

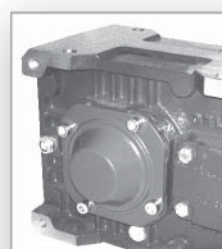
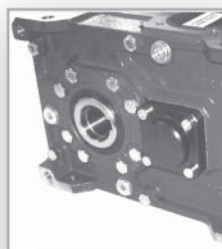
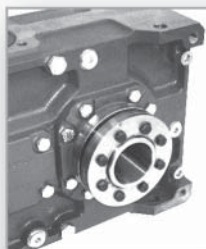
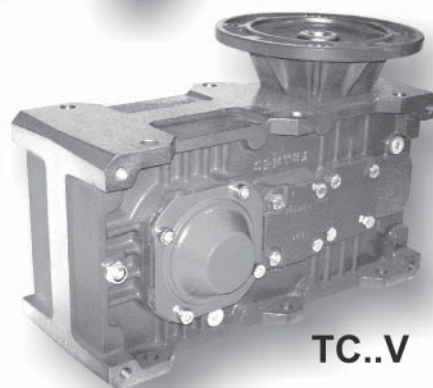
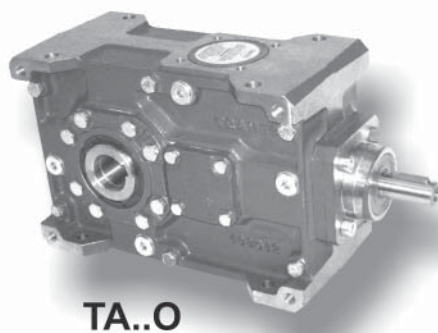
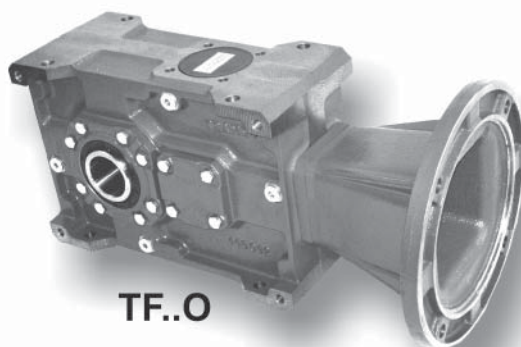
2.0

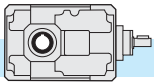
RIDUTTORE AD ASSI ORTOGONALI

BEVEL HELICAL GEARBOX

KEGELSTIRNRADGETRIEBE

| | | | | |
|------|---------------------------|------------------------------------|------------------------------|----|
| 2.1 | Caratteristiche | <i>Characteristics</i> | Merkmale | 12 |
| 2.2 | Designazione | <i>Designation</i> | Bezeichnung | 13 |
| 2.3 | Sensi di rotazione alberi | <i>Direction of shaft rotation</i> | Drehrichtungen der Wellen | 14 |
| 2.4 | Entrata supplementare | <i>Additional input</i> | Zusatzantrieb | 14 |
| 2.5 | Rendimento | <i>Efficiency</i> | Wirkungsgrad | 14 |
| 2.6 | Velocità in entrata | <i>Input speed</i> | Antriebsdrehzahl | 15 |
| 2.7 | Potenza termica | <i>Thermal power</i> | Thermische Leistung | 15 |
| 2.8 | Dati tecnici | <i>Technical data</i> | Technische Daten | 16 |
| 2.9 | Momenti d'inerzia | <i>Moments of inertia</i> | Trägheitsmoment | 18 |
| 2.10 | Dimensioni | <i>Dimensions</i> | Abmessungen | 24 |
| 2.11 | Accessori | <i>Accessories</i> | Zubehör | 30 |
| 2.12 | Giochi angolari | <i>Angular backlash</i> | Winkelspiel | 34 |
| 2.13 | Lubrificazione | <i>Lubrication</i> | Schmierung | 34 |
| 2.14 | Carichi radiali e assiali | <i>Radial and axial loads</i> | Radial- und Axialbelastungen | 36 |
| 2.15 | Lista parti di ricambio | <i>Spare parts list</i> | Ersatzteilliste | 38 |





2.1 Caratteristiche

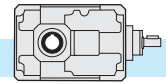
- Costruiti in 9 grandezze a 2 riduzioni e in 8 grandezze a 3 riduzioni.
- Sono previsti tre tipi di entrata: con albero entrata sporgente, con predisposizione attacco motore (campana e giunto) e predisposizione attacco motore COMPATTA, escluse grandezze 56 e 63. I tre tipi di entrata possono essere montati indifferentemente nelle esecuzioni verticale e/o orizzontale.
- Il corpo riduttore in lega di alluminio, $GAISi9Cu1$ UNI7369/3 (56-63), in ghisa meccanica EN GJL 200 UNI EN 1561 (71-180) o in ghisa sferoidale EN GJS 400-15U UNI EN 1563 (200-225), abbondantemente nervato all'interno e all'esterno per garantire la rigidità, è lavorato su tutti i piani per consentire un facile posizionamento; inoltre un'unica camera di lubrificazione garantisce una maggiore dissipazione termica e una migliore lubrificazione di tutti gli organi interni.
- Gli ingranaggi sono costruiti in acciaio legato da cementazione e sottoposti a trattamento di cementazione e tempra. In particolare, la prima riduzione è costituita da due ingranaggi conici a dentatura spiroidale GLEASON con profilo accuratamente rodato, in acciaio 16NiCr4 o 18NiCrMo5 cementati e temprati. Gli ingranaggi cilindrici, a dentatura elicoidale, sono costruiti in acciaio 16NiCr4, 18NiCrMo5 o 20MnCr5 UNI EN 10084 cementati e temprati, rettificati entro la classe di qualità 6 della DIN 3962.
- L'utilizzo dei cuscinetti a rulli conici di qualità su tutti gli assi (ad eccezione del manicotto in entrata nella predisposizione attacco motore compatta, il quale è sostenuto da cuscinetti obliqui a sfere) consente al riduttore di ottenere delle durate molto elevate e di sopportare dei carichi radiali e assiali esterni molto elevati.
- L'albero lento cavo di serie in acciaio (disponibile a richiesta con calettatore), la possibilità di montare una flangia uscita su uno o entrambi i fianchi laterali e la predisposizione per il montaggio del dispositivo antiritorno esaltano la versatilità di questi riduttori facilitandone l'installazione.
- Il corpo riduttore, le flange, le campane ed i coperchi vengono verniciati esternamente di colore BLU RAL 5010, ad eccezione dei riduttori ortogonali delle grandezze 56 e 63, realizzati in alluminio.

2.1 Characteristics

- *Built in 9 sizes with 2 reduction stages and in 8 sizes with 3 reduction stages.*
- *Three input types are available : projecting input shaft, pre-engineered motor coupling (bell and joint) and pre-engineered COMPACT motor coupling. (Size 56 and 63 excluded). The 3 input types can be mounted either vertically and/or horizontally.*
- *Gear unit casing in aluminium alloy $GAISi9Cu1$ UNI7369/3 (56-63), in engineering cast iron, EN GJL 200 UNI EN 1561 (71-180) or spheroidal graphite cast iron EN GJS 400-15U UNI EN 1563 (200-225), is ribbed internally and externally to guarantee rigidity. It is machined on all surfaces for easy positioning. The single lubrication chamber guarantees improved heat dissipation and improved lubrication of all the internal components.*
- *The gears are built in casehardened compound steel and have undergone case-hardening and quench-hardening treatments. In particular, the first reduction stage consists of two GLEASON spiral bevel gears with precision ground profile, in 16CrNi4 or 18NiCrMo5 case-hardened and quench-hardened steel. The helical spur gears are built in 16NiCr4, 18NiCrMo5 or 20MnCr5 UNI EN 10084 quench-hardened and case-hardened steel, grinded in quality 6 DIN 3962.*
- *The use of high-quality tapered roller bearings on all shafts (except for the input sleeve on the pre-engineered compact motor coupling, which is supported by angular ball bearings) ensures long life and enables very high external radial and axial loads.*
- *The standard hollow output shaft made of steel (shrink disc available on request), the option of mounting an output flange on one or both sides and the possibility of mounting a backstop device make these gear units extremely versatile and easy to install.*
- *Gearbox housing, flanges, bells and covers are externally painted with BLUE RAL 5010, except for bevel helical gearboxes size 56 and size 63 which are made in aluminium.*

2.1 Merkmale

- Erhältlich in 9 Größen zu je 2 Untersetzungsstufen und in 8 Größen zu je 3 Untersetzungsstufen.
- Vorgesehen sind drei Antriebsarten: mit vorstehender Antriebswelle, mit Auslegung für Motoranschluß (Glocke und Kupplung), mit Kompaktauslegung für Motoranschluß (Baugröße 56 und 63 ausgenommen). Die drei Antriebstypen können alle sowohl in der vertikalen als auch in der horizontalen Ausführung verwendet werden.
- Die Getriebegehäuse ist aus Aluminiumlegierung $GAISi9Cu1$ UNI7369/3 (56-63), Maschinenguß EN GJL 200 UNI EN 1561 (71-180) oder aus Sphäroguß EN GJS 400-15U UNI EN 1563 (200-225) und mit Rippen versehen, die die Steifheit gewährleisten; die Bearbeitung aller Flächen ermöglicht eine leichte Positionierung; eine einzige Schmierkammer gewährleistet eine höhere Wärmedissipation und eine bessere Schmierung aller inneren Elemente.
- Die Zahnräder bestehen aus legiertem Einsatzstahl, sie wurden einsatz- und abschreckgehärtet. Insbesondere, die erste Untersetzungsstufe besteht aus zwei spiralverzahnten GLEASON – Kegelrädern mit sorgfältig eingelaufenem Profil aus einsatz- und abschreckgehärtetem 16CrNi4- oder 18NiCrMo5. Die Schrägstirnräder bestehen aus einsatz- und abschreckgehärtetem 16NiCr4, 18NiCrMo5- oder 20MnCr5-Stahl UNI EN 10084, geschliffen innerhalb Qualitätsklasse 6 der Spez. DIN 3962.
- An allen Achsen werden Qualitäts-Kegelrollenlager eingebaut. Diese gewährleisten eine hohe Lebensdauer und das Aushalten von sehr hohen Radial- und Axialbelastungen. (Ausnahme: Muffe am Antrieb bei Kompaktauslegung die von Schrägkugellagern gehalten wird)
- Die serienmäßige Abtriebshohlwelle aus Stahl (auf Wunsch mit Schrumpfscheibe erhältlich), die Möglichkeit der Montage eines Abtriebsflansches an einer oder an beiden Seiten und die Auslegung für die Montage der Rücklauf Sperre heben die Vielseitigkeit dieser Untersetzungsgetriebe hervor und erleichtern ihren Einbau.
- Getriebegehäuse, Flansche, Glocken und Deckel werden in BLAU RAL 5010 lackiert (mit Ausnahme von Kegelstirnradgetriebe Größe 56 und 63, die aus Aluminium bestehen).

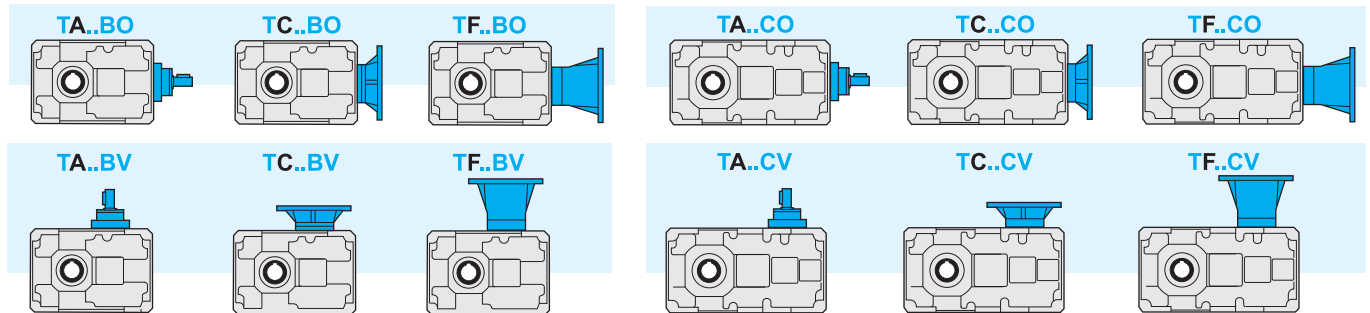


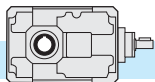
2.2 Designazione

2.2 Designation

2.2 Bezeichnung

| Riduttore Gearbox Getriebe | Tipo entrata Input type Antriebsart | Grandezza Size Größe | Rotismo Gearing Räderwerk | Rapporto rid. Ratio Untersetzungsverhältnis | Predisposiz. Motor coupling Motoranschluss | Esecuzione Execution Ausführung | Posizione di montaggio Mounting position Baulage | Flangia uscita Output flange Abtriebsflansch | Antririttorno Back-stop device Rücklaufsperre | Calettatore Shrink disk Schrumpfscheibe | Entrata supplementare Additional input Zusatzantrieb |
|--|---|---|---------------------------------|---|--|---------------------------------------|--|--|---|---|--|
| T | A | 112 | B | 10 | P.A.M. | O | B3 | FLS | CW | C.S. | S.e.A. |
| Riduttore ad assi ortogonali Bevel helical gearbox Kegelstirnradgetriebe | A | 56 63 71 90 112 140 180 200 225 | B | $i_n = 5 \div 630$ | 56 ÷ 225 | O | B3 B6 B7 B8 VA VB | FLS | AW | C.S. | A |
| | C | 56 63 80 100 125 160 180 200 | C | | | V | | FLD | CW | C.D. | C |
| | F | | | | | | | FL2 | | | F |





2.3 Sensi di rotazione alberi

Nei riduttori esecuzione orizzontale, per ottenere il senso di rotazione contrario al catalogo dell'albero lento mantenendo invariato il senso di rotazione dell'albero veloce, è sufficiente ruotare il riduttore di 180° attorno all'asse dell'albero veloce, utilizzando in pratica il piano di fissaggio opposto.

Nei riduttori esecuzione verticale è possibile fornire il senso di rotazione contrario al catalogo specificandolo al momento dell'ordine.

2.3 Direction of shaft rotation

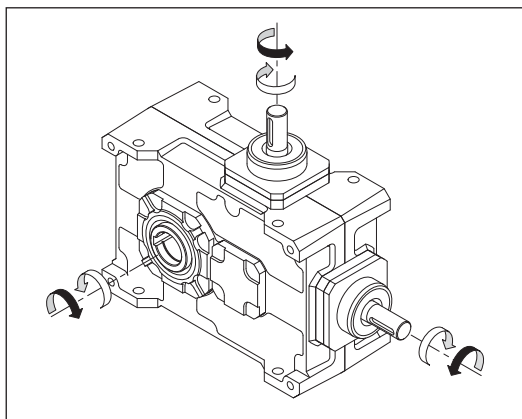
With regard to horizontal mounted gearboxes, in order to get output rotation in a direction opposite to that given in the catalogue, nevertheless keeping input rotation direction unchanged, simply turn the gearbox 180° around the input shaft; in practice, mount the other way up.

Vertical units can be supplied with rotation direction opposite to that given in the catalogue; specify when ordering.

2.3 Drehrichtungen der Wellen

Wenn bei Untersetzungsgetrieben in waagerechter Ausführung für die Abtriebswelle eine andere als die im Katalog angegebene Drehrichtung gewünscht wird und die Antriebswelle ihre Drehrichtung beibehalten soll, so genügt es, das Getriebe um 180° um die Achse der Antriebswelle zu drehen, d.h. die gegenüberliegende Anschlußfläche zu verwenden.

Untersetzungsgetrieben in vertikaler Ausführung sind mit gegensätzlicher Drehrichtung lieferbar, deswegen ist es bei der Bestellung anzugeben, falls die umgekehrte Drehrichtung gewünscht wird.



Sensi di rotazione standard
Standard direction of rotation
Standarddrehrichtungen.

2.4 Entrata supplementare

L'albero entrata può essere montato nella posizione orizzontale (O) o verticale (V), eccetto le grandezze 56 e 63. Il cambio di versione può essere facilmente realizzato anche successivamente al primo montaggio.

Eccetto le grandezze 56 e 63, esiste la possibilità di montare una seconda entrata scegliendola, in base alle necessità, tra quelle previste: TA, TC, TF.

In questo caso occorre definire la versione del riduttore con l'entrata principale e specificare quindi la seconda entrata.

2.4 Additional input

The input shaft can be mounted either horizontally (O) or vertically (V) on all sizes except for 56 and 63. The version can be easily changed even after the first assembly.

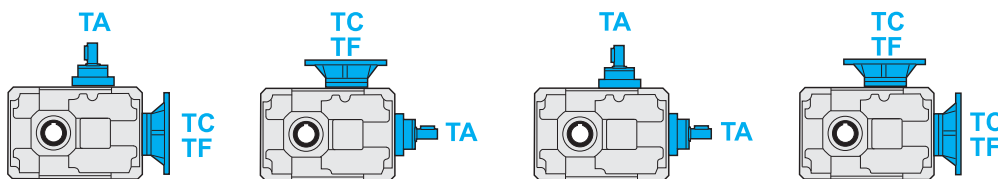
Except for sizes 56 and 63, there is the possibility of mounting a second input; the available options are TA, TC, TF.

Both the main input and the additional second input shall be specified when ordering.

2.4 Zusatzantrieb

Die Antriebswelle kann entweder waagrecht (O) oder senkrecht (V) montiert werden ((Baugröße 56 und 63 ausgenommen). Auch nach der ersten Montage kann die Version leicht geändert werden. Mit Ausnahme von den Größen 56 und 63 kann ein zweiter Antrieb TA, TC oder TF montiert werden.

Bei der Bestellung sollte sowohl der hauptsächliche Antrieb als auch der zweite Antrieb angegeben werden.



2.5 Rendimento

Il valore del rendimento dei riduttori può essere stimato con sufficiente approssimazione in base al numero di riduzioni, trascurando le variazioni non significative attribuibili alle varie grandezze e rapporti.

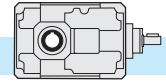
2.5 Efficiency

The efficiency value of the gear units can be estimated sufficiently well on the basis of the number of reduction stages, ignoring non-significant variations which can be attributed to the various sizes and ratios.

2.5 Wirkungsgrad

Der Wirkungsgrad des Getriebes kann mit ausreichender Annäherung aufgrund der Anzahl der Untersetzungsstufen ermittelt werden. Dabei können die unwesentlichen Veränderungen, die auf die verschiedenen Größen und Untersetzungsverhältnisse zurückzuführen sind, ausser Acht gelassen werden.

| | | |
|--------|-------|-------|
| η | T...B | T...C |
| | 0.95 | 0.93 |



2.6 Velocità in entrata

Tutte le prestazioni dei riduttori sono calcolate in base ad una velocità in entrata di 1400 min⁻¹.

Tutti i riduttori ammettono velocità fino a 3000 min⁻¹ anche se è consigliabile, dove l'applicazione lo permette, utilizzare valori inferiori a 1400 min⁻¹.

Nella tabella sottostante riportiamo i coefficienti correttivi della potenza in entrata P alle varie velocità riferita ad Fs = 1

2.6 Input speed

All calculations of gear unit performance are based on an input speed of 1400 min⁻¹. All gear units permit speed up to 3000 min⁻¹, nevertheless it is advisable to keep below 1400 min⁻¹, depending on application.

The table below reports input power P corrective coefficients at the various speeds, with Fs = 1.

2.6 Antriebsdrehzahl

Bei der Berechnung der Getriebeleistungen wurde eine Antriebsdrehzahl von 1400 min⁻¹ berücksichtigt.

Bei allen Getrieben sind Antriebsdrehzahlen bis 3000 min⁻¹ möglich; es ist jedoch ratsam, die Drehzahlen unter 1400 min⁻¹ zu halten, wenn die Anwendung es ermöglicht.

In der folgenden Tabelle finden Sie die Korrekturkoeffizienten für die Antriebsleistung P bei den verschiedenen Drehzahlen, bezogen auf Fs = 1.

Tab. 1

| n ₁ (rpm) | 3000 | 2800 | 2200 | 1800 | 1400 | 900 | 700 | 500 |
|----------------------|---------|---------|----------|----------|-------|---------|----------|----------|
| Pc (kW) | P x 1.9 | P x 1.8 | P x 1.48 | P x 1.24 | P x 1 | P x 0.7 | P x 0.56 | P x 0.42 |

2.7 Potenza termica

I valori delle potenze termiche, P₁₀ (kW), sono riportati nella tabella seguente, in funzione di grandezza, rapporto e velocità entrata del riduttore.

I valori sono calcolati considerando l'utilizzo di olio sintetico ISO 320.

Vedere paragrafo 1.4 per la scelta dei fattori correttivi.

2.7 Thermal power

The following table shows the values of thermal power P₁₀ (kW) for each gearbox size on the basis of ratio and input speed.

The values have been calculated considering the utilization of synthetic oil ISO 320.

See chapter 1.4 for the corrective coefficients.

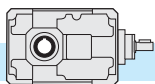
2.7 Thermische Leistung

Die folgende Tabelle enthält die Werte P₁₀ der thermischen Leistung (kW) je nach Getriebegröße und abhängig von Untersetzung und von Drehzahlen am Getriebeantrieb. Die angegebenen Werte beziehen sich auf Schmiering mit synthetischen Öl ISO 320.

Im Abschnitt 1.4 finden Sie die Korrekturkoeffizienten.

| Potenza Termica / Thermal power / Thermische Leistung P ₁₀ [kW] | | | | | | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| i _n | T56B | | T63B | | T71B | | T90B | | T112B | | T140B | | T180B | | T200B | | T225B | |
| | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 |
| 8 | | | | | - | - | - | - | - | - | - | - | - | - | 48.3 | 45.4 | 59 | 48 |
| 10 | | | | | 4 | 6.3 | 10.8 | 17 | 32 | 43.3 | 42 | 55 | 45.8 | | | | | |
| 12.5 | | | | | 3.7 | 5.8 | 10 | 15.5 | 28.7 | 39 | 38.5 | 49 | 41.5 | | | | | |
| 16 | | | | | 3.3 | 5.2 | 9 | 14 | 25.8 | 33.8 | 37 | | | | | | | |
| 20 | 4 | 3.4 | 5.5 | 4.7 | 2.8 | 4.4 | 7.7 | 11.8 | 23.5 | 30.8 | 35 | | | | | | | |
| 25 | | | | | 2.7 | 4.2 | 7.3 | 11 | 21.6 | 28.6 | 32.3 | | | | | | | |
| 31.5 | | | | | 2.5 | 3.9 | 6.8 | 10.4 | 20 | 25.6 | 27.7 | | | | | | | |
| 40 | | | | | 2.3 | 3.6 | 6.3 | 9.5 | 18 | 23.9 | 25.8 | | | | | | | |
| 50 | | | | | 1.9 | 3 | 4.7 | 7.6 | 11.3 | 17.4 | - | | | | | | | |
| 63 | | | | | 1.8 | 2.8 | 4.4 | 7.3 | 10.7 | 16.6 | - | | | | | | | |
| 80 | - | - | - | - | 1.7 | 2.6 | 4.2 | 6.8 | 10 | - | - | | | | | | | |

| Potenza Termica / Thermal power / Thermische Leistung P ₁₀ [kW] | | | | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| i _n | T56C | | T63C | | T80C | | T100C | | T125C | | T160C | | T180C | | T200C | |
| | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 | 1400 | 2800 |
| 40 | | | | | - | - | - | - | - | - | - | - | - | - | 32 | 34.2 |
| 50 | | | | | 3.6 | 5.8 | 9.7 | 16.8 | 18.2 | 21 | 23.3 | 30.7 | 32.6 | | | |
| 63 | | | | | 3.4 | 5.3 | 9 | 15.5 | 17 | 19.5 | 21.6 | 28.5 | 30 | | | |
| 80 | | | | | 3.2 | 5 | 8.6 | 14.6 | 16 | 18.4 | 20.4 | 26.4 | 27.7 | | | |
| 100 | 3.3 | 2.8 | 4.2 | 3.6 | 2.9 | 4.5 | 7.7 | 13 | 14 | 17 | 18.4 | 24.8 | 27 | | | |
| 125 | | | | | 2.7 | 4.2 | 7.3 | 12.3 | 13.2 | 15.6 | 17 | 23.3 | 25.3 | | | |
| 160 | | | | | 2.6 | 4 | 7 | 11.7 | 12.5 | 14.7 | 16 | 21.8 | 23.5 | | | |
| 200 | | | | | 2.5 | 4 | 6.6 | 11 | 12 | 13.6 | 14.7 | 16 | 17.5 | | | |
| 250 | | | | | 2.2 | 3.3 | 5.3 | 9.3 | 10 | 12 | 12.8 | 15.3 | 16.7 | | | |
| 315 | | | | | 2 | 3.2 | 5.2 | 9 | 9.7 | 11.4 | 12.3 | 14.6 | 15.8 | | | |
| 400 | | | | | 2 | 3 | 5 | 8.6 | 9.3 | 10.7 | 11.5 | - | - | | | |
| 500 | | | | | 2 | 3 | 4.7 | 8 | 8.6 | - | - | - | - | | | |
| 630 | | | | | 2 | 3 | 4.6 | 7.8 | 8.4 | - | - | - | - | | | |



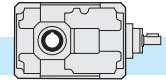
2.8 Dati tecnici

2.8 Technical data

2.8 Technische Daten

| T | n ₁ = 1400 | | | TC - TF | | | | TA | |
|-----|-----------------------|--------|-----------------------|----------------------|----------|-----|------------|-----------------------|---------|
| | in | ir | n ₂ rpm | T ₂ Nm | P1 kW | FS' | IEC | T _{2M} Nm | P kW |
| 56B | 8 | 8.06 | 174 | 94 | 1.8 | 1.2 | | 110 | 2.1 |
| | 10 | 10.17 | 138 | 120 | 1.8 | 1.0 | 56 | 120 | 1.8 |
| | 12.5 | 12.31 | 114 | 120 | 1.5 | 1.1 | 63 (B5) | 130 | 1.6 |
| | 16 | 15.00 | 93 | 107 | 1.1 | 1.3 | 71 | 140 | 1.4 |
| | 20 | 20.33 | 69 | 140 | 1.1 | 1.0 | 80 | 140 | 1.1 |
| | 25 | 24.62 | 57 | 140 | 0.9 | 1.0 | 90 (B5) | 140 | 0.90 |
| | 31.5 | 30.00 | 47 | 107 | 0.55 | 1.3 | (B14) | 140 | 0.70 |
| | 40 | 39.38 | 36 | 140 | 0.55 | 1.0 | TF | 140 | 0.55 |
| | 50 | 48.00 | 29 | 115 | 0.37 | 1.2 | | 140 | 0.45 |
| 56C | 40 | 40.28 | 35 | 140 | 0.55 | 1.0 | | 140 | 0.55 |
| | 50 | 50.83 | 28 | 119 | 0.37 | 1.2 | 56 | 140 | 0.45 |
| | 63 | 61.54 | 23 | 140 | 0.37 | 1.0 | 63 (B5) | 140 | 0.37 |
| | 80 | 75.00 | 19 | 119 | 0.25 | 1.2 | 71 | 145 | 0.30 |
| | 100 | 101.67 | 14 | 145 | 0.22 | 1.0 | 80 | 145 | 0.22 |
| | 125 | 123.08 | 11 | 141 | 0.18 | 1.0 | 90 (B5) | 145 | 0.19 |
| | 160 | 150.00 | 9 | 124 | 0.13 | 1.2 | (B14) | 145 | 0.15 |
| | 200 | 196.92 | 7 | 136 | 0.11 | 1.1 | TF | 145 | 0.12 |
| | 250 | 240.00 | 6 | 135 | 0.09 | 1.0 | | 135 | 0.09 |
| 63B | 8 | 7.94 | 176 | 93 | 1.8 | 1.7 | | 155 | 3.0 |
| | 10 | 10.18 | 138 | 119 | 1.8 | 1.4 | 56 | 170 | 2.6 |
| | 12.5 | 12.50 | 112 | 146 | 1.8 | 1.3 | 63 (B5) | 185 | 2.3 |
| | 16 | 15.88 | 88 | 185 | 1.8 | 1.0 | 71 | 185 | 1.8 |
| | 20 | 20.36 | 69 | 200 | 1.5 | 1.0 | 80 | 200 | 1.5 |
| | 25 | 25.00 | 56 | 180 | 1.1 | 1.1 | 90 (B5) | 200 | 1.2 |
| | 31.5 | 31.00 | 45 | 181 | 0.9 | 1.1 | (B14) | 200 | 1.0 |
| | 40 | 40.00 | 35 | 194 | 0.75 | 1.0 | TF | 200 | 0.80 |
| | 50 | 49.60 | 28 | 177 | 0.55 | 1.0 | | 200 | 0.60 |
| 63C | 40 | 39.71 | 35 | 194 | 0.75 | 1.0 | | 200 | 0.80 |
| | 50 | 50.89 | 28 | 178 | 0.55 | 1.2 | 56 | 210 | 0.65 |
| | 63 | 62.50 | 22 | 210 | 0.55 | 1.0 | 63 (B5) | 210 | 0.55 |
| | 80 | 79.41 | 18 | 186 | 0.37 | 1.1 | 71 | 210 | 0.42 |
| | 100 | 101.79 | 14 | 161 | 0.25 | 1.3 | 80 | 210 | 0.33 |
| | 125 | 125.00 | 11 | 198 | 0.25 | 1.0 | 90 (B5) | 210 | 0.26 |
| | 160 | 155.00 | 9 | 210 | 0.22 | 1.0 | (B14) | 210 | 0.22 |
| | 200 | 200.00 | 7 | 165 | 0.13 | 1.3 | TF | 210 | 0.17 |
| | 250 | 248.00 | 6 | 200 | 0.13 | 1.0 | | 200 | 0.13 |
| 71B | 10 | 10.25 | 137 | 120 | 1.8 | 1.9 | | 230 | 3.5 |
| | 12.5 | 13.05 | 107 | 152 | 1.8 | 1.6 | 63 | 240 | 2.8 |
| | 16 | 15.63 | 90 | 182 | 1.8 | 1.4 | 71 | 250 | 2.5 |
| | 20 | 19.64 | 71 | 229 | 1.8 | 1.3 | 80 (B5) | 290 | 2.3 |
| | 25 | 24.99 | 56 | 243 | 1.5 | 1.2 | 90 | 280 | 1.7 |
| | 31.5 | 29.95 | 47 | 213 | 1.1 | 1.2 | TC-TF | 260 | 1.3 |
| | 40 | 38.73 | 36 | 226 | 0.9 | 1.1 | 80 | 240 | 1.0 |
| | 50 | 50.18 | 28 | 244 | 0.75 | 1.1 | (B14) | 260 | 0.80 |
| | 63 | 60.13 | 23 | 214 | 0.55 | 1.2 | TC | 260 | 0.70 |
| 80 | 77.76 | 18 | 186 | 0.37 | 1.3 | | 240 | 0.50 | |

| T | n ₁ = 1400 | | | TC - TF | | | | TA | |
|------|-----------------------|--------|-----------------------|----------------------|----------|-----|-------------|-----------------------|---------|
| | in | ir | n ₂ rpm | T ₂ Nm | P1 kW | FS' | IEC | T _{2M} Nm | P kW |
| 90B | 5* | 4.56 | 307 | 118 | 4 | 1.8 | | 210 | 7.2 |
| | 6.3* | 6.26 | 224 | 162 | 4 | 1.8 | | 290 | 7.2 |
| | 10 | 10.25 | 137 | 266 | 4 | 1.8 | 71 | 480 | 7.2 |
| | 12.5 | 13.05 | 107 | 338 | 4 | 1.6 | 80 | 530 | 6.3 |
| | 16 | 15.63 | 90 | 405 | 4 | 1.4 | 90 | 550 | 5.4 |
| | 20 | 19.64 | 71 | 509 | 4 | 1.2 | 100 (B5) | 620 | 4.9 |
| | 25 | 24.99 | 56 | 630 | 4 | 1.0 | 112 | 630 | 4.0 |
| | 31.5 | 29.95 | 47 | 560 | 3 | 1.0 | TC-TF | 560 | 3.0 |
| | 40 | 38.73 | 36 | 452 | 1.8 | 1.1 | 90* | 500 | 2.0 |
| | 50 | 50.18 | 28 | 488 | 1.5 | 1.1 | (B14) | 550 | 1.7 |
| 80C | 50 | 52.18 | 27 | 596 | 1.8 | 1.1 | TC | 570 | 1.5 |
| | 63 | 62.53 | 22 | 570 | 1.5 | 1.0 | | 505 | 1.0 |
| | 80 | 79.58 | 18 | 454 | 0.9 | 1.1 | | 660 | 2.0 |
| | 100 | 99.97 | 14 | 596 | 1.8 | 1.1 | 63 | 680 | 1.7 |
| | 125 | 119.78 | 12 | 595 | 1.5 | 1.1 | 71 | 680 | 1.7 |
| | 160 | 152.45 | 9 | 555 | 1.1 | 1.3 | 80 | 710 | 1.4 |
| | 200 | 182.67 | 8 | 698 | 1.1 | 1.1 | 90 | 740 | 1.2 |
| | 250 | 240.51 | 6 | 684 | 0.9 | 1.1 | 90 (B5) | 740 | 1.0 |
| | 315 | 306.11 | 5 | 532 | 0.55 | 1.3 | TC-TF | 680 | 0.70 |
| | 400 | 366.78 | 4 | 637 | 0.55 | 1.1 | 80 | 700 | 0.60 |
| 112B | 5* | 4.86 | 288 | 290 | 9.2 | 1.5 | | 430 | 13.9 |
| | 10 | 10.25 | 137 | 611 | 9.2 | 1.5 | | 920 | 13.9 |
| | 12.5 | 13.05 | 107 | 778 | 9.2 | 1.3 | | 1000 | 11.8 |
| | 16 | 15.63 | 90 | 932 | 9.2 | 1.2 | 80 | 1100 | 10.9 |
| | 20 | 19.64 | 71 | 1171 | 9.2 | 1.0 | 90 | 1190 | 9.4 |
| | 25 | 24.99 | 56 | 1215 | 7.5 | 1.1 | 100 | 1280 | 7.9 |
| | 31.5 | 29.95 | 47 | 1067 | 5.5 | 1.1 | 112 | 1220 | 6.3 |
| | 40 | 38.73 | 36 | 1004 | 4 | 1.0 | 132 (B5) | 1050 | 4.2 |
| | 50 | 50.18 | 28 | 976 | 3 | 1.1 | TC-TF | 1070 | 3.3 |
| | 63 | 60.13 | 23 | 857 | 2.2 | 1.3 | | 1140 | 2.9 |
| 100C | 50 | 52.18 | 27 | 993 | 3 | 1.3 | | 1080 | 2.1 |
| | 63 | 62.53 | 22 | 1190 | 3 | 1.1 | | 1300 | 3.9 |
| | 80 | 79.58 | 18 | 1111 | 2.2 | 1.3 | 71 | 1350 | 3.4 |
| | 100 | 99.97 | 14 | 1395 | 2.2 | 1.1 | 80 | 1410 | 2.8 |
| | 125 | 119.78 | 12 | 1368 | 1.8 | 1.1 | 90 | 1470 | 2.3 |
| | 160 | 152.45 | 9 | 1064 | 1.1 | 1.3 | 100 | 1480 | 1.9 |
| | 200 | 182.67 | 8 | 1275 | 1.1 | 1.1 | 112 | 1360 | 1.4 |
| | 250 | 240.51 | 6 | 1330 | 0.9 | 1.1 | (B5) | 1400 | 1.2 |
| | 315 | 306.11 | 5 | 1456 | 0.75 | 1.1 | TC-TF | 1500 | 1.0 |
| | 400 | 366.78 | 4 | 1280 | 0.55 | 1.1 | 90* | 1480 | 0.80 |
| 71B | 50 | 50.18 | 28 | 1113 | 0.37 | 1.3 | (B14) | 1400 | 0.60 |
| | 63 | 60.13 | 23 | 1113 | 0.37 | 1.3 | TC | 1360 | 0.50 |
| | 80 | 77.76 | 18 | 973 | 0.25 | 1.2 | | 1240 | 0.30 |
| | 630 | 613.46 | 2 | 973 | 0.25 | 1.2 | | 1240 | 0.30 |



2.8 Dati tecnici

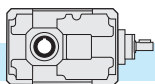
2.8 Technical data

2.8 Technische Daten

| T | n ₁ = 1400 | | | TC - TF | | | | TA | | |
|------|-----------------------|--------|-----------------------|----------------------|----------|-----|------|-----------------------|---------|------|
| | in | ir | n ₂ rpm | T ₂ Nm | P1 kW | FS' | IEC | T _{2M} Nm | P kW | |
| 140B | 7* | 6.88 | 203 | 983 | 22 | 1.3 | | 1200 | 27.9 | |
| | 10 | 10.25 | 137 | 1461 | 22 | 1.3 | | 1850 | 27.9 | |
| | 12.5 | 13.05 | 107 | 1860 | 22 | 1.1 | 80 | 2050 | 24.3 | |
| | 16 | 15.63 | 90 | 1874 | 18.5 | 1.2 | 90 | 2200 | 21.7 | |
| | 20 | 19.64 | 71 | 2354 | 18.5 | 1.0 | 100 | 2400 | 18.9 | |
| | 25 | 24.99 | 56 | 2429 | 15 | 1.0 | 112 | 2540 | 15.7 | |
| | 31.5 | 29.95 | 47 | 2135 | 11 | 1.1 | 132 | 2300 | 11.9 | |
| | 40 | 38.73 | 36 | 1882 | 7.5 | 1.2 | 160 | 2210 | 8.8 | |
| | 50 | 50.18 | 28 | 1789 | 5.5 | 1.2 | 180 | TC-TF | 2120 | 6.5 |
| | 63 | 60.13 | 23 | 2143 | 5.5 | 1.1 | (B5) | 2350 | 6.0 | |
| 80 | 77.76 | 18 | 2016 | 4 | 1.1 | | 2250 | 4.5 | | |
| 125C | 50 | 52.18 | 27 | 2483 | 7.5 | 1.1 | | 2650 | 8.0 | |
| | 63 | 62.53 | 22 | 2182 | 5.5 | 1.3 | | 2760 | 7.0 | |
| | 80 | 79.58 | 18 | 2777 | 5.5 | 1.0 | | 2880 | 5.7 | |
| | 100 | 99.97 | 14 | 2537 | 4 | 1.2 | 80 | 3000 | 4.7 | |
| | 125 | 119.78 | 12 | 3000 | 4 | 1.0 | 90 | 3000 | 4.0 | |
| | 160 | 152.45 | 9 | 2128 | 2.2 | 1.3 | 100 | 2720 | 2.8 | |
| | 200 | 182.67 | 8 | 2549 | 2.2 | 1.1 | 112 | 2800 | 2.4 | |
| | 250 | 240.51 | 6 | 2746 | 1.8 | 1.1 | 132 | 3050 | 2.0 | |
| | 315 | 306.11 | 5 | 2913 | 1.5 | 1.0 | (B5) | TC-TF | 2960 | 1.5 |
| | 400 | 366.78 | 4 | 2560 | 1.1 | 1.1 | | 2800 | 1.2 | |
| 500 | 474.35 | 3 | 2640 | 0.90 | 1.0 | | 2640 | 0.90 | | |
| 630 | 613.46 | 2 | 2140 | 0.55 | 1.2 | | 2550 | 0.70 | | |
| 180B | 10 | 10.25 | 137 | 1993 | 30 | 2.0 | | 3900 | 58.7 | |
| | 12.5 | 13.05 | 107 | 2536 | 30 | 1.7 | | 4300 | 50.9 | |
| | 16 | 15.63 | 90 | 3039 | 30 | 1.5 | 100 | 4500 | 44.4 | |
| | 20 | 19.64 | 71 | 3818 | 30 | 1.3 | 112 | 5100 | 40.1 | |
| | 25 | 24.99 | 56 | 4859 | 30 | 1.1 | 132 | 5230 | 32.3 | |
| | 31.5 | 29.95 | 47 | 4269 | 22 | 1.1 | 160 | 4680 | 24.1 | |
| | 40 | 38.73 | 36 | 3764 | 15 | 1.1 | 180 | (B5) | 4300 | 17.1 |
| | 50 | 50.18 | 28 | 3577 | 11 | 1.2 | 200 | TC-TF | 4300 | 13.2 |
| | 63 | 60.13 | 23 | 4286 | 11 | 1.1 | | 4780 | 12.3 | |
| 80 | 77.76 | 18 | 3779 | 7.5 | 1.2 | | 4380 | 8.7 | | |
| 160C | 50 | 52.18 | 27 | 4966 | 15 | 1.0 | | 5130 | 15.5 | |
| | 63 | 62.53 | 22 | 4363 | 11 | 1.2 | | 5350 | 13.5 | |
| | 80 | 79.58 | 18 | 5570 | 11 | 1.0 | 80 | 5570 | 11.0 | |
| | 100 | 99.97 | 14 | 5800 | 9.2 | 1.0 | 90 | 5800 | 9.2 | |
| | 125 | 119.78 | 12 | 5699 | 7.5 | 1.0 | 100 | 5800 | 7.6 | |
| | 160 | 152.45 | 9 | 5319 | 5.5 | 1.0 | 112 | 5800 | 7.6 | |
| | 200 | 182.67 | 8 | 4635 | 4 | 1.2 | 132 | 5470 | 5.7 | |
| | 250 | 240.51 | 6 | 5890 | 4 | 1.0 | 160 | 5470 | 5.7 | |
| | 315 | 306.11 | 5 | 5920 | 3 | 1.0 | 180 | (B5) | 5560 | 4.8 |
| | 400 | 366.78 | 4 | 5119 | 2.2 | 1.1 | 200 | 5890 | 4.0 | |
| | 500 | 474.35 | 3 | 5280 | 1.8 | 1.0 | | TC-TF | 5826 | 3.0 |
| | 630 | 613.46 | 2 | 4281 | 1.1 | 1.2 | | 5600 | 2.4 | |
| | | | | | | | | 5280 | 1.8 | |
| | | | | | | | | 4960 | 1.3 | |

| T | n ₁ = 1400 | | | TC - TF | | | | TA | | |
|------|-----------------------|--------|-----------------------|----------------------|----------|-----|-------|-----------------------|---------|------|
| | in | ir | n ₂ rpm | T ₂ Nm | P1 kW | FS' | IEC | T _{2M} Nm | P kW | |
| 200B | 8 | 8.14 | 172 | 2370 | 45 | 2.1 | | 5000 | 94.8 | |
| | 10 | 10.43 | 134 | 3050 | 45 | 1.8 | 112 | 5500 | 81.4 | |
| | 12.5 | 12.60 | 111 | 3680 | 45 | 1.6 | 132 | 6000 | 73.5 | |
| | 16 | 15.63 | 90 | 4540 | 45 | 1.4 | 160 | 6500 | 64.2 | |
| | 20 | 17.65 | 79 | 5170 | 45 | 1.3 | 180 | 7100 | 62.1 | |
| | 25 | 24.14 | 58 | 7030 | 45 | 1.0 | 200 | TC-TF | 7150 | 45.7 |
| | 31.5 | 29.95 | 47 | 7150 | 37 | 1.0 | (B5) | 7250 | 37.4 | |
| | 40 | 33.82 | 41 | 6575 | 30 | 1.1 | 225 | 7300 | 33.3 | |
| | 50 | 47.93 | 29 | 6833 | 22 | 1.1 | (B5) | 7400 | 23.8 | |
| | 63 | 54.13 | 26 | 6489 | 18.5 | 1.1 | TF | 7400 | 21.1 | |
| 180C | 50 | 53.11 | 26 | 6234 | 18.5 | 1.1 | | 7240 | 21.0 | |
| | 63 | 63.64 | 22 | 7280 | 18.5 | 1.0 | 80 | 7280 | 18.5 | |
| | 80 | 76.85 | 18 | 7313 | 15 | 1.0 | 90 | 7420 | 15.2 | |
| | 100 | 99.39 | 14 | 6936 | 11 | 1.1 | 100 | 7500 | 11.9 | |
| | 125 | 122.88 | 11 | 7172 | 9.2 | 1.0 | 112 | 7500 | 9.6 | |
| | 160 | 147.23 | 10 | 7005 | 7.5 | 1.1 | 132 | 7500 | 9.6 | |
| | 200 | 190.41 | 7 | 6644 | 5.5 | 1.1 | 160 | 7550 | 8.1 | |
| | 250 | 246.73 | 6 | 6261 | 4 | 1.2 | 180 | 7600 | 6.3 | |
| | 315 | 295.63 | 5 | 7502 | 4 | 1.0 | (B5) | 7650 | 4.9 | |
| | 400 | 382.33 | 4 | 7276 | 3 | 1.1 | TC-TF | 7700 | 4.1 | |
| 225B | 8 | 8.44 | 166 | 2461 | 45 | 3.0 | | 7500 | 137.1 | |
| | 10 | 10.13 | 138 | 2955 | 45 | 2.8 | 132 | 8300 | 126.4 | |
| | 12.5 | 12.45 | 112 | 3630 | 45 | 2.5 | 160 | 9100 | 112.8 | |
| | 16 | 15.93 | 88 | 4644 | 45 | 2.2 | 180 | 10000 | 96.9 | |
| | 20 | 19.13 | 73 | 5577 | 45 | 1.9 | 200 | 10700 | 86.3 | |
| | 25 | 23.49 | 60 | 6850 | 45 | 1.6 | 225 | (B5) | 11000 | 72.3 |
| | 31.5 | 30.29 | 46 | 8832 | 45 | 1.3 | TF | 11100 | 56.6 | |
| 40 | 37.09 | 38 | 10800 | 45 | 1.0 | | 10800 | 45.0 | | |
| 200C | 40 | 42.62 | 33 | 8110 | 30 | 1.3 | | 10900 | 40.3 | |
| | 50 | 51.18 | 27 | 9740 | 30 | 1.1 | 100 | 11000 | 33.9 | |
| | 63 | 62.86 | 22 | 8772 | 22 | 1.3 | 112 | 11350 | 28.5 | |
| | 80 | 76.97 | 18 | 10742 | 22 | 1.0 | 132 | 11050 | 22.6 | |
| | 100 | 98.04 | 14 | 11200 | 18.5 | 1.0 | 160 | 11200 | 18.5 | |
| | 125 | 120.41 | 12 | 11459 | 15 | 1.0 | 180 | 11200 | 18.5 | |
| | 160 | 147.45 | 9 | 10290 | 11 | 1.1 | 200 | (B5) | 11500 | 15.1 |
| | 200 | 196.87 | 7 | 11400 | 9.2 | 1.0 | TC-TF | 11200 | 12.0 | |
| 250 | 241.79 | 6 | 11504 | 7.5 | 1.0 | | 11400 | 9.2 | | |
| 315 | 296.07 | 5 | 10330 | 5.5 | 1.1 | | 11700 | 7.6 | | |
| | | | | | | | | 11850 | 6.3 | |

- Flange quadrate / *Square flanges* / Viereckige Flansche
- * Rapporti speciali / *Special ratios* / Sonderverhältnisse
- Verifica termica necessaria / *Thermal rating needed* / Thermische - Prüfung erforderlich



2.9 **Momenti d'inerzia** [Kg·cm²]
(riferiti all'albero veloce in entrata)

2.9 **Moments of inertia** [Kg·cm²]
(referred to input shaft)

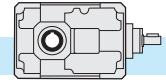
2.9 **Trägheitsmoment** [Kg·cm²]
(bez. Antriebswelle)

TA..B - TC..B - TF..B

| 56B | i _n | TA | TF | | | | |
|------|----------------|----|--------|----|------|------|------|
| | | | IEC B5 | | | | |
| | | | 56 | 63 | 71 | 80 | 90 |
| 8 | 0.25 | | | | 0.40 | 0.60 | 0.77 |
| 10 | 0.22 | | 0.29 | | 0.37 | 0.56 | 0.74 |
| 12.5 | 0.20 | | 0.27 | | 0.35 | 0.54 | 0.72 |
| 16 | 0.18 | | 0.25 | | 0.33 | 0.53 | 0.71 |
| 20 | 0.08 | | 0.15 | | 0.22 | 0.42 | 0.60 |
| 25 | 0.07 | | 0.14 | | 0.22 | 0.42 | 0.59 |
| 31.5 | 0.07 | | 0.14 | | 0.21 | 0.41 | 0.59 |
| 40 | 0.04 | | 0.11 | | 0.19 | 0.39 | 0.56 |
| 50 | 0.04 | | 0.11 | | 0.19 | 0.39 | 0.56 |

| 63B | i _n | TA | TF | | | | |
|------|----------------|----|--------|------|------|------|------|
| | | | IEC B5 | | | | |
| | | | 56 | 63 | 71 | 80 | 90 |
| 8 | 0.40 | | 0.47 | 0.47 | 0.55 | 0.74 | 0.92 |
| 10 | 0.34 | | 0.41 | 0.42 | 0.49 | 0.69 | 0.87 |
| 12.5 | 0.31 | | 0.38 | 0.38 | 0.45 | 0.65 | 0.83 |
| 16 | 0.16 | | 0.23 | 0.24 | 0.31 | 0.51 | 0.68 |
| 20 | 0.15 | | 0.22 | 0.22 | 0.29 | 0.49 | 0.67 |
| 25 | 0.14 | | 0.21 | 0.21 | 0.29 | 0.48 | 0.66 |
| 31.5 | 0.13 | | 0.20 | 0.21 | 0.28 | 0.48 | 0.65 |
| 40 | 0.07 | | 0.15 | 0.15 | 0.22 | 0.42 | 0.60 |
| 50 | 0.07 | | 0.14 | 0.15 | 0.22 | 0.42 | 0.60 |
| 63 | 0.07 | | 0.14 | 0.15 | 0.22 | 0.42 | 0.59 |

| 71B | i _n | TA | TC | | | | TF | | | |
|------|----------------|----|--------|------|------|------|--------|------|------|------|
| | | | IEC B5 | | | | IEC B5 | | | |
| | | | 63 | 71 | 80 | 90 | 63 | 71 | 80 | 90 |
| 10 | 0.95 | | 1.00 | 1.14 | 1.52 | 1.57 | 1.20 | 1.22 | 1.89 | 2.96 |
| 12.5 | 0.89 | | 0.94 | 1.08 | 1.46 | 1.51 | 1.14 | 1.16 | 1.83 | 2.90 |
| 16 | 0.85 | | 0.91 | 1.05 | 1.43 | 1.47 | 1.11 | 1.12 | 1.80 | 2.87 |
| 20 | 0.38 | | 0.43 | 0.57 | 0.94 | 0.99 | 0.63 | 0.65 | 1.32 | 2.39 |
| 25 | 0.36 | | 0.41 | 0.55 | 0.93 | 0.98 | 0.61 | 0.63 | 1.31 | 2.37 |
| 31.5 | 0.35 | | 0.40 | 0.54 | 0.92 | 0.97 | 0.61 | 0.62 | 1.30 | 2.36 |
| 40 | 0.34 | | 0.39 | 0.53 | 0.91 | 0.96 | 0.60 | 0.61 | 1.29 | 2.35 |
| 50 | 0.19 | | 0.22 | 0.36 | 0.74 | 0.79 | 0.44 | 0.46 | 1.14 | 2.20 |
| 63 | 0.19 | | 0.22 | 0.36 | 0.74 | 0.79 | 0.44 | 0.46 | 1.14 | 2.20 |
| 80 | 0.19 | | 0.22 | 0.36 | 0.74 | 0.79 | 0.44 | 0.46 | 1.13 | 2.20 |









2.9 **Momenti d'inerzia** [Kg·cm²]
(riferiti all'albero veloce in entrata)




2.9 **Moments of inertia** [Kg·cm²]
(referred to input shaft)

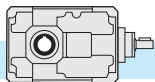
2.9 **Trägheitsmoment** [Kg·cm²]
(bez. Antriebswelle)

TA..B - TC..B - TF..B

| 90B | i _n | TA  | TC  | | | | TF  | | | |
|------|----------------|--|--|------|------|---------|--|------|------|---------|
| | | | IEC B5 | | | | IEC B5 | | | |
| | | | 71 | 80 | 90 | 110-112 | 71 | 80 | 90 | 110-112 |
| 5* | 4.36 | 4.77 | 4.94 | 5.31 | 6.15 | 5.22 | 5.35 | 6.53 | 8.70 | |
| 6.3* | 3.67 | 4.07 | 4.24 | 4.62 | 5.46 | 4.52 | 4.66 | 5.84 | 8.00 | |
| 10 | 2.77 | 3.18 | 3.35 | 3.73 | 4.57 | 3.63 | 3.77 | 4.94 | 7.11 | |
| 12.5 | 2.60 | 3.01 | 3.18 | 3.56 | 4.40 | 3.46 | 3.60 | 4.77 | 6.94 | |
| 16 | 2.49 | 2.90 | 3.07 | 3.44 | 4.28 | 3.35 | 3.48 | 4.66 | 6.82 | |
| 20 | 1.16 | 1.53 | 1.70 | 2.08 | 2.92 | 2.02 | 2.16 | 3.33 | 5.50 | |
| 25 | 1.12 | 1.49 | 1.66 | 2.04 | 2.88 | 1.98 | 2.11 | 3.29 | 5.45 | |
| 31.5 | 1.09 | 1.46 | 1.63 | 2.00 | 2.84 | 1.94 | 2.08 | 3.25 | 5.42 | |
| 40 | 1.06 | 1.43 | 1.60 | 1.98 | 2.82 | 1.92 | 2.05 | 3.23 | 5.40 | |
| 50 | 0.65 | 0.98 | 1.15 | 1.53 | 2.37 | 1.50 | 1.64 | 2.81 | 4.98 | |
| 63 | 0.64 | 0.97 | 1.14 | 1.52 | 2.36 | 1.50 | 1.63 | 2.81 | 4.97 | |
| 80 | 0.63 | 0.97 | 1.14 | 1.51 | 2.35 | 1.49 | 1.62 | 2.80 | 4.97 | |

| 112B | i _n | TA  | TC  | | | | TF  | | | |
|------|----------------|--|---|-------|---------|-------|---|-------|---------|-----|
| | | | IEC B5 | | | | IEC B5 | | | |
| | | | 80 | 90 | 110-112 | 132 | 80 | 90 | 110-112 | 132 |
| 5* | 12.20 | 13.70 | 13.57 | 14.53 | 17.67 | 14.53 | 14.46 | 16.78 | 30.77 | |
| 10 | 8.51 | 9.44 | 9.31 | 10.26 | 13.40 | 10.84 | 10.77 | 13.09 | 27.08 | |
| 12.5 | 7.67 | 8.60 | 8.47 | 9.42 | 12.56 | 10.00 | 9.93 | 12.25 | 26.24 | |
| 16 | 7.27 | 8.20 | 8.07 | 9.03 | 12.16 | 9.61 | 9.54 | 11.85 | 25.85 | |
| 20 | 3.62 | 4.46 | 4.33 | 5.29 | 8.43 | 5.96 | 5.89 | 8.20 | 22.20 | |
| 25 | 3.39 | 4.23 | 4.10 | 5.06 | 8.20 | 5.73 | 5.66 | 7.97 | 21.97 | |
| 31.5 | 3.29 | 4.13 | 4.00 | 4.95 | 8.09 | 5.62 | 5.55 | 7.87 | 21.86 | |
| 40 | 3.21 | 4.05 | 3.92 | 4.87 | 8.01 | 5.55 | 5.47 | 7.79 | 21.79 | |
| 50 | 1.79 | 2.50 | 2.37 | 3.32 | 6.46 | 4.13 | 4.05 | 6.37 | 20.37 | |
| 63 | 1.77 | 2.47 | 2.35 | 3.30 | 6.44 | 4.10 | 4.03 | 6.34 | 20.34 | |
| 80 | 1.75 | 2.46 | 2.33 | 3.28 | 6.42 | 4.08 | 4.01 | 6.33 | 20.32 | |

| 140B | i _n | TA  | TC  | | | | | | TF  | | | | | |
|------|----------------|--|--|-------|---------|-------|-------|-------|--|-------|---------|-------|-------|-----|
| | | | IEC B5 | | | | | | IEC B5 | | | | | |
| | | | 80 | 90 | 110-112 | 132 | 160 | 180 | 80 | 90 | 110-112 | 132 | 160 | 180 |
| 7* | 29.65 | 30.78 | 30.65 | 30.79 | 33.99 | 38.41 | 41.43 | 31.85 | 34.23 | 34.40 | 49.26 | 51.44 | 96.71 | |
| 10 | 25.04 | 26.17 | 26.04 | 26.18 | 29.38 | 33.80 | 36.82 | 27.23 | 29.62 | 29.79 | 44.65 | 46.83 | 92.10 | |
| 12.5 | 22.28 | 23.41 | 23.28 | 23.42 | 26.62 | 31.05 | 34.06 | 24.48 | 26.86 | 27.04 | 41.90 | 44.08 | 89.34 | |
| 16 | 21.26 | 22.39 | 22.26 | 22.40 | 25.60 | 30.02 | 33.04 | 23.46 | 25.84 | 26.01 | 40.87 | 43.05 | 88.32 | |
| 20 | 9.17 | 10.13 | 10.00 | 10.14 | 13.34 | 17.76 | 20.78 | 11.37 | 13.75 | 13.92 | 28.78 | 30.97 | 76.23 | |
| 25 | 8.42 | 9.38 | 9.25 | 9.39 | 12.59 | 17.01 | 20.03 | 10.62 | 13.00 | 13.17 | 28.03 | 30.22 | 75.48 | |
| 31.5 | 8.14 | 9.10 | 8.97 | 9.11 | 12.31 | 16.73 | 19.75 | 10.34 | 12.72 | 12.90 | 27.76 | 29.94 | 75.20 | |
| 40 | 7.92 | 8.87 | 8.74 | 8.88 | 12.08 | 16.51 | 19.52 | 10.11 | 12.49 | 12.67 | 27.53 | 29.71 | 74.98 | |
| 50 | 4.28 | 4.94 | 4.81 | 4.95 | 8.15 | 12.57 | 15.59 | 6.47 | 8.85 | 9.03 | 23.89 | 26.07 | 71.34 | |
| 63 | 4.21 | 4.87 | 4.74 | 4.88 | 8.08 | 12.50 | 15.52 | 6.40 | 8.79 | 8.96 | 23.82 | 26.00 | 71.27 | |
| 80 | 4.15 | 4.81 | 4.68 | 4.82 | 8.02 | 12.44 | 15.46 | 6.35 | 8.73 | 8.91 | 23.77 | 25.95 | 71.21 | |



2.9 **Momenti d'inerzia** [Kg·cm²]
(riferiti all'albero veloce in entrata)

2.9 **Moments of inertia** [Kg·cm²]
(referred to input shaft)

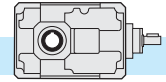
2.9 **Trägheitsmoment** [Kg·cm²]
(bez. Antriebswelle)

TA..B - TC..B - TF..B

| 180B | i _n | TA | TC | | | | | TF | | | | |
|------|----------------|-------|---------|-------|-------|-------|-------|---------|--------|--------|--------|-----|
| | | | IEC B5 | | | | | IEC B5 | | | | |
| | | | 100-112 | 132 | 160 | 180 | 200 | 100-112 | 132 | 160 | 180 | 200 |
| 10 | 78.24 | 80.83 | 86.51 | 85.51 | 88.42 | 98.81 | 97.86 | 99.23 | 101.41 | 150.52 | 147.05 | |
| 12.5 | 68.84 | 71.43 | 77.11 | 76.11 | 79.02 | 89.41 | 88.46 | 89.82 | 92.01 | 141.12 | 137.65 | |
| 16 | 66.22 | 68.81 | 74.49 | 73.49 | 76.40 | 86.79 | 85.84 | 87.20 | 89.38 | 138.50 | 135.03 | |
| 20 | 28.52 | 31.29 | 36.97 | 35.97 | 38.88 | 49.27 | 48.14 | 49.50 | 51.68 | 100.80 | 97.33 | |
| 25 | 25.96 | 26.14 | 31.82 | 30.82 | 33.73 | 44.12 | 45.58 | 46.94 | 49.12 | 98.24 | 94.77 | |
| 31.5 | 25.25 | 28.01 | 33.69 | 32.69 | 35.60 | 45.99 | 44.86 | 46.23 | 48.41 | 97.53 | 94.05 | |
| 40 | 24.43 | 27.19 | 32.88 | 31.88 | 34.79 | 45.17 | 44.04 | 45.41 | 47.59 | 96.71 | 93.23 | |
| 50 | 11.97 | 14.25 | 19.93 | 18.93 | 21.84 | 32.23 | 31.59 | 32.95 | 35.13 | 84.25 | 80.78 | |
| 63 | 11.80 | 14.07 | 19.75 | 18.75 | 21.66 | 32.05 | 31.41 | 32.78 | 34.96 | 84.08 | 80.60 | |
| 80 | 11.59 | 13.87 | 19.55 | 18.55 | 21.46 | 31.85 | 31.21 | 32.57 | 34.75 | 83.87 | 80.40 | |

| 200B | i _n | TA | TC | | | | | TF | | | | | |
|------|----------------|--------|---------|--------|--------|--------|--------|---------|--------|--------|--------|--------|-----|
| | | | IEC B5 | | | | | IEC B5 | | | | | |
| | | | 110-112 | 132 | 160 | 180 | 200 | 110-112 | 132 | 160 | 180 | 200 | 225 |
| 8 | 109.38 | 110.72 | 116.40 | 115.40 | 118.31 | 128.70 | 129.00 | 130.37 | 132.55 | 181.66 | 178.19 | 181.78 | |
| 10 | 95.71 | 97.05 | 102.73 | 101.73 | 104.64 | 115.03 | 115.33 | 116.69 | 118.87 | 167.99 | 164.52 | 168.11 | |
| 12.5 | 85.34 | 86.68 | 92.36 | 91.36 | 94.27 | 104.66 | 104.96 | 106.32 | 108.51 | 157.62 | 154.15 | 157.74 | |
| 16 | 79.58 | 80.92 | 86.60 | 85.60 | 88.51 | 98.90 | 99.20 | 100.56 | 102.74 | 151.86 | 148.39 | 151.98 | |
| 20 | 75.15 | 76.49 | 82.17 | 81.17 | 84.08 | 94.47 | 94.77 | 96.13 | 98.32 | 147.43 | 143.96 | 147.55 | |
| 25 | 31.37 | 32.88 | 38.56 | 37.56 | 40.47 | 50.86 | 50.98 | 52.35 | 54.53 | 103.65 | 100.17 | 103.76 | |
| 31.5 | 29.80 | 31.31 | 36.99 | 35.99 | 38.90 | 49.29 | 49.41 | 50.78 | 52.96 | 102.08 | 98.60 | 102.20 | |
| 40 | 28.59 | 30.11 | 35.79 | 34.79 | 37.70 | 48.09 | 48.21 | 49.57 | 51.75 | 100.87 | 97.40 | 100.99 | |
| 50 | 20.48 | 21.49 | 27.17 | 26.17 | 29.08 | 39.47 | 40.09 | 41.46 | 43.64 | 92.76 | 89.28 | 92.88 | |
| 63 | 20.01 | 21.02 | 26.70 | 25.70 | 28.61 | 39.00 | 39.62 | 40.99 | 43.17 | 92.29 | 88.81 | 92.40 | |

| 225B | i _n | TA | TF | | | | |
|------|----------------|-------|--------|-------|-------|-------|-----|
| | | | IEC B5 | | | | |
| | | | 132 | 160 | 150 | 200 | 225 |
| 8 | 265.00 | 337.3 | 345.3 | 343.3 | 339.8 | 342.6 | |
| 10 | 249.31 | 321.6 | 329.6 | 327.6 | 324.1 | 326.9 | |
| 12.5 | 234.27 | 306.6 | 314.5 | 312.5 | 309.1 | 311.9 | |
| 16 | 90.92 | 163.2 | 171.2 | 169.2 | 165.7 | 168.5 | |
| 20 | 86.52 | 158.8 | 166.8 | 164.8 | 161.3 | 164.1 | |
| 25 | 82.29 | 154.6 | 162.6 | 160.6 | 157.1 | 159.9 | |
| 31.5 | 68.32 | 140.6 | 148.6 | 146.6 | 143.1 | 145.9 | |
| 40 | 64.25 | 136.5 | 144.5 | 142.5 | 139.0 | 141.9 | |







2.9 **Momenti d'inerzia** [Kg·cm²]
(riferiti all'albero veloce in entrata)




2.9 **Moments of inertia** [Kg·cm²]
(referred to input shaft)

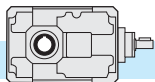
2.9 **Trägheitsmoment** [Kg·cm²]
(bez. Antriebswelle)

TA..C - TC..C - TF..C

| 56C | i _n | TA  | TF  | | | | |
|-----|----------------|--|--|-------|-------|-------|----|
| | | | IEC B5 | | | | |
| | | | 56 | 63 | 71 | 80 | 90 |
| 40 | 0.06 | 0.136 | 0.139 | 0.212 | 0.410 | 0.588 | |
| 50 | 0.06 | 0.134 | 0.138 | 0.211 | 0.409 | 0.587 | |
| 63 | 0.06 | 0.134 | 0.137 | 0.210 | 0.408 | 0.586 | |
| 80 | 0.06 | 0.133 | 0.137 | 0.210 | 0.408 | 0.585 | |
| 100 | 0.06 | 0.129 | 0.132 | 0.205 | 0.403 | 0.581 | |
| 125 | 0.06 | 0.129 | 0.132 | 0.205 | 0.403 | 0.581 | |
| 160 | 0.06 | 0.128 | 0.132 | 0.205 | 0.403 | 0.581 | |
| 200 | 0.06 | 0.127 | 0.131 | 0.204 | 0.402 | 0.580 | |
| 250 | 0.06 | 0.127 | 0.131 | 0.204 | 0.402 | 0.580 | |

| 63C | i _n | TA  | TF  | | | | |
|-----|----------------|---|--|-------|-------|-------|----|
| | | | IEC B5 | | | | |
| | | | 56 | 63 | 71 | 80 | 90 |
| 40 | 0.07 | 0.142 | 0.145 | 0.218 | 0.416 | 0.594 | |
| 50 | 0.07 | 0.139 | 0.143 | 0.216 | 0.414 | 0.592 | |
| 63 | 0.07 | 0.138 | 0.142 | 0.215 | 0.413 | 0.590 | |
| 80 | 0.06 | 0.132 | 0.136 | 0.209 | 0.407 | 0.585 | |
| 100 | 0.06 | 0.132 | 0.135 | 0.208 | 0.406 | 0.584 | |
| 125 | 0.06 | 0.131 | 0.135 | 0.208 | 0.406 | 0.584 | |
| 160 | 0.06 | 0.131 | 0.135 | 0.208 | 0.406 | 0.583 | |
| 200 | 0.06 | 0.129 | 0.132 | 0.205 | 0.403 | 0.581 | |
| 250 | 0.06 | 0.129 | 0.132 | 0.205 | 0.403 | 0.581 | |
| 315 | 0.06 | 0.129 | 0.132 | 0.205 | 0.403 | 0.581 | |

| 80C | i _n | TA  | TC  | | | | TF  | | | |
|-----|----------------|--|--|------|------|------|--|------|------|----|
| | | | IEC B5 | | | | IEC B5 | | | |
| | | | 63 | 71 | 80 | 90 | 63 | 71 | 80 | 90 |
| 50 | 0.90 | 0.95 | 1.09 | 1.47 | 1.52 | 1.15 | 1.17 | 1.84 | 2.91 | |
| 63 | 0.86 | 0.91 | 1.05 | 1.43 | 1.48 | 1.11 | 1.13 | 1.81 | 2.87 | |
| 80 | 0.86 | 0.91 | 1.05 | 1.43 | 1.48 | 1.11 | 1.13 | 1.80 | 2.87 | |
| 100 | 0.36 | 0.41 | 0.55 | 0.93 | 0.98 | 0.62 | 0.63 | 1.31 | 2.38 | |
| 125 | 0.35 | 0.38 | 0.52 | 0.90 | 0.95 | 0.61 | 0.62 | 1.30 | 2.37 | |
| 160 | 0.35 | 0.40 | 0.54 | 0.92 | 0.97 | 0.61 | 0.62 | 1.30 | 2.36 | |
| 200 | 0.35 | 0.40 | 0.54 | 0.92 | 0.97 | 0.61 | 0.62 | 1.30 | 2.36 | |
| 250 | 0.19 | 0.22 | 0.36 | 0.74 | 0.79 | 0.44 | 0.46 | 1.14 | 2.20 | |
| 315 | 0.19 | 0.22 | 0.36 | 0.74 | 0.79 | 0.44 | 0.46 | 1.14 | 2.20 | |
| 400 | 0.19 | 0.22 | 0.36 | 0.74 | 0.79 | 0.44 | 0.46 | 1.14 | 2.20 | |
| 500 | 0.19 | 0.22 | 0.36 | 0.74 | 0.79 | 0.44 | 0.46 | 1.13 | 2.20 | |
| 630 | 0.19 | 0.22 | 0.36 | 0.74 | 0.79 | 0.44 | 0.46 | 1.13 | 2.20 | |



2.9 **Momenti d'inerzia** [Kg·cm²]
(riferiti all'albero veloce in entrata)

2.9 **Moments of inertia** [Kg·cm²]
(referred to input shaft)

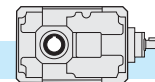
2.9 **Trägheitsmoment** [Kg·cm²]
(bez. Antriebswelle)

TA..C - TC..C - TF..C

| | i _n | TA | TC | | | | TF | | | |
|-------------|----------------|------|--------|------|------|---------|--------|------|------|---------|
| | | | IEC B5 | | | | IEC B5 | | | |
| | | | 71 | 80 | 90 | 110-112 | 71 | 80 | 90 | 110-112 |
| 100C | 50 | 2.68 | 3.08 | 3.25 | 3.63 | 4.47 | 3.53 | 3.67 | 4.84 | 7.01 |
| | 63 | 2.56 | 2.96 | 3.13 | 3.51 | 4.35 | 3.41 | 3.55 | 4.72 | 6.89 |
| | 80 | 2.53 | 2.94 | 3.11 | 3.49 | 4.33 | 3.39 | 3.52 | 4.70 | 6.87 |
| | 100 | 1.14 | 1.51 | 1.68 | 2.06 | 2.89 | 2.00 | 2.13 | 3.31 | 5.47 |
| | 125 | 1.10 | 1.47 | 1.64 | 2.02 | 2.86 | 1.96 | 2.10 | 3.27 | 5.44 |
| | 160 | 1.10 | 1.47 | 1.64 | 2.02 | 2.86 | 1.96 | 2.09 | 3.27 | 5.44 |
| | 200 | 1.10 | 1.47 | 1.64 | 2.01 | 2.85 | 1.95 | 2.09 | 3.26 | 5.43 |
| | 250 | 0.64 | 0.98 | 1.15 | 1.52 | 2.36 | 1.50 | 1.63 | 2.81 | 4.98 |
| | 315 | 0.64 | 0.97 | 1.14 | 1.52 | 2.36 | 1.50 | 1.63 | 2.81 | 4.98 |
| | 400 | 0.64 | 0.97 | 1.14 | 1.52 | 2.36 | 1.50 | 1.63 | 2.81 | 4.98 |
| | 500 | 0.63 | 0.97 | 1.14 | 1.51 | 2.35 | 1.49 | 1.62 | 2.80 | 4.97 |
| | 630 | 0.63 | 0.97 | 1.14 | 1.51 | 2.35 | 1.49 | 1.62 | 2.80 | 4.97 |

| | i _n | TA | TC | | | | TF | | | |
|-------------|----------------|------|--------|------|---------|-------|--------|-------|---------|-------|
| | | | IEC B5 | | | | IEC B5 | | | |
| | | | 80 | 90 | 110-112 | 132 | 80 | 90 | 110-112 | 132 |
| 125C | 50 | 7.82 | 8.75 | 8.62 | 9.57 | 12.71 | 10.16 | 10.08 | 12.40 | 26.40 |
| | 63 | 7.46 | 8.39 | 8.26 | 9.22 | 12.36 | 9.80 | 9.73 | 12.04 | 26.04 |
| | 80 | 7.39 | 8.32 | 8.19 | 9.14 | 12.28 | 9.72 | 9.65 | 11.97 | 25.96 |
| | 100 | 3.44 | 4.28 | 4.15 | 5.10 | 8.24 | 5.77 | 5.70 | 8.02 | 22.01 |
| | 125 | 3.34 | 4.18 | 4.05 | 5.00 | 8.14 | 5.67 | 5.60 | 7.92 | 21.91 |
| | 160 | 3.32 | 4.16 | 4.03 | 4.98 | 8.12 | 5.65 | 5.58 | 7.90 | 21.89 |
| | 200 | 3.31 | 4.15 | 4.02 | 4.97 | 8.11 | 5.65 | 5.57 | 7.89 | 21.89 |
| | 250 | 1.78 | 2.49 | 2.36 | 3.31 | 6.45 | 4.11 | 4.04 | 6.36 | 20.35 |
| | 315 | 1.77 | 2.48 | 2.35 | 3.31 | 6.45 | 4.11 | 4.04 | 6.35 | 20.35 |
| | 400 | 1.77 | 2.48 | 2.35 | 3.30 | 6.44 | 4.11 | 4.03 | 6.35 | 20.35 |
| | 500 | 1.75 | 2.46 | 2.33 | 3.28 | 6.42 | 4.08 | 4.01 | 6.33 | 20.32 |
| | 630 | 1.75 | 2.46 | 2.33 | 3.28 | 6.42 | 4.08 | 4.01 | 6.33 | 20.32 |

| | i _n | TA | TC | | | | | | TF | | | | | |
|-------------|----------------|-------|--------|-------|---------|-------|-------|-------|--------|-------|---------|-------|-------|-------|
| | | | IEC B5 | | | | | | IEC B5 | | | | | |
| | | | 80 | 90 | 110-112 | 132 | 160 | 180 | 80 | 90 | 110-112 | 132 | 160 | 180 |
| 160C | 50 | 23.13 | 24.26 | 24.13 | 24.27 | 27.47 | 31.89 | 34.91 | 25.33 | 27.71 | 27.88 | 42.74 | 44.92 | 90.19 |
| | 63 | 22.01 | 23.14 | 23.01 | 23.15 | 26.35 | 30.77 | 33.79 | 24.21 | 26.59 | 26.77 | 41.63 | 43.81 | 89.07 |
| | 80 | 21.76 | 22.89 | 22.76 | 22.90 | 26.10 | 30.52 | 33.54 | 23.96 | 26.34 | 26.51 | 41.37 | 43.56 | 88.82 |
| | 100 | 8.65 | 9.61 | 9.48 | 9.62 | 12.82 | 17.24 | 20.26 | 10.85 | 13.23 | 13.40 | 28.26 | 30.45 | 75.71 |
| | 125 | 8.35 | 9.30 | 9.17 | 9.31 | 12.51 | 16.94 | 19.95 | 10.54 | 12.92 | 13.10 | 27.96 | 30.14 | 75.41 |
| | 160 | 8.28 | 9.23 | 9.10 | 9.24 | 12.44 | 16.87 | 19.88 | 10.47 | 12.86 | 13.03 | 27.89 | 30.07 | 75.34 |
| | 200 | 8.26 | 9.21 | 9.09 | 9.22 | 12.42 | 16.85 | 19.87 | 10.46 | 12.84 | 13.01 | 27.87 | 30.05 | 75.32 |
| | 250 | 4.26 | 4.92 | 4.79 | 4.93 | 8.13 | 12.55 | 15.57 | 6.46 | 8.84 | 9.01 | 23.87 | 26.05 | 71.32 |
| | 315 | 4.24 | 4.90 | 4.77 | 4.91 | 8.11 | 12.53 | 15.55 | 6.44 | 8.82 | 9.00 | 23.86 | 26.04 | 71.30 |
| | 400 | 4.24 | 4.90 | 4.77 | 4.91 | 8.11 | 12.53 | 15.55 | 6.43 | 8.81 | 8.99 | 23.85 | 26.03 | 71.30 |
| | 500 | 4.17 | 4.83 | 4.70 | 4.84 | 8.03 | 12.46 | 15.48 | 6.36 | 8.74 | 8.92 | 23.78 | 25.96 | 71.23 |
| | 630 | 4.16 | 4.82 | 4.69 | 4.83 | 8.03 | 12.45 | 15.47 | 6.36 | 8.74 | 8.92 | 23.78 | 25.96 | 71.22 |









2.9 **Momenti d'inerzia** [Kg·cm²]
(riferiti all'albero veloce in entrata)

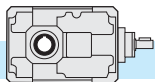
2.9 **Moments of inertia** [Kg·cm²]
(referred to input shaft)

2.9 **Trägheitsmoment** [Kg·cm²]
(bez. Antriebswelle)

TA..C - TC..C - TF..C

| | i_n | TA  | TC  | | | | | | TF  | | | | | |
|-------------|-------|--|--|-------|---------|-------|-------|-------|--|-------|---------|-------|-------|-------|
| | | | IEC B5 | | | | | | IEC B5 | | | | | |
| | | | 80 | 90 | 110-112 | 132 | 160 | 180 | 80 | 90 | 110-112 | 132 | 160 | 180 |
| 180C | 50 | 23.76 | 24.89 | 24.76 | 24.90 | 28.10 | 32.52 | 35.54 | 25.95 | 28.34 | 28.51 | 43.37 | 45.55 | 90.82 |
| | 63 | 22.45 | 23.58 | 23.45 | 23.59 | 26.79 | 31.21 | 34.23 | 24.65 | 27.03 | 27.20 | 42.06 | 44.25 | 89.51 |
| | 80 | 22.17 | 23.30 | 23.17 | 23.31 | 26.51 | 30.93 | 33.95 | 24.37 | 26.75 | 26.93 | 41.79 | 43.97 | 89.23 |
| | 100 | 20.94 | 22.07 | 21.94 | 22.07 | 25.27 | 29.70 | 32.72 | 23.13 | 25.51 | 25.69 | 40.55 | 42.73 | 88.00 |
| | 125 | 8.71 | 9.67 | 9.54 | 9.68 | 12.88 | 17.30 | 20.32 | 10.91 | 13.29 | 13.47 | 28.33 | 30.51 | 75.77 |
| | 160 | 8.39 | 9.35 | 9.22 | 9.36 | 12.56 | 16.98 | 20.00 | 10.59 | 12.97 | 13.14 | 28.00 | 30.18 | 75.45 |
| | 200 | 8.05 | 9.01 | 8.88 | 9.02 | 12.22 | 16.64 | 19.66 | 10.25 | 12.63 | 12.81 | 27.67 | 29.85 | 75.11 |
| | 250 | 4.35 | 5.01 | 4.88 | 5.02 | 8.22 | 12.64 | 15.66 | 6.55 | 8.93 | 9.10 | 23.96 | 26.14 | 71.41 |
| | 315 | 4.27 | 4.93 | 4.80 | 4.94 | 8.14 | 12.56 | 15.58 | 6.47 | 8.85 | 9.02 | 23.88 | 26.06 | 71.33 |
| 400 | 4.18 | 4.84 | 4.72 | 4.85 | 8.05 | 12.48 | 15.50 | 6.38 | 8.76 | 8.94 | 23.80 | 25.98 | 71.25 | |

| | i_n | TA  | TC  | | | | | TF  | | | | |
|-------------|-------|--|---|-------|-------|-------|-------|---|-------|-------|--------|--------|
| | | | IEC B5 | | | | | IEC B5 | | | | |
| | | | 110-112 | 132 | 160 | 180 | 200 | 110-112 | 132 | 160 | 180 | 200 |
| 200C | 40 | 72.31 | 74.90 | 80.58 | 79.58 | 82.49 | 92.88 | 91.93 | 93.29 | 95.47 | 144.59 | 141.12 |
| | 50 | 71.70 | 74.28 | 79.97 | 78.97 | 81.87 | 92.26 | 91.31 | 92.68 | 94.86 | 143.98 | 140.50 |
| | 63 | 71.11 | 73.69 | 79.38 | 78.38 | 81.28 | 91.67 | 90.72 | 92.09 | 94.27 | 143.39 | 139.91 |
| | 80 | 70.63 | 73.22 | 78.90 | 77.90 | 80.81 | 91.20 | 90.24 | 91.61 | 93.79 | 142.91 | 139.43 |
| | 100 | 26.74 | 29.50 | 35.19 | 34.19 | 37.09 | 47.48 | 46.35 | 47.72 | 49.90 | 99.02 | 95.54 |
| | 125 | 26.58 | 29.34 | 35.03 | 34.02 | 36.93 | 47.32 | 46.19 | 47.56 | 49.74 | 98.86 | 95.38 |
| | 160 | 26.45 | 29.21 | 34.90 | 33.89 | 36.80 | 47.19 | 46.06 | 47.43 | 49.61 | 98.73 | 95.25 |
| | 200 | 12.17 | 14.44 | 20.12 | 19.12 | 22.03 | 32.42 | 31.78 | 33.15 | 35.33 | 84.45 | 80.97 |
| | 250 | 12.13 | 14.40 | 20.09 | 19.08 | 21.99 | 32.38 | 31.74 | 33.11 | 35.29 | 84.41 | 80.93 |
| 315 | 12.09 | 14.37 | 20.05 | 19.05 | 21.96 | 32.35 | 31.71 | 33.07 | 35.25 | 84.37 | 80.90 | |



2.10 Dimensioni

2.10 Dimensions

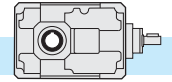
2.10 Abmessungen

| | TA...- TF... | | | | |
|----------------|---------------------|------|---------|------|------|
| | 56B | | 63B | | |
| R | 73.5 | | 75 | | |
| F | 9 | | 9 | | |
| e | 45 | | 50 | | |
| H h8 | 65 | | 70 | | |
| X h8 | 65 | | 80 | | |
| E h8 | 65 | | 70 | | |
| M | M8 x 12 | | M8 x 14 | | |
| C f8 | 70 | | 80 | | |
| K | 85 | | 100 | | |
| L | 59 | | 65 | | |
| S | 71 | | 85 | | |
| f | 9 | | 9 | | |
| m | 45 | | 55 | | |
| c | 73.5 | | 80 | | |
| N2 | 6 | 8 | 8 | 8 | 8 |
| M2 | 22.8 | 28.3 | 28.3 | 31.3 | 33.3 |
| D2 H7 | 20 | 25 | 25 | 28 | 30 |
| b | 73.5 | | 75 | | |
| r | 45 | | 50 | | |
| B | 92 | | 111 | | |
| G | 90 | | 100 | | |
| V | 97 | | 117 | | |
| C2 | 100 | | 120 | | |
| F2 | 9 | | 9 | | |
| N1 | 4 | | 4 | | |
| M1 | 13.8 | | 13.8 | | |
| D1h6 | 12 | | 12 | | |
| d ₁ | M4x10 | | M4x10 | | |
| L1 | 17.5 | | 17.5 | | |
| h | 113 | | 120.2 | | |
| T | 195.5 | | 207.7 | | |
| | TA... - TF.. | | | | |
| kg | 4.5 | | 6.0 | | |

| | TA...- TF... | | | | |
|----------------|---------------------|------|---------|------|------|
| | 56C | | 63C | | |
| R | 73.5 | | 75 | | |
| F | 9 | | 9 | | |
| e | 45 | | 50 | | |
| H h8 | 65 | | 70 | | |
| X h8 | 65 | | 80 | | |
| E h8 | 65 | | 70 | | |
| M | M8 x 12 | | M8 x 14 | | |
| C f8 | 70 | | 80 | | |
| K | 85 | | 100 | | |
| L | 94 | | 100 | | |
| S | 36 | | 50 | | |
| f | 9 | | 9 | | |
| m | 45 | | 55 | | |
| c | 73.5 | | 80 | | |
| N2 | 6 | 8 | 8 | 8 | 8 |
| M2 | 22.8 | 28.3 | 28.3 | 31.3 | 33.3 |
| D2 H7 | 20 | 25 | 25 | 28 | 30 |
| b | 73.5 | | 75 | | |
| r | 45 | | 50 | | |
| B | 92 | | 111 | | |
| G | 90 | | 100 | | |
| V | 97 | | 117 | | |
| C2 | 100 | | 120 | | |
| F2 | 9 | | 9 | | |
| N1 | 4 | | 4 | | |
| M1 | 13.8 | | 13.8 | | |
| D1h6 | 12 | | 12 | | |
| d ₁ | M4x10 | | M4x10 | | |
| L1 | 17.5 | | 17.5 | | |
| h | 146.6 | | 153.7 | | |
| T | 229 | | 241.2 | | |
| | TA... - TF.. | | | | |
| | 5.0 | | 6.5 | | |

| IEC..B5 | TF... | | | | | | | | | | | | | | | | | | | |
|---------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 56B | | | | | 56C | | | | | 63B | | | | | 63C | | | | |
| | 56 | 63 | 71 | 80 | 90 | 56 | 63 | 71 | 80 | 90 | 56 | 63 | 71 | 80 | 90 | 56 | 63 | 71 | 80 | 90 |
| Y | 120 | 140 | 160 | 200 | 200 | 120 | 140 | 160 | 200 | 200 | 120 | 140 | 160 | 200 | 200 | 120 | 140 | 160 | 200 | 200 |
| P | 153 | 156 | 163 | 183 | 183 | 187 | 190 | 197 | 217 | 217 | 160 | 163 | 170 | 190 | 190 | 194 | 197 | 201 | 221 | 221 |
| Q | 218 | 221 | 228 | 248 | 248 | 252 | 255 | 262 | 282 | 282 | 230 | 233 | 240 | 260 | 260 | 264 | 267 | 271 | 291 | 291 |
| kg | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |

| IEC..B14 | TF... | | | | | | | | | | | | | | | | | | | |
|----------|-------|----|-----|-----|-----|-----|----|-----|-----|-----|-----|----|-----|-----|-----|-----|----|-----|-----|-----|
| | 56B | | | | | 56C | | | | | 63B | | | | | 63C | | | | |
| | 56 | 63 | 71 | 80 | 90 | 56 | 63 | 71 | 80 | 90 | 56 | 63 | 71 | 80 | 90 | 56 | 63 | 71 | 80 | 90 |
| Y | — | — | 105 | 120 | 140 | — | — | 105 | 120 | 140 | — | — | 105 | 120 | 140 | — | — | 105 | 120 | 140 |
| P | — | — | 163 | 183 | 183 | — | — | 197 | 217 | 217 | — | — | 170 | 190 | 190 | — | — | 204 | 224 | 224 |
| Q | — | — | 228 | 248 | 248 | — | — | 262 | 282 | 282 | — | — | 240 | 260 | 260 | — | — | 274 | 294 | 294 |
| kg | — | — | 4.5 | 4.5 | 4.5 | — | — | 5.0 | 5.0 | 5.0 | — | — | 6.0 | 6.0 | 6.0 | — | — | 6.5 | 6.5 | 6.5 |

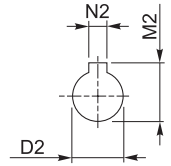
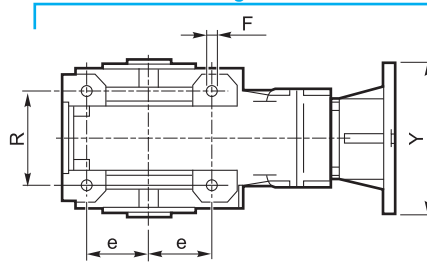
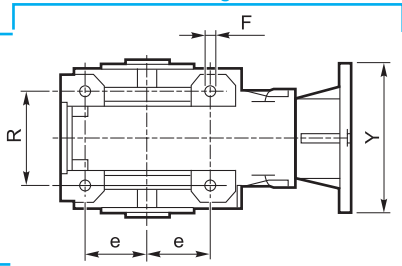


T..56B - T..56C - T..63B - T..63C

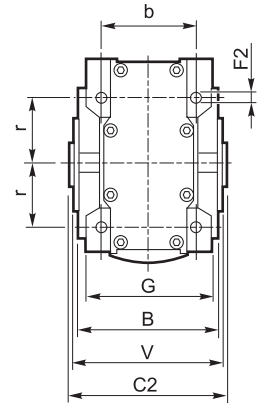
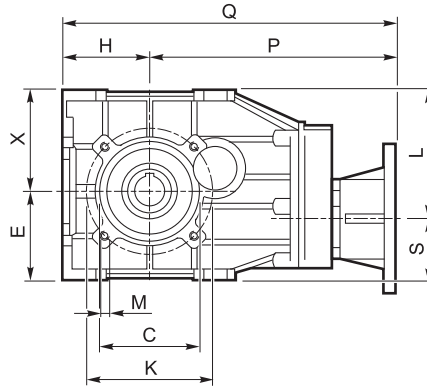
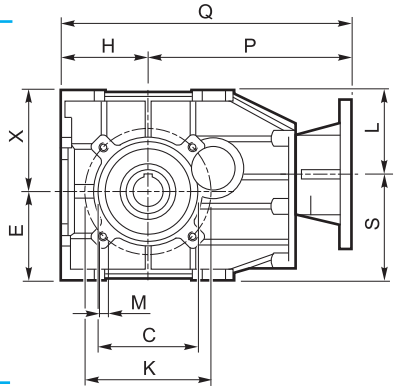
2 Riduzioni/Stages/Stufen

3 Riduzioni/Stages/Stufen

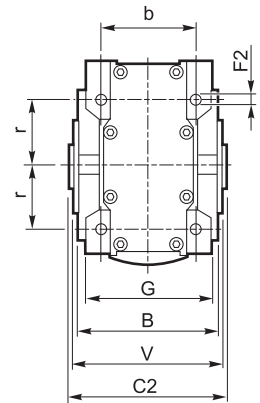
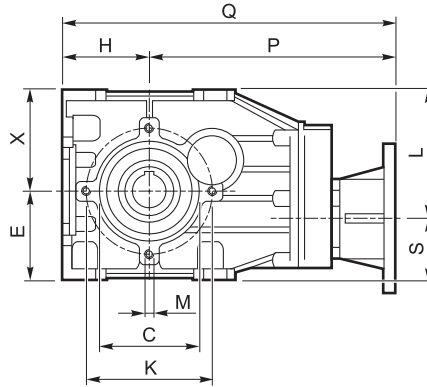
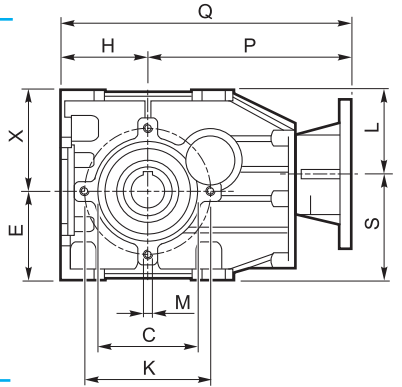
TF 56 - TF 63



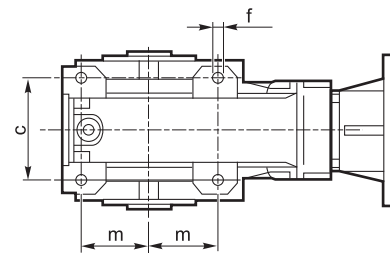
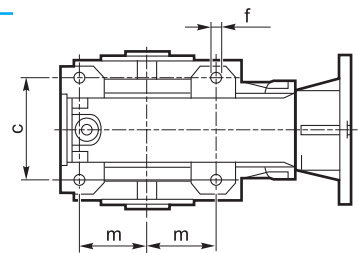
TF 56



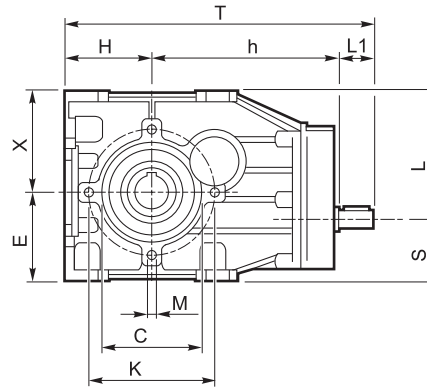
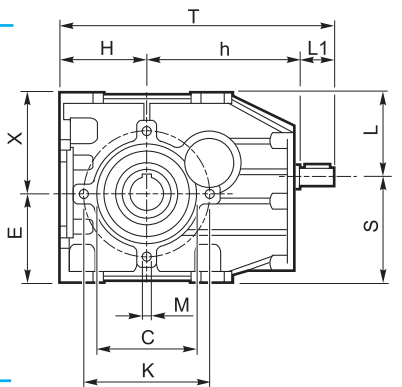
TF 63



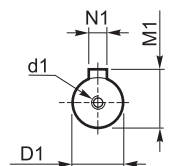
TF 56 - TF 63

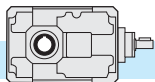


TA 56 - TA 63



| IEC | |
|-----|-----------|
| | 56 B5 |
| | 63 B5 |
| | 71 B5 |
| | 80 B5/B14 |
| | 90 B5/B14 |





2.10 Dimensioni

2.10 Dimensions

2.10 Abmessungen

| | | TA... - TC... - TF.. | | | | | | | | | | | | | | | | |
|-------|--|----------------------|----|----|--------|----|----|--------|----|----|--------|----|--------|----|--------|----|--------|----|
| | | 71B | | | 90B | | | 112B | | | 140B | | 180B | | 200B | | 225B | |
| A | | 142 | | | 180 | | | 224 | | | 280 | | 360 | | 400 | | 450 | |
| a | | 102 | | | 134 | | | 166 | | | 209 | | 272.5 | | 305 | | 344 | |
| a1 | | — | | | — | | | — | | | — | | — | | — | | — | |
| B | | 112 | | | 127 | | | 150 | | | 175 | | 215 | | 255 | | 290 | |
| b | | 90 | | | 104 | | | 125 | | | 145 | | 180 | | 210 | | 240 | |
| C2 | | 115 | | | 130 | | | 155 | | | 180 | | 220 | | 260 | | 300 | |
| D1 h6 | | 14 | | | 19 | | | 24 | | | 28 | | 38 | | 38 | | 48 | |
| D2 H7 | | 24 | 28 | 30 | 32 | 30 | 35 | 42 | 40 | 45 | 55 | 50 | 70 | 60 | 90 | 80 | 100 | 90 |
| E | | 206 | | | 262 | | | 326 | | | 407 | | 522.5 | | 585 | | 654 | |
| e | | 38 | | | 52 | | | 64 | | | 82 | | 110 | | 120 | | 140 | |
| F | | 9 | | | 11 | | | 13 | | | 15 | | 17 | | 19 | | 21 | |
| f | | M8x13 | | | M10x16 | | | M12x19 | | | M14x22 | | M16x25 | | M18x35 | | M18x30 | |
| G | | 122 | | | 155 | | | 194 | | | 244 | | 320 | | 350 | | 400 | |
| g | | 61 | | | 77.5 | | | 97 | | | 122 | | 160 | | 175 | | 200 | |
| H | | 71 | | | 90 | | | 112 | | | 140 | | 180 | | 200 | | 225 | |
| h | | 174 | | | 212 | | | 262 | | | 317 | | 400 | | 422.5 | | 500 | |
| I | | 110 | | | 130 | | | 160 | | | 190 | | 237.5 | | 237.5 | | 296 | |
| i | | 125 | | | 159.5 | | | 199 | | | 249 | | 322.5 | | 360 | | 404 | |
| L1 | | 30 | | | 40 | | | 50 | | | 60 | | 80 | | 80 | | 110 | |
| O | | 64 | | | 82 | | | 102 | | | 127 | | 162.5 | | 185 | | 204 | |
| T | | 275 | | | 342 | | | 424 | | | 517 | | 660 | | 702.5 | | 835 | |
| t | | 211 | | | 260 | | | 322 | | | 390 | | 497.5 | | 517.5 | | 631 | |
| Z | | 9 | | | 11 | | | 13 | | | 16 | | 20 | | 22 | | 25 | |

| | | TA.. | | | | | | | | | | | | | |
|----|--|------|--|----|--|----|--|----|--|-----|--|-----|--|-----|--|
| kg | | 12.5 | | 20 | | 34 | | 58 | | 116 | | 165 | | 232 | |

| | | TC... - TF... | | | | | | | | | | | | | |
|----|--|---------------|--|----|--|----|--|----|--|-----|--|-----|--|-----|--|
| kg | | 15.5 | | 25 | | 44 | | 75 | | 136 | | 185 | | 270 | |

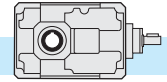
| | | TC... | | | | | | | | | | |
|-----|--|-------|-------|----------|--------|-------|----------|-------------|------------|----------|------------|--------|
| | | 71B | | | | 90B | | | | 112B | | |
| IEC | | 63 B5 | 71 B5 | 80/90 B5 | 80 B14 | 71 B5 | 80/90 B5 | *90 B14 | 100/112 B5 | 80/90 B5 | 100/112 B5 | 132 B5 |
| Y | | 140 | 160 | 200 | 120 | 160 | 200 | □ 120 / R73 | 250 | 200 | 250 | 300 |
| P | | 177 | 184 | 204 | 204 | 220 | 240 | 240 | 250 | 286 | 296 | 318 |
| p | | 113 | 120 | 140 | 140 | 138 | 158 | 158 | 168 | 184 | 194 | 216 |
| Q | | 248 | 255 | 275 | 275 | 310 | 330 | 330 | 340 | 398 | 408 | 430 |
| q | | 184 | 191 | 211 | 211 | 228 | 248 | 248 | 258 | 296 | 306 | 328 |

| | | 140B | | | | 180B | | | | 200B | | | | | |
|-----|--|----------|------------|--------|------------|------------------------------|--|-----------------------------|------------|--------|----------------------------|--|----------------------------|------------|--------|
| IEC | | 80/90 B5 | 100/112 B5 | 132 B5 | 160/180 B5 | 100/112 B5 | | 132 B5 | 160/180 B5 | 200 B5 | 100/112 B5 | | 132 B5 | 160/180 B5 | 200 B5 |
| Y | | 200 | 250 | 300 | 350 | 250 | | 300 | 350 | 400 | 250 | | 300 | 350 | 400 |
| P | | 331 | 341 | 363 | 393 | 413(i=10-40) / 423(i=50-80) | | 463(i=10-40) / 473(i=50-80) | | 400 | 435(i=8-40) / 445(i=50-63) | | 485(i=8-40) / 495(i=50-63) | | |
| p | | 204 | 214 | 236 | 266 | 250(i=10-40) / 260(i=50-80) | | 300(i=10-40) / 310(i=50-80) | | 250 | 250(i=8-40) / 260(i=50-63) | | 300(i=8-40) / 310(i=50-63) | | |
| Q | | 471 | 481 | 503 | 533 | 593 (i=10-40) / 603(i=50-80) | | 643(i=10-40) / 653(i=50-80) | | 400 | 640(i=8-40) / 650(i=50-63) | | 690(i=8-40) / 700(i=50-63) | | |
| q | | 344 | 354 | 376 | 406 | 430(i=10-40) / 440 (i=50-80) | | 480(i=10-40) / 490(i=50-80) | | 400 | 450(i=8-40) / 460(i=50-63) | | 500(i=8-40) / 510(i=50-63) | | |

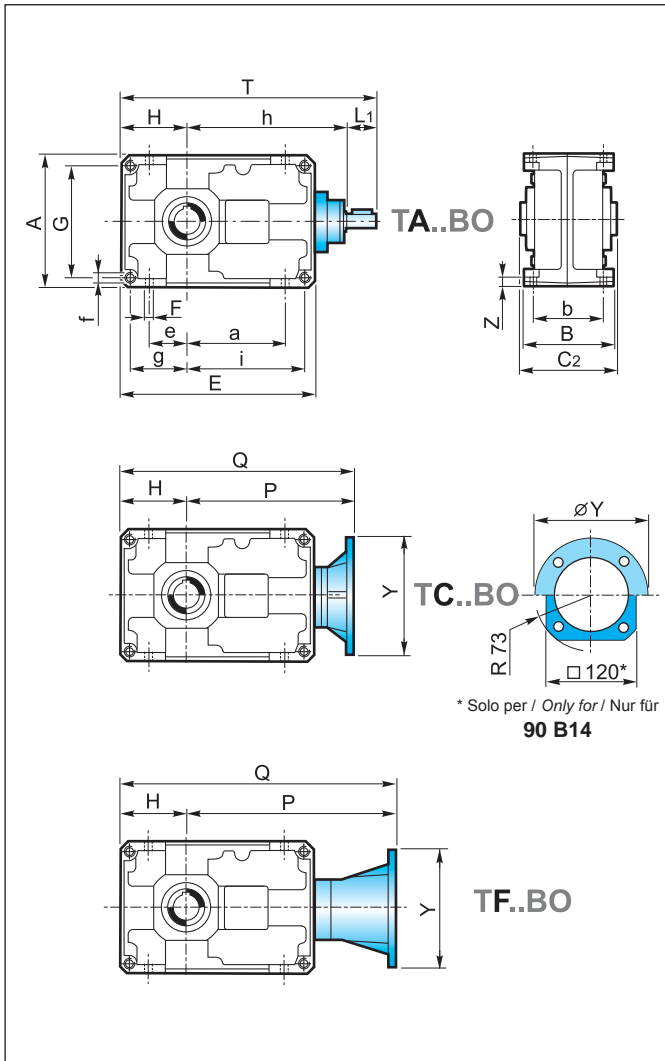
* Flange quadrate / Square flanges / Viereckige Flansche

| | | TF... | | | | | | | | | | | | |
|-----|--|-------|-------|----------|-------|----------|------------|----------|------------|--------|----------|------------|--------|------------|
| | | 71B | | | 90B | | | 112B | | | 140B | | | |
| IEC | | 63 B5 | 71 B5 | 80/90 B5 | 71 B5 | 80/90 B5 | 100/112 B5 | 80/90 B5 | 100/112 B5 | 132 B5 | 80/90 B5 | 100/112 B5 | 132 B5 | 160/180 B5 |
| Y | | 140 | 160 | 200 | 160 | 200 | 250 | 200 | 250 | 300 | 200 | 250 | 300 | 350 |
| P | | 231 | 238 | 259 | 286 | 307 | 317 | 367 | 377 | 398 | 432 | 442 | 463 | 493 |
| p | | 167 | 174 | 195 | 204 | 225 | 235 | 265 | 275 | 296 | 305 | 315 | 336 | 366 |
| Q | | 302 | 309 | 330 | 376 | 397 | 407 | 479 | 489 | 510 | 572 | 582 | 603 | 633 |
| q | | 238 | 245 | 266 | 294 | 315 | 325 | 377 | 387 | 408 | 445 | 455 | 476 | 506 |

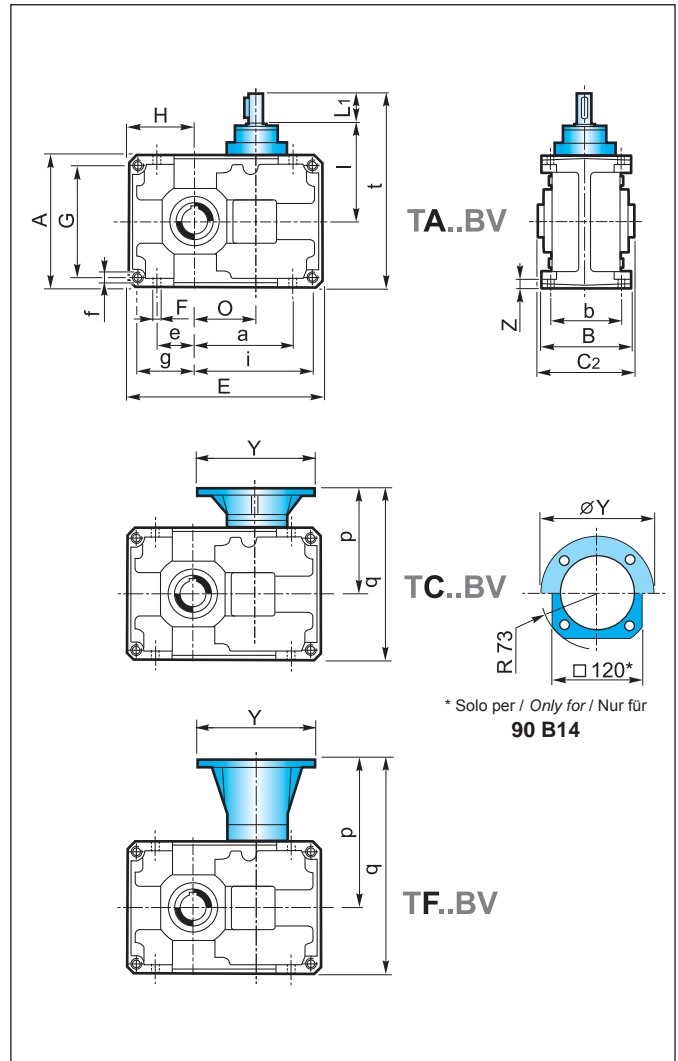
| | | 180B | | | | 200B | | | | 225B | | | | |
|-----|--|------------|--------|------------|--------|------------|--------|------------|--------|--------|--------|------------|--------|--------|
| IEC | | 100/112 B5 | 132 B5 | 160/180 B5 | 200 B5 | 100/112 B5 | 132 B5 | 160/180 B5 | 200 B5 | 225 B5 | 132 B5 | 160/180 B5 | 200 B5 | 225 B5 |
| Y | | 250 | 300 | 350 | 400 | 250 | 300 | 350 | 400 | 450 | 300 | 350 | 400 | 450 |
| P | | 546 | 566 | 596 | 596 | 568.5 | 588.5 | 618.5 | 620.5 | 648.5 | 698 | 728 | 728 | 760 |
| p | | 393.5 | 403 | 433 | 433 | 383.5 | 403.5 | 433.5 | 435.5 | 466.5 | 494 | 524 | 524 | 556 |
| Q | | 736 | 746 | 776 | 776 | 768.5 | 788.5 | 818.5 | 820.5 | 848.5 | 923 | 953 | 953 | 985 |
| q | | 573.5 | 583 | 613 | 613 | 583.5 | 603.5 | 633.5 | 635.5 | 663.5 | 774 | 749 | 749 | 781 |



T..71B - T..225B

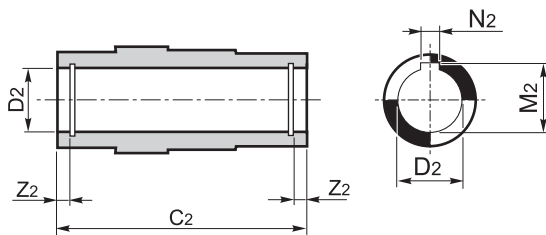


* Solo per / Only for / Nur für
90 B14

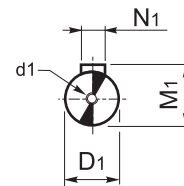


* Solo per / Only for / Nur für
90 B14

Albero uscita cavo
Hollow output shaft
Abtriebshohlwelle

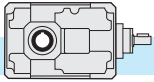


Albero entrata
Input shaft
Antriebswelle



TA... - TC... - TF...

| | 71B | | 90B | | | 112B | | | 140B | | 180B | | 200B | | 225B | | |
|--------------|-----------|------|-------|-----------|------|-------|-----------|------|-------|-----------|--------|-----------|--------|-----------|--------|------------|------|
| D1 h6 | 14 | | 19 | | | 24 | | | 28 | | 38 | | 38 | | 48 | | |
| d1 | M4x15 | | M8x22 | | | M8x22 | | | M8x22 | | M10x28 | | M10x28 | | M12x34 | | |
| M1 | 16 | | 21.5 | | | 27 | | | 31 | | 41 | | 41 | | 51.5 | | |
| N1 | 5 | | 6 | | | 8 | | | 8 | | 10 | | 10 | | 14 | | |
| C2 | 115 | | 130 | | | 155 | | | 180 | | 220 | | 260 | | 300 | | |
| D2 H7 | 24 | 28 | 30 | 32 | 30 | 35 | 42 | 40 | 45 | 55 | 50 | 70 | 60 | 90 | 80 | 100 | 90 |
| M2 | 27.3 | 31.3 | 33.3 | 35.3 | 33.3 | 38.3 | 45.3 | 43.3 | 48.8 | 59.3 | 53.8 | 74.9 | 64.4 | 95.4 | 85.4 | 106.4 | 95.4 |
| N2 | 8 | 8 | 8 | 10 | 8 | 10 | 12 | 12 | 14 | 16 | 14 | 20 | 18 | 25 | 22 | 28 | 25 |
| Z2 | — | | 8.7 | 8.7 | 8.4 | 11 | 11 | 11 | 11.9 | 11.9 | 15.4 | 15.9 | 18.9 | 18.9 | 20 | - | - |



2.10 Dimensioni

2.10 Dimensions

2.10 Abmessungen

| TA... - TC... - TF... | | | | | | | | | | | | | | |
|-----------------------|--------|----|----|--------|----|----|--------|----|--------|----|--------|----|--------|----|
| | 80C | | | 100C | | | 125C | | 160C | | 180C | | 200C | |
| A | 160 | | | 200 | | | 250 | | 320 | | 360 | | 400 | |
| a | 82 | | | 102 | | | 127 | | 162.5 | | 185 | | 204 | |
| a1 | 106 | | | 134 | | | 169 | | 217 | | 207 | | 277.5 | |
| B | 127 | | | 150 | | | 175 | | 215 | | 255 | | 290 | |
| b | 104 | | | 125 | | | 145 | | 180 | | 210 | | 240 | |
| C2 | 130 | | | 155 | | | 180 | | 220 | | 260 | | 300 | |
| D1 h6 | 14 | | | 19 | | | 24 | | 28 | | 28 | | 38 | |
| D2 H7 | 32 | 30 | 35 | 42 | 40 | 45 | 55 | 50 | 70 | 60 | 90 | 80 | 100 | 90 |
| E | 306 | | | 384 | | | 479 | | 609.5 | | 652 | | 766.5 | |
| e | 42 | | | 52 | | | 67 | | 90 | | 100 | | 115 | |
| F | 11 | | | 13 | | | 15 | | 17 | | 19 | | 21 | |
| f | M10x16 | | | M12x19 | | | M14x22 | | M16x25 | | M18x35 | | M18x30 | |
| G | 135 | | | 170 | | | 214 | | 280 | | 310 | | 350 | |
| g | 67.5 | | | 85 | | | 107 | | 140 | | 155 | | 175 | |
| H | 80 | | | 100 | | | 125 | | 160 | | 180 | | 200 | |
| h | 256 | | | 314 | | | 389 | | 479.5 | | 502 | | 604 | |
| I | 110 | | | 130 | | | 160 | | 190 | | 190 | | 237.5 | |
| i | 213.5 | | | 269 | | | 336 | | 429.5 | | 447 | | 541.5 | |
| L1 | 30 | | | 40 | | | 50 | | 60 | | 60 | | 80 | |
| O | 146 | | | 184 | | | 229 | | 289.5 | | 312 | | 366.5 | |
| T | 366 | | | 454 | | | 564 | | 699.5 | | 742 | | 884 | |
| t | 220 | | | 270 | | | 335 | | 410 | | 430 | | 517.5 | |
| Z | 11 | | | 13 | | | 16 | | 20 | | 22 | | 25 | |

| TA.. | | | | | | | | | | | | |
|------|----|--|----|--|----|--|-----|--|-----|--|-----|--|
| kg | 19 | | 36 | | 66 | | 120 | | 170 | | 260 | |

| TC... - TF... | | | | | | | | | | | | |
|---------------|----|--|----|--|----|--|-----|--|-----|--|-----|--|
| kg | 22 | | 41 | | 76 | | 137 | | 190 | | 295 | |

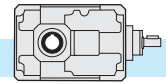
| TC... | | | | | | | | | | | | |
|-------|-------|-------|----------|--------|-------|----------|--------------|------------|----------|------------|--------|--|
| | 80C | | | | 100C | | | | 125C | | | |
| IEC | 63 B5 | 71 B5 | 80/90 B5 | 80 B14 | 71 B5 | 80/90 B5 | *90 B14 | 100/112 B5 | 80/90 B5 | 100/112 B5 | 132 B5 | |
| Y | 140 | 160 | 200 | 120 | 160 | 200 | □ 120 / R 73 | 250 | 200 | 250 | 300 | |
| P | 259 | 266 | 286 | 286 | 322 | 342 | 342 | 352 | 413 | 423 | 445 | |
| p | 113 | 120 | 140 | 140 | 138 | 158 | 158 | 168 | 184 | 194 | 216 | |
| Q | 339 | 346 | 366 | 366 | 422 | 442 | 442 | 452 | 538 | 548 | 570 | |
| q | 193 | 200 | 220 | 220 | 238 | 258 | 258 | 268 | 309 | 319 | 341 | |

| | 160C | | | | 180C | | | | 200C | | | | |
|-----|---------|------------|--------|------------|----------|------------|--------|------------|--------------------------------|--|--------------------------------|------------|--------|
| IEC | 80/90B5 | 100/112 B5 | 132 B5 | 160/180 B5 | 80/90 B5 | 100/112 B5 | 132 B5 | 160/180 B5 | 100/112 B5 | | 132 B5 | 160/180 B5 | 200 B5 |
| Y | 200 | 250 | 300 | 350 | 200 | 250 | 300 | 350 | 250 | | 300 | 350 | 400 |
| P | 493 | 503 | 525 | 555 | 516 | 526 | 548 | 578 | 617(i=40-160) / 627(i=200-315) | | 667(i=40-160) / 677(i=200-315) | | |
| p | 204 | 214 | 236 | 266 | 204 | 214 | 236 | 266 | 250(i=40-160) / 260(i=200-315) | | 300(i=40-160) / 310(i=200-315) | | |
| Q | 653 | 663 | 686 | 715 | 696 | 706 | 728 | 758 | 617(i=40-160) / 627(i=200-315) | | 867(i=40-160) / 877(i=200-315) | | |
| q | 364 | 374 | 396 | 426 | 384 | 394 | 416 | 446 | 450(i=40-160) / 460(i=200-315) | | 500(i=40-160) / 510(i=200-315) | | |

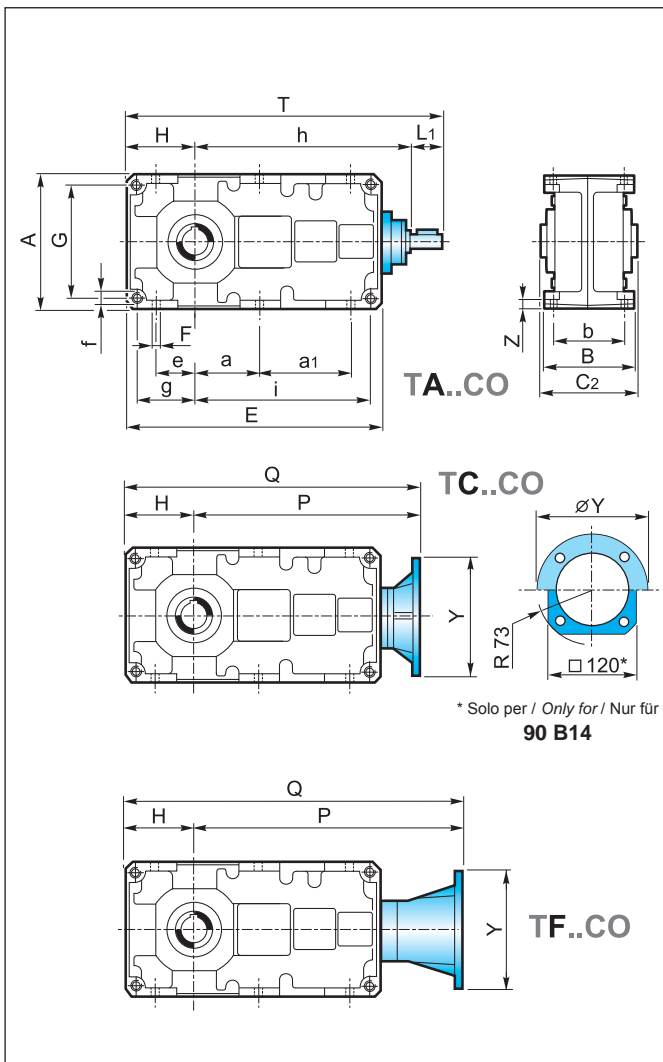
* Flange quadrate / Square flanges / Viereckige Flansche

| TF... | | | | | | | | | | | |
|-------|-------|-------|----------|-------|----------|------------|----------|------------|--------|--------|--------|
| | 80C | | | 100C | | | 125C | | | | |
| IEC | 63 B5 | 71 B5 | 80/90 B5 | 71 B5 | 80/90 B5 | 100/112 B5 | 80/90 B5 | 100/112 B5 | 132 B5 | 132 B5 | 132 B5 |
| Y | 140 | 160 | 200 | 160 | 200 | 250 | 200 | 250 | 300 | 300 | 300 |
| P | 313 | 320 | 341 | 388 | 409 | 419 | 494 | 504 | 525 | 525 | 525 |
| p | 167 | 174 | 195 | 204 | 225 | 235 | 265 | 275 | 296 | 296 | 296 |
| Q | 393 | 400 | 421 | 488 | 509 | 519 | 619 | 629 | 650 | 650 | 650 |
| q | 247 | 254 | 275 | 304 | 325 | 335 | 390 | 400 | 421 | 421 | 421 |

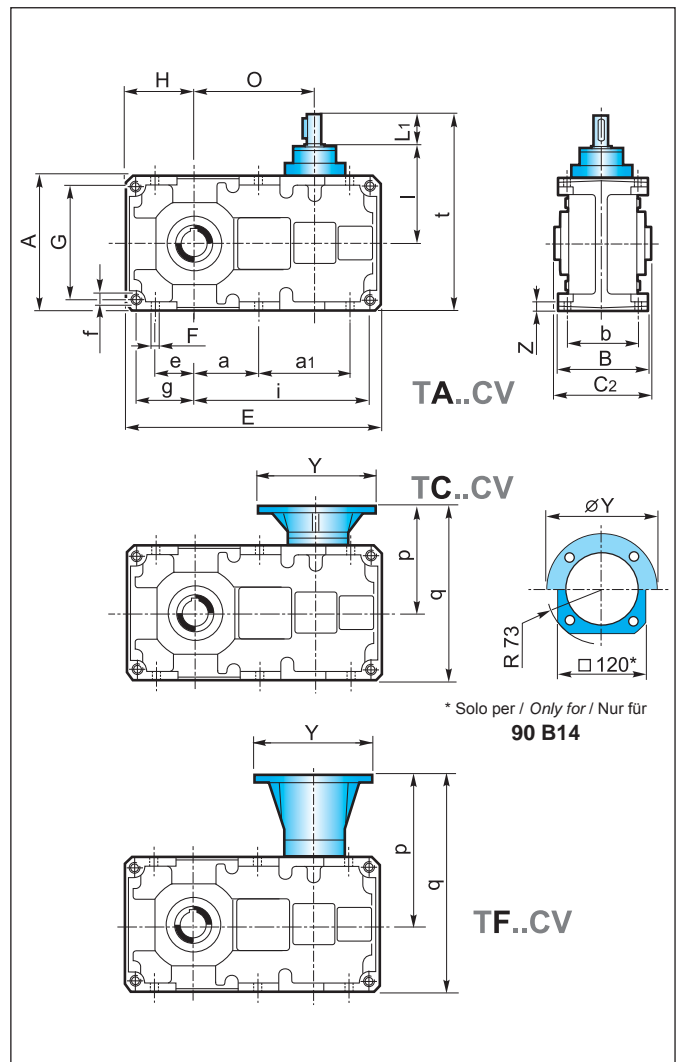
| | 160C | | | | 180C | | | | 200C | | | |
|-----|----------|------------|--------|------------|----------|------------|--------|------------|------------|--------|------------|--------|
| IEC | 80/90 B5 | 100/112 B5 | 132 B5 | 160/180 B5 | 80/90 B5 | 100/112 B5 | 132 B5 | 160/180 B5 | 100/112 B5 | 132 B5 | 160/180 B5 | 200 B5 |
| Y | 200 | 250 | 300 | 350 | 200 | 250 | 300 | 350 | 250 | 300 | 350 | 400 |
| P | 594 | 604 | 625 | 655 | 617 | 627 | 648 | 678 | 750 | 770 | 800 | 802 |
| p | 305 | 315 | 336 | 366 | 305 | 315 | 336 | 366 | 383.5 | 404 | 434 | 436 |
| Q | 754 | 764 | 785 | 815 | 797 | 807 | 828 | 858 | 950 | 970 | 1000 | 1002 |
| q | 465 | 475 | 496 | 526 | 485 | 495 | 516 | 546 | 583.5 | 604 | 634 | 636 |



T..80C - T..200C

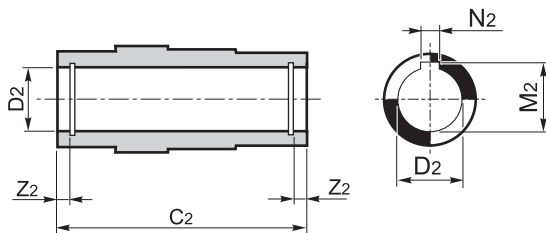


* Solo per / Only for / Nur für
90 B14

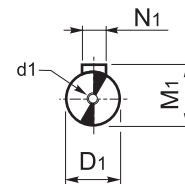


* Solo per / Only for / Nur für
90 B14

Albero uscita cavo
Hollow output shaft
Abtriebshohlwelle

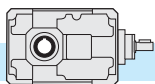


Albero entrata
Input shaft
Antriebswelle



TA... - TC... - TF...

| | 80C | | 100C | | | 125C | | 160C | | 180C | | 200C | | | |
|--------------|-----------|------|-------|-----------|------|-------|-----------|-------|-----------|-------|-----------|--------|------------|------|--|
| D1 h6 | 14 | | 19 | | | 24 | | 28 | | 28 | | 38 | | | |
| d1 | M4x15 | | M8x22 | | | M8x22 | | M8x22 | | M8x22 | | M10x28 | | | |
| M1 | 16 | | 21.5 | | | 27 | | 31 | | 31 | | 41 | | | |
| N1 | 5 | | 6 | | | 8 | | 8 | | 8 | | 10 | | | |
| C2 | 130 | | 155 | | | 180 | | 220 | | 260 | | 300 | | | |
| D2 H7 | 32 | 30 | 35 | 42 | 40 | 45 | 55 | 50 | 70 | 60 | 90 | 80 | 100 | 90 | |
| M2 | 35.3 | 33.3 | 38.3 | 45.3 | 43.3 | 48.8 | 59.3 | 53.8 | 74.9 | 64.4 | 95.4 | 85.4 | 106.4 | 95.4 | |
| N2 | 10 | 8 | 10 | 12 | 12 | 14 | 16 | 14 | 20 | 18 | 25 | 22 | 28 | 25 | |
| Z2 | 8.7 | | 8.7 | | | 8.4 | | 11 | | 11 | | 15.4 | | 15.9 | |
| | | | | | | | | | | | | | | | |



2.11 Accessori

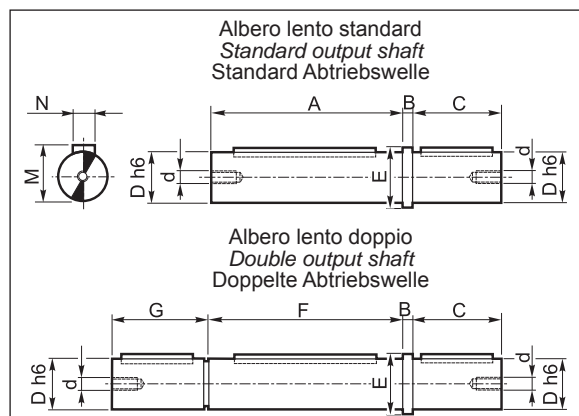
2.11 Accessories

2.11 Zubehör

Albero lento

Output shaft

Abtriebswelle



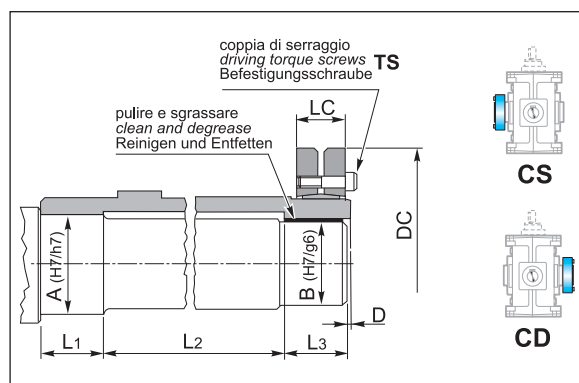
Materiale albero lento: **C45**
 Output shaft material: **C45**
 Material der Abtriebswelle: **C45**

| | T | | | | | | | | | | |
|-----------------|------------|------------|-----|------------|--------------|--------------|--------------|--------------|--------------|-----|-----|
| | 56B 56C | 63B 63C | 71B | 90B 80C | 112B 100C | 140B 125C | 180B 160C | 200B 180C | 225B 200C | | |
| A | 100 | 120 | 114 | 129 | 129 | 154 | 154 | 179 | 219 | 259 | 298 |
| B | 5 | 5 | 5 | 6 | 6 | 8 | 8 | 10 | 12 | 15 | 15 |
| C | 40 | 45 | 50 | 60 | 60 | 80 | 80 | 100 | 125 | 140 | 180 |
| D _{h6} | 20 | 25 | 24 | 32 | 35 | 42 | 45 | 55 | 70 | 90 | 100 |
| d | M8 | M8 | M8 | M8 | M8 | M10 | M10 | M10 | M12 | M16 | M18 |
| E | 26 | 32 | 30 | 40 | 43 | 50 | 53 | 65 | 80 | 110 | 118 |
| F | 100 | 120 | 115 | 130 | — | 155 | — | 180 | 220 | 260 | 300 |
| G | 41 | 46 | 49 | 59 | — | 79 | — | 99 | 124 | 141 | 178 |
| M | 22.5 | 28 | 27 | 35 | 38 | 45 | 48.5 | 59 | 74.5 | 95 | 106 |
| N | 6 | 8 | 8 | 10 | 10 | 12 | 14 | 16 | 20 | 25 | 28 |

Albero lento cavo con calettatore

Hollow output shaft with shrink disc

Abtriebshohlwelle mit Schrumpfscheibe



| | T | | | | | | | | |
|--------------------|------------|------------|-----|------------|--------------|--------------|--------------|--------------|--------------|
| | 56B 56C | 63B 63C | 71B | 90B 80C | 112B 100C | 140B 125C | 180B 160C | 200B 180C | 225B 200C |
| A | 27 | 32 | 27 | 37 | 47 | 57 | 72 | 92 | 102 |
| B | 25 | 30 | 25 | 35 | 45 | 55 | 70 | 90 | 100 |
| D | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 |
| DC | 60 | 72 | 60 | 80 | 100 | 115 | 155 | 188 | 215 |
| LC | 21.5 | 23.5 | 22 | 26 | 31 | 31 | 39 | 50 | 54 |
| L ₁ | 32 | 36 | 36 | 39 | 45 | 50 | 60 | 70 | 80 |
| L ₂ | 61 | 75 | 68 | 82 | 100 | 115 | 143 | 175 | 200 |
| L ₃ | 32 | 36 | 36 | 39 | 45 | 50 | 60 | 70 | 80 |
| TS _(Nm) | 4 | 12 | 4 | 12 | 12 | 12 | 30 | 59 | 59 |

Kit protezione albero cavo

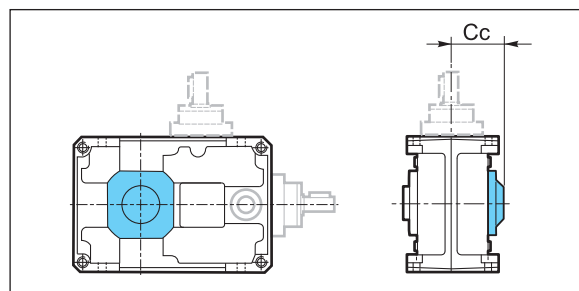
Hollow shaft protection kit

Schutzvorrichtung für die Hohlwelle

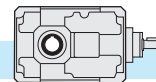
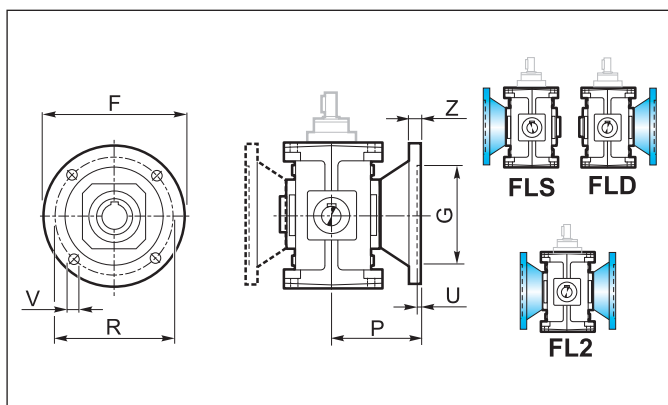
Ad esclusione delle grandezze 56 e 63, a richiesta è possibile predisporre il riduttore con un kit di protezione dell'albero cavo. Tale protezione, essendo dotata di un'opportuna guarnizione, impedisce ad eventuali fluidi, presenti nell'ambiente di lavoro, di venire a contatto con l'albero cavo del riduttore oltre ad impedire il contatto con corpi estranei. Le dimensioni di ingombro sono riportate nella tabella seguente.

On request we can supply a hollow shaft protection kit (except for sizes 56 and 63). The kit features a gasket which prevents any contact between hollow shaft and foreign bodies or fluids existing in the working environment. Over-all dimensions are reported in the following table.

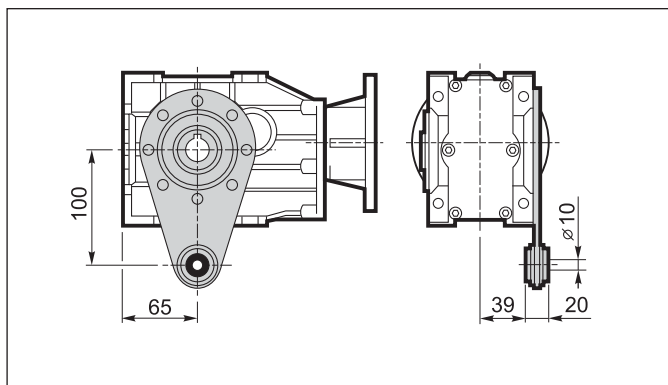
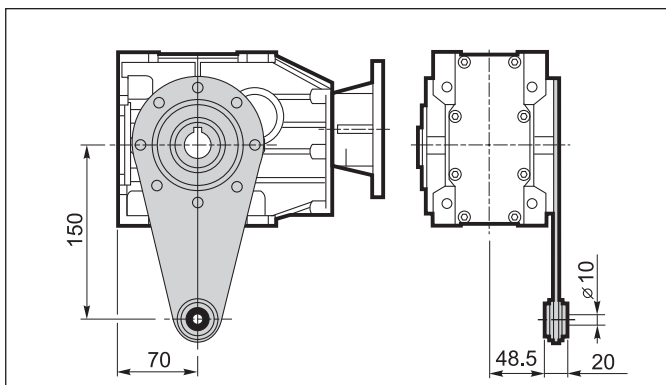
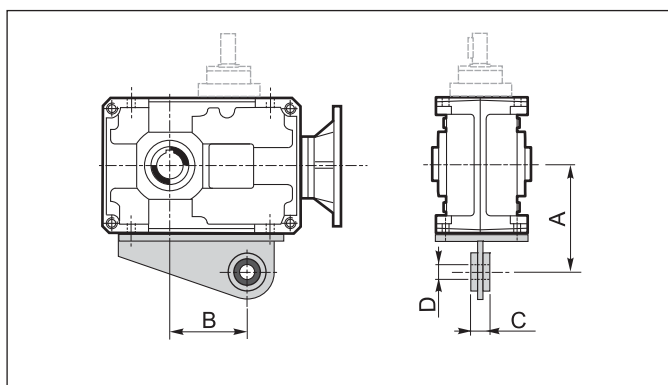
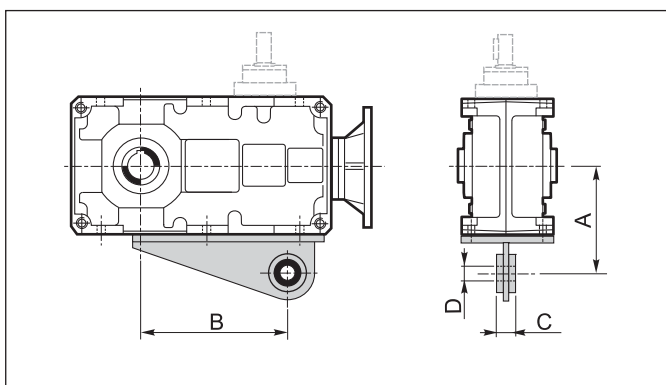
Auf Wunsch ist eine Schutzvorrichtung für die Hohlwelle lieferbar (Größen 56 und 63 ausgenommen). Die Schutzvorrichtung weist eine Dichtung auf, die zur Vermeidung von irgendwelchem Kontakt zwischen Hohlwelle und Fremdkörper oder Flüssigkeiten der Arbeitsumgebung dient. Den Tabelle wird der Raumbedarf angegeben.



| | T | | | | | | |
|----|------|------------|--------------|--------------|--------------|--------------|--------------|
| | 71B | 90B 80C | 112B 100C | 140B 125C | 180B 160C | 200B 180C | 225B 200C |
| Cc | 79.5 | 87 | 105 | 120.5 | 141.5 | 167.5 | 191.5 |

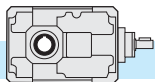

Flangia uscita
Output flange
Abtriebsflansch


| | T | | | | | | | |
|-----------------------|------------|------------|-----|------------|--------------|--------------|--------------|--------------|
| | 56B 56C | 63B 63C | 71B | 90B 80C | 112B 100C | 140B 125C | 180B 160C | 200B 180C |
| F | 140 | 160 | 160 | 200 | 250 | 300 | 350 | 400 |
| G_{G6} | 95 | 110 | 110 | 130 | 180 | 230 | 250 | 300 |
| R | 115 | 130 | 130 | 165 | 215 | 265 | 300 | 350 |
| P | 82 | 91.5 | 87 | 100 | 125 | 150 | 180 | 215 |
| U | 5 | 5 | 4 | 4.5 | 5 | 5 | 6 | 6 |
| V | 9 | 9 | 12 | 12 | 14 | 16 | 18 | 20 |
| Z | 15 | 10 | 10 | 12 | 16 | 20 | 25 | 30 |
| kg | 0.5 | 0.5 | 2 | 3.2 | 5 | 8 | 12.5 | 24 |

Braccio di reazione
Torque arm
Drehmomentstütze
56B - 56C

63B - 63C

71B - 225B

80C - 200C


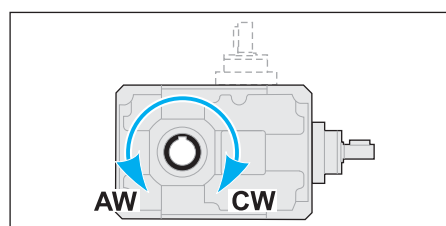
| | T | | | | | | |
|----------|-----|-----|------|------|-------|------|------|
| | 71B | 90B | 112B | 140B | 180B | 200B | 225B |
| A | 123 | 140 | 172 | 205 | 260 | 300 | 325 |
| B | 84 | 116 | 144 | 189 | 247.5 | 280 | 319 |
| C | 25 | 25 | 30 | 30 | 35 | 45 | 45 |
| D | 20 | 20 | 25 | 25 | 35 | 40 | 40 |

| | T | | | | | |
|----------|-----|------|------|-------|------|-------|
| | 80C | 100C | 125C | 160C | 180C | 200C |
| A | 130 | 160 | 190 | 240 | 280 | 300 |
| B | 170 | 214 | 276 | 354.5 | 367 | 456.5 |
| C | 25 | 30 | 30 | 35 | 45 | 45 |
| D | 20 | 25 | 25 | 35 | 40 | 40 |



Dispositivo antiritorno

Il riduttore ad assi ortogonali presenta valori di rendimento statico (e dinamico) molto elevati: per questo motivo non è garantita spontaneamente l'irreversibilità statica. L'irreversibilità statica si realizza quando, a riduttore fermo, l'applicazione di un carico all'albero lento non pone in rotazione l'asse entrante. Pertanto, per garantire l'irreversibilità del moto, a riduttore fermo, occorre predisporre il riduttore stesso con un opportuno dispositivo antiritorno, fornibile a richiesta tranne che sulle grandezze T56 e T63. Tale dispositivo permette la rotazione dell'albero lento solo nel senso desiderato, da specificare all'atto dell'ordine.



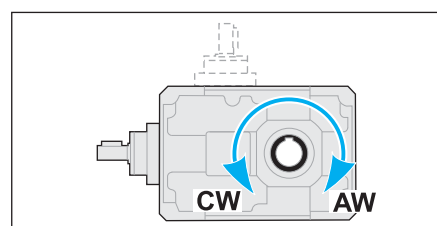
Backstop device

Bevel helical gearboxes feature quite high values of static (and dynamic) efficiency: for this reason spontaneous static irreversibility is not guaranteed. Static irreversibility, with motionless gearbox, occurs when the application of a load on the output shaft does not cause rotation of the input axis. In order to guarantee motion irreversibility, with motionless gearbox, it is necessary to fit a backstop device, which is available on request, except for sizes 56 and 63. The backstop device enables rotation of the output shaft only in the required direction, which is to be specified when ordering.

Rücklauf Sperre

Kegelstirnradgetriebe haben sehr hohen statischen (und dynamischen) Wirkungsgrad: deshalb wird keine spontane statische Irreversibilität garantiert. Statische Irreversibilität bei stillstehenden Getriebe hat man, wenn die Applikation mit einer Last auf die Abtriebswelle keine Drehung der Antriebswelle verursacht. Um Irreversibilität der Bewegung bei stillstehendem Getriebe zu sichern, sollte eine Rücklauf Sperre montiert werden. Die Rücklauf Sperre wird auf Wunsch geliefert (Größen 56 und 63 ausgenommen). Die Rücklauf Sperre ermöglicht, dass die Abtriebswelle nur in der gewünschten Richtung dreht (gewünschte Richtung beim Bestellen angeben).

- CW** Rotazione oraria
Clockwise rotation
Im Uhrzeigersinn
- AW** Rotazione antioraria
Anti-clockwise rotation
Gegen den Uhrzeigersinn



Nel caso in cui sia presente il dispositivo antiritorno è necessario l'utilizzo di olio lubrificante sintetico, classe di viscosità ISO 150.

The utilization of synthetic oil, viscosity class ISO 150, is necessary for the gearboxes equipped with back stop device.

Getriebe mit einer Rücklauf Sperre müssen mit synthetischem Oel (Viskosität ISO150) betrieben werden.

Nella tabella seguente (tab. 3) sono indicati i valori dei momenti torcenti nominali massimi (T_{2Mmax}), riferiti all'albero uscita, garantiti dal dispositivo di antiritorno, per ogni rapporto di riduzione e per ogni grandezza di riduttore. Se, in corrispondenza dell'albero lento, viene applicata una coppia maggiore di quella indicata, l'irreversibilità del moto non è più garantita. Questi valori di coppia non sono da confondere con quelli riportati nella tabella riguardante i dati tecnici dei riduttori. Infatti, si noti come in tabella siano stati messi in evidenza i valori di coppia garantiti (in uscita) dal dispositivo antiretro che risultano essere minori dei massimi valori di coppia motrice trasmissibili, con fattore di servizio $F_s = 1$, dal riduttore.

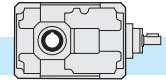
The following table (tab..3) shows the max. rated torques (T_{2Mmax}) at gearbox output guaranteed by the backstop device, for each ratio and each gearbox size. If a higher torque is applied at gearbox output, motion irreversibility is no longer guaranteed. These torque values are not to be confused with the values reported in the gearbox specifications tables. Please note that the torque values guaranteed (at output) by the backstop device are lower than the max. driving torque values transmissible by the gearbox, with service factor $F_s = 1$.

In der folgenden Tabelle (Tab. 3) werden die max. Nenn Drehmomente am Abtrieb angegeben (T_{2Mmax}), die die Rücklauf Sperre je nach Untersetzungsverhältnis und Getriebegröße garantiert. Falls am Abtrieb ein höheres Drehmoment eingesetzt wird, dann ist die Irreversibilität der Bewegung nicht mehr garantiert. Diese Drehmomente sind nicht mit den Werten zu verwechseln, die in der Tabelle der technischen Daten der Getriebe angegeben werden. Die von der Rücklauf Sperre (am Abtrieb) garantierten Drehmomente sind niedriger als die von den Getrieben übersetzbaren max. Drehmomente, unter Berücksichtigung eines Betriebsfaktors $F_s = 1$.

Vedere paragrafo 1.5 per la verifica del dispositivo antiritorno.

To check the back stop device pls see paragraph 1.5.

Überprüfung der Rücklauf Sperre siehe Abschnitt 1.5.



Coppia massima garantita in uscita dal dispositivo antiritorno
Max. output torque guaranteed by the backstop device
Von der Rücklaufsperrre garantierten max. Abtriebsdrehmomente

Tab. 3

| T | in | | | | | | | | | | | | | |
|-------------|-------------------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| | 5* | 6.3* | 7* | 8 | 10 | 12.5 | 16 | 20 | 25 | 31.5 | 40 | 50 | 63 | 80 |
| | T_{2M} max [Nm] | | | | | | | | | | | | | |
| 71B | — | — | — | — | 213 | 272 | 325 | 213 | 271 | 325 | 421 | 272 | 325 | 421 |
| 90B | 148 | 204 | — | — | 333 | 424 | 508 | 333 | 424 | 508 | 657 | 424 | 508 | 657 |
| 112B | 326 | — | — | — | 733 | 934 | 1118 | 733 | 933 | 1119 | 1446 | 933 | 1118 | 1446 |
| 140B | — | — | 1038 | — | 1547 | 1969 | 2358 | 1547 | 1968 | 2359 | 3051 | 1968 | 2359 | 3050 |
| 180B | — | — | — | — | 3009 | 3831 | 4588 | 3009 | 3829 | 4589 | 5935 | 3829 | 4589 | 5934 |
| 200B | — | — | — | 5937 | 7607 | 9189 | 11399 | 12873 | 9190 | 11402 | 12875 | 11401 | 12875 | — |
| 225B | — | — | — | 9856 | 11829 | 14538 | 9858 | 11838 | 14536 | 14537 | 17800 | — | — | — |

| T | in | | | | | | | | | | | | | |
|-------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| | 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 | |
| | T_{2M} max [Nm] | | | | | | | | | | | | | |
| 80C | — | 1086 | 1301 | 1656 | 1086 | 1301 | 1656 | 1985 | 1301 | 1656 | 1985 | 2567 | 3319 | |
| 100C | — | 1697 | 2033 | 2588 | 1697 | 2033 | 2588 | 3101 | 2033 | 2588 | 3101 | 4010 | 5186 | |
| 125C | — | 3733 | 4474 | 5694 | 3733 | 4473 | 5693 | 6822 | 4473 | 5693 | 6822 | 8822 | 11410 | |
| 160C | — | 7874 | 9435 | 12008 | 7873 | 9435 | 12008 | 14388 | 9434 | 12008 | 14388 | 18607 | 24064 | |
| 180C | — | 7874 | 9435 | 12008 | 7873 | 9435 | 12008 | 14388 | 9434 | 12008 | 14388 | 18607 | 24064 | |
| 200C | 12511 | 15024 | 18453 | 22586 | 15023 | 18450 | 22594 | 15024 | 18452 | 22594 | — | — | — | |

* Rapporti speciali / *Special ratios* / Sonderverhältnisse

Valori di coppia garantiti inferiori alla T_{2M}

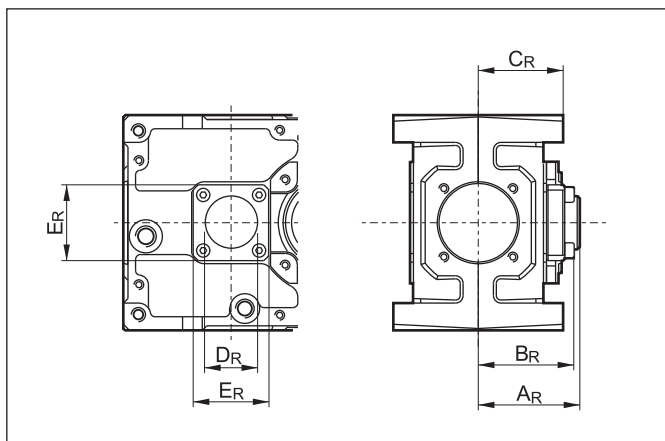
Torque values guaranteed lower than T_{2M} value

Zuverlässige Drehmomente unter T_{2M} Wert

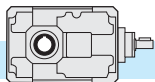
Dimensioni riferite alla versione con antiretro

Dimensions of the version with backstop device

Abmessungen der Version mit Rücklaufsperrre



| | A_R | B_R | C_R | D_R | E_R |
|---------------|-------|-------|-------|-------|-------|
| T 71B | 67 | 63 | 56 | 35 | 50 |
| T 80C | 67 | 63 | 63.5 | 45 | 60 |
| T 90B | 73 | 68 | 63.5 | 45 | 60 |
| T 100C | 71.5 | 70 | 75 | 55 | 80 |
| T 112B | 90 | 83 | 75 | 55 | 80 |
| T 125C | 86.5 | 96.5 | 87.5 | 60 | 90 |
| T 140B | 108 | 95 | 87.5 | 70 | 90 |
| T 160C | 106.5 | 101 | 107.5 | 70 | 100 |
| T 180B | 122 | 113 | 107.5 | 80 | 110 |
| T180C | 110.5 | 110 | 127.5 | 70 | 100 |
| T200B | 163 | 137.5 | 127.5 | 90 | 160 |
| T 200C | 125 | 124 | 145 | 90 | 130 |
| T 225B | 169 | 147 | 145 | 110 | 155 |



2.12 Giochi angolari

Bloccando l'albero di entrata, il gioco viene misurato sull'albero uscita ruotandolo nelle due direzioni ad applicando la coppia strettamente necessaria a creare il contatto tra i denti degli ingranaggi, al massimo pari al 2% della coppia massima garantita dal riduttore (T_{2M}).

Nella tabella seguente sono riportati i valori indicativi del gioco angolare (in minuti di angolo) per quanto riguarda il montaggio normale ed i valori ottenibili con una registrazione più precisa. Quest'ultima esecuzione è da utilizzare solo in caso di reale necessità in quanto potrebbe comportare un leggero aumento della rumorosità e rendere meno efficace l'azione dell'olio lubrificante.

2.12 Angular backlash

After having blocked the input shaft the angular backlash can be measured on the output shaft by rotating it in both directions and applying the torque which is strictly necessary to create a contact between the teeth of the gears. The applied torque should be at most 2% of the max. torque guaranteed by the gearbox. (T_{2M}). The following table reports the approximate values of the angular backlash (in minutes of arc) referred to standard mounting and the values to be obtained by a more precise adjustment. The latter solution should be adopted only in case of necessity because it may raise the noise level and lessen the action of the lubricant.

2.12 Winkelspiel

Nachdem die Antriebswelle blockiert worden ist, darf das Winkelspiel auf die Abtriebswelle bemessen werden. Dabei soll die Abtriebswelle in beiden Richtungen gedreht und ein Drehmoment ausgeübt werden, dass zur Entstehung eines Kontaktes zwischen den Zähnen genügt. Das ausgeübte Drehmoment soll höchstens 2% des max. vom Getriebe garantierten Drehmoment (T_{2M}) sein.

Die folgende Tabelle weist die Näherungswerte des Winkelspiels (in Bogenminuten) für Standardmontage und Montage mit präziser Regulierung. Die präzise Lösung darf nur im Notfall angewendet werden, weil infolgedessen der Geräuschpegel zunimmt und die Wirkung des Schmiermittels abnimmt.

| | Gioco angolare / Backlash / Winkelspiel (1') | |
|-----------------------|---|--|
| | Montaggio normale Standard mounting Standardmontage | Montaggio con gioco ridotto Mounting with reduced backlash Montage mit reduziertem Winkelspiel |
| 2 stadi/stages/stufig | 16/20 | 12/15 |
| 3 stadi/stages/stufig | 20/25 | 15/17 |

2.13 Lubrificazione

I riduttori ad assi ortogonali (ad esclusione dei tipi TF56 e TF63, con lubrificazione a vita) sono forniti predisposti per lubrificazione a olio e muniti dei tappi di carico, livello e scarico olio.

Si raccomanda di precisare sempre la posizione di montaggio desiderata in fase di ordine.

POMPA DI LUBRIFICAZIONE.

Una pompa per lubrificazione forzata dei cuscinetti superiori è fornita a richiesta sulle grandezze 112, 125, 140, 160, 180, 200 e 225 nella posizione di montaggio VA.

Nelle posizioni di montaggio in cui sono presenti cuscinetti posti al di sopra del livello dell'olio lubrificante è prevista l'applicazione di grasso speciale su tali cuscinetti per migliorarne la lubrificazione. E' possibile dotare gli stessi cuscinetti di un anello metallico (nylos) con la funzione di contenimento del grasso e, di conseguenza, di prolungare l'effetto nel tempo. Questa soluzione viene fornita su specifica richiesta.

2.13 Lubrication

Bevel helical gearboxes (except for TF56 and TF63 which are lubricated for life) require oil lubrication and are equipped with filler, level and drain plugs.

The mounting position should always be specified when ordering the gearbox.

OIL PUMP.

A pump for forced lubrication of the upper bearings is supplied on request for sizes 112, 125, 140, 160, 180, 200 and 225 in the VA mounting position.

Depending on the mounting position, the bearings may be lodged above the lubricant level. In this case it is necessary to apply special grease on the bearings in order to improve their lubrication. A metallic ring (nylos) can be fitted on the bearings it keeps the grease in place thus prolonging the action. It is supplied on specific request.

2.13 Schmierung

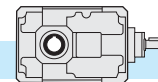
Die Kegelstirnadgetriebe sind für die Ölschmierung mit Einfüll-, Ölstand- und Ablassstopfen versehen.

Bei der Bestellung ist immer die gewünschte Montageposition anzugeben.

ÖLPUMPE.

Eine Pumpe für die Zwangsschmierung der oberen Lager kann auf Wunsch bei den Größen 112, 125, 140, 160, 180, 200 und 225 in der Montageposition VA geliefert werden.

Abhängig von der Einbaulage kann es sein, dass die Lager über dem Ölstand liegen. In dem Fall wird Sonderfett auf die Lager geschmiert, um deren Schmierung zu verbessern. Ein metallischer Ring (nylos) für die Lager kann auf Wunsch geliefert werden: er hält das Fett fest und verlängert die Lebensdauer.



Posizione di montaggio e quantità di lubrificante (litri)

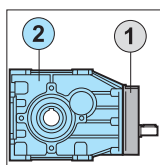
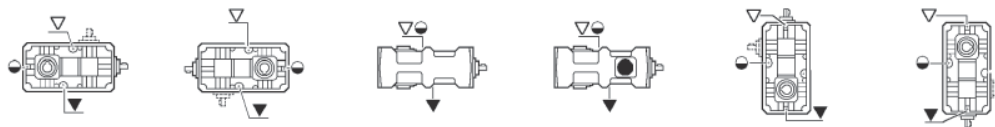
I quantitativi di olio riportati nelle varie tabelle sono indicativi e riferiti alle posizioni di lavoro indicate e considerando le condizioni di funzionamento a temperatura ambiente e velocità in ingresso di 1400 min⁻¹. Per condizioni di lavoro diverse da quelle sopra riportate contattare il servizio tecnico.

Mounting positions and lubricant quantity (liters)

The oil quantities stated in the tables are approximate values and refer to the indicated working positions, considering operating conditions at ambient temperature and an input speed of 1400 min⁻¹. Should the operating conditions be different, please contact the technical service.

Montageposition und Ölmenge (liter)

Die in der Tabellen angegebenen Daten sind Richtwerte. Die Ölmengen beziehen sich auf die angegebenen Betriebspositionen. Dabei wird den Betrieb bei Umgebungstemperatur und Antriebsdrehzahl von 1400 min⁻¹ berücksichtigt. Falls die Betriebsbedingungen anders sind, dann ist das technische Büro zu befragen.



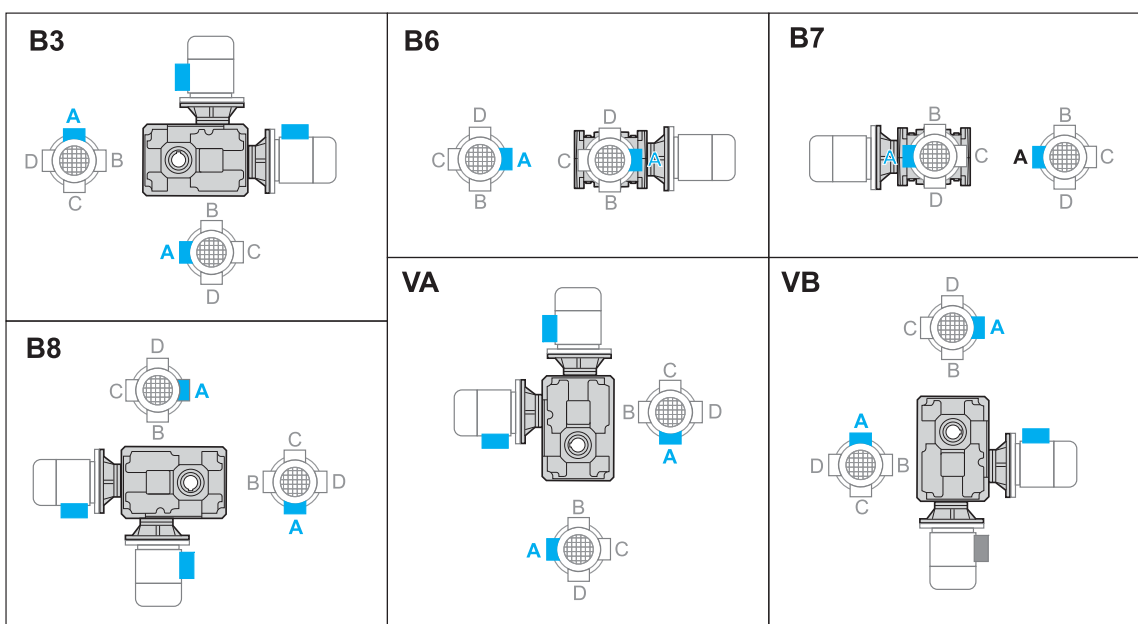
| T | B3 | B8 | B6 | B7 | VA | VB |
|-------|------|----|------|------|------|------|
| ② 56B | 0.30 | | | | 0.40 | 0.30 |
| ① 56C | | | 0.05 | | | |
| ② 56C | 0.30 | | | | 0.40 | 0.30 |
| ② 63B | 0.35 | | | | 0.45 | 0.35 |
| ① 63C | | | 0.05 | | | |
| ② 63C | 0.35 | | | | 0.45 | 0.35 |
| 71B | 0.6 | | 0.7 | 0.5 | 0.8 | |
| 80C | 1.1 | | 1.5 | 1.3 | 1.5 | |
| 90B | 1.0 | | 1.4 | 1.2 | 1.3 | |
| 100C | 2.0 | | 2.6 | 2.3 | 2.8 | |
| 112B | 1.8 | | 2.6 | 2.3 | 2.4 | |
| 125C | 3.8 | | 4.8 | 4.5 | 5.0 | |
| 140B | 3.6 | | 4.6 | 4.3 | 4.3 | |
| 160C | 7.0 | | 9.2 | 8.7 | 10.0 | |
| 180B | 7.5 | | 9.7 | 9.2 | 8.0 | |
| 180C | 9.5 | | 14.0 | 13.0 | 15.5 | |
| 200B | 12.5 | | 15.0 | 14.0 | 17.5 | |
| 200C | 13.5 | | 19.0 | 18.0 | 19.5 | |
| 225B | 14.5 | | 19.0 | 18.0 | 18.7 | |

* Nella posizione di montaggio B6-B7 è previsto un tappo di sfiato con asta di livello.
 * In mounting position B6-B7 the breather plug is supplied complete with the dipstick.
 * Für die Version B6-B7 ist eine Entlüftungsschraube mit Ölstandsanzeige vorgesehen.

Posizione morsetti

Terminal board position

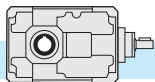
Lage des Klemmenkastens



N.B. Se non diversamente specificato, il motore verrà fornito con la morsetti in posizione A.

N.B. Unless o therwise agreed, the motor will be supplied with the terminal board in position A..

ANMERKUNG: Ausser wenn anders angegeben, wird der Motor mit Klemmenkasten in der A Position geliefert.



2.14 Carichi radiali e assiali (N)

Le trasmissioni effettuate tramite pignoni per catena, ruote dentate o pulegge generano delle forze radiali (F_R) sugli alberi dei riduttori. L'entità di tali forze può essere calcolata con la formula:

2.14 Radial and axial loads (N)

Transmissions implemented by means of chain pinions, wheels or pulleys generate radial forces (F_R) on the gear unit shafts. The entity of these forces may be calculated using the following formula:

2.14 Radial- und Axialbelastungen (N)

Antriebe mit Kettenritzel, Zahnrädern oder Riemscheiben erzeugen radiale Kräfte (F_R) an den Wellen der Untersetzungsgetriebe. Das Ausmaß dieser Kräfte kann nach folgender Formel berechnet werden:

$$F_R = \frac{K_R \cdot T}{d} \text{ [N]}$$

dove:

T = Momento torcente [Nm]
d = Diametro pignone o puleggia [mm]

K_R = 2000 per pignone per catena
= 2500 per ruote dentate
= 3000 per puleggia con cinghie a V

where:

T = torque [Nm]
d = pinion or pulley diameter [mm]

K_R = 2000 for chain pinion
= 2500 for wheel
= 3000 for V-belt pulley

dabei ist:

T = Drehmoment [Nm]
d = Kettenritzel- bzw. Riemscheiben
durchmesser [mm]

K_R = 2000 bei Kettenritzel
= 2500 bei Zahnrad
= 3000 bei Riemscheibe mit
Keilriemen

I valori dei carichi radiali e assiali generati dall'applicazione debbono essere sempre minori o uguali a quelli ammissibili indicati nelle tabelle.

The values of the radial and axial loads generated by the application must always be lower than or equal to the admissible values reported in the tables.

Die Werte der Radial- und Axialbelastungen, die durch die Anwendung hervorgerufen werden, dürfen nicht über den in den Tabellen angegebenen zulässigen Werten liegen.

$$F_R \geq Fr_{1-2}$$

Se il carico radiale sull'albero non è applicato a metà della sporgenza dell'albero, il valore del carico ammissibile deve essere valutato utilizzando la formula che si riferisce ad Fr_{1-2} , in cui i valori di a, b e Fr_{1-2} sono riportati nelle tabelle relative ai carichi radiali.

Nel caso di alberi bisporgenti il valore del carico applicabile a ciascuna estremità è uguale ai 2/3 del valore di tabella, purché i carichi applicati siano uguali di intensità e direzione ed agiscano nello stesso senso. Diversamente contattare il servizio tecnico.

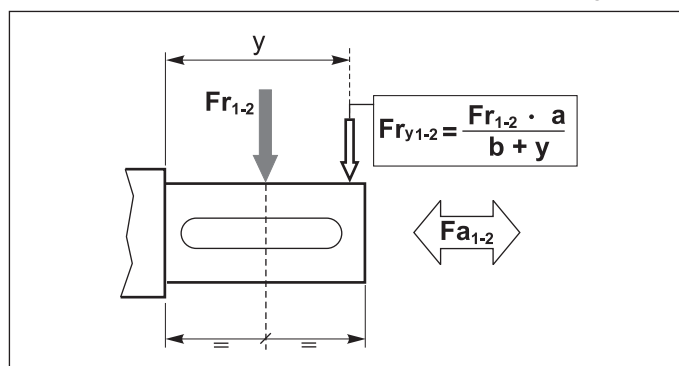
Should the radial load affect the shaft not at the half-way point of its projection but at a different point, the value of the admissible load has to be calculated using the Fr_{1-2} formula: a, b and Fr_{1-2} values are reported in the radial load tables.

With regard to double-projecting shafts, the load applicable at each end is 2/3 of the value given in the table, on condition that the applied loads feature same intensity and direction and that they act in the same direction.

Otherwise please contact the technical department.

Falls die Radialbelastungen nicht in dem Mittelpunkt der herausragenden Welle sondern in einem anderen Punkt wirken, soll die zulässige Belastung mit der Formel bezüglich Fr_{1-2} kalkuliert werden: a, b und Fr_{1-2} Werte sind aus der Tabelle der Radialbelastungen zu entnehmen.

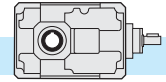
Bei doppelseitigen Abtriebswellen ist die Belastung, die an jedem Ende anwendbar ist, 2/3 des in der Tabelle angegebenen Wertes unter der Bedingung, dass die Belastungen die selbe Stärke und Richtung aufweisen und dass sie in der selben Richtung wirken. Andernfalls muß mit dem technischen Büro Rücksprache gehalten werden.



I carichi radiali indicati nelle tabelle si intendono applicati a metà della sporgenza dell'albero e sono riferiti ai riduttori operanti con fattore di servizio 1.

The radial loads indicated in the chart are considered to be applied at the half-way point of the shaft projection, and refer to gear units operating with service factor 1.

Die Radialbelastungen, die in den Tabellen angegeben werden, gelten für Ansatzpunkte in der Mitte des herausragenden Wellenteils und für Getriebe mit Betriebsfaktor 1.



| | | T 56B | | T 63B | | | | T 56C | | T 63C | |
|--|--|-----------------|-----------------|-----------------|-----------------|----------------------|--|-----------------|-----------------|-----------------|-----------------|
| ALBERO ENTRATA / INPUT SHAFT / ANTRIEBSWELLE ($n_1 = 1400 \text{ min}^{-1}$) | | | | | | | | | | | |
| in | | a = * | b = * | a = * | b = * | in | | a = * | b = * | a = * | b = * |
| | | Fr ₁ | Fa ₁ | Fr ₁ | Fa ₁ | | | Fr ₁ | Fa ₁ | Fr ₁ | Fa ₁ |
| Tutti All Alle | | * | * | * | * | Tutti All Alle | | * | * | * | * |

* Consultare il ns. Servizio Tecnico.

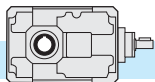
* Contact Tramec Technical dept..

* Fragen sie Tramec technisches Büro.

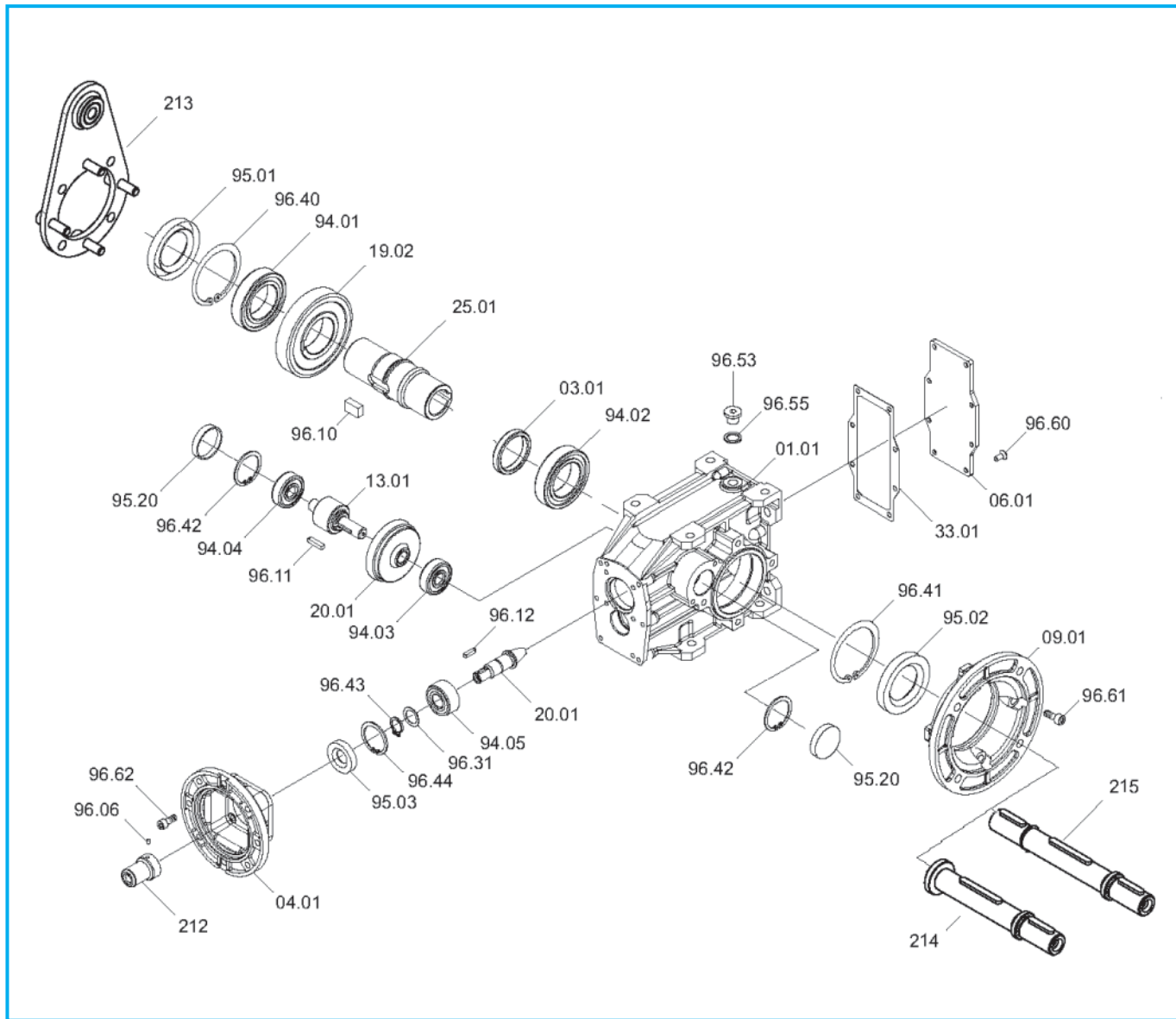
| | | T 56B | | T 63B | | | | T 56C | | T 63C | |
|--|--|-----------------|-----------------|-----------------|-----------------|------------|--|-----------------|-----------------|-----------------|-----------------|
| ALBERO ENTRATA / INPUT SHAFT / ANTRIEBSWELLE ($n_1 = 1400 \text{ min}^{-1}$) | | | | | | | | | | | |
| | | a = 106 | b = 81 | a = 121 | b = 93.5 | in | | a = 106 | b = 81 | a = 121 | b = 93.5 |
| | | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ | | | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ |
| 8 | | 1300 | 260 | 1500 | 300 | 40 | | 2300 | 460 | 2500 | 500 |
| 10 | | 1300 | 260 | 1500 | 300 | 50 | | 2300 | 460 | 2500 | 500 |
| 12.5 | | 1300 | 260 | 1500 | 300 | 63 | | 2300 | 460 | 2500 | 500 |
| 16 | | 1800 | 360 | 2000 | 400 | 80 | | 2800 | 560 | 3000 | 600 |
| 20 | | 1800 | 360 | 2000 | 400 | 100 | | 2800 | 560 | 3000 | 600 |
| 25 | | 1800 | 360 | 2000 | 400 | 125 | | 2800 | 560 | 3000 | 600 |
| 31.5 | | 1800 | 360 | 2000 | 400 | 160 | | 2800 | 560 | 3000 | 600 |
| 40 | | 2300 | 460 | 2500 | 500 | 200 | | 3000 | 600 | 3500 | 700 |
| 50 | | 2300 | 460 | 2500 | 500 | 250 | | 3000 | 600 | 3500 | 700 |
| 63 | | — | — | 2500 | 500 | 315 | | — | — | 3500 | 700 |

| | | T 71B | | T 90B | | T 112B | | T 140B | | T 180B | | T200B | | T 225B | |
|--|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| ALBERO ENTRATA / INPUT SHAFT / ANTRIEBSWELLE ($n_1 = 1400 \text{ min}^{-1}$) | | | | | | | | | | | | | | | |
| in | | a = 66.75 | b = 51.75 | a = 77 | b = 57 | a = 90 | b = 70 | a = 113 | b = 83 | a = 141.5 | b = 101.5 | a = 138.5 | b = 98.5 | a = 201 | b = 146 |
| | | Fr ₁ | Fa ₁ | Fr ₁ | Fa ₁ | Fr ₁ | Fa ₁ | Fr ₁ | Fa ₁ | Fr ₁ | Fa ₁ | Fr ₁ | Fa ₁ | Fr ₁ | Fa ₁ |
| 8-40 | | 400 | 80 | 630 | 125 | 1000 | 200 | 1600 | 320 | 2500 | 500 | 2500 | 500 | 3150 | 630 |
| 50÷80 | | | | | | | | | | 2000 | 400 | 2000 | 400 | | |
| ALBERO USCITA / OUTPUT SHAFT / ABTRIEBSWELLE ($n_1 = 1400 \text{ min}^{-1}$) | | | | | | | | | | | | | | | |
| in | | a = 114.5 | b = 84.5 | a = 131 | b = 95 | a = 161.5 | b = 113.5 | a = 192 | b = 132 | a = 236.5 | b = 162 | a = 276 | b = 191 | a = 325 | b = 220 |
| | | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ |
| ≤ 8 | | — | — | — | — | — | — | — | — | — | — | 25000 | 5000 | 36000 | 7200 |
| 10 | | 3000 | 600 | 4750 | 950 | 7500 | 1500 | 11800 | 2360 | 19000 | 3800 | 26800 | 5360 | 38000 | 7600 |
| 12.5 | | 3150 | 630 | 5000 | 1000 | 8000 | 1600 | 12500 | 2500 | 20000 | 4000 | 28800 | 5760 | 40000 | 8000 |
| 16 | | 3350 | 670 | 5300 | 1060 | 8500 | 1700 | 13200 | 2640 | 21200 | 4240 | 30400 | 6080 | 42400 | 8480 |
| 20 | | 3550 | 710 | 5600 | 1120 | 9000 | 1800 | 14000 | 2800 | 22400 | 4480 | 32200 | 6440 | 44800 | 8960 |
| 25 | | 3750 | 750 | 6000 | 1200 | 9500 | 1900 | 15000 | 3000 | 23600 | 4720 | 34000 | 6800 | 47200 | 9440 |
| 31.5 | | 4000 | 800 | 6300 | 1260 | 10000 | 2000 | 16000 | 3200 | 25000 | 5000 | 35800 | 7160 | 50000 | 10000 |
| 40 | | 4250 | 850 | 6700 | 1340 | 10600 | 2120 | 17000 | 3400 | 26500 | 5300 | 37600 | 7520 | 53000 | 10600 |

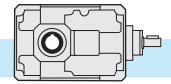
| | | T 80C | | T 100C | | T 125C | | T 160C | | T180C | | T 200C | |
|--|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| ALBERO ENTRATA / INPUT SHAFT / ANTRIEBSWELLE ($n_1 = 1400 \text{ min}^{-1}$) | | | | | | | | | | | | | |
| in | | a = 66.75 | b = 51.75 | a = 77 | b = 57 | a = 90 | b = 70 | a = 113 | b = 83 | a = 113 | b = 83 | a = 141.5 | b = 101.5 |
| | | Fr ₁ | Fa ₁ | Fr ₁ | Fa ₁ | Fr ₁ | Fa ₁ | Fr ₁ | Fa ₁ | Fr ₁ | Fa ₁ | Fr ₁ | Fa ₁ |
| Tutti All Alle | | 400 | 80 | 630 | 125 | 1000 | 200 | 1600 | 320 | 2000 | 400 | 2500 | 500 |
| ALBERO USCITA / OUTPUT SHAFT / ABTRIEBSWELLE ($n_1 = 1400 \text{ min}^{-1}$) | | | | | | | | | | | | | |
| in | | a = 131 | b = 95 | a = 161.5 | b = 113.5 | a = 192 | b = 132 | a = 236.5 | b = 162 | a = 276 | b = 191 | a = 325 | b = 220 |
| | | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ | Fr ₂ | Fa ₂ |
| Tutti All Alle | | 8000 | 1600 | 12500 | 2500 | 20000 | 4000 | 32000 | 6400 | 43000 | 8600 | 53000 | 10600 |



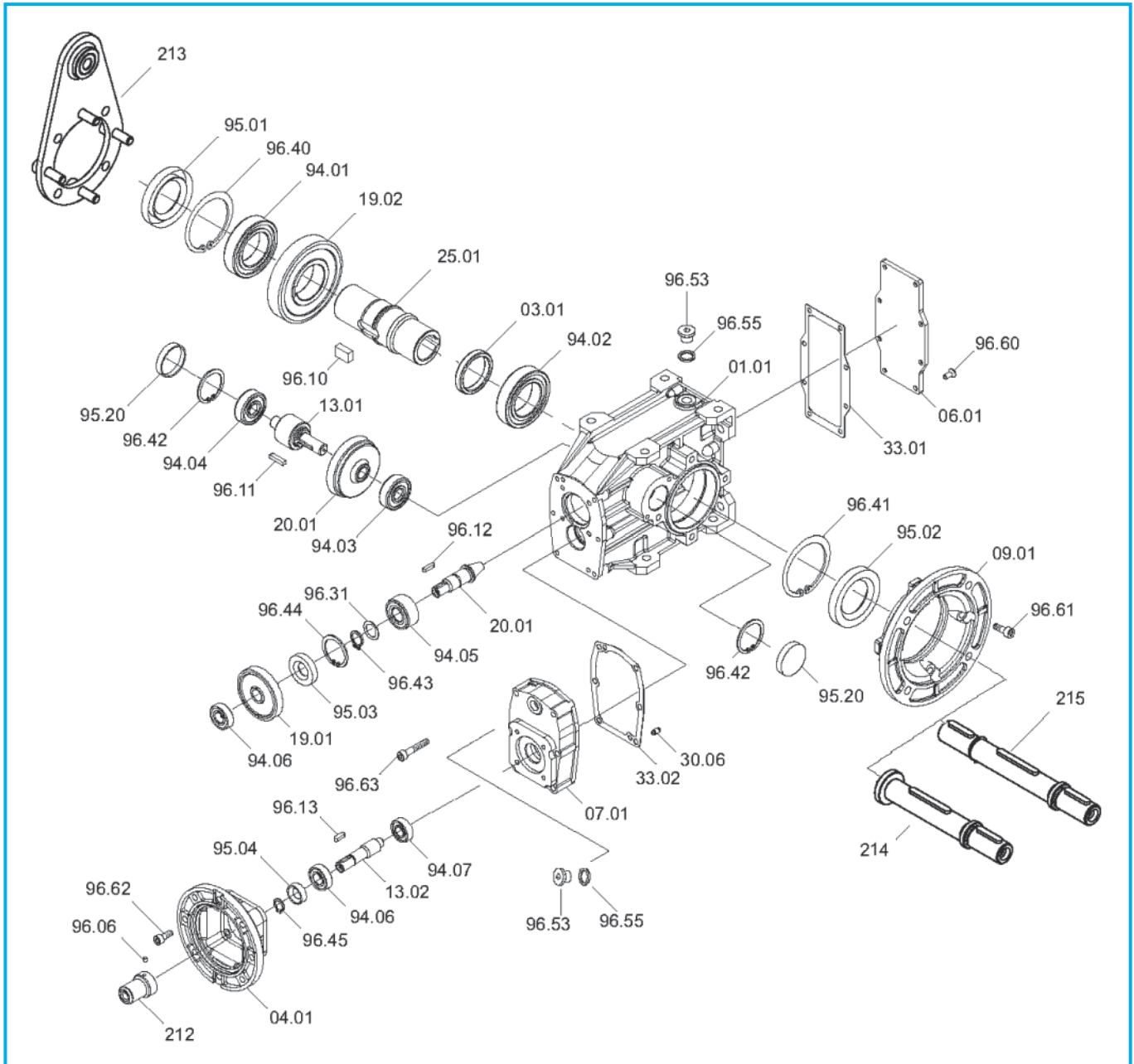
TA/TF 56B - TA/TF 63B



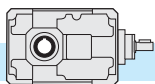
| T | Cuscinetti/ Bearings / Lager | | | | | Anelli di tenuta / Oilseals / Öldichtungen | | |
|------------|------------------------------|-------------------------|-------------------------|-------------------------|---------------------------|--|----------|----------------|
| | TA - TF | | | | | TA - TF | | |
| | 94.01 | 94.02 | 94.03 | 94.04 | 94.05 | 95.01 | 95.02 | 95.03 |
| 56B | 6007 35/62/14 | 6007 35/62/14 | 6201 12/32/10 | 6201 12/32/10 | 3201 12/32/15.9 | 35/62/7 | 35/62/7 | 12/32/7 |
| 63B | 6008 40/68/15 | 6008 40/68/15 | 6301 12/37/12 | 6301 12/37/12 | 3202 15/35/15.9 | 40/68/10 | 40/68/10 | 15/35/7 |



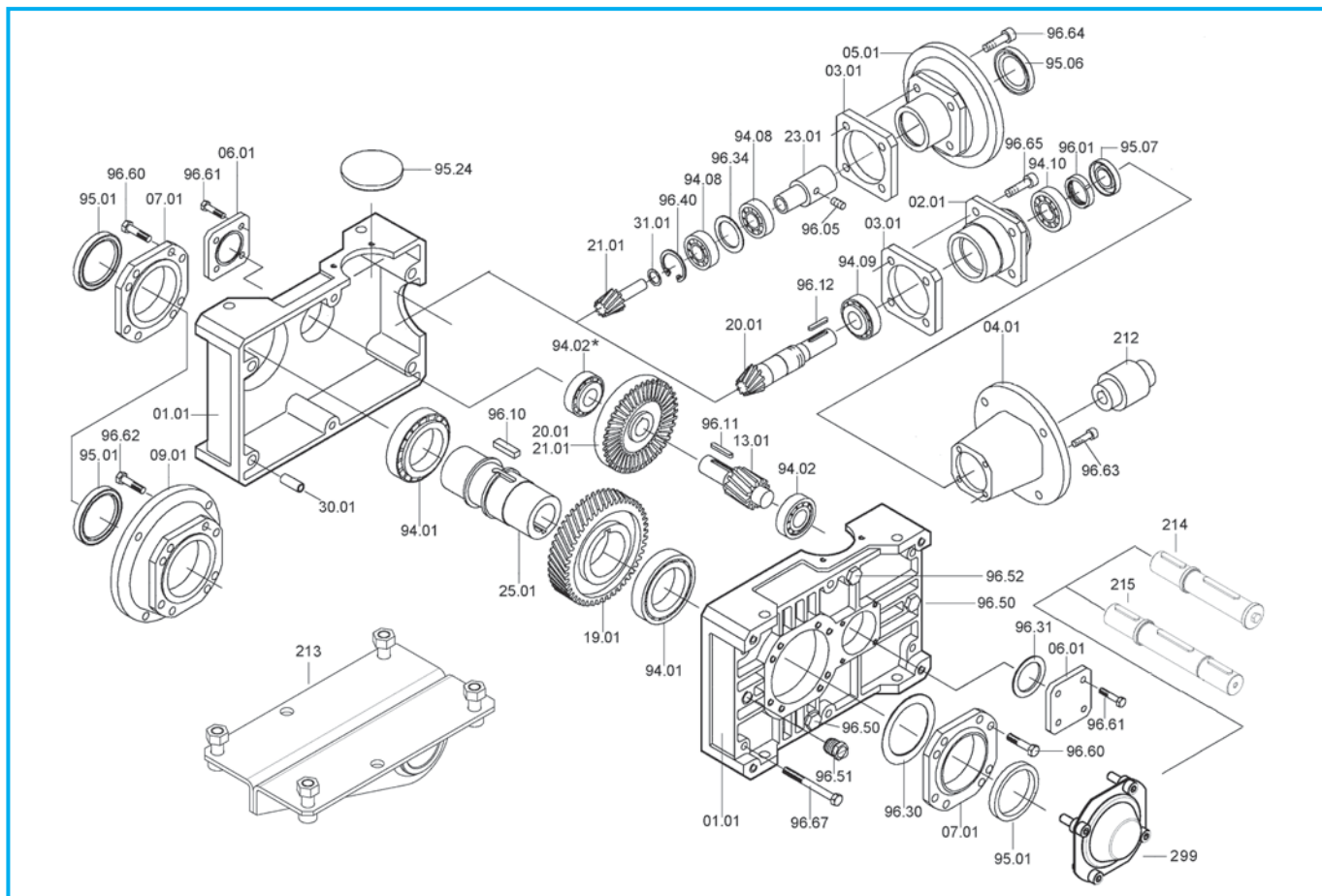
TA/TF 56C - TA/TF 63C



| T | Cuscinetti/ Bearings / Lager | | | | | | | Anelli di tenuta / Oilseals / Öldichtungen | | | |
|------------|------------------------------|-------------------------|-------------------------|-------------------------|---------------------------|------------------------|------------------------|--|----------|----------------|----------------|
| | TA - TF | | | | | | | TA - TF | | | |
| | 94.01 | 94.02 | 94.03 | 94.04 | 94.05 | 94.06 | 94.07 | 95.01 | 95.02 | 95.03 | 95.04 |
| 56C | 6007 35/62/14 | 6007 35/62/14 | 6201 12/32/10 | 6201 12/32/10 | 3201 12/32/15.9 | 6001 12/28/8 | 6000 10/26/8 | 35/62/7 | 35/62/7 | 12/32/7 | 12/22/7 |
| 63C | 6008 40/68/15 | 6008 40/68/15 | 6301 12/37/12 | 6301 12/37/12 | 3202 15/35/15.9 | 6001 12/28/8 | 6000 10/26/8 | 40/68/10 | 40/68/10 | 15/35/7 | 12/22/7 |

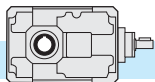


TA..B - TC..B - TF..B



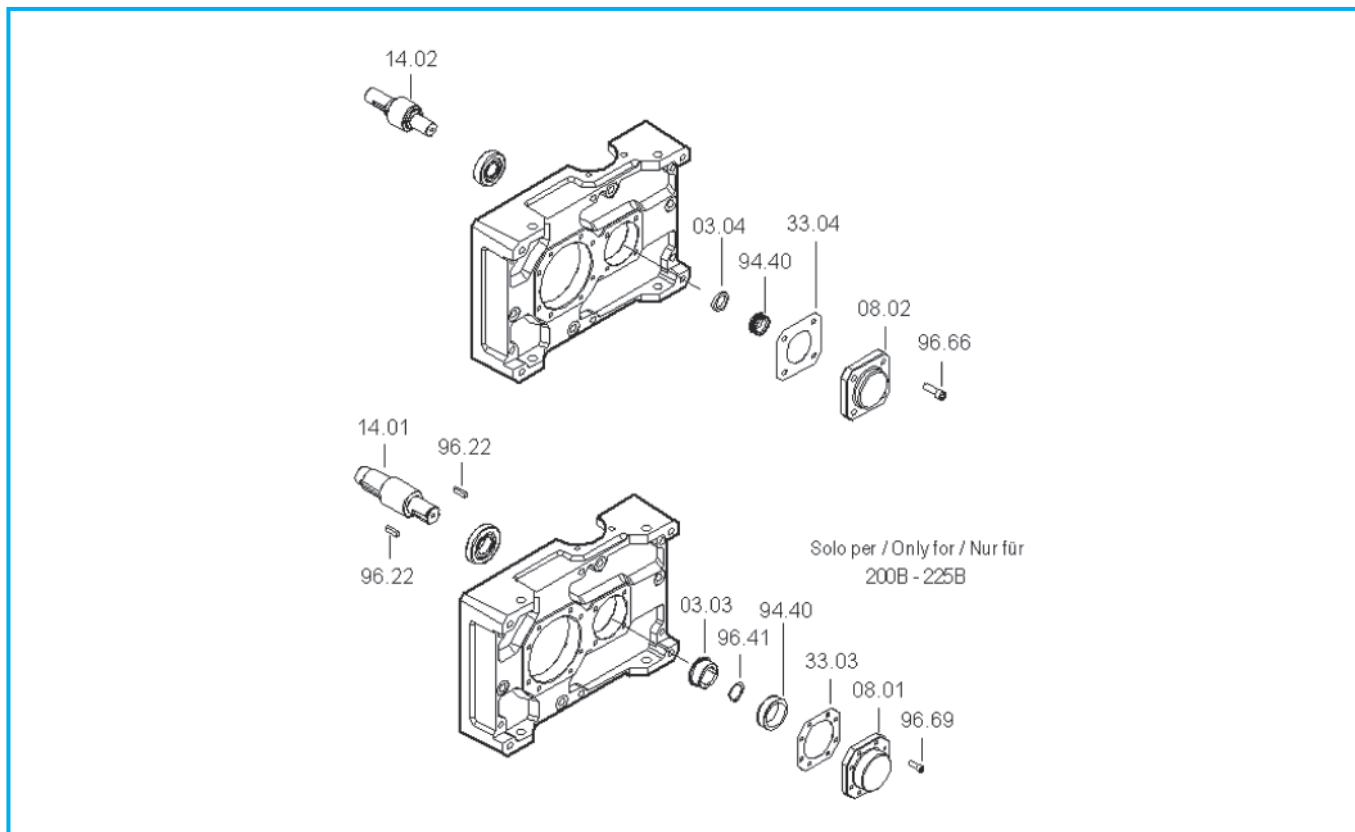
| T | Cuscinetti/ Bearings / Lager | | | | | Anelli di tenuta / Oilseals / Öldichtungen | | | | |
|-------------|------------------------------|--|------------------|----------------------|----------|--|-----------|-----------|----------|--|
| | TA - TC - TF | | TC | TA - TF | | TA - TC - TF | TC | TA - TF | | |
| | 94.01 | 94.02 | 94.08 | 94.09 | 94.10 | 95.01 | IEC | 95.06 | 95.07 | |
| 71B | 32008 40/68/19 | 30302 15/42/14.25 | 7203 17/40/12 | 30203 17/40/13.25 | | 40/56/8 | 63 | 25/52/7 | 15/40/10 | |
| | | | | | | | 71 | 30/52/7 | | |
| | | | | | | | 80 | 35/52/7 | | |
| | | | | | | | 90 | 37/52/8 | | |
| 90B | 32010 50/80/20 | 30204 20/47/15.25 | 7205 25/52/15 | 32005 25/47/15 | | 50/65/8 | 71 - 80 | 35/62/7 | 20/47/7 | |
| | | | | | | | 90 | 40/62/7 | | |
| | | | | | | | 100 - 112 | 45/62/8 | | |
| | | | | | | | 80 - 90 | 40/72/7 | | |
| 112B | 32012 60/95/23 | 30305 25/62/18.25 | 7206 30/62/16 | 32006 30/55/17 | | 60/80/10 | 100 - 112 | 45/72/8 | 25/58/10 | |
| | | | | | | | 132 | 55/72/10 | | |
| | | | | | | | 80 - 90 | 45/80/10 | | |
| | | | | | | | 100 - 112 | 45/80/10 | | |
| 140B | 32015 75/115/25 | 32206B 30/62/21.25 | 7207 35/72/17 | 32007 35/62/18 | | 75/95/10 | 132 | 55/80/10 | 30/62/7 | |
| | | | | | | | 160 | 60/80/8 | | |
| | | | | | | | 180 | 65/80/8 | | |
| | | | | | | | 100 - 112 | 55/100/13 | | |
| | | | | | | | 132 - 160 | 60/100/10 | | |
| 180B | 32019 95/145/32 | 31307 / (32208)* 35/80/22.75 / (40/80/24.75)* | 7209 45/85/19 | 32009 45/75/20 | | 95/125/12 | 180 | 65/100/10 | 40/80/10 | |
| | | | | | | | 200 | 75/100/10 | | |
| | | | | | | | 100 - 112 | 55/100/13 | | |
| | | | | | | | 132 - 160 | 60/100/10 | | |
| 200B | 32024 120/180/38 | 31309 45/100/27.25 | 7209 45/85/19 | 33109 45/80/26 | | 120/160/15 | 180 | 65/100/10 | 40/80/10 | |
| | | | | | | | 200 | 75/100/10 | | |
| | | | | | | | 100 - 112 | 55/100/13 | | |
| | | | | | | | 132 - 160 | 60/100/10 | | |
| 225B | 32026 130/200/45 | 31310 50/110/29.25 | — | 33111 | 32011 | 130/160/12 | — | — | 50/90/10 | |
| | | | | 55/95/30 | 55/90/23 | | | | | |

* Presente solo nella versione con antiretro / Only on version with back stop device / Nur für die Version mit Rücklaufsperr



TA..B - TC..B - TF..B - TA..C - TC..C - TF..C

Dispositivo antiritorno - Backstop device - Rücklaufperre



| T...B | Ruota libera / Free wheel / Freilauf 94.40 |
|-------|---|
| 71 | FE 423 Z |
| 90 | FE 428 Z |
| 112 | BF 50 Z 16 |
| 140 | BF 70 Z 21 |
| 180 | FE 8040 Z 19 |
| 200 | FE 8054 Z 25 |
| 225 | FE 8072 Z 25 |

| T...C | Ruota libera / Free wheel / Freilauf 94.40 |
|-------|---|
| 80 | FE 423 Z |
| 100 | FE 428 Z |
| 125 | BF 50 Z 16 |
| 160 | BF 70 Z 21 |
| 180 | BF 70 Z 21 |
| 200 | FE 8040 Z 19 |

In fase di ordine delle parti di ricambio, specificare sempre n° particolare (vedi disegno esploso), data (1), n° codice (2) e n° variante (3). (Vedi targhetta).

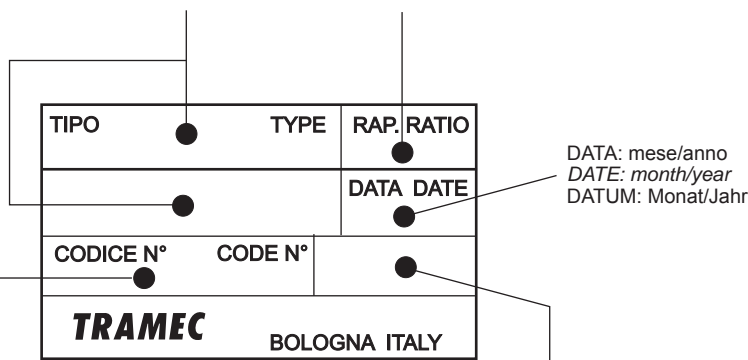
When ordering please specify the spare part number (see exploded view) as well as the date (1), the article number (2) and the variant number (3) (see plate)

Bei der Bestellung von Ersatzteilen sind Ersatzteilnummer (s. Explosionszeichnung), Datum (1), Artikelnummer (2) und Variantennummer (3) anzugeben. (s. Schild)

TIPO: descrizione
TYPE: description
TYP: Bezeichnung

RAP: rapporto di riduzione
RATIO: reduction ratio
ÜBERS.: Untersetzungsverhältnis

Codice prodotto
Article code
ART.-Nr.



DATA: mese/anno
DATE: month/year
DATUM: Monat/Jahr

VARIANTE: codice alfanumerico
VARIANT: alphanumeric code
VARIANTE: alphanumerische Nummer

