Flexibilität, die den Projekt der Produkte Varvel geleitet haben, bis die 2000er Jahre werden nun durch die Kompaktheit und strukturelle Steifigkeit beigetragen: wie die Getriebeserie im Kit schnelle Verfügbarkeit gebetet hat, mithilfe konventioneller Ausrüstung, die Serie RO2 komplettiert die Kegelradgetriebe RO3 besten Leistung in der Stärke und Vielseitigkeit.

VARSIZE® als Auswahlprogramm auf unserer Internetseite

www.varvel.com

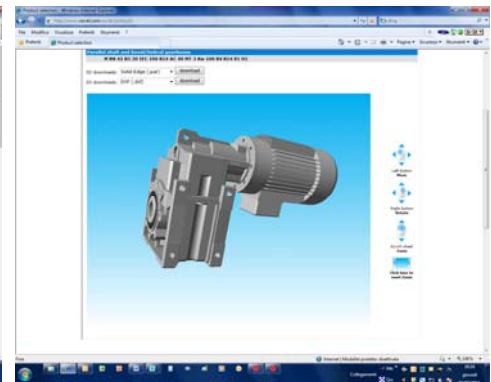
bietet eine angepasste Antriebsauslegung.

2D/3D-Zeichnungen

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

Unterstützte Auswahl

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



RO02 - 120 Nm

Getriebe - Gearboxes - Riduttori RO-2

1400 min⁻¹

Getriebeauswahl - Speed Reducer Selection - Selezione Riduttore

FRO	i _n	i _r	n ₂ [min ⁻¹]	M ₂ [Nm]	P ₁ [kW]	F _{r1} [N]	F _{r2} [N]	J ₁ (x 10 ⁻⁴) [kgcm ²]	56 B5	63 B*	71 B*	80 B*	90 B*
02	5.2	5.18	270.5	105	3.2	1550	3550	1.24	⊙	⊙	⊙	⊙	⊙
	7.2	7.19	194.8	110	2.4	1580	3990	1.03	⊙	⊙	⊙	⊙	⊙
	8.6	8.58	163.2	110	2.0	1580	4200	0.95	⊙	⊙	⊙	⊙	⊙
	11.0	10.88	128.7	120	1.7	1590	4550	0.65	⊙	⊙	⊙	⊙	⊙
	11.5	11.62	120.5	80	1.1	1590	4800	0.86	⊙	⊙	⊙	⊙	⊙
	15.0	15.10	92.7	120	1.2	1600	5150	0.60	⊙	⊙	⊙	⊙	⊙
	16.5	16.36	85.6	100	0.95	1610	5300	0.55	⊙	⊙	⊙	⊙	
	18.0	18.03	77.6	120	1.04	1610	5450	0.58	⊙	⊙	⊙	⊙	
	22.0	21.75	64.4	110	0.79	1610	5800	0.57	⊙	⊙	⊙	⊙	
	23.0	22.73	61.6	120	0.82	1610	5850	0.53	⊙	⊙	⊙	⊙	
	24.5	24.41	57.4	100	0.64	1610	6000	0.56	⊙	⊙	⊙	⊙	
	27.0	27.13	51.6	110	0.63	1610	5250	0.52	⊙	⊙	⊙	⊙	
	32.0	31.88	43.9	110	0.54	1610	6650	0.50	⊙	⊙	⊙	⊙	
	32.5	32.73	42.8	110	0.52	1610	6750	0.51	⊙	⊙	⊙		
	36.7	36.73	38.1	100	0.42	1610	6750	0.51	⊙	⊙	⊙		
	38.0	38.05	36.8	110	0.45	1610	6750	0.50	⊙	⊙	⊙		
	46.0	45.90	30.5	100	0.34	1610	6750	0.49	⊙	⊙	⊙		
51.5	51.51	27.2	100	0.30	1610	6750	0.49	⊙	⊙	⊙			

B* = B5 & B14

Pos.	Olio [litri] - Oil [litres] - Öl [Liter]						Peso Weight Gewicht	
	H1	H2	H3	H4	V1	V2	[kg]	
FRO02	0.2	0.2	0.15	0.2	0.2	0.2	3.6	

RO-2 Riduttori - Gearboxes - Getriebe

RO12 - 200 Nm

Selezione Riduttore - Speed Reducer Selection - Getriebeauswahl

1400 min⁻¹

FRO	i_n	i_r	n_2 [min ⁻¹]	M_2 [Nm]	P_1 [kW]	F_{r1} [N]	F_{r2} [N]	$J_1 (x10^{-4})$ [kgm ²]	63 B5	71 B*	80 B*	90 B*	100 B*	112 B*
12	5.0	5.03	278.3	135	4.2	2900	6100	2.96	⊙	⊙	⊙	⊙	⊙	⊙
	7.1	7.09	197.4	175	3.8	2900	6850	2.48	⊙	⊙	⊙	⊙	⊙	⊙
	8.7	8.74	160.2	180	3.2	2900	7350	2.29	⊙	⊙	⊙	⊙	⊙	
	11.0	10.57	132.4	220	3.2	3000	7750	1.98	⊙	⊙	⊙	⊙	⊙	
	12.0	12.34	113.5	150	1.9	3000	8000	2.07	⊙	⊙	⊙	⊙	⊙	
	15.0	14.90	93.9	220	2.3	3000	8500	1.87	⊙	⊙	⊙	⊙	⊙	
	16.0	15.91	88.0	190	1.9	3000	8550	1.82	⊙	⊙	⊙	⊙		
	18.5	18.37	76.2	200	1.7	3000	8750	1.83	⊙	⊙	⊙	⊙		
	21.5	21.75	64.4	200	1.4	3000	8750	1.80	⊙	⊙	⊙	⊙		
	22.5	22.42	62.4	200	1.4	3000	8750	1.77	⊙	⊙	⊙	⊙		
	26.0	25.92	54.0	150	0.90	3000	8750	1.78	⊙	⊙	⊙			
	25.7	27.64	50.7	220	1.24	3000	8750	1.75	⊙	⊙	⊙			
	31.5	31.45	44.5	170	0.84	3000	8750	1.73	⊙	⊙	⊙			
	33.0	32.73	42.8	200	0.95	3000	8750	1.74	⊙	⊙	⊙			
	39.0	38.76	36.1	200	0.80	3000	8750	1.72	⊙	⊙	⊙			
	46.0	45.90	30.5	200	0.68	3000	8750	1.72	⊙	⊙	⊙			
55.0	54.71	25.6	170	0.48	3000	8750	1.71	⊙	⊙					

B* = B5 & B14

Pos.	Olio [litri] - Oil [litres] - Öl [Liter]						Peso Weight Gewicht	
	H1	H2	H3	H4	V1	V2	[kg]	
FRO12	0.4	0.35	0.3	0.35	0.35	0.35	6.0	

RO22 - 330 Nm

Getriebe - Gearboxes - Riduttori RO-2

1400 min⁻¹

Getriebeauswahl - Speed Reducer Selection - Selezione Riduttore

FRO	i _n	i _r	n ₂ [min ⁻¹]	M ₂ [Nm]	P ₁ [kW]	F _{r1} [N]	F _{r2} [N]	J ₁ (x10 ⁻⁴) [kgm ²]	63 B5	71 B5	80 B*	90 B*	100 B*	112 B*
22	5.2	5.18	270.5	200	6.0	4550	5850	5.49	⊙	⊙	⊙	⊙	⊙	⊙
	7.3	7.28	192.2	260	5.6	5540	6500	4.53	⊙	⊙	⊙	⊙	⊙	⊙
	8.4	8.36	167.5	270	5.0	5710	6750	4.28	⊙	⊙	⊙	⊙	⊙	⊙
	11.0	10.88	128.7	275	3.9	5630	7350	3.47	⊙	⊙	⊙	⊙	⊙	⊙
	12.0	11.71	119.6	275	3.7	5730	7550	3.78	⊙	⊙	⊙	⊙	⊙	
	15.0	15.31	91.5	330	3.4	5710	8250	3.25	⊙	⊙	⊙	⊙	⊙	
	16.5	16.36	85.6	330	3.1	5520	8550	3.14	⊙	⊙	⊙	⊙	⊙	
	18.0	17.56	79.7	330	2.9	5730	8700	3.20	⊙	⊙	⊙	⊙	⊙	
	22.0	22.35	62.6	330	2.3	5680	9350	3.11	⊙	⊙	⊙	⊙	⊙	
	23.0	23.03	60.8	330	2.2	5730	9500	3.04	⊙	⊙	⊙	⊙	⊙	
	24.5	24.61	56.9	300	1.9	5740	9750	3.08	⊙	⊙	⊙	⊙		
	26.5	26.42	53.0	330	1.9	5730	10000	3.02	⊙	⊙	⊙	⊙		
	32.5	32.30	43.3	330	1.6	5740	10500	2.96	⊙	⊙	⊙	⊙		
	33.5	33.64	41.6	330	1.5	5740	10500	2.98	⊙	⊙	⊙	⊙		
	37.0	37.06	37.8	330	1.4	5740	10500	2.95	⊙	⊙	⊙	⊙		
	47.0	47.18	29.7	330	1.1	5740	10500	2.93	⊙	⊙	⊙			
	52.0	51.93	27.0	320	1.0	5740	10500	2.92	⊙	⊙	⊙			

B* = B5 & B14

Pos.	Olio [litri] - Oil [litres] - Öl [Liter]						Peso Weight Gewicht	
	H1	H2	H3	H4	V1	V2	[kg]	
FRO22	0.7	0.6	0.7	0.6	0.8	0.8	10.0	

RO-2 Riduttori - Gearboxes - Getriebe

RO 32 - 550 Nm

Selezione Riduttore - Speed Reducer Selection - Getriebeauswahl

1400 min⁻¹

FRO	i _n	i _r	n ₂ [min ⁻¹]	M ₂ [Nm]	P ₁ [kW]	F _{r1} [N]	F _{r2} [N]	J ₁ (x10 ⁻⁴) [kgm ²]	71 B5	80 B5	90 B5	100 B*	112 B*	132 B*
32	5.2	5.18	270.5	400	12.0	5670	8500	10.33	⊙	⊙	⊙	⊙	⊙	⊙
	7.3	7.28	192.2	410	8.8	5740	9450	7.86	⊙	⊙	⊙	⊙	⊙	⊙
	8.5	8.54	167.5	420	7.8	5560	10000	7.11	⊙	⊙	⊙	⊙	⊙	⊙
	11.0	10.88	128.7	430	6.2	5770	10550	6.38	⊙	⊙	⊙	⊙	⊙	⊙
	12.0	11.60	119.6	400	5.3	5740	10950	5.28	⊙	⊙	⊙	⊙	⊙	⊙
	15.0	15.31	91.5	550	5.6	5780	11100	5.94	⊙	⊙	⊙	⊙	⊙	⊙
	16.5	16.36	85.6	550	5.2	5630	12500	4.72	⊙	⊙	⊙	⊙	⊙	
	18.0	17.95	79.7	550	4.9	5780	12650	4.45	⊙	⊙	⊙	⊙	⊙	
	21.0	21.35	62.6	550	3.8	5700	13100	4.55	⊙	⊙	⊙	⊙		
	23.0	23.03	60.8	550	3.7	5780	14150	4.13	⊙	⊙	⊙	⊙		
	24.5	24.39	56.9	500	3.2	5740	14150	4.20	⊙	⊙	⊙	⊙		
	27.0	27.401	53.0	550	3.2	5780	14250	4.28	⊙	⊙	⊙	⊙		
	32.5	32.30	43.3	550	2.7	5780	14850	4.13	⊙	⊙	⊙	⊙		
	33.5	33.64	41.6	550	2.5	5790	15500	4.00	⊙	⊙	⊙	⊙		
	380	37.89	37.8	530	2.2	5780	15500	3.96	⊙	⊙	⊙	⊙		
	45.0	45.05	29.7	530	1.8	5780	15500	3.93	⊙	⊙	⊙			
	52.0	51.46	27.0	500	1.5	5780	15500	3.91	⊙	⊙	⊙			

B* = B5 & B14

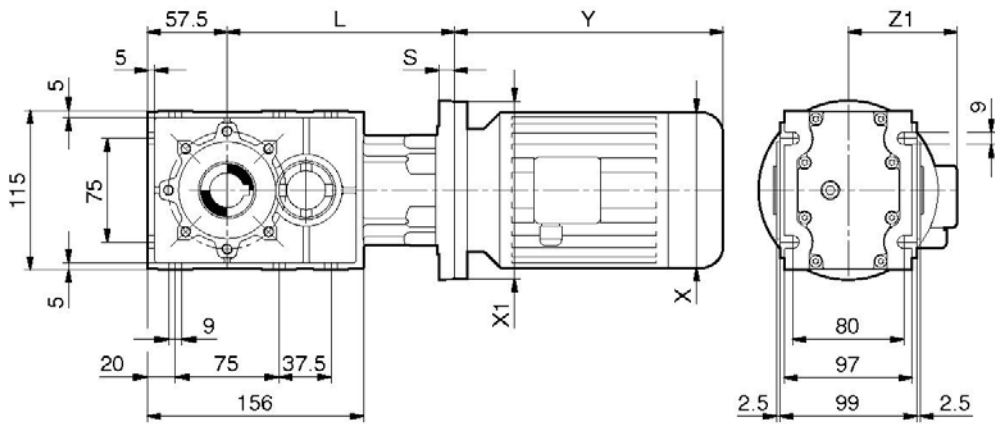
Pos.	Olio [litri] - Oil [litres] - Öl [Liter]						Peso Weight Gewicht	
	H1	H2	H3	H4	V1	V2	[kg]	
FRO32	1.3	1.0	1.2	1.0	1.5	1.5	14.0	

RO02

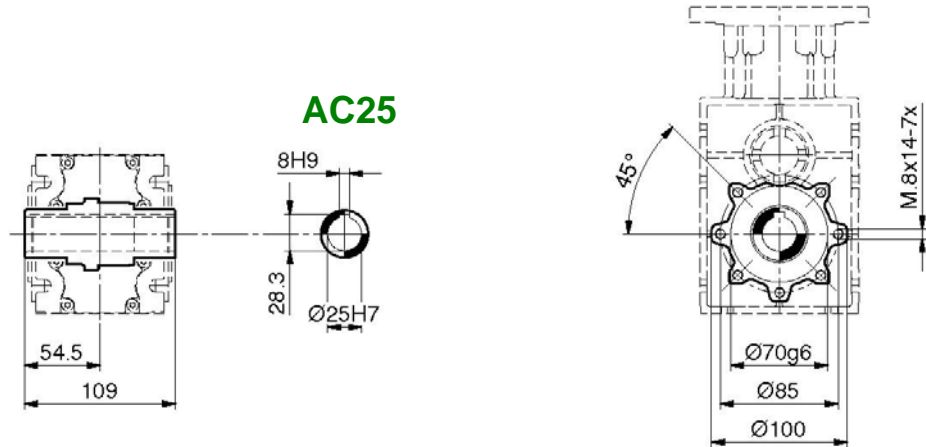
Getriebe - Gearboxes - Riduttori RO-2

Abmessungen - Dimensions - Dimensioni

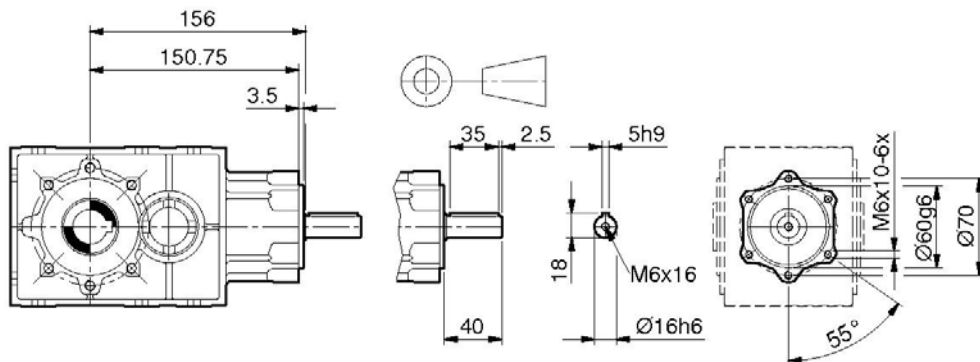
**MRO
FRO**



AC25



RO



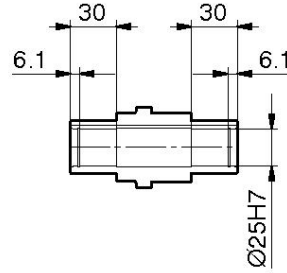
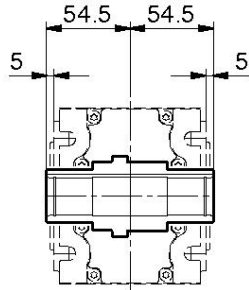
RO	02	02	02	02	02	02	
IEC	56	63	71	80	90 S	90 L	
X / Y / Z1	110/168/108	123/185/110	140/215/121	159/238/138	176/255/149	176/280/149	
X1 (B5) / S	120/13	140/13	160/13.5	200/13	200/13	200/13	
X1 (B14) / S	---	90/13	105/18.5	120/13	140/13	140/13	
L (B5)	163.75	163.75	164.25	163.75	163.75	163.75	
L (B14)	---	163.75	169.25	163.75	163.75	163.75	

RO-2 Riduttori - Gearboxes - Getriebe

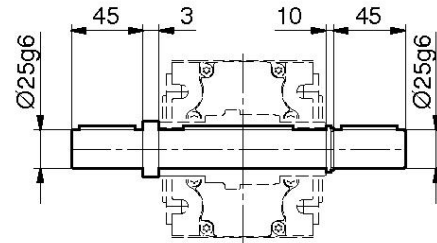
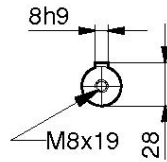
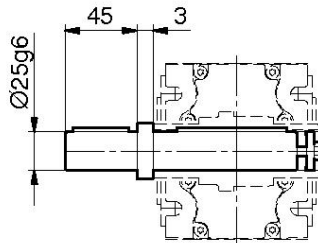
RO02

Dimensioni albero uscita - Output shaft dimensions - Abmessungen der Ausgangswelle

AC

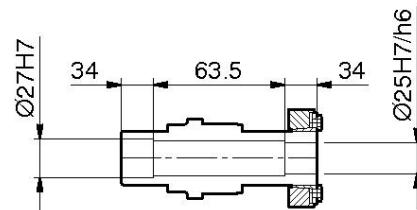
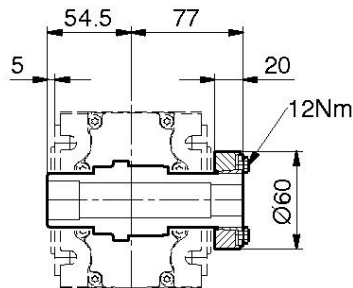


AS

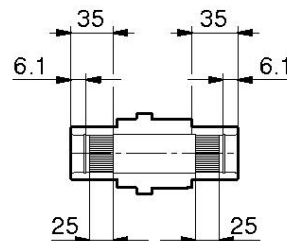
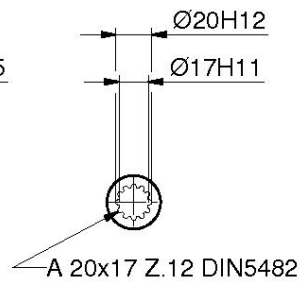
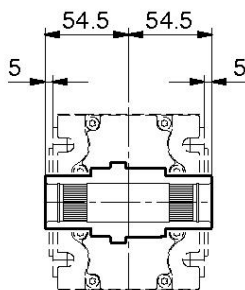


AD

ACC



ACS



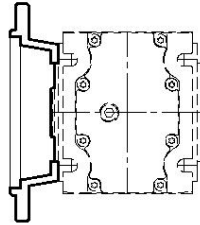
- Dimensioni del perno macchina: pag.
- Machine shaft dimensions: pages
- Maschinenwelle Abmessungen: Seiten

35-36

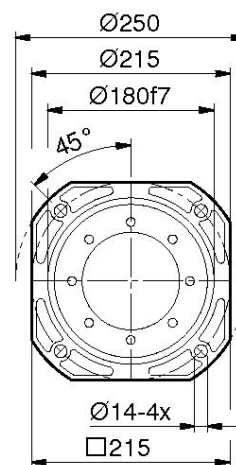
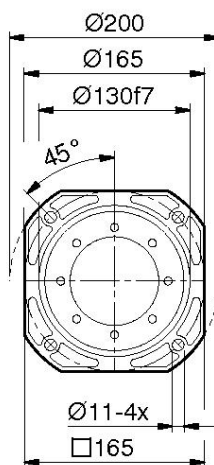
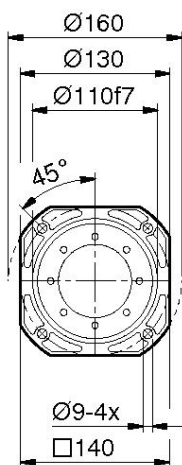
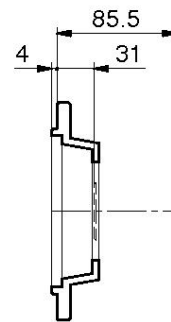
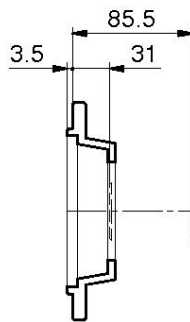
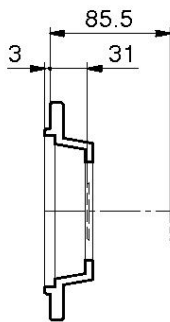
RO02

Getriebe - Gearboxes - Riduttori RO-2

Abmessungen der Ausgangsflansch - Output flange dimensions - Dimensioni flangia uscita



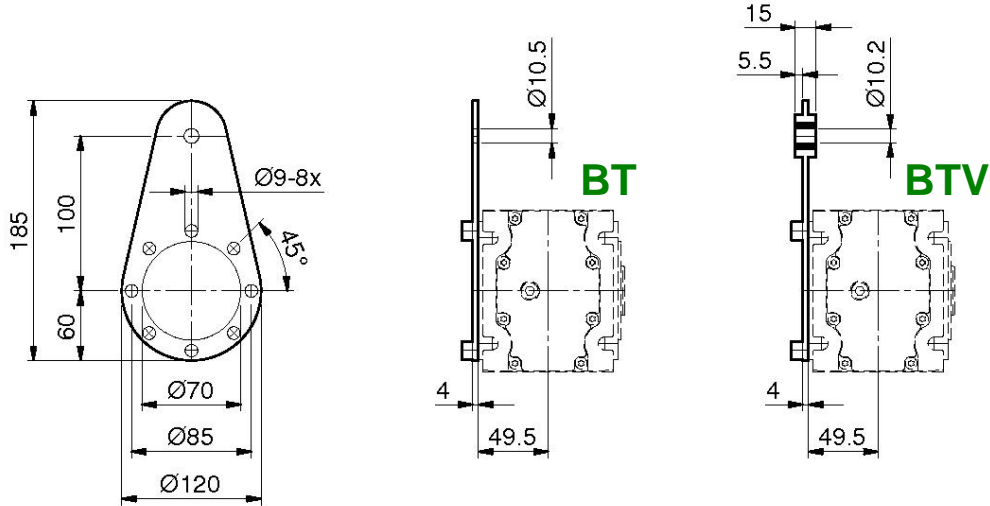
A



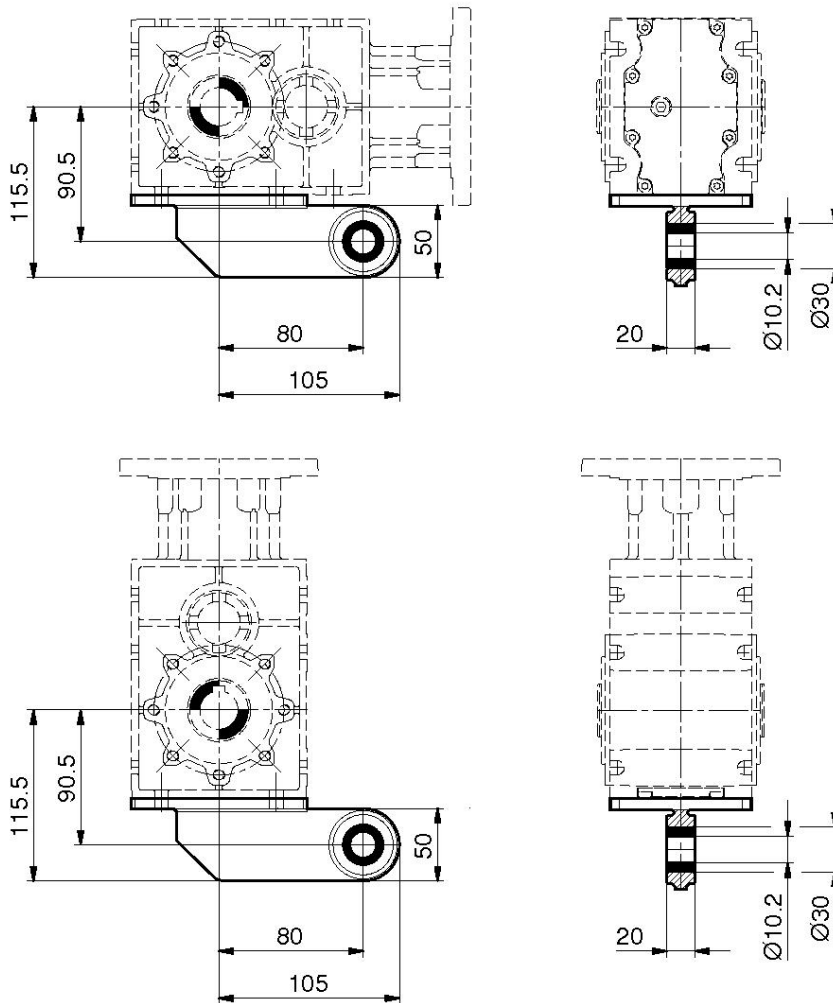
RO-2 Riduttori - Gearboxes - Getriebe

RO02

Dimensioni braccio di reazione - Torque arm dimensions - Abmessungen der Drehmomentstütze



BTF

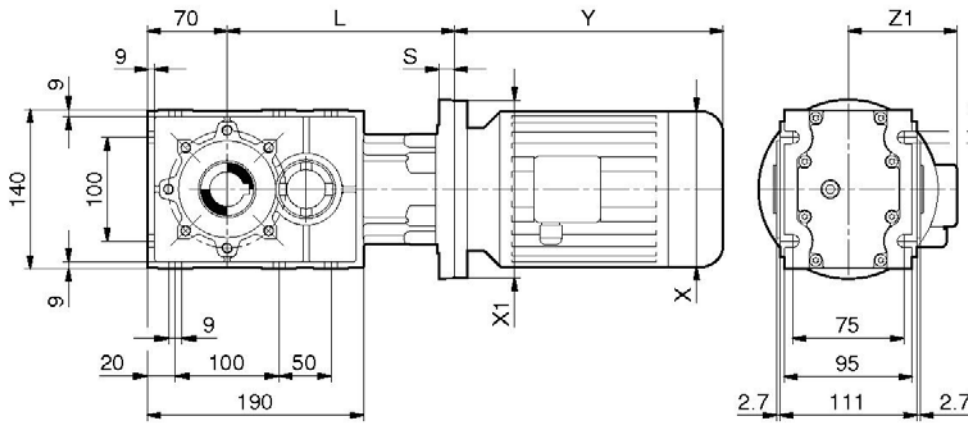


RO12

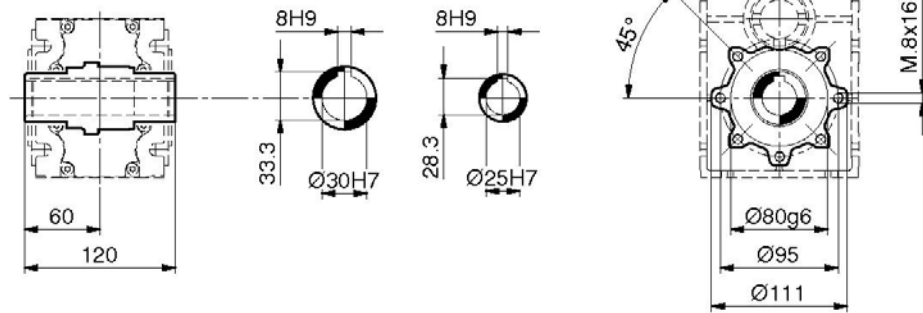
Getriebe - Gearboxes - Riduttori RO-2

Abmessungen - Dimensions - Dimensioni

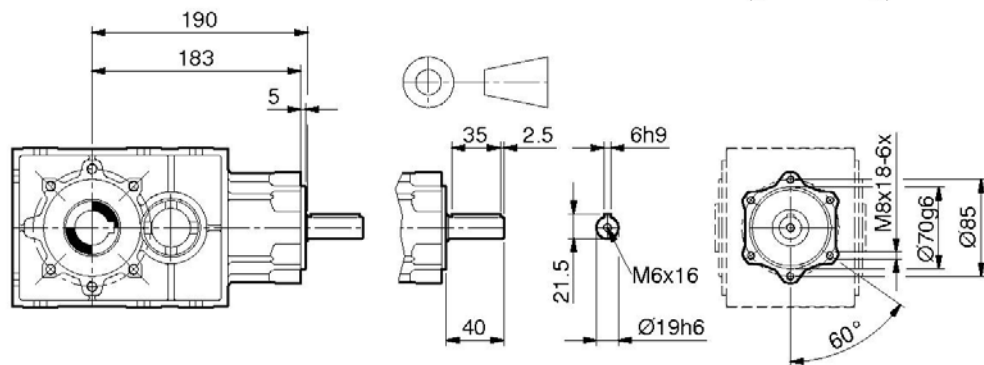
**MRO
FRO**



AC30 AC25



RO

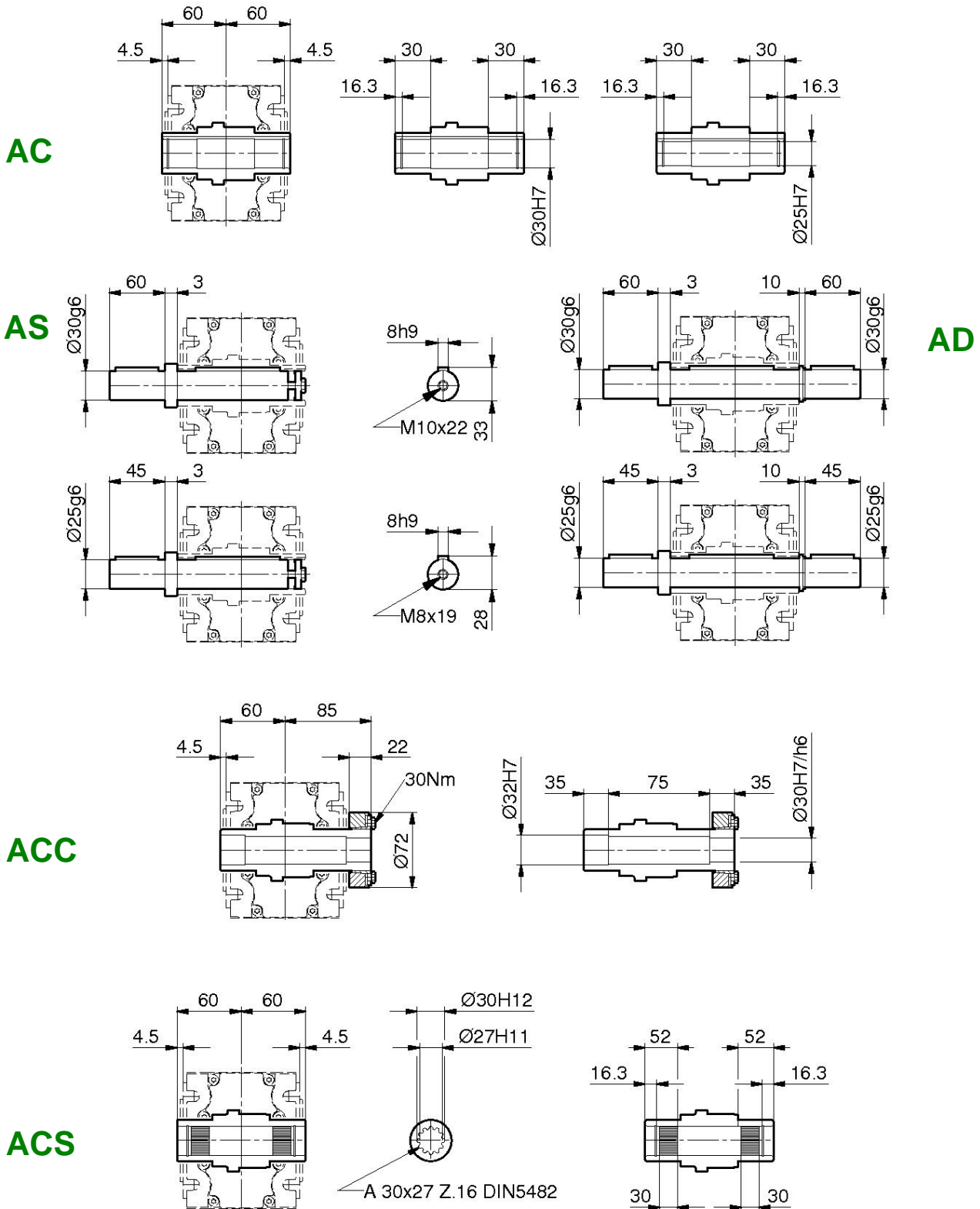


RO	12	12	12	12	12	12	12
IEC	63	71	80	90 S	90 L	100	112
X / Y / Z1	123/185/110	140/215/121	159/238/138	176/255/149	176/280/149	195/309/160	219/328/172
X1 (B5) / S	140/17.5	160/15.5	200/15.5	200/15.5	200/15.5	250/16.7	250/16.7
X1 (B14) / S	---	105/15.5	120/15.5	140/17.5	140/17.5	160/15.5	160/15.5
L (B5)	200.5	198.5	198.5	198.5	198.5	199.7	199.7
L (B14)	---	198.5	200.5	200.5	200.5	198.5	198.5

RO-2 Riduttori - Gearboxes - Getriebe

RO12

Dimensioni albero uscita - Output shaft dimensions - Abmessungen der Ausgangswelle



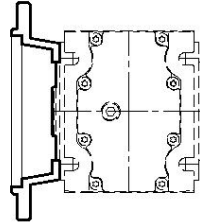
- Dimensioni del perno macchina: pag.
- Machine shaft dimensions: pages
- Maschinenwelle Abmessungen: Seiten

35-36

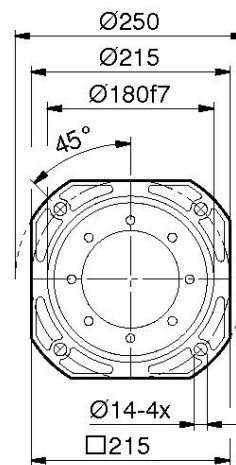
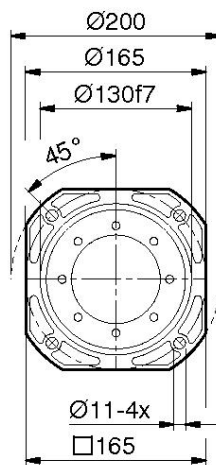
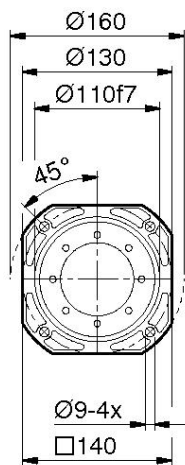
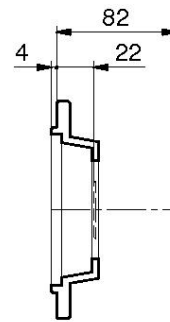
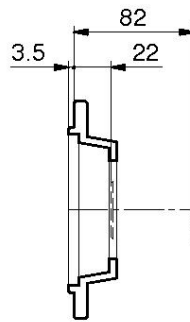
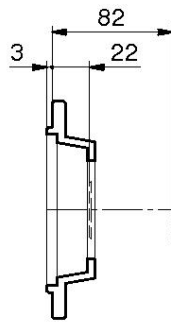
RO12

Getriebe - Gearboxes - Riduttori RO-2

Abmessungen der Ausgangsflansch - Output flange dimensions - Dimensioni flangia uscita



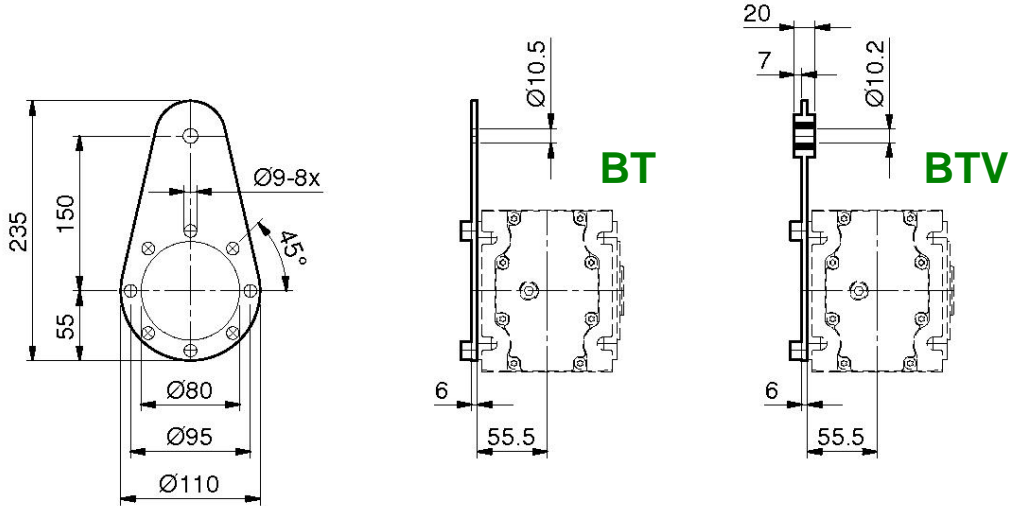
A



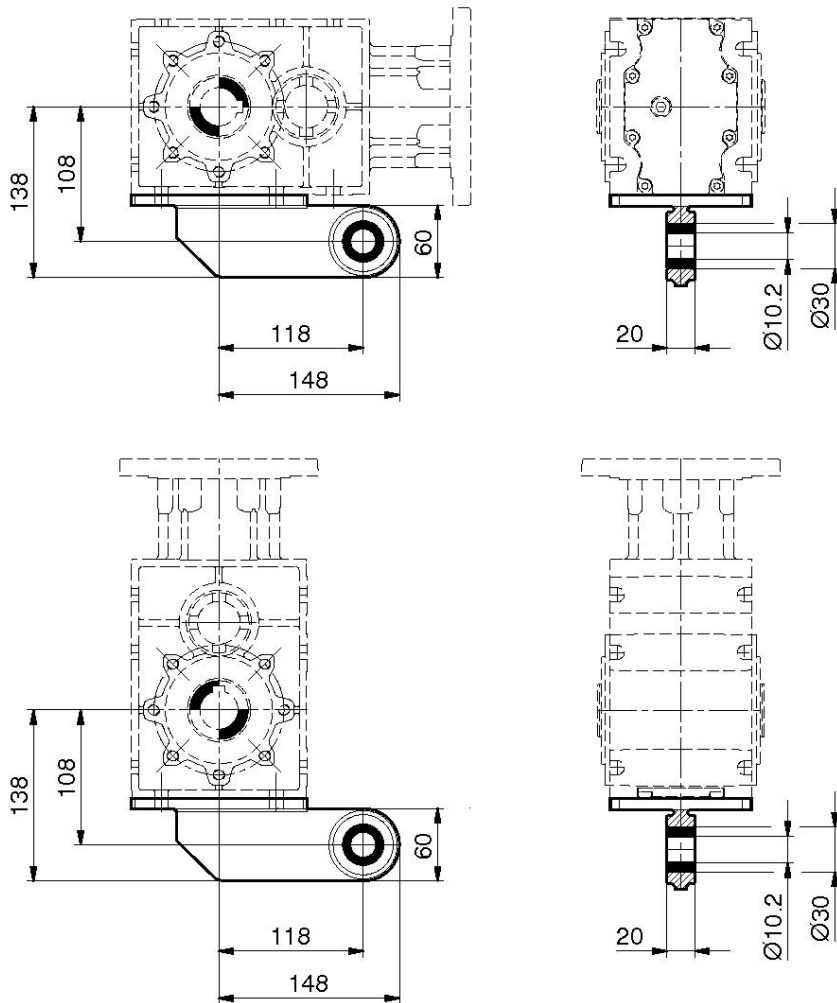
RO-2 Riduttori - Gearboxes - Getriebe

RO12

Dimensioni braccio di reazione - Torque arm dimensions - Abmessungen der Drehmomentstütze



BTF

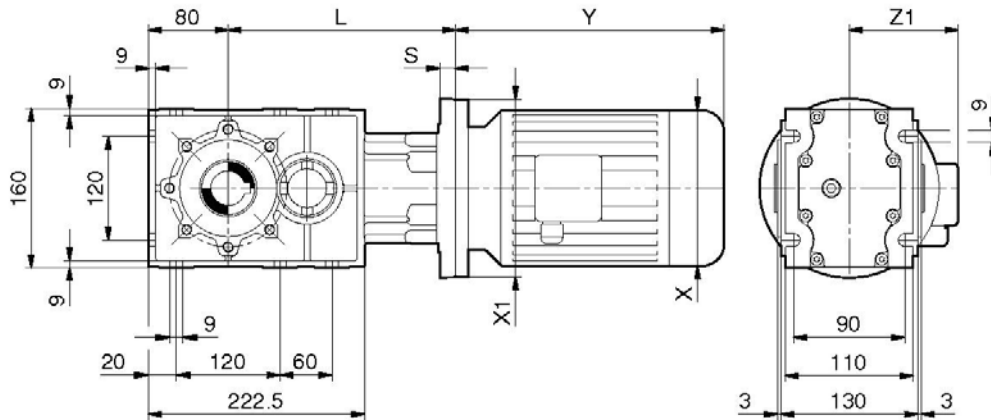


RO22

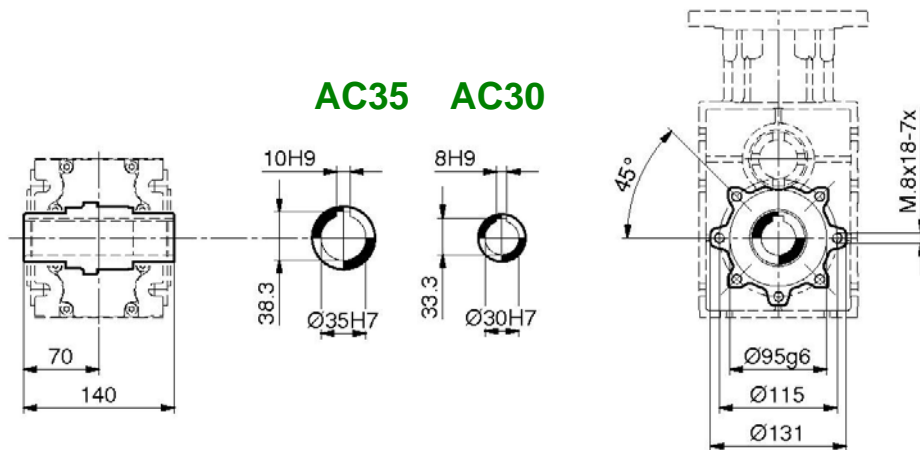
Getriebe - Gearboxes - Riduttori RO-2

Abmessungen - Dimensions - Dimensioni

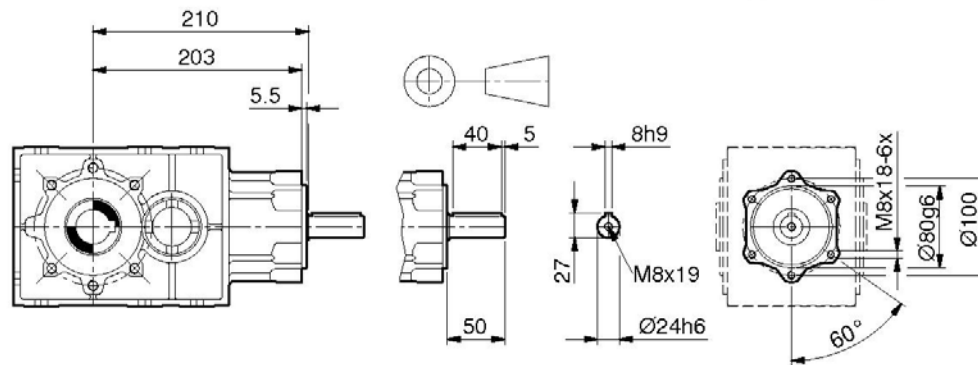
**MRO
FRO**



AC35 AC30



RO



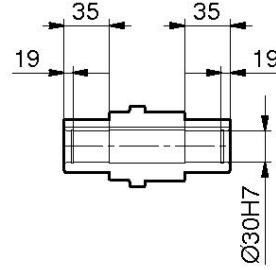
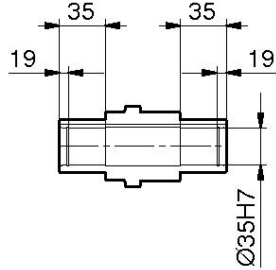
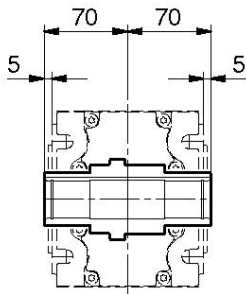
RO	22	22	22	22	22	22	22
IEC	63	71	80	90 S	90 L	100	112
X / Y / Z1	123/185/110	140/215/121	159/238/138	176/255/149	176/280/149	195/309/160	219/328/172
X1 (B5) / S	140/18.5	160/15.5	200/15.5	200/15.5	200/15.5	250/16.7	250/16.7
X1 (B14) / S	---	---	120/15.5	140/18.5	140/18.5	160/15.5	160/15.5
L (B5)	221.5	218.5	218.5	218.5	218.5	219.7	219.7
L (B14)	---	---	218.5	221.5	221.5	218.5	218.5

RO-2 Riduttori - Gearboxes - Getriebe

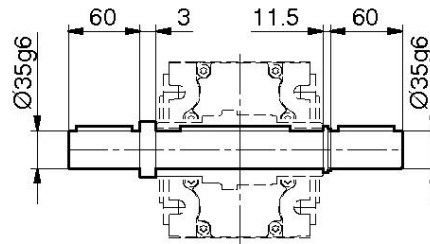
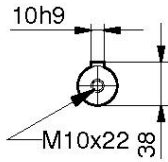
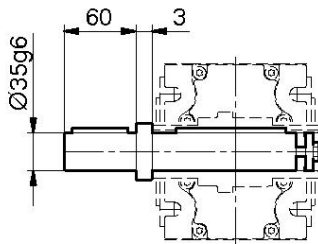
RO22

Dimensioni albero uscita - Output shaft dimensions - Abmessungen der Ausgangswelle

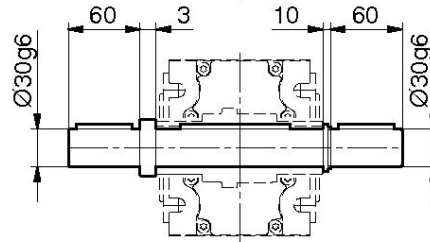
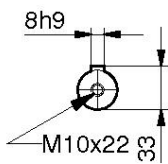
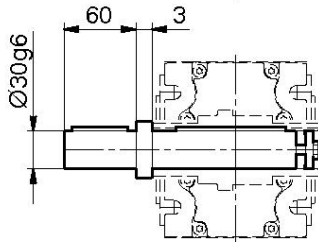
AC



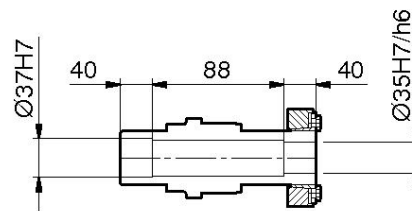
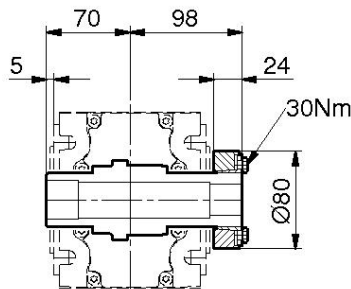
AS



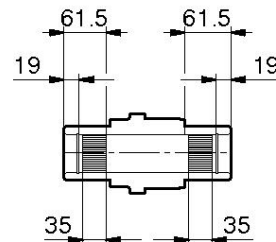
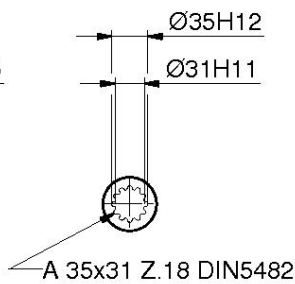
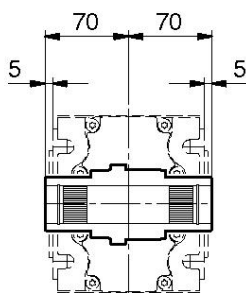
AD



ACC



ACS



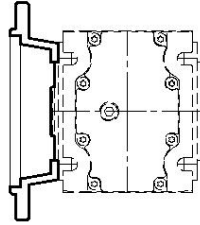
- Dimensioni del perno macchina: pag.
- Machine shaft dimensions: pages
- Maschinenwelle Abmessungen: Seiten

35-36

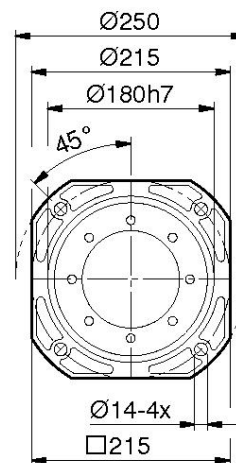
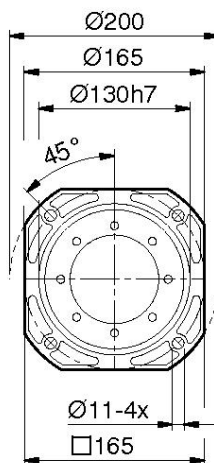
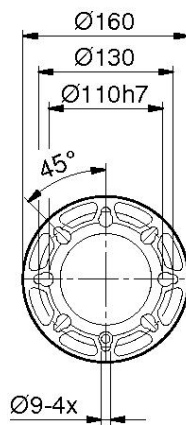
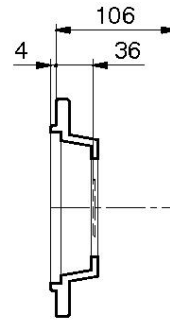
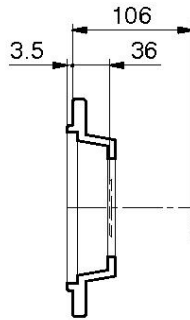
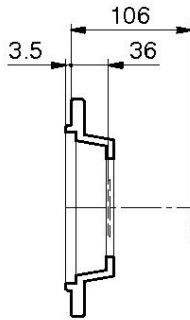
RO22

Getriebe - Gearboxes - Riduttori RO-2

Abmessungen der Ausgangsflansch - Output flange dimensions - Dimensioni flangia uscita



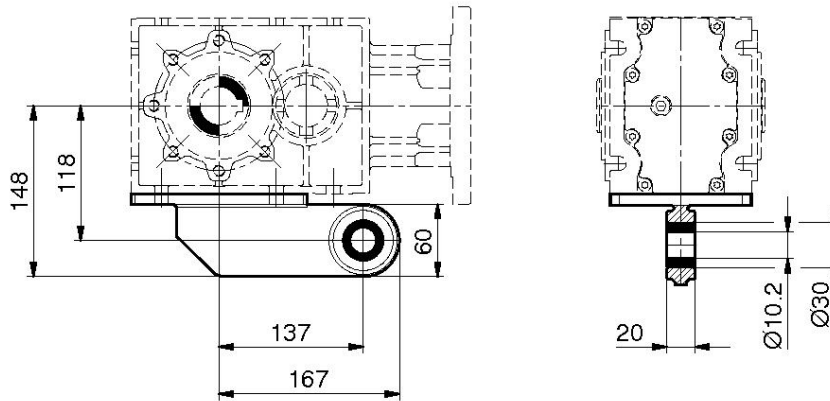
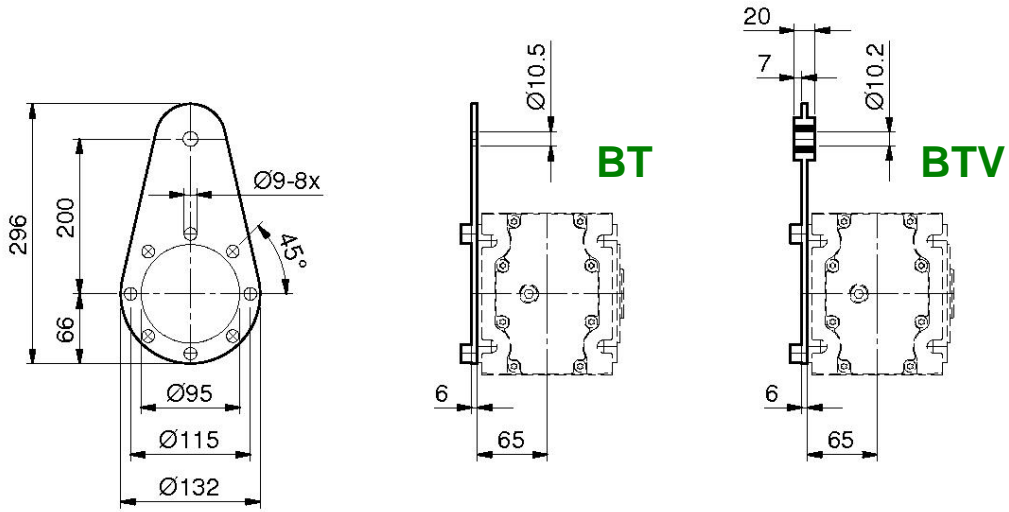
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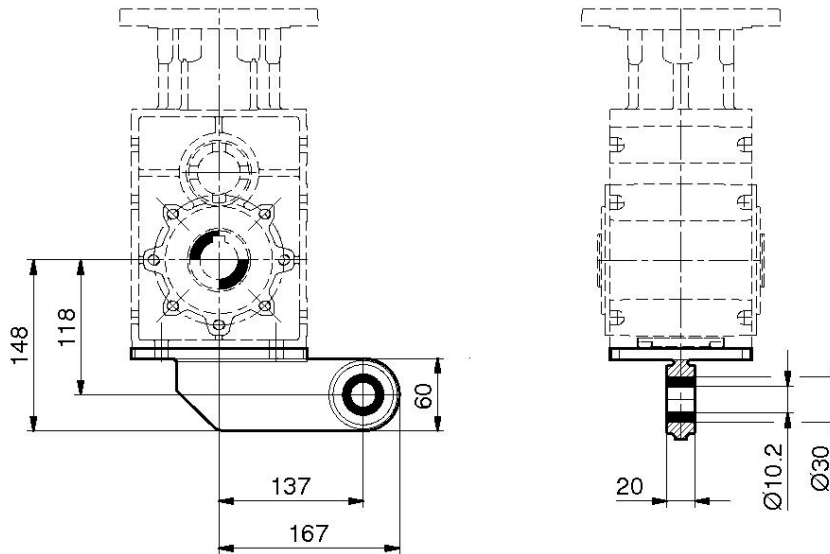
RO-2 Riduttori - Gearboxes - Getriebe

RO22

Dimensioni braccio di reazione - Torque arm dimensions - Abmessungen der Drehmomentstütze



BTF

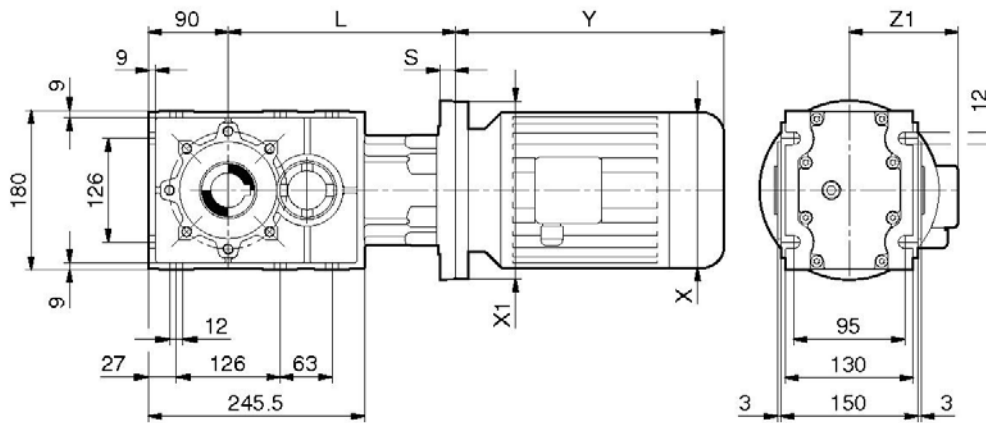


RO32

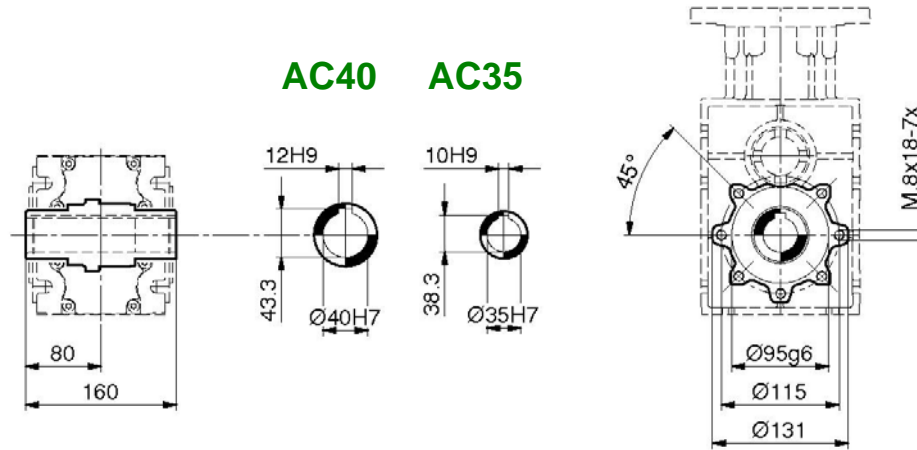
Getriebe - Gearboxes - Riduttori RO-2

Abmessungen - Dimensions - Dimensioni

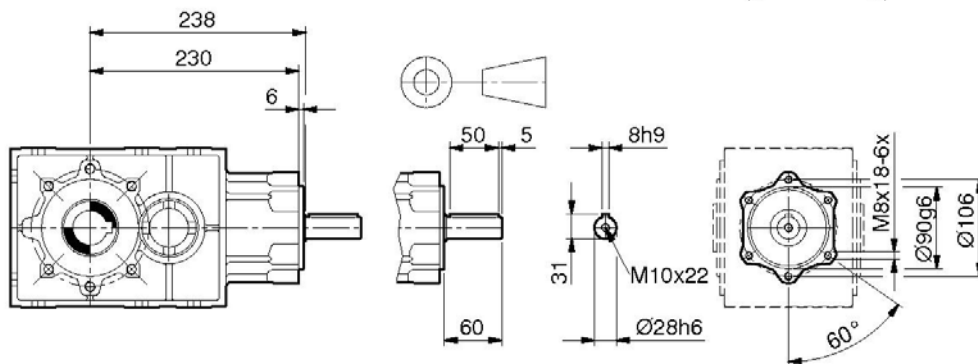
**MRO
FRO**



AC40 AC35



RO



RO	32	32	32	32	32	32	32
IEC	71	80	90 S	90 L	100	112	132 S (*)
X / Y / Z1	140/215/121	159/238/138	176/255/149	176/280/149	195/309/160	219/328/172	258/368/192
X1 (B5) / S	160/20	200/18	200/18	200/18	250/18.7	250/18.7	300/18
X1 (B14) / S	---	---	---	---	160/20	160/20	200/18
L (B5)	250	248	248	248	248.7	248.7	248
L (B14)	---	---	---	---	250	250	248

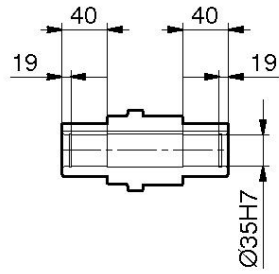
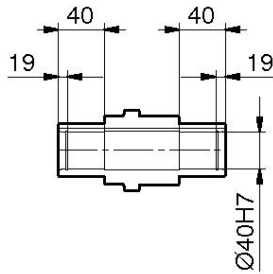
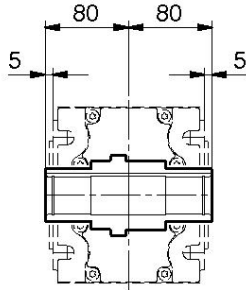
(*) 132 M: Y=405 mm

RO-2 Riduttori - Gearboxes - Getriebe

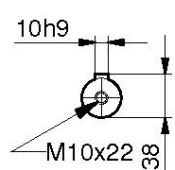
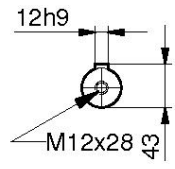
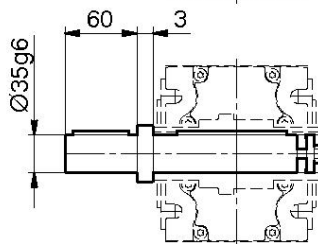
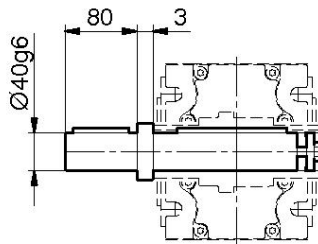
RO32

Dimensioni albero uscita - Output shaft dimensions - Abmessungen der Ausgangswelle

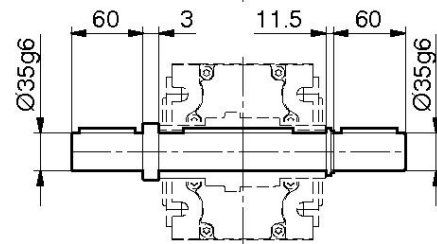
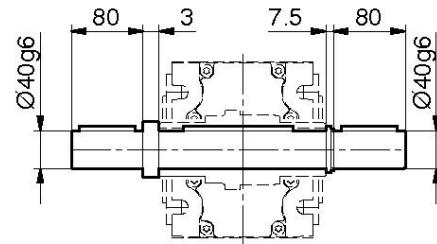
AC



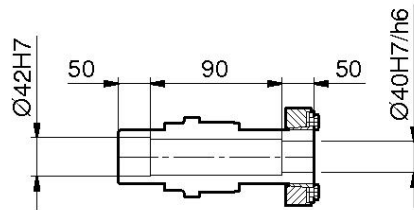
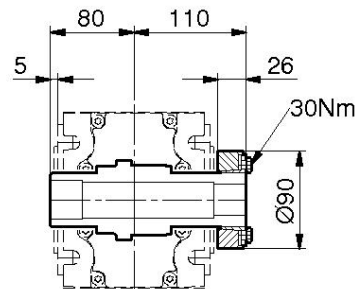
AS



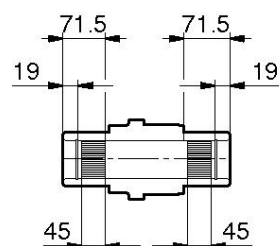
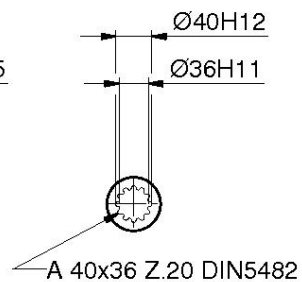
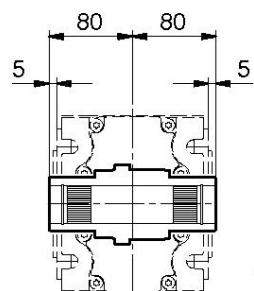
AD



ACC



ACS



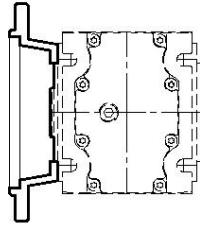
- Dimensioni del perno macchina: pag.
- Machine shaft dimensions: pages
- Maschinenwelle Abmessungen: Seiten

35-36

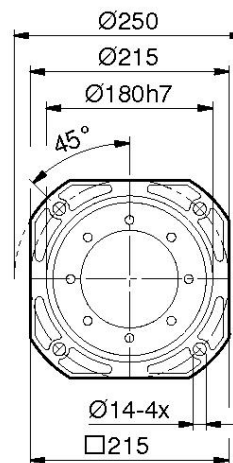
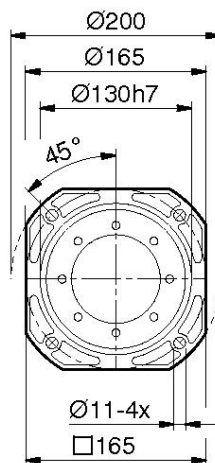
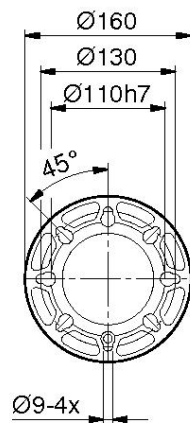
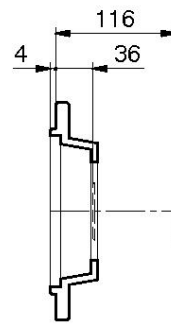
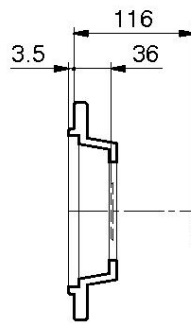
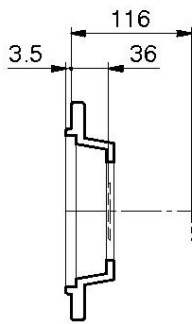
RO32

Getriebe - Gearboxes - Riduttori RO-2

Abmessungen der Ausgangsflansch - Output flange dimensions - Dimensioni flangia uscita



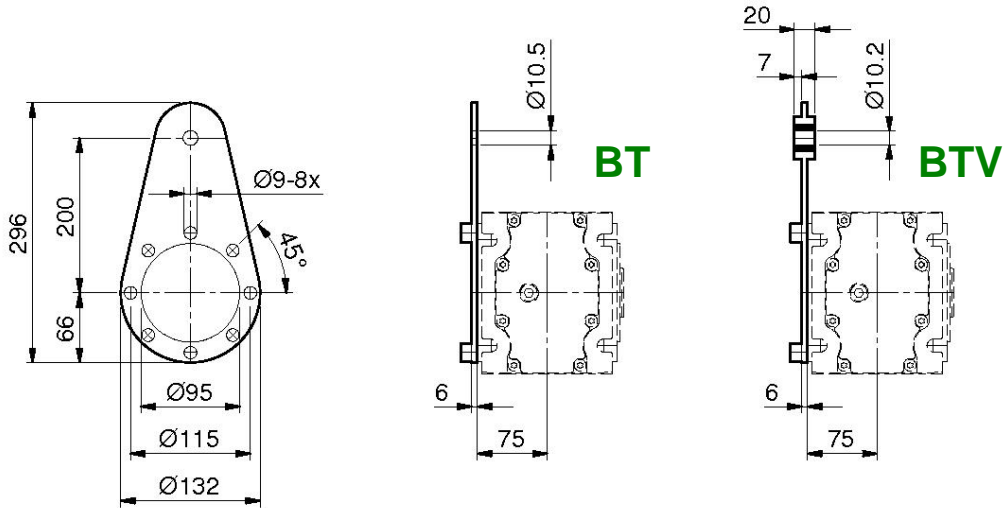
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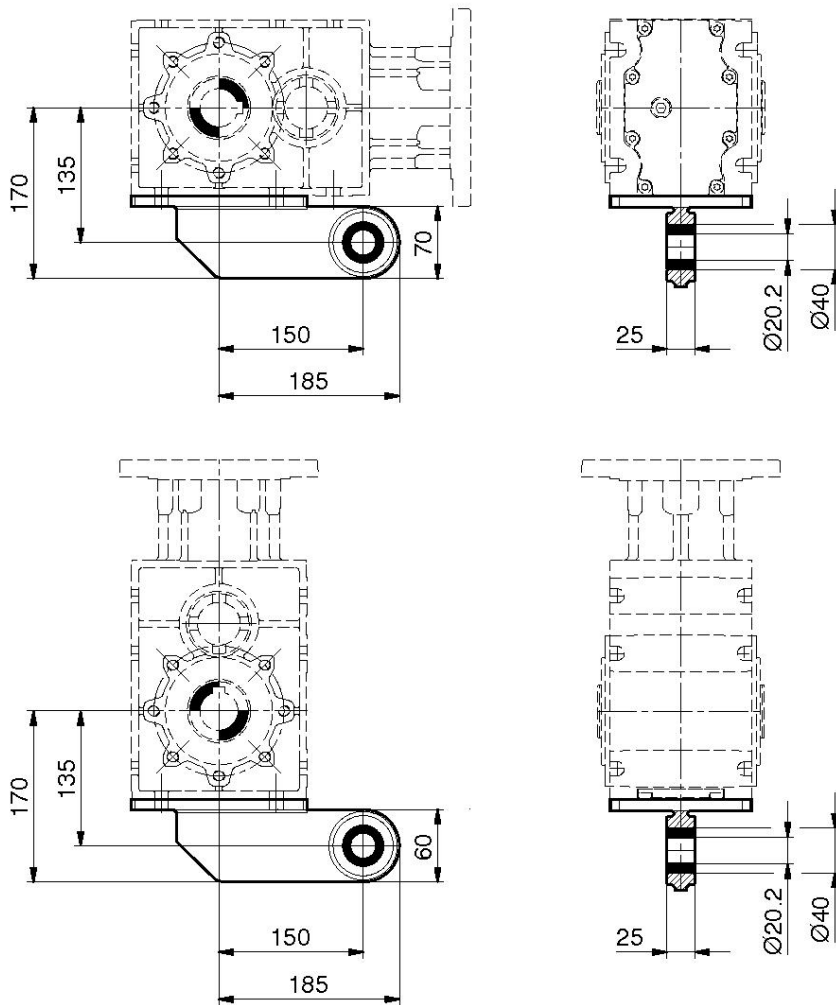
RO-2 Riduttori - Gearboxes - Getriebe

RO32

Dimensioni braccio di reazione - Torque arm dimensions - Abmessungen der Drehmomentstütze



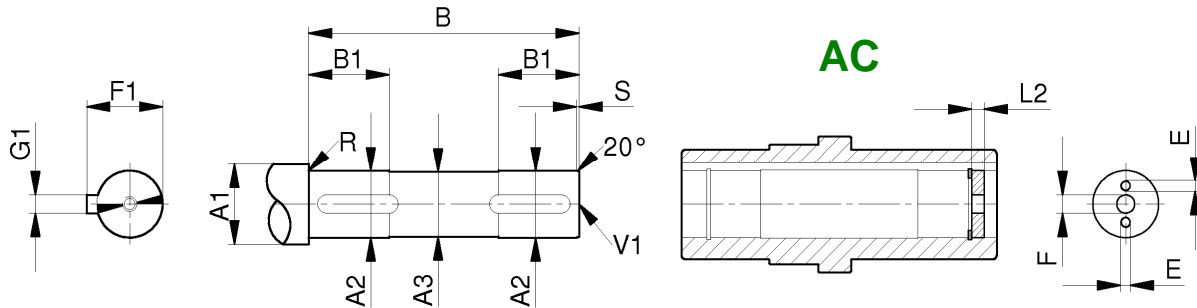
BTF



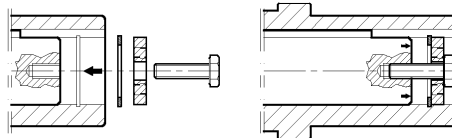
RO02-32

Getriebe - Gearboxes - Riduttori RO-2

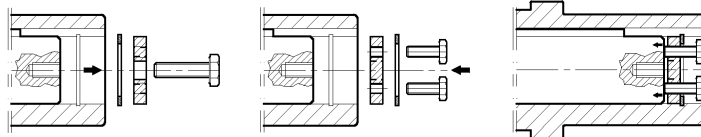
Abmessungen der Maschinenwelle - Machine shaft dimensions - Dimensioni albero macchina



- Montaggio
Mounting
Montage



- Smontaggio
Disassembly
Demontage

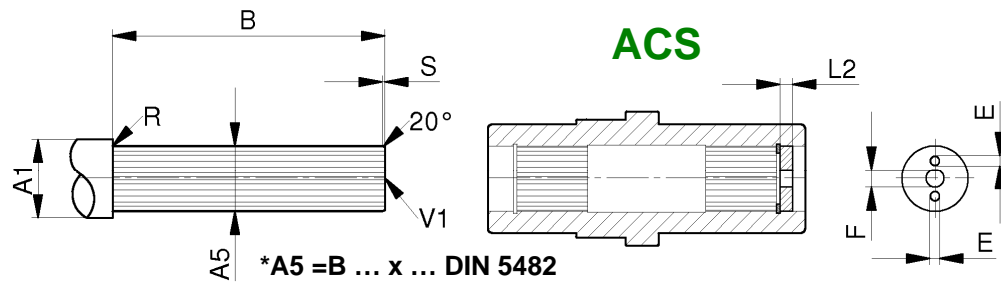
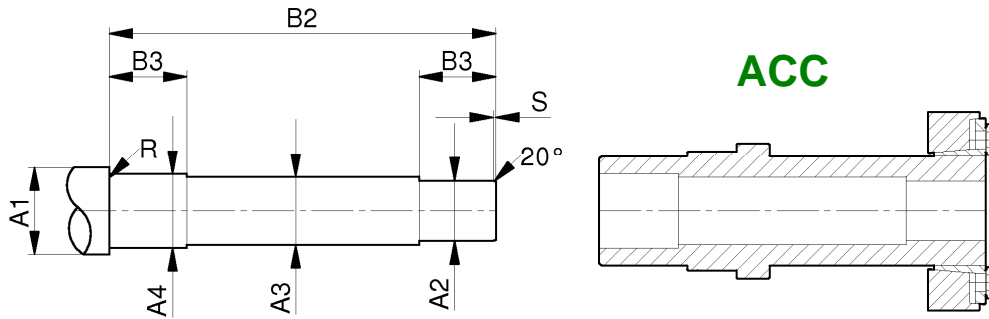


Size	A1	A2	A3	B	B1	E	F	F1	G1	L2	R	S	V1
RO02	35	25	24	98	35	M5	9	28	8	4.5	1	2	M8x19
RO12	40	30	29	98	35	M6	11	33	8	5.5	1	2	M10x22
	35	25	24	98	35	M5	9	28	8	4.5	1	2	M8x19
RO22	45	35	34	113.5	40	M8	11	38	10	7	1	2	M10x22
	40	30	29	113.5	40	M6	11	33	8	7	1	2	M10x22
RO32	50	40	38	133.5	45	M8	13	43	12	7	1	2	M12x28
	35	35	34	133.5	45	M8	11	38	10	7	1	2	M10x22

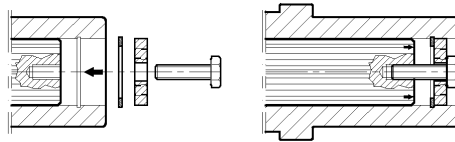
RO-2 Riduttori - Gearboxes - Getriebe

RO02-32

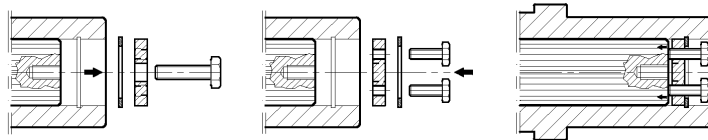
Dimensioni albero macchina - Machine shaft dimensions - Abmessungen der Maschinenwelle



- Montaggio
Mounting
Montage



- Smontaggio
Disassembly
Demontage

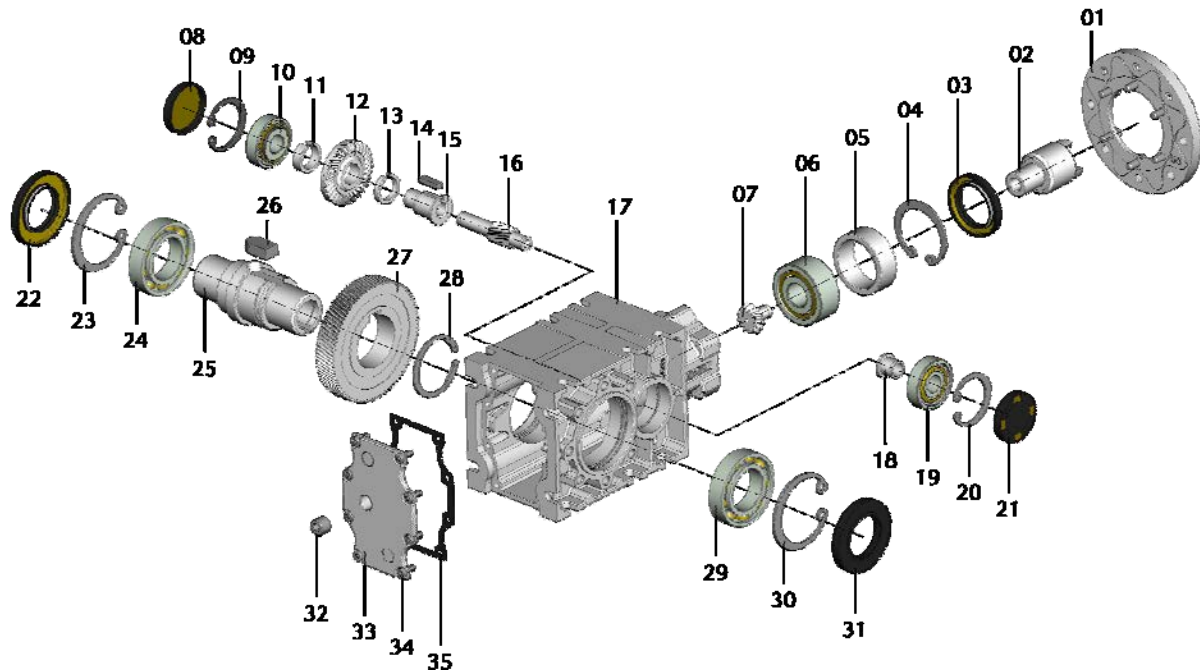


Size	A1	A2	A3	A4	A5	B	B2	B3	E	F	L2	R	S	V1
RO02	35	25	25	27	20x17	98	130.5	33	M4	9	4.5	1	2	M8x19
RO12	40	30	29	32	30x27	98	144	34	M6	11	5.5	1	2	M8x19
RO22	45	35	34	37	35x31	113.5	167	39	M8	11	7	1	2	M10x22
RO32	50	40	39	42	40x36	133.5	189	49	M8	13	7	1	2	M10x22

RO02-32

Getriebe - Gearboxes - Riduttori RO-2

Bauelemente - Component Parts - Parti Componenti

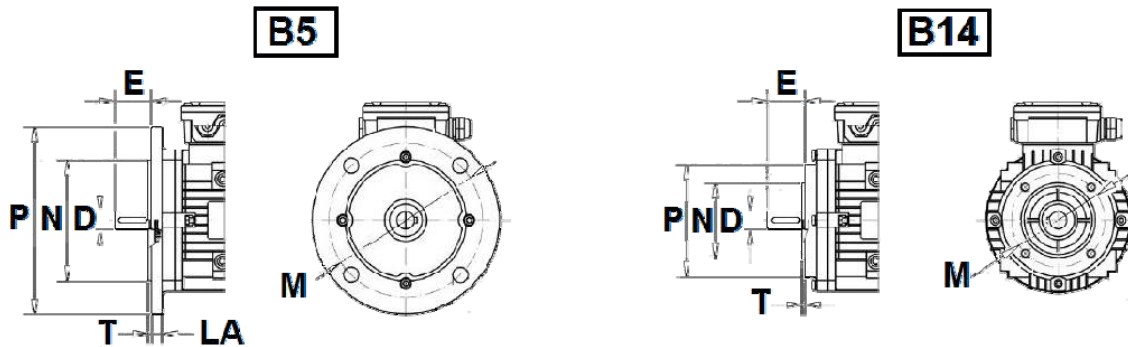


Item	Descrizione - Description - Beschreibung	Item	Descrizione - Description - Beschreibung
01	Flangia motore - Motor flange - Motorflansch	19	Cuscinetto - Bearing - Lager
02	Albero entrata - Input shaft - Eingangswelle	20	Anello Seeger - Snap ring - Seegerring
03	Paraolio - Oil seal - Wellendichtring	21	Paraolio - Oil seal - Wellendichtring
04	Anello Seeger - Snap ring - Seegerring	22	Paraolio - Oil seal - Wellendichtring
05	Distanziale - Spacer - Distanzring	23	Anello Seeger - Snap ring - Seegerring
06	Cuscinetto - Bearing - Lager	24	Cuscinetto - Bearing - Lager
07	Pignone Gleason - Gleason pinion - Gleason Ritzel	25	Albero uscita - Output shaft - Ausgangswelle
08	Paraolio - Oil seal - Wellendichtring	26	Chiavetta - Key - Paßfeder
09	Anello Seeger - Snap ring - Seegerring	27	Ruota - Gear - Rad
10	Cuscinetto - Bearing - Lager	28	Anello Seeger - Snap ring - Seegerring
11	Distanziale - Spacer - Distanzring	29	Cuscinetto - Bearing - Lager
12	Ruota Gleason - Gleason gear - Gleason Rad	30	Anello Seeger - Snap ring - Seegerring
13	Distanziale - Spacer - Distanzring	31	Paraolio - Oil seal - Wellendichtring
14	Chiavetta - Key - Paßfeder	32	Tappo - Plug - Stopfen
15	Boccola - Bush - Buchse	33	Coperchio - Cover - Deckel
16	Pignone - Pinion - Ritzel	34	Vite - Screw - Schraube
17	Carcassa - Housing - Gehäuse	35	Guarnizione - Gasket - Dichtung
18	Boccola - Bush - Buchse		

RO-2 Riduttori - Gearboxes - Getriebe

Motori IEC - IEC Motors - IEC Motoren

IEC Tabella di riferimento rapido 50 Hz	IEC Quick reference chart 50 Hz	IEC Kurzreferenztable 50 Hz
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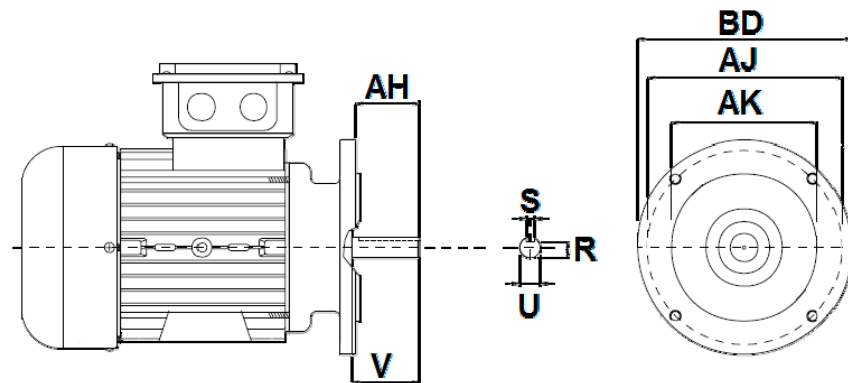


Taglia Size Größe	4 poli/poles/Pole			2 poli/poles/Pole			Flangia/Flange/Flansch P / M / N	Albero/Shaft/ Welle D x E	T	LA
	kW	rpm	kg (B3)	kW	rpm	kg (B3)				
56B	0.09	1365	3.6	0.13	2740	3.6	B5 - 120 / 100 / 80 B14 - 80 / 65 / 50	9 x 20	2.5	20
63A	0.13	1340	4.5	0.18	2730	4.5	B5 - 140 / 115 / 95 B14 - 90 / 75 / 60	11 x 23	2.5	23
63B	0.18	135	4.9	0.25	2730	5.3				
71A	0.25	136	6.0	0.37	2770	6.0	B5 - 160 / 130 / 110 B14 - 105 / 85 / 70	14 x 30	3.0	30
71B	0.37	1370	6.3	0.55	2770	6.3				
80A	0.55	1390	8.1	0.75	2800	8.1	B5 - 200 / 165 / 130 B14 - 120 / 100 / 80	19 x 40	3.0	40
80B	0.75	138	9.2	1.1	2820	9.2				
90S	1.1	139	13.0	1.5	2860	13.0	B5 - 200 / 165 / 130 B14 - 140 / 115 / 95	24 x 50	3.0	50
90L	1.5	1390	14.5	2.2	2840	14.5				
100A	2.2	1410	18.8	3	2960	18.8	B5 - 250 / 215 / 180 B14 - 160 / 130 / 110	28 x 60	4.0	60
100B	3	1410	21.5	4	285	21.5				
112	4	1435	28.0	5.5	2980	28.0	B5 - 250 / 215 / 180 B14 - 160 / 130 / 110	28 x 60	4.0	60
132S	5.5	1440	42	---	---	---	B5 - 300 / 265 / 230 B14 - 200 / 165 / 130	38 x 80	4.0	14
132Sb	---	---	---	7.5	2900	45				
132Ma	7.5	1440	48	---	---	---				
132Mb	---	---	---	11	2900	73				

Getriebe - Gearboxes - Riduttori RO-2

NEMA Motoren- NEMA Motors - Motori NEMA

NEMA Tabella di riferimento rapido 60 Hz	NEMA Quick reference chart 60 Hz	NEMA Kurzreferenztabelle 60 Hz
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IEC Frame	NEMA Adapter	4 poles				Flange BD / AJ / AK	Shaft U x V	AH	R	S
		hp	rpm	kg	lb					
80	56C	1/4	1750	8.5	18.7	6.5 / 5.875 / 4.5 in 165.1 / 149.225 / 114.3 mm	0.625 x 1.875 in 15.875 x 47.625 mm	2.06 in 52.324 mm	0.517 in 13.13 mm	0.188 in 4.775 mm
		1/3	1740	8.5	18.7					
		1/2	1720	8.5	18.7					
		3/4	1700	8.5	18.7					
		1	1680	9.8	21.6					
		1-1/2	1670	11.0	24.3					
100	182C	2	1730	19.0	41.9	9.0 / 7.250 / 8.5 in 228.6 / 184.15 / 215.9 mm	1.125 x 2.750 in 28.575 x 69.85 mm	2.62 in 66.548 mm	0.986 in 25.04 mm	0.25 in 6.36 mm
		3	1690	19.0	41.9					
		4	1690	23.0	50.7					
		5-1/2	1690	23.0	50.7					

RO-2 Riduttori - Gearboxes - Getriebe

 Estratto delle ISTRUZIONI D'USO E MANUTENZIONE (manuale completo su www.varvel.com)	 Abstract of OPERATION AND MAINTENANCE INSTRUCTIONS (complete manual on www.varvel.com)	 Zusammenfassung der BETRIEBS- u. WARTUNGSANWEISUNGEN (vollständiges Handbuch auf www.varvel.com)
<p>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.</p> <p>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.</p> <p>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.</p> <p>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 alla base sintetica con oli a base minerale.</p> <p>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.</p> <p>Verniciatura Qualora il gruppo subisca una verniciatura successiva, è necessario proteggere accuratamente gli anelli di tenuta, i piani di accoppiamento e gli alberi sporgenti.</p> <p>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.</p> <p>Gestione Ambientale del prodotto In conformità alla Certificazione Ambientale ISO 14001, sono suggerite le seguenti indicazioni per lo smaltimento del nostro prodotto:</p> <ul style="list-style-type: none"> - 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. 	<p>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.</p> <p>Installation Check if the unit to be installed, is properly selected to perform the required function and that its mounting position complies with the order. The nameplate reports such information. Check mounting stability to ensure the unit runs without vibrations or overloads.</p> <p>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.</p> <p>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.</p> <p>Handling When hoisting, use relevant housing locations or eyebolts if provided, or foot or flange holes. Never hoist on any moving part.</p> <p>Painting Carefully protect oil seals, coupling faces and shafts when units are re-painted.</p> <p>Long-term storage For storages longer than three months, apply anti-oxidants onto shafts and machined surfaces, and protective grease on oil seal lips.</p> <p>Product's Environmental Management In conformity with Environmental Certification ISO 14001, we recommend the following to dispose of our products:</p> <ul style="list-style-type: none"> - scraped components of the units to be delivered to authorized centres for metal object collection; - oils and lubricants drained from the units to be delivered to Exhausted Oil Unions; - packages (pallets, carton boxes, paper, plastic, etc..) to lead into regeneration/recycling circuits as far as possible, by delivering separate waste classes to authorized companies. 	<p>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.</p> <p>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.</p> <p>Inbetriebnahme Die Antriebseinheit kann in beiden Drehrichtungen eingesetzt werden. Die Einheit muss 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.</p> <p>Wartung Obwohl die Einheiten vor der Auslieferung im Leerlauf getestet wurden, ist es ratsam sie in den ersten 20-30 Stunden nicht mit Volllast zu betreiben, um ein einwandfreies Einlaufen zu gewährleisten. Die Einheiten werden entsprechend den Angaben auf dem Typenschild mit synthetischem Schmierstoff Lebensdauer geschmiert ausgeliefert. Bei einem eventuellen Ölwechsel oder Nachfüllen darf der Schmierstoff nicht mit Mineralöl vermischt werden.</p> <p>Handhabung und Transport Beim Heben und Transport ist auf standsichere Lage und sorgfältige Befestigung geeigneter Hebe Vorrichtungen zu achten. Bewegliche Teile dürfen nicht zum Anheben benutzt werden.</p> <p>Anstrich Beim Erneuern oder dem zusätzlichen Aufbringen eines Anstriches sind die Dichtungen, Kupplungssitze und Wellen sorgfältig zu schützen.</p> <p>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.</p> <p>Entsorgung In Übereinstimmung mit ISO 14001 weisen wir darauf hin, im Falle des Verschrottens die einzelnen Metallteile getrennt zu behandeln und Schmiermittel bei den befügten Stellen zu entsorgen. Verpackungen sollten soweit wie möglich wieder verwendet werden.</p>



Un'impresa socialmente responsabile

IT

Per rafforzare il proprio impegno nella società, dal 2004 Varvel ha iniziato un programma di sostegno continuativo di 3 associazioni onlus: UNICEF (Fondo delle Nazioni Unite per l'Infanzia), MSF (Medici Senza Frontiere) e ANT (Associazione Nazionale Tumori). Anche il rispetto e la tutela dell'ambiente fanno parte dei valori Varvel ed è per questo che dal 2001 Varvel ha certificato il Sistema Ambientale secondo la norma UNI EN ISO 14001.

A socially responsible company

GB

To the scope of intensifying our commitment to society, Varvel since 2004 started an ongoing support programme with three non-profit institutions: UNICEF (United Nations Children's Fund), MSF (Médecins sans Frontières) and ANT (National Cancer Association). Environmental respect and protection are also part of Varvel's values and this is why Varvel certified in 2001 its Environmental System to standard UNI EN ISO 14001.

Ein Unternehmen mit sozialer Verantwortung

DE

Im Rahmen der Intensivierung unseres gesellschaftlichen Engagements startete Varvel ein seit 2004 laufendes Unterstützungsprogramm von drei Hilfsorganisationen: UNICEF (United Nations Children's Fund), MSF (Ärzte ohne Grenzen) und ANT (Nationale Krebs Gesellschaft). Da Schutz der Umwelt ebenfalls Teil der von Varvel geachteten Werte ist, erwarb Varvel seit 2001 die Zertifizierung UNI EN ISO 14001 für seine Anlagen.



Une entreprise socialement responsable

FR

Pour renforcer son investissement dans la société depuis 2004 Varvel a entrepris un programme de soutien constant auprès de 3 associations ONG: UNICEF (Fonds des Nations unies pour l'enfance), MSF (médecins sans frontière) et ANT (Association Italienne contre les tumeurs). Le respect et la tutelle de l'environnement font également partie des nos valeurs pour cela depuis 2001 Varvel ha obtenu la certification du système de management environnemental suivant la norme UNI EN ISO 14001.

Uma empresa socialmente responsável

PT

Com o propósito de reforçar o seu empenho social, a Varvel mantém desde 2004 um programa de apoio com três instituições não-lucrativas: UNICEF (Fundo das Nações Unidas para a Infância), MSF (Médicos sem Fronteiras) e ANT (Associação Nacional do Cancro). O respeito e a protecção do ambiente fazem também parte dos valores Varvel e é por isso que em 2001 a Varvel certificou o seu Sistema Ambiental de acordo com a norma UNI EN ISSO 14001.

Una empresa socialmente responsable

ES

Para reforzar su compromiso con la sociedad, desde el 2004 Varvel ha iniciado un programa de ayuda continuada a 3 asociaciones sin ánimo de lucro: UNICEF (Fondo de las Naciones Unidas para la Infancia), MSF (Médicos sin Fronteras) y ANT (Asociación contra el Cáncer). También el respeto y cuidado del ambiente forman parte de los valores Varvel y por ello desde el 2001 Varvel ha certificado el Sistema Ambiental según la normativa UNI EN ISO 14001.



RN·RO·RV



RS·RT



RD



RG



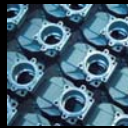
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Ware House N. G3 and G4 - Ground Floor
Indus Valley's Logistic Park - Unit 3
Mel Ayanambakkam - Vellala Street
Chennai - 600 095 - Tamil Nadu, INDIA
info@mgmvarvelindia.com
www.mgmvarvelindia.com

VARVEL SpA - Headquarters

Via 2 Agosto 1980, 9 - Loc. Crespellano
40053 Valsamoggia (BO) - Italy
☎ +39 051 6721811
☎ +39 051 6721825
varvel@varvel.com
www.varvel.com

IT

GB

DE