



800 Series

RIDUTTORI PER SOLLEVAMENTO  
GEAR UNITS FOR LIFTING APPLICATIONS  
GETRIEBE FÜR DEN HUBBETRIEB



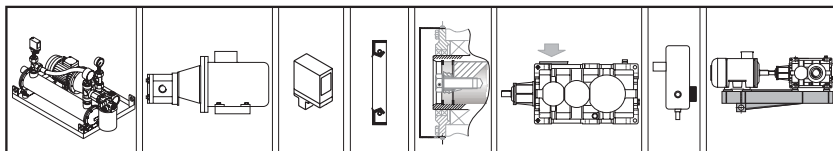
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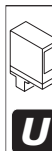
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## RXP3-E - Lifting Application

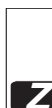
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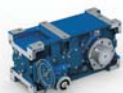
Accessori e opzioni  
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| SIMBOLO<br>SYMBOL<br>SYMBOL | DEFINIZIONE                                                              | DEFINITION                                                   | DEFINITION                                                                 | UNITA' DI MISURA<br>MEASUREMENT UNIT<br>MAßEINHEIT |                                           |
|-----------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------|-------------------------------------------|
| <b>fa</b>                   | Fattore correttivo dell'altitudine                                       | Altitude factor                                              | Höhenkorrekturwert                                                         | <b>N</b>                                           | <b>1N=0.1daN <math>\cong</math> 0.1kg</b> |
| <b>Fa<sub>1-2</sub></b>     | Carico assiale                                                           | Axial load                                                   | Axialbelastung                                                             |                                                    |                                           |
| <b>fc</b>                   | Coefficiente relativo alla temperatura dell'aria                         | Air temperature factor                                       | Koeffizient bezüglich der Lufttemperatur                                   |                                                    |                                           |
| <b>fd</b>                   | Fattore correttivo del tempo di lavoro                                   | Operation time factor                                        | Korrekturfaktor der Arbeitszeit                                            |                                                    |                                           |
| <b>ff</b>                   | Fattore correttivo di aerazione con ventola                              | Fan cooling factor                                           | Korrekturfaktor der Belüftung durch Lüfter                                 |                                                    |                                           |
| <b>f<sub>Ga</sub></b>       | Fattore di affidabilità                                                  | Safety factor                                                | Zuverlässigkeitsfaktor                                                     |                                                    |                                           |
| <b>fm</b>                   | Fattore correttivo per la posizione di montaggio                         | Mounting position factor                                     | Korrekturfaktor für einbaulage                                             |                                                    |                                           |
| <b>f<sub>n</sub></b>        | Fattore correttivo delle prestazioni                                     | Input speed factor                                           | Korrekturfaktor der leistung                                               |                                                    |                                           |
| <b>fp</b>                   | Fattore correttivo della temperatura                                     | Ambient temperature factor                                   | Korrekturfaktor der Umgebungstemperatur                                    |                                                    |                                           |
| <b>Fr<sub>1-2</sub></b>     | Carico Radiale                                                           | Radial load                                                  | Radialbelastung                                                            | <b>N</b>                                           | <b>1N=0.1daN <math>\cong</math> 0.1kg</b> |
| <b>Fs</b>                   | Fattore di servizio                                                      | Service factor                                               | Betriebsfaktor                                                             |                                                    |                                           |
| <b>Fs'</b>                  | Fattore di servizio riduttore                                            | Gearbox service factor                                       | Betriebsfaktor Getriebe                                                    |                                                    |                                           |
| <b>fv</b>                   | Fattore correttivo                                                       | Duty cycle factor                                            | Korrekturfaktor                                                            |                                                    |                                           |
| <b>fw</b>                   | Coefficiente relativo alla temperatura dell'acqua                        | Water temperature factor                                     | Koeffizient bezüglich der Wassertemperatur                                 |                                                    |                                           |
| <b>IEC</b>                  | Motori accoppiabili                                                      | Motor options                                                | Passende Motoren                                                           |                                                    |                                           |
| <b>ir</b>                   | Rapporto di trasmissione                                                 | Ratio                                                        | Übersetzungsverhältnis                                                     |                                                    |                                           |
| <b>J</b>                    | Momento d'inerzia della macchina e del riduttore ridotto all'asse motore | Machine and gear unit inertial load reflected to motor shaft | An der Motorachse reduziertes Trägheitsmoment dermaschine und des Getriebe |                                                    |                                           |
| <b>J<sub>0</sub></b>        | Momento d'inerzia delle masse rotanti sull'asse motore                   | Inertial load of rotating parts at motor shaft               | Trägheitsmoment der an der Motorachse drehenden Massen                     |                                                    |                                           |
| <b>kg</b>                   | Massa                                                                    | Mass <sub></sub>                                             | Masse                                                                      |                                                    |                                           |
| <b>n<sub>1</sub></b>        | Velocità albero entrata                                                  | Input speed                                                  | Antriebsdrehzahl                                                           | <b>min<sup>-1</sup></b>                            | <b>1 min<sup>-1</sup> = 6.283 rad.</b>    |
| <b>n<sub>2</sub></b>        | Velocità albero in uscita                                                | Output speed                                                 | Abtriebsdrehzahl                                                           | <b>min<sup>-1</sup></b>                            |                                           |
| <b>P</b>                    | Potenza motore                                                           | Gear unit power                                              | Leistung Getriebe                                                          | <b>kW</b>                                          | <b>1kW = 1.36 HP (PS)</b>                 |
| <b>P'</b>                   | Potenza richiesta in uscita                                              | Output power                                                 | Erforderliche Abtriebsleistung                                             | <b>kW</b>                                          |                                           |
| <b>P<sub>1</sub></b>        | Potenza motoriduttore                                                    | Gear motor power                                             | Leistung Getriebemotor                                                     | <b>kW</b>                                          |                                           |
| <b>P<sub>c</sub></b>        | Potenza corretta                                                         | Correct power                                                | Tatsächliche Leistung                                                      | <b>kW</b>                                          |                                           |
| <b>P<sub>N</sub></b>        | Potenza nominale                                                         | Nominal power                                                | Nennleistung                                                               | <b>kW</b>                                          |                                           |
| <b>P<sub>ta</sub></b>       | Potenza termica addizionale                                              | Additional thermal power                                     | Thermische Zusatzgrenzleistung                                             | <b>kW</b>                                          |                                           |
| <b>P<sub>tN</sub></b>       | Potenza termica nominale                                                 | Thermal power rating                                         | Termische Nenngrenzleistung                                                | <b>kW</b>                                          |                                           |
| <b>P<sub>t0</sub></b>       | Potenza limite termico                                                   | Limit thermal capacity                                       | Thermische Leistungsgrenze                                                 | <b>kW</b>                                          |                                           |
| <b>RD (η)</b>               | Rendimento dinamico                                                      | Dynamic efficiency                                           | Dynamischer Wirkungsgrad                                                   |                                                    |                                           |
| <b>RS</b>                   | Rendimento statico                                                       | Static efficiency                                            | Statischer Wirkungsgrad                                                    |                                                    |                                           |
| <b>T<sub>1f</sub></b>       | Coppia frenante dinamica                                                 | Dynamic braking torque                                       | Dynamisches Bremsmoment                                                    | <b>Nm</b>                                          |                                           |
| <b>T<sub>1max</sub></b>     | Coppia motrice massima                                                   | Max drive torque                                             | Max. Antriebsmoment                                                        | <b>Nm</b>                                          |                                           |
| <b>T<sub>1s</sub></b>       | Coppia motrice di spunto                                                 | Starting torque                                              | Anlaufantriebsdrehmoment                                                   | <b>Nm</b>                                          |                                           |
| <b>T<sub>c</sub></b>        | Temperatura ambiente                                                     | Ambient temperature                                          | Umgebungstemperatur                                                        | <b>°C</b>                                          |                                           |
| <b>T<sub>N</sub></b>        | Coppia nominale                                                          | Nominal torque                                               | Nenndrehmoment                                                             | <b>Nm, kNm</b>                                     |                                           |
| <b>T<sub>Tbr</sub></b>      | Coppia frenatura motore Autofrenante                                     | Motor braking torque                                         | Motorbremsmoment                                                           | <b>Nm, kNm</b>                                     |                                           |
| <b>T<sub>1a</sub></b>       | Coppia limite in ingresso del dispositivo antiretro                      | income limit torque for back-stop device                     | Grenzantriebsmoment der Rücklaufsperre                                     | <b>Nm, kNm</b>                                     |                                           |
| <b>Q<sub>rid</sub></b>      | Quantità olio di riempimento del riduttore                               | Gearbox oil quantity                                         | Öfüllmenge des Getriebes                                                   |                                                    |                                           |
| <b>Q<sub>min</sub></b>      | Quantità olio minima                                                     | Minimum tank oil                                             | Minimale Öfüllung im Tank                                                  | <b>Nm, kNm</b>                                     |                                           |
| <b>M<sub>2s</sub></b>       | Coppia di slittamento calettatore                                        | Shrink disc slipping torque                                  | Schrumpfscheiben-Schlupfmoment                                             | <b>Nm, kNm</b>                                     |                                           |



RXP/800/E

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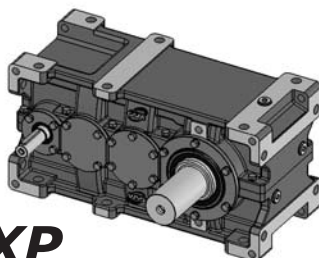
**RXP3**  
**E**



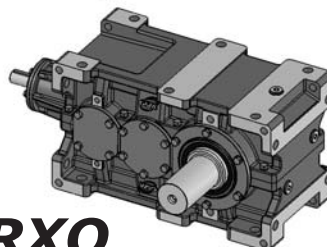
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800 Series

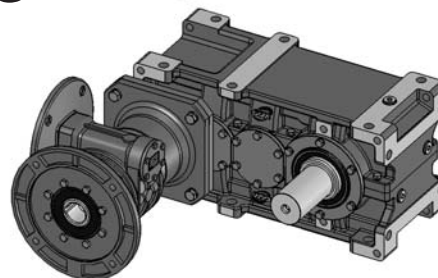
**RXP**



**RXO**



**RXP3/E**



La serie RXP-E per sollevamento industriale deriva dalla gamma RX standard con l'aggiunta di un secondo riduttore differenziale: questi gruppi hanno degli alberi di ingresso e di uscita dimensionati per rispondere alle esigenze dei costruttori di apparati per sollevamento della meccanica medio-pesante.

Grazie ai criteri di progetto adottati, questi riduttori offrono un rapporto ottimale per quanto concerne la correlazione prestazioni/peso.

Il gruppo differenziale è un riduttore epicicloidale monostadio a doppio ingresso che si dispone tra il motore principale di comando ed il riduttore, per avere due distinte velocità all'albero lento di uscita.

Durante il funzionamento di uno dei due motori, l'altro rimane costantemente frenato.

La presenza del gruppo a vite senza fine interposto tra il motore secondario e la ruota planetaria e la possibilità di modificare il rapporto di trasmissione del gruppo vite senza fine, consente di ottenere sul secondario diverse velocità costanti in uscita e quindi di variare il rapporto tra la velocità primaria e la secondaria.

RXP-E series for industrial lifting takes origin from the standard RX to which has been given a secondary planetary gearbox.

These gearboxes have input and output shafts with wide dimensions in order to fulfil the expectations of heavy mechanical producers of lift systems, giving an optimum relationship between performances and weight.

The planetary differential gearbox has a double input that can be found between the main motor and the lift gearbox, with the purpose to obtain two different speeds to the output low shaft.

While one motor is working, the other one is constantly braking.

The change of worm ratio inside the planetary differential gearbox gives the opportunity of obtaining different output speeds, and so varying the relation between primary and secondary speeds.

Die RXP-E-Serie für den industriellen Hub stammt aus der Standard RX Reihe mit einem zusätzlichen zweiten Differential-Getriebe: diese Gruppen verfügen über dimensionierte Eingangs- und Ausgangswellen um den Anforderungen der Hubmaschinenkonstruktoren für die mittelschwere Mechanik gerecht zu werden.

Aufgrund der angewendeten Konstruktionskriterien bieten diese Getriebe ein optimales Verhältnis hinsichtlich Leistung und Gewicht.

Die differentielle Einheit ist ein einstufiges Planetengetriebe mit zwei Eingängen für die Hauptmotorsteuerung und das Getriebe, um zwei separate Geschwindigkeiten an der langsam laufenden Ausgangswelle zu erhalten. Während des Betriebes einer der beiden Motoren wird der andere ständig gebremst.

Die Schnecken zwischen dem Motor und dem sekundären Planetenrad und die Möglichkeit das Übersetzungsverhältnis der Schnecken zu ändern ermöglichen es auf dem Zweiten unterschiedliche konstante Ausgangsgeschwindigkeiten zu erhalten und daher das Verhältnis zwischen der ersten und der zweiten Geschwindigkeit zu variieren.

**1.1 Caratteristiche costruttive****Generalità**

Le dimensioni dei nostri riduttori e i rapporti di trasmissione seguono la serie dei numeri normali (serie di RENARD) Ra 20 UNI 2016.68. I particolari accorgimenti adottati nella costruzione della carcassa esterna conferiscono ai nostri riduttori un'ampia versatilità di montaggio.

L'elevato numero di rapporti di trasmissione, consente in alcuni casi di scegliere un riduttore di taglia inferiore. La suddivisione della carcassa in due parti e i coperchi fissati con viti consentono una facile manutenzione.

Il gruppo costituito da riduttore accoppiato a differenziale si presenta come compatta ed economica soluzione per le esigenze di doppia velocità: consente infatti di ottenere con due motorizzazioni due velocità distinte di sollevamento; una principale (alta velocità), l'altra secondaria per gli accostamenti (bassa velocità), stanti fra loro in un rapporto fisso intero selezionabile a richiesta fra 4 e 19. Il gruppo, realizzato appositamente per il funzionamento intermittente tipico del settore di applicazione, richiede che l'entrata non comandata venga frenata.

L'ottimizzazione geometrica dell'ingranaggio unitamente ad una accurata lavorazione, assicura bassi livelli di rumorosità e garantisce elevati rendimenti:

**1.1 Construction features****General description**

*Gear unit dimensions and transmission ratios follow a geometric progression based on the R20 series of preferred (or Renard) numbers in accordance with UNI 2016.68. The casing incorporates special design features to provide the utmost mounting versatility.*

*Our broad range of transmission ratios frequently allows selection of a smaller size. Split casing design and bolted covers ensure great ease of maintenance.*

*The gear unit is coupled with a differential unit to provide a compact, cost-effective solution for those applications that require two different lifting speeds, with a second approach (low) speed at a fixed ratio to main (high) speed. Speed ratios are whole numbers available in a range from 4 to 19. These units are expressly designed for intermittent duty - typically encountered in lifting applications - and require a brake on the non-driven input end.*

*Optimal gear geometry and high machining accuracy ensure low noise levels and higher efficiency:*

**1.1 Construction features****Allgemeines**

Die Baugrößen und Übersetzungen unserer Getriebe sind der normalen Nummernserie (RENARD Reihe) Ra 20 UNI 2016.68 gemäß ausgelegt.

Die besonderen Konstruktionsmerkmale der Gehäuse ermöglichen die Montage unserer Getriebe in den unterschiedlichsten Einbaulagen.

Die zahlreichen Übersetzungsverhältnisse räumen in einigen Fällen die Möglichkeit ein, ein kleineres Getriebe wählen zu können. Die zweiteiligen Gehäuse und die mit Schrauben befestigten Deckel erlauben eine einfache Wartung.

Die aus Getriebe und Differential bestehende Einheit ist eine kompakte und wirtschaftliche Lösung für Anwendungen, in denen zwei Geschwindigkeiten gefordert werden: Sie ermöglicht bei Einsatz von zwei Motorisierungen den Erhalt zwei unterschiedlicher Hubgeschwindigkeiten. Eine Hauptgeschwindigkeit (hoch) und eine sekundäre Geschwindigkeit für die Annäherungssteuerungen (niedrig). Diese stehen untereinander in einer festgelegten Verhältniseinheit, die auf Anfrage zwischen 4 und 19 gewählt werden kann. Diese Einheit, extra für den in diesem Applikationsbereich typischen Schaltbetrieb realisiert, erfordert ein Abbremsen des nicht gesteuerten Antriebs.

Die geometrische Optimierung des Zahnrad verbunden mit einer akkuraten Bearbeitung gewährleistet niedrige Geräuschentwicklung und einen hohen Wirkungsgrad:

**Rendimento dall'estremità principale del differenziale**  
**Efficiency calculated from differential main shaft end**  
**Wirkungsgrad am Hauptwellenende des Differentials**

|                                    |          |    |
|------------------------------------|----------|----|
| RD (%)                             | RXP3 / E | 92 |
| Rendimento/Efficiency/Wirkungsgrad |          |    |

**Rodaggio per riduttore azionato dall'entrata secondaria del differenziale**  
**Break-in for gearbox operated by the secondary input of the differential gear**  
**Einlauf für Getriebe, die über den Sekundäreingang des Differentialgetriebes betrieben werden**

Durante le fasi di avvio della macchina bisogna prevedere un periodo di rodaggio poichè il valore del rendimento risulta essere sensibilmente inferiore a quello nominale.

In questa fase si avranno assorbimenti elettrici maggiori a quelli indicati nei dati di targa delle tabelle delle prestazioni.

During the start-up phase of the machine, a break-in period must be provided, as the value of the efficiency is significantly lower than the nominal value.

In this phase, there will be more electric absorptions than those indicated in plate data of the performance tables.

Während der Anlaufphase der Maschine ist eine Einlaufphase erforderlich, da der Wirkungsgrad deutlich unter dem Nennwert liegt. In dieser Phase kommt es zu einer höheren Stromaufnahme, als in den Leistungstabellen angegeben.

**1.1 Caratteristiche costruttive****1.1 Construction features****1.1 Construction features****1.2 Livelli di pressione sonora SPL [dB(A)]****1.2 Mean sound pressure levels SPL [dB(A)]****1.2 Schalldruckpegel SPL [dB(A)]**

Valori normali di produzione del livello medio di pressione sonora SPL (dB(A)) a velocità in entrata di 1450 giri/min (tolleranza +3 dB(A)). Valori misurati ad 1 m dalla superficie esterna del riduttore ed ottenuti su elaborazione di prove sperimentali. Per raffreddamento artificiale con ventola sommare ai valori di tabella: +2 dB(A) per ogni ventola. Per entrata ad un numero di giri diverso sommare i valori come in tabella. Per particolari esigenze è possibile fornire riduttori con livello medio di pressione sonora ridotto.

Noise levels are mean sound pressure levels SPL (dB(A)) and refer to normal operation at an input speed of 1450 rpm (tolerance +3 dB (A)). Measurements are taken at 1 m from the external surface of the gear unit and ratings are obtained by processing test data. For fan-cooled applications, add 2dB (A) to table values for each fan. For different input speeds, add the appropriate values indicated in the table below. Gear units with lower noise levels to suit particular needs are available on request.

Normale Werte des durchschnittlichen Schalldruckpegels SPL (dB(A)) bei einer Antriebsdrehzahl von 1450 U/min (Toleranz +3 dB(A)). Werte, die aus den Auswertungen der experimentellen Tests, bei denen die Messung in 1 m Entfernung von der Getriebeoberfläche erfolgte, resultieren. Bei Vorliegen einer Zusatzluftkühlung durch Lüfter muss ein Korrekturwert von +2 dB(A) pro Lüfterrad zum Tabellenwert addiert werden. Bei abweichender Antriebsdrehzahl sind die Werte gemäß Tabellenangaben zu addieren. Im Fall besonderer Anforderungen können Getriebe mit einem reduzierten durchschnittlichen Schalldruckpegel geliefert werden.

|            | RXP3 / E |                      |           |
|------------|----------|----------------------|-----------|
|            | $i < 40$ | $40 \leq i \leq 100$ | $i > 100$ |
| <b>802</b> | 75       | 74                   | 71        |
| <b>804</b> | 76       | 75                   | 72        |
| <b>806</b> | 77       | 76                   | 73        |
| <b>808</b> | 78       | 77                   | 74        |
| <b>810</b> | 80       | 79                   | 76        |
| <b>812</b> | 81       | 80                   | 77        |
| <b>814</b> | 83       | 82                   | 79        |
| <b>816</b> | 85       | 84                   | 81        |
| <b>818</b> | 87       | 86                   | 83        |
| <b>820</b> | 89       | 88                   | 85        |
| <b>822</b> | 91       | 90                   | 87        |
| <b>824</b> | 93       | 92                   | 89        |

| $n_1$ [min <sup>-1</sup> ] | <b>2750</b> | <b>2400</b> | <b>2000</b> | <b>1750</b> | <b>1000</b> | <b>750</b> | <b>500</b> | <b>350</b> |
|----------------------------|-------------|-------------|-------------|-------------|-------------|------------|------------|------------|
| $\Delta$ SPL [dB(A)]       | 8           | 6           | 4           | 2           | -2          | -3         | -4         | -6         |

### 1.3 Criteri di selezione

I fattori di servizio da adottare per i diversi regimi di carico e durate (classi dei meccanismi) sono riportati inella tabella seguente nell'elaborazione della quale sono stati combinati i specifici criteri di selezione dei riduttori (durata, sovraccarichi, tipo di motorizzazione, frequenza avviamenti, velocità e affidabilità) con quelli dei meccanismi di sollevamento indicati dalle norme FEM 1.00/III'87 e ISO 4301/1.

### 1.3 Gear unit selection

Listed in the following table are the service factors according to load combinations and duty life (mechanism classification). These service factors are based on a combination of gear unit selection criteria (operation time, overload, type of motor drive, starts/stops per hour, speed and safety factor) and the specific selection criteria for lifting mechanisms in accordance with FEM 1.00/III'87 and ISO 4301/1.

### 1.3 Auswahlkriterien

Die für die verschiedenen Belastungen und Standzeiten anzusetzenden Betriebsfaktoren (Klassen der Mechanismen) werden in der folgenden Tabelle angegeben. Bei der Ausarbeitung dieser Tabelle wurden die spezifischen, von den Normen FEM 1.00/III'87 und ISO 4301/1 vorgegebenen Kriterien für die Getriebewahl (Standzeit, Überlastungen, Motorisierungstyp, Anlauffrequenz, Drehzahl und Zuverlässigkeit) mit denen der Hubmechanismen kombiniert.

| Tab. 1 <b>fs</b>                                                            |                                                                  | Durata / Duty life (2) / Standzeit (2)                  |                                                         |                                                         |                                                         |                                                         |                                                         |                                                            |                                                            |                                                            |                                                            |
|-----------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|
| Condizioni di carico<br>Load combinations<br>Belastungs-<br>bedingungen (1) |                                                                  | not regular<br>use                                      | not regular<br>use                                      | not regular<br>use                                      | not regular<br>use                                      | regular use                                             | regular use                                             | regular use                                                | infrequent<br>use                                          | intensive<br>use                                           | infrequent<br>use                                          |
|                                                                             |                                                                  | <b>T0</b><br>> 200 h                                    | <b>T1</b><br>> 200 h<br>≤ 400 h                         | <b>T2</b><br>> 400 h<br>≤ 800 h                         | <b>T3</b><br>> 800 h<br>≤ 1600 h                        | <b>T4</b><br>> 1600 h<br>≤ 3200 h                       | <b>T5</b><br>> 3200 h<br>≤ 6300 h                       | <b>T6</b><br>> 6300 h<br>≤ 12500 h                         | <b>T7</b><br>> 12500 h<br>≤ 25000 h                        | <b>T8</b><br>> 25000 h<br>≤ 50000 h                        | <b>T9</b><br>> 50000 h<br>≤ 100000 h                       |
| <b>L1</b><br>Light<br>km ≤ 0.125<br>k ≤ 0.5                                 | <b>fs</b> ≥<br><b>Class</b><br><br>Starts/h<br>duty serv<br>kz ≥ | <b>0.8</b><br><b>M1</b><br>(1 Dm)<br>90<br>15%<br>0.83  | <b>0.8</b><br><b>M1</b><br>(1 Dm)<br>90<br>15%<br>0.83  | <b>0.8</b><br><b>M1</b><br>(1 Dm)<br>90<br>15%<br>0.83  | <b>0.8</b><br><b>M2</b><br>(1 Cm)<br>120<br>20%<br>0.83 | <b>0.8</b><br><b>M3</b><br>(1 Bm)<br>150<br>25%<br>0.83 | <b>0.8</b><br><b>M4</b><br>(1 Am)<br>180<br>30%<br>0.83 | <b>0.8</b><br><b>M5</b><br>(2 m)<br>240<br>40%<br>0.83     | <b>0.9</b><br><b>M6</b><br>(3 m)<br>300<br>50%<br>0.74     | <b>1.1</b><br><b>M7</b><br>(4 m)<br>360<br>60%<br>0.60     | <b>1.3</b><br><b>* M8</b><br>(5 m)<br>≥ 360<br>60%<br>0.51 |
| <b>L2</b><br>Moderate<br>0.125 < km ≤ 0.25<br>0.5 < k ≤ 0.63                | <b>fs</b> ≥<br><b>Class</b><br><br>Starts/h<br>duty serv<br>kz ≥ | <b>0.8</b><br><b>M1</b><br>(1 Dm)<br>90<br>15%<br>0.83  | <b>0.8</b><br><b>M1</b><br>(1 Dm)<br>90<br>15%<br>0.83  | <b>0.8</b><br><b>M2</b><br>(1 Cm)<br>120<br>20%<br>0.83 | <b>0.8</b><br><b>M3</b><br>(1 Bm)<br>150<br>25%<br>0.83 | <b>0.8</b><br><b>M4</b><br>(1 Am)<br>180<br>30%<br>0.83 | <b>0.8</b><br><b>M5</b><br>(2 m)<br>240<br>40%<br>0.83  | <b>0.9</b><br><b>M6</b><br>(3 m)<br>300<br>50%<br>0.74     | <b>1.1</b><br><b>M7</b><br>(4 m)<br>360<br>60%<br>0.60     | <b>1.3</b><br><b>* M8</b><br>(5 m)<br>≥ 360<br>60%<br>0.51 | <b>1.3</b><br><b>* M8</b><br>(5 m)<br>≥ 360<br>60%<br>0.44 |
| <b>L3</b><br>Heavy<br>0.25 < km ≤ 0.5<br>0.63 < k ≤ 0.8                     | <b>fs</b> ≥<br><b>Class</b><br><br>Starts/h<br>duty serv<br>kz ≥ | <b>0.8</b><br><b>M1</b><br>(1 Dm)<br>90<br>15%<br>0.83  | <b>0.8</b><br><b>M2</b><br>(1 Cm)<br>120<br>20%<br>0.83 | <b>0.8</b><br><b>M3</b><br>(1 Bm)<br>150<br>25%<br>0.83 | <b>0.9</b><br><b>M4</b><br>(1 Am)<br>180<br>30%<br>0.74 | <b>0.9</b><br><b>M5</b><br>(2 m)<br>240<br>40%<br>0.74  | <b>1</b><br><b>M6</b><br>(3 m)<br>300<br>50%<br>0.67    | <b>1.1</b><br><b>M7</b><br>(4 m)<br>360<br>60%<br>0.56     | <b>1.3</b><br><b>* M8</b><br>(5 m)<br>≥ 360<br>60%<br>0.48 | <b>1.6</b><br><b>* M8</b><br>(5 m)<br>≥ 360<br>60%<br>0.44 | <b>2.0</b><br><b>* M8</b><br>(5 m)<br>≥ 360<br>60%<br>0.37 |
| <b>L4</b><br>Very heavy<br>0.5 < km ≤ 1<br>0.8 < k ≤ 1                      | <b>fs</b> ≥<br><b>Class</b><br><br>Starts/h<br>duty serv<br>kz ≥ | <b>0.8</b><br><b>M2</b><br>(1 Cm)<br>120<br>20%<br>0.83 | <b>0.8</b><br><b>M3</b><br>(1 Bm)<br>150<br>25%<br>0.83 | <b>0.9</b><br><b>M4</b><br>(1 Am)<br>180<br>30%<br>0.74 | <b>0.9</b><br><b>M5</b><br>(2 m)<br>240<br>40%<br>0.74  | <b>1</b><br><b>M6</b><br>(3 m)<br>300<br>50%<br>0.67    | <b>1.1</b><br><b>M7</b><br>(4 m)<br>360<br>60%<br>0.56  | <b>1.3</b><br><b>* M8</b><br>(5 m)<br>≥ 360<br>60%<br>0.48 | <b>1.6</b><br><b>* M8</b><br>(5 m)<br>≥ 360<br>60%<br>0.44 | <b>2.0</b><br><b>* M8</b><br>(5 m)<br>≥ 360<br>60%<br>0.37 | <b>2.2</b><br><b>* M8</b><br>(5 m)<br>≥ 360<br>60%<br>0.33 |

\* Non fornibili con estremità FD / FD configuration not available for this class / Nicht mit Wellenende FD lieferbar

**Note:**  
(1)

**Notes:**  
(1)

**Hinweise:**  
(1)

$$k = (km)^{1/3} = (\sum_{i=1...n} ((\frac{P_i}{P_{max}})^3 \cdot (\frac{t_i}{T})))^{1/3}$$

k: fattore di spettro equivalente medio.  
km: fattore di spettro.  
ti: durata media di ciascun livello di carico (i = 1...n).  
T: durata totale di uso.  
Pi: ampiezza di ciascun livello di carico.  
P<sub>max</sub>: ampiezza del max livello di carico.  
L1: meccanismi soggetti solitamente a bassi carichi e raramente al max carico.  
L2: meccanismi soggetti solitamente a carichi moderati e raramente al max carico.  
L3: meccanismi soggetti normalmente a carichi pesanti e frequentemente al max carico.  
L4: meccanismi soggetti regolarmente al max carico.

k: mean equivalent load spectrum factor.  
km: load spectrum factor.  
ti: average duration of each load (i = 1...n).  
T: total duty life.  
Pi: duration (portion of spectrum) of each load.  
P<sub>max</sub>: duration of full load (rated capacity).  
L1: Usually light load, occasional full load.  
L2: Usually moderate load, occasional full load.  
L3: Usually heavy load, frequently full load.  
L4: Usually full load.

k: Äquivalenter mittlerer Spektrumsfaktor.  
km: Spektrumsfaktor  
ti: durchschnittliche Dauer/Belastungsniveau (i = 1...n).  
T: Gesamte Einsatzdauer.  
Pi: Amplitude/ Belastungsniveau  
P<sub>max</sub>: Amplitude des max. Belastungsniveau  
L1: Normalerweise unter niedriger Belastung und nur selten unter max. Belastung stehende Mechanismen.  
L2: Normalerweise unter durchschnittlicher Belastung und selten unter max. Belastung stehende Mechanismen.  
L3: Normalerweise unter schweren Belastung und häufig unter max. Belastung stehende Mechanismen.  
L4: Regelmäßig unter max. Belastung stehende Mechanismen.

## 1.3 Criteri di selezione

(2) Le durate sono teoriche convenzionali, non possono essere prese come garanzia e possono essere ricavate dall'utilizzazione media giornaliera, dal n° di giorni lavorativi e dagli anni previsti di funzionamento.

(3) I fattori di servizio  $f_s$  indicati sono validi solo per apparecchi di sollevamento tengono conto del n° di avviamenti max indicato e di una coppia max sul riduttore durante gli intervalli di avviamento e frenatura  $T_{2max}$ , limitata dal fattore di picco  $k_z$  secondo quanto specificato al punto Verifiche.  
Per la selezione di riduttori per le traslazioni e le rotazioni di gru e carrelli fare riferimento alle sezioni RXP e RXO.

(4) Nel caso in cui  $Fr_2 \leq (Fr_{2max}/2)$  si può considerare:  
L3-T8, L4-T7  $f_s \geq 1.3$ ;  
L3-T9, L4-T8  $f_s \geq 1.6$ ;  
L4-T9  $f_s \geq 1.8$

## 1.3 Gear unit selection

(2) *Duty life means projected equipment life calculated on the basis of average daily operating time, number of working days and expected service life in years according to rating conventions and no warranty is implied or given.*

(3) *Service factors  $f_s$  are valid for lifting equipment only; they are based on the max starts per hour indicated in the table and consider a max torque  $T_{2max}$  at gear unit during starting and braking up to a limit imposed by peak factor  $k_z$  as outlined at paragraph Verification.*  
*Gear unit selection for track and slew drive applications in cranes and trolleys is discussed in sections RXP and RXO.*

(4) *If  $Fr_2 \leq (Fr_{2max}/2)$ , then:*

*L3-T8, L4-T7  $f_s \geq 1.3$ ;  
L3-T9, L4-T8  $f_s \geq 1.6$ ;  
L4-T9  $f_s \geq 1.8$*

## 1.3 Auswahlkriterien

(2) Bei den Angaben der Standzeiten handelt es sich um herkömmliche theoretische Werte, die daher nicht als Garantien stehen. Sie können aus dem durchschnittlichen täglichen Einsatz, der Anzahl der Arbeitstage und den für den Betrieb vorgesehenen Jahren errechnet werden.

(3) Die angegebenen Betriebsfaktoren  $f_s$  sind nur für einen Einsatz an Hubvorrichtungen gültig, dabei wird die angegebene max. Anzahl der Anläufe und ein max. Drehmoment des Getriebes während der Anläufe und Bremsungen  $T_{2max}$  berücksichtigt, das vom Spitzenfaktor  $k_z$  gemäß Angaben unter dem Punkt „Überprüfungen“ eingeschränkt wird.  
Bei der Wahl der für einen Verfah- und Rotationsbetrieb von Kränen vorgesehenen Getriebe ist Bezug auf die Anschnitte RXP und RXO zu nehmen.

(4) Im Fall, in dem  $Fr_2 \leq (Fr_{2max}/2)$  ist kann wie folgt berücksichtigt werden:  
L3-T8, L4-T7  $f_s \geq 1.3$ ;  
L3-T9, L4-T8  $f_s \geq 1.6$ ;  
L4-T9  $f_s \geq 1.8$

 **$f_n$** 

Fattore correttivo delle prestazioni  
Input speed factor  
Korrekturfaktor der Leistungen

Fattore correttivo delle prestazioni nominali per tenere conto delle velocità in entrata  $n_1 > 1450$  min<sup>-1</sup>

*This correction factor is used to adjust performance ratings to account for input speeds  $n_1 > 1450$  min<sup>-1</sup>*

Korrekturfaktor der Nennleistungen unter Berücksichtigung der Eingangs-drehzahlen  $n_1 > 1450$  min<sup>-1</sup>

| $n_1$<br>[min <sup>-1</sup> ] | $i_N \leq 8$ |       | $8 < i_N < 80$ |       | $i_N \geq 80$ |       |
|-------------------------------|--------------|-------|----------------|-------|---------------|-------|
|                               | $T_N$        | $P_N$ | $T_N$          | $P_N$ | $T_N$         | $P_N$ |
| <b>2750</b>                   | 0.82         | 1.56  | 0.90           | 1.71  | 1.00          | 1.90  |
| <b>2400</b>                   | 0.85         | 1.41  | 0.92           | 1.52  | 1.00          | 1.66  |
| <b>2000</b>                   | 0.90         | 1.24  | 0.94           | 1.30  | 1.00          | 1.38  |
| <b>1750</b>                   | 0.94         | 1.13  | 0.97           | 1.17  | 1.00          | 1.21  |
| <b>1450</b>                   | 1.00         | 1.00  | 1.00           | 1.00  | 1.00          | 1.00  |

## 1.3 Criteri di selezione

## 1.3 Gear unit selection

## 1.3 Auswahlkriterien

## Dati di ingresso:

- 1) Tipologia
- 2) F: portata (kg)
- 3)  $i_e$ : riduzione esterna (dovuta al numero dei tiri)
- 4) V: velocità di sollevamento (m/min)
- 5)  $\eta_e$ : rendimento esterno
- 6) D: diametro del tamburo (mm)
- 7) Classe (M,L,T) dell'apparecchio di sollevamento

## Input data:

- 1) Type
- 2) F: capacity (kg)
- 3)  $i_e$ : external reduction (number of falls)
- 4) V: lifting speed (m/min)
- 5)  $\eta_e$ : external efficiency
- 6) D: drum diameter (mm)
- 7) Lifting equipment class (M,L,T)

## Eingabedaten:

- 1) Typologie
- 2) F: Tragfähigkeit (kg)
- 3)  $i_e$ : externe Reduzierung (durch Zuganzahl)
- 4) V: Hubgeschwindigkeit (m/min)
- 5)  $\eta_e$ : externer Wirkungsgrad
- 6) D: Trommeldurchmesser (mm)
- 7) Klasse (M,L,T) des Hebegeräts

## Fattori di servizio:

fs da tabella 1  
fn da tabella 2  
(solo nel caso di  
riduttore senza  
differenziale)

## Service factors:

fs from table 1  
fn from table 2  
(only for gear unit  
without differential  
unit)

## Betriebsfaktoren:

fs aus Tabelle 1  
fn aus Tabelle 2  
(nur im Fall des  
Getriebes ohne  
Differential)

Momento torcente sul tamburo  
Torque on drum  
Drehmoment an Trommel

$$T_2 = \frac{F \cdot D}{\eta_e \cdot i_e \cdot 204} \text{ [Nm]}$$

Velocità angolare del tamburo  
Drum angular speed  
Winkelgeschwindigkeit der Trommel

$$n_2 = \frac{i_e \cdot V \cdot 318}{D} \text{ [min}^{-1}\text{]}$$

$$T_2 \cdot \frac{fs}{fn} < T_N$$

Vedere tabelle prestazioni; selezionare grandezza riduttore  
See rating tables; select gear unit size  
Siehe Tabelle "Leistungen"; Getriebebaugröße wählen

RXP

A

RXO - RXV

B

RXP3/E

D

Rapporto di trasmissione

Gear ratio

Übersetzungsverhältnis

$$i = \frac{n_1}{n_2}$$

Rendimento riduttore  $\eta$ Gearbox efficiency  $\eta$ 

Wirkungsgrad des Getriebes

|      | RX   | RX + E |
|------|------|--------|
| RXP3 | 0.94 | 0.92   |
| RXO2 | 0.93 | —      |
| RXO3 | 0.91 | —      |

Potenza motrice necessaria  
Power required to drive load  
Erforderliche Antriebsleistung

$$P_1 = \frac{T_2 \cdot n_2}{9550 \cdot \eta} \text{ [kW]}$$

A

GSM\_mod.CT03

B

GSM\_mod.CT03

D

GSM\_mod.CT05

Riduttore con differenziale  
Gear unit with differential unit  
Getriebe mit Differential

NO / NEIN

Verifiche  
Verification  
Kontrollen

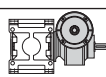
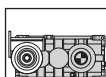
A  
B

SI / YES / JA

Selezione grandezza differenziale  
Select differential unit size  
Wahl der Differentialgröße

$$P_1 \leq P_{ND} \text{ OR } T_1 \leq T_{1ND}$$

| size E                                     | 70  | 100 | 125 | 160 | 180 | 225  |
|--------------------------------------------|-----|-----|-----|-----|-----|------|
| $P_{ND}$ [kW]<br>(1450 min <sup>-1</sup> ) | 7.5 | 15  | 30  | 55  | 75  | 200  |
| $T_{1ND}$ [Nm]                             | 49  | 99  | 198 | 362 | 494 | 1317 |



|          | E70 | E100 | E125 | E160 | E180 | E225 |
|----------|-----|------|------|------|------|------|
| RXP3 802 |     |      |      |      |      |      |
| RXP3 804 |     |      |      |      |      |      |
| RXP3 806 |     |      |      |      |      |      |
| RXP3 808 |     |      |      |      |      |      |
| RXP3 810 |     |      |      |      |      |      |
| RXP3 812 |     |      |      |      |      |      |
| RXP3 814 |     |      |      |      |      |      |
| RXP3 816 |     |      |      |      |      |      |
| RXP3 818 |     |      |      |      |      |      |
| RXP3 820 |     |      |      |      |      |      |
| RXP3 822 |     |      |      |      |      |      |
| RXP3 824 |     |      |      |      |      |      |

Selezione potenza motore per velocità secondarie  
Select motor capacity to suit second speed requirement  
Wahl der Motorleistung für Sekundärdrehzahlen

$$P_{II} = P_1 \cdot k_2 \text{ [kW]}$$

|            | E70   | E100  | E125  | E160  |
|------------|-------|-------|-------|-------|
| $i_{I/II}$ | 3.3   | 5     | 6.6   | 9.2   |
| $k_2$      | 0.360 | 0.244 | 0.187 | 0.146 |

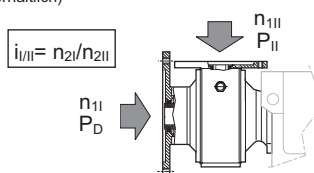
  

|            | E180  | E225  |
|------------|-------|-------|
| $i_{I/II}$ | 4     | 5     |
| $k_2$      | 0.282 | 0.244 |

\* Rapporto non standard su E/100. (A richiesta sono disponibili altri rapporti)

\* Ratio not standard on E/100. (Other ratios available at request)

\* Übersetzung kein Standard auf E/100. (Auf Anfrage sind weitere Übersetzungen erhältlich)



Fine selezione  
End of selection  
Auswahlabschluss

Verifiche  
Controls  
Kontrollen

D

## 1.4 Verifiche

- 1) Compatibilità dimensionale con ingombri disponibili (es diametro del tamburo) e delle estremità d'albero con giunti, dischi o pulegge.
- 2) Compatibilità del rapporto selezionato con l'esecuzione albero cavo.
- 3) Compatibilità geometrica come da tabella in designazione.
- 4) Verifica posizione di montaggio.
- 5) Massimo sovraccarico.

## 1.4 Verification

- 1) Ensure that dimensions are compatible with space constraints (for instance, drum diameter) and shaft ends are compatible with any couplings, discs or pulleys to be used.
- 2) Ensure that selected ratio is available for the hollow shaft configuration.
- 3) Check geometric compatibility as per designation table;
- 4) Check mounting position.
- 5) Maximum overload.

## 1.4 Überprüfungen

- 1) Kompatibilität der Abmessungen mit verfügbaren Maßen (z.B. Trommeldurchmesser) und der Wellenenden mit den Kupplungen, Scheiben oder Riemenscheiben.
- 2) Kompatibilität des gewählten Übersetzungsverhältnisses mit der Ausführung der Hohlwelle.
- 3) Geometrische Kompatibilität gemäß Bezeichnungstabelle.
- 4) Überprüfung der Einbaulage.
- 5) Max. Überlastung.

$$T_{2max} \leq 2 \times T_N \text{ [Nm]}$$

Nel caso di frenature e/o avviamenti  $T_{2max}$  può essere considerata come quella parte della coppia accelerante ( $T_{2acc}$ ) o decelerante ( $T_{2dec}$ ) che passa attraverso l'asse lento del riduttore:

For braking and/or starting,  $T_{2max}$  may be considered as that portion of acceleration ( $T_{2acc}$ ) or deceleration torque ( $T_{2dec}$ ) passing through the gear unit output (low speed) shaft:

Bei Bremsungen und/oder Anläufen kann  $T_{2max}$  als der Teil des Beschleunigungsmoments ( $T_{2acc}$ ) oder Abbremsmoment ( $T_{2dec}$ ), der durch die Abtriebsachse des Getriebes läuft, angesehen werden:

Avviamento

Starting

Anlauf

$$T_{2max} = T_{2acc} = \left( (0.45 \cdot (T_{1s} + T_{1max}) \cdot i_r \cdot \eta) - T_2 \right) \cdot \left( \frac{J}{J + J_0} \right) + T_2 \text{ [Nm]}$$

Frenatura

Braking

Bremsung

$$T_{2max} = T_{2dec} = \left( \left( \frac{T_{1f} \cdot i_r}{\eta} \right) - T_2 \right) \cdot \left( \frac{J}{J + \frac{J_0}{\eta}} \right) + T_2 \text{ [Nm]}$$

dove:

J: momento d'inerzia della macchina e del riduttore ridotto all'asse motore (kgm<sup>2</sup>)  
 $J_0$ : momento d'inerzia delle masse rotanti sull'asse motore (kgm<sup>2</sup>)  
 $T_{1f}$ : coppia frenante dinamica (Nm)  
 $T_{1s}$ : coppia motrice di spunto (Nm)  
 $T_{1max}$ : coppia motrice max (Nm)

Where:

J: machine and gear unit inertial load reflected to motor shaft (kgm<sup>2</sup>)  
 $J_0$ : inertial load of rotating parts at motor shaft (kgm<sup>2</sup>)  
 $T_{1f}$ : dynamic braking torque (Nm)  
 $T_{1s}$ : starting torque (Nm)  
 $T_{1max}$ : max drive torque (Nm)

Hier ist:

J: An der Motorachse reduziertes Trägheitsmoment der Maschine und des Getriebes (kgm<sup>2</sup>)  
 $J_0$ : Trägheitsmoment der an der Motorachse drehenden Massen (kgm<sup>2</sup>)  
 $T_{1f}$ : dynamisches Bremsmoment (Nm)  
 $T_{1s}$ : Anlaufantriebsdrehmoment (Nm)  
 $T_{1max}$ : Max. Antriebsmoment (Nm)

**N.B Il differenziale E70 consente un funzionamento continuo.**  
**Per applicazioni di questo tipo consultare il ns. servizio tecnico commerciale.**

**NOTE Differential unit E70 allows for continuous operation.**  
**Please consult our Sales Engineers when selecting units for continuous duty applications.**

**HINWEIS: Das Differential E70 ermöglicht einen Dauerbetrieb. Für Applikationen dieser Art Beratung bei unserem Technischen Kundendienst einholen.**

Nel caso di scelta di riduttori ad assi paralleli o ortogonali senza differenziale attenersi alle ulteriori verifiche riportate nelle sezioni di pertinenza (RXP, RXO) catalogo **GSM\_mod. CT03.**

When selecting in-line helical or helical bevel gear units without differential unit, follow the verification procedures outlined in the relevant sections (RXP, RXO) Catalogue **GSM\_mod. CT03.**

Werden Parallelachsen-oder Kegelstrinradgetriebe ohne Differential gewählt, die weiteren Überprüfungen und Kontrollen vornehmen, die in den entsprechenden Abschnitten (RXP, RXO) Kataloge **GSM\_mod. CT03** angegeben werden.

## 1.4 Verifiche

## 6) Verifica carichi radiali e assiali

**RX 800 Series**

Qualora il collegamento tra riduttore e macchina motrice o operatrice sia effettuato con mezzi che generano carichi radiali sull'estremità d'albero veloce o lento, occorre fare le seguenti verifiche.

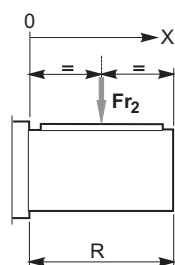
**Calcolo  $Fr_2$** 

I carichi massimi  $Fr_2$  sono calcolati con  $F_s=1$  ed a una distanza dalla battuta dell'albero di 0.5 S se albero veloce o 0.5 R se albero lento.

Tali valori sono riportati nelle tabelle delle prestazioni; per esecuzione Fn vedere sezione 1.12.

Per distanze variabili tra 0 e una distanza "X" bisogna utilizzare le tabelle seguenti:  $Fr_2$  con coefficiente A.

$Fr_2$  con coefficiente C nel caso di flange FD.



$$Fr_2 = Fr_2 \cdot \left( \frac{A}{A + X - \frac{R}{2}} \right)$$

$$Fr_2 = Fr_2 \cdot C$$

use only for FD, FDn execution  
use only for FD, FDn configuration

**A - C**

Coefficienti correttivi del carico radiale di catalogo in uscita  $Fr_2$  in funzione della distanza dalla battuta  
Load location factors to adjust output OHL capacity rating  $Fr_2$  based on distance from shoulder  
Korrekturkoeffizient der Radialkraft am Abtrieb  $Fr_2$  gemäß Katalog in Abhängigkeit des Ansatzabstands

|   | RXP  |      |      |      |      |      |      |      |      |      |      |     |
|---|------|------|------|------|------|------|------|------|------|------|------|-----|
|   | 802  | 804  | 806  | 808  | 810  | 812  | 814  | 816  | 818  | 820  | 822  | 824 |
| A | 99   | 109  | 124  | 137  | 156  | 175  | 200  | 225  | 236  | 261  | 294  | 331 |
| C | 1.32 | 1.35 | 1.39 | 1.46 | 1.49 | 1.43 | 1.32 | 1.32 | 1.33 | 1.35 | 1.32 | —   |

**Calcolo Fr**

Per calcolare il carico Fr agente sull'albero lento diamo formule approssimate per alcune trasmissioni più comuni, per la determinazione del carico radiale su albero veloce o lento.

**Fr calculation Fr**

Use the formula and the approximate factors for input or output overhung load determination referred to the most common drive members to calculate Fr load at output shaft.

**Berechnung der Fr**

Für die Berechnung der an der Abtriebswelle wirkenden Belastungen Fr geben wir approximative Formeln an, die für einige der allgemeinen Antriebsformen zum Bestimmen der auf die An- oder Abtriebswelle einwirkenden Radialkraft verwendet werden können.

## 1.4 Verification

## 6) Overhung and thrust load verification

When a gear unit is connected to prime mover or driven machine using overhung drive members that place a radial load on input or output shaft end, check the following loads.

 **$Fr_2$  'calculation**

Load capacity ratings  $Fr_2$  consider a service factor  $F_s=1$  and load location at a distance from shaft shoulder of 0.5 S for input shafts or 0.5 R for output shafts.

**These values are reported in the rating tables; for configuration Fn look section 1.12.**

Where load is applied at a distance from shoulder between 0 and an "X" distance, refer to the following tables:

$Fr_2$  with load location factor A.

$Fr_2$  with load location factor C if an FD flange is used.

## 1.4 Überprüfungen

## 6) Überprüfung der Radial- und Axialkräfte

Erfolgt die Verbindung zwischen Getriebe und Kraft- oder Arbeitsmaschine mit Vorrichtungen, die Radialkräfte auf das Ende der Antriebs- oder Abtriebswelle ausüben, sind folgende Überprüfungen erforderlich.

**Berechnung von  $Fr_2$** 

Die maximalen Belastungskräfte  $Fr_2$  werden mit  $F_s=1$  und auf einem Abstand vom Wellenansatz von 0.5 S im Fall der Antriebswelle oder 0.5 R im Fall der Abtriebswelle berechnet.

Diese Werte werden in den Leistungstabellen angegeben; die Werte von Ausführung Fn, können Sie auf 1.12 finden.

Bei zwischen 0 und einer Distanz "X" variierenden Abständen müssen folgende Tabellen verwendet werden:

$Fr_2$  mit Koeffizient A.

$Fr_2$  mit Koeffizient C bei FD-Flanschen.

| $Fr_2$ [N] | Carico radiale ammissibile su albero uscita alla distanza X     | Permissible output shaft OHL at distance X        | An Abtriebswelle auf Distanz X zulässige Radialkraft        |
|------------|-----------------------------------------------------------------|---------------------------------------------------|-------------------------------------------------------------|
| $Fr_2$ [N] | Carico radiale ammissibile su albero uscita indicato a catalogo | Output shaft OHL capacity as per catalogue rating | An Abtriebswelle gemäß Katalogangaben zulässige Radialkraft |
| X [mm]     | Distanza dalla battuta dell'albero                              | Distance from shaft shoulder                      | Distanz vom Wellenansatz                                    |
| R [mm]     | Sporgenza dell'albero uscita                                    | Output shaft projection                           | Überstand der Abtriebswelle                                 |
| A          | Coefficiente da tabella                                         | Load location factor from table                   | Koeffizient aus Tabelle                                     |
| C          | Coefficiente da tabella                                         | Load location factor from table                   | Koeffizient aus Tabelle                                     |

## 1.4 Verifiche

## 1.4 Verification

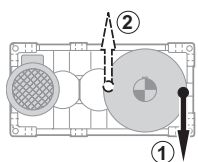
## 1.4 Überprüfungen



$$Fr = k \cdot \frac{T}{d}$$

| $Fr$ [N] | Carico radiale approssimato<br>Approximate overhung load<br>Approx. Wert - Radialkraft | $d$ [mm] | Diametro pulegge, ruote<br>Pulley diameter, wheels<br>Durchmesser Räder, Riemenscheiben | $k$ | Fattore di collegamento<br>Connection factor<br>Anschlusswert | $T$ [Nm] | Momento torcente<br>Torque<br>Drehmoment |
|----------|----------------------------------------------------------------------------------------|----------|-----------------------------------------------------------------------------------------|-----|---------------------------------------------------------------|----------|------------------------------------------|
|----------|----------------------------------------------------------------------------------------|----------|-----------------------------------------------------------------------------------------|-----|---------------------------------------------------------------|----------|------------------------------------------|

| $k =$                                    | 7000                                                                                                                | 5000                                                | 3000                                           | 2120                                                    | 2000                             |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------------------------------|---------------------------------------------------------|----------------------------------|
| Trasmissioni<br>Drive member<br>Antriebe | Ruote di frizione (gomma su metallo)<br>Friction wheel drive (rubber on metal)<br>Kupplungsräder (Gummi auf Metall) | Cinghie trapezoidali<br>V belt drives<br>Keilriemen | Cinghie dentate<br>Toothed belts<br>Zahnriemen | Ingranaggi cilindrici<br>Spur gears<br>Zylinderzahnäder | Catene<br>Chain drives<br>Ketten |



Nel caso di sollevamento con tamburo con tiro verso il basso è preferibile che la fune si avvolga dalla parte opposta al motore (1).  
Nel caso più gravoso del precedente, con tiro verso l'alto, viceversa è preferibile che la fune si avvolga dal lato motore (2).

*In lifting applications using winch drums in a downward pull direction, it is best for the rope to wrap on the side opposite to the motor (1).  
In the more severe case of upward pull direction, the rope should wrap on motor side (2).*

Bei Hebeverfahren mit einer Trommel mit Zugkraft nach unten, sollte das Seil auf der dem Motor (1) entgegen gesetzten Seite aufgerollt werden.  
Im Fall eines härteren Einsatzes als den zuvor genannten, mit Zugkraft nach oben, sollte das Seil dagegen an der Motorseite (2) aufgewickelt werden.

### Caso A)

Per carichi radiali minori di  $0.25 Fr_2'$  è necessario verificare soltanto che contemporaneamente al carico radiale sia presente un carico assiale non superiore a 0.2 volte  $Fr_2'$ ;

### Case A)

*For overhung loads lower than  $0.25 Fr_2'$ , ensure that the thrust load applied simultaneously with OHL is not greater than 0.2 times  $Fr_2'$ ;*

### Fall A)

Bei Radialkräften unter  $0.25 Fr_2'$  muss nur überprüft werden, dass gleichzeitig mit der Belastung durch die Radialkraft auch eine Axialkraft von nicht mehr als 0.2 Mal  $Fr_2'$  vorliegt.

### Caso B)

Per carichi radiali maggiori di  $0.25 Fr_2'$ ;  
1) Calcolo abbreviato:  $Fr$  (output)  $< Fr_2'$  e che contemporaneamente al carico radiale sia presente un carico assiale non superiore a 0.2 volte  $Fr_2'$ ;

### Case B)

*For overhung loads greater than  $0.25 Fr_2'$ ;  
1) Quick calculation method:  $Fr$  (output)  $< Fr_2'$  and thrust load applied simultaneously with OHL not greater than 0.2 times  $Fr_2'$ ;*

### Fall B)

Bei Radialkräften über  $0.25 Fr_2'$ ;  
1) Verkürzte Berechnungsgleichung:  $Fr(\text{output}) < Fr_2'$  und dass gleichzeitig mit der Belastung durch die Radialkraft auch eine Axialkraft von nicht mehr als 0.2 Mal  $Fr_2'$  vorliegt.  
2) Vollständige Berechnungsgleichung für die folgende Daten erforderlich sind:  
- appliziertes Drehmoment oder applizierte Leistung  
-  $n_2$  (Drehungen/Minute der Abtriebswelle)  
- Radialkraft  $Fr$  (Richtung, Intensität, Seite)  
- Drehrichtung der Welle  
- Baugröße und Typ des gewählten Getriebes  
- verwendeter Öltyp und dessen Viskositätsgrad  
- grafische Achsenausführung  
- vorliegende Axialkraft  $Fa$

2) Calcolo completo per il quale occorre fornire i seguenti dati:

- momento torcente applicato o potenza applicata
- $n_2$  (giri al minuto dell'albero dell'albero lento)
- carico radiale  $Fr$  (direzione, intensità, verso)
- senso di rotazione dell'albero
- grandezza e tipo del riduttore scelto
- tipo olio impiegato e sua viscosità
- esecuzione grafica assi:
- carico assiale presente  $Fa$

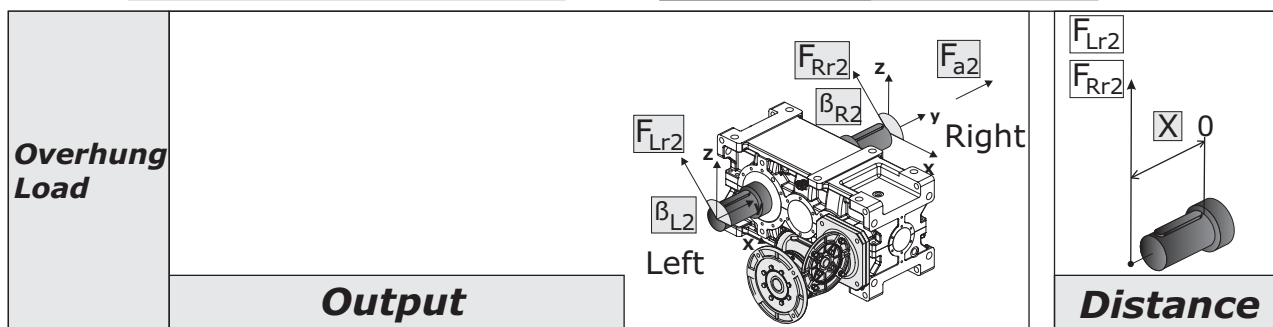
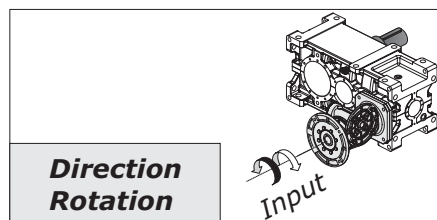
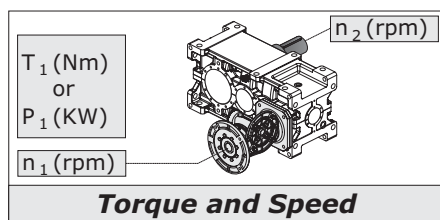
2) *For the standard calculation method, the following information is required:*

- applied torque or power
- $n_2$  (output shaft rpm)
- overhung load  $Fr$  (orientation, amount of loading, direction)
- direction of rotation of shaft
- size and type of selected gear unit
- oil type and viscosity
- shaft arrangement:
- actual thrust load  $Fa$

Consultare il supporto Tecnico per la verifica.

*Please contact our Engineering for a verification.*

Für eine Überprüfung die Technischen Unterlagen konsultieren.



## 1.5 Stato di fornitura

### 1.5.1 Protezione alla corrosione e protezione superficiale

#### General information

GSM propone diverse soluzioni protettive opzionali per motori e riduttori che lavorano in speciali condizioni ambientali.

Le misure protettive sono costituite da:

- Protezione corrosiva e protezione superficiale per motori e riduttori;
- Colore Standard RAL 5010

#### 1.5.1.1 - Protezione Corrosiva

La protezione corrosiva è ottenuta con le seguenti specifiche come standard:

- Le targhette sono realizzate in acciaio inox;
- Applicazione di un prodotto anticorrosivo temporaneo per proteggere le superfici di accoppiamento delle flange e gli alberi uscita.

Nel caso di specifiche richieste è possibile applicare tutte le viti di fissaggio in acciaio inox.

#### 1.5.1.2 - Verniciatura e protezione Superficiale

I riduttori preventivamente sabbiati vengono verniciati con vernice ad alto solido, internamente antiolio ed esternamente con fondo epossidico anticorrosivo di colore grigio o rosso ricoperto da finitura poliuretanica bicomponente di colore Blu RAL 5010 (TYP1).

La protezione ottenuta è idonea a resistere in ambienti mediamente corrosivi, industriali interni ed esterni e consente ulteriori finiture a scelta del cliente.

Nel caso si debbano prevedere impieghi in ambienti industriali più aggressivi o corrosivi o estremi o più genericamente di tipo marino, occorre adottare prodotti adeguati apposti con opportuno ciclo di verniciatura. In questi casi si suggerisce di concordare il ciclo in fase di ordine.

La GSM comunque propone già cicli di verniciatura speciali selezionati per ambienti di questo tipo (TYP2 - TYP3 - TYP4).

## 1.5 Scope of the supply

### 1.5.1 - Corrosion and surface protection

#### General information

GSM offers different protective solutions for motors and gearboxes which work in special weather condition

The protective measures are:

- Corrosion and surface protection for motors and gearboxes;
- Standard color RAL 5010

#### 1.5.1.1 - Corrosion protection

The corrosion protection is the result of the following standard procedures:

- The name plates are made of inox steel;
- An anticorrosive temporary product is applied on the mechanized surfaces of flanges and output shafts

In case of special requests it is possible to use inox steel screws

#### 1.5.1.2 - Painting and surface protection

Gearboxes, after being sand blasted, are painted with a specific paint, which has a double function. On the internal side it works as an anti-oil, while on the external side it works as a grey or red anticorrosive epoxy primer covered by a blue RAL 5010 (TYP 1) bi-component polyurethane finishing paint.

The above mentioned protection is suitable for internal and external industrial environments with corrosive effects on the average. It also gives to the customer the possibility to chose other finishing effects.

In case of use in aggressive or corrosive industrial or sea environments, it is necessary to use special products with the required painting cycle. We suggest you to specify these particular terms with our company.

GSM offers already special painting cycles, which have been created for these kind of environments (TYP2 – TYP3 – TYP 4).

## 1.5 Lieferzustand

### 1.5.1 - Korrosionsschutz und Oberflächenschutz

#### Allgemeine Information

GSM bietet optional verschiedene Schutzmöglichkeiten für Motoren und Getriebe an, die in besonderen Umweltbedingungen arbeiten

Die Schutzmaßnahmen bestehen aus:

- Korrosionsschutz und Oberflächenschutz für Motoren und Getriebe;
- Standardfarbe RAL 5010

#### 1.5.1.1 - Korrosionsschutz

Der Korrosionsschutz ist bei den folgenden Spezifikationen standardmäßig:

- Die Typenschilder sind aus Edelstahl;
- Anwendung eines temporären Antikorrosionsproduktes als Oberflächenschutz für die Flansch und Abtriebswellenverbindungen

Im Falle spezifischer Anfragen können alle Befestigungsschrauben aus Edelstahl verwendet werden.

#### 1.5.1.2 - Lackierung und Oberflächenschutz

Die vorbeugend sandgestrahlten Getriebe werden mit Farbe mit hohem Feststoffgehalt lackiert, innen gegen das Öl und außen gegen Korrosion mit Epoxid in grauer oder roter Farbe. Und werden abschließend mit Bikomponentenpolyurethan in der Farbe blau RAL 5010 (TYP 1) überzogen..

Der erreichte Schutz ist geeignet für Bereiche mit durchschnittlicher Korrosion, für den industriellen Innen- und Außeneinsatz geeignet und erlaubt eine zusätzliche Endbearbeitung gemäß Kundenwunsch.

Sollte der Einsatz in industriellen Bereichen erfolgen, die aggressiver oder korrosiver oder extremer oder allgemein den marinen Bereich betreffen, müssen hierfür geeignete Produkte mit den entsprechenden Lackierzyklen verwendet werden. In diesen Fällen wird vorgeschlagen zuzustimmen.

Die GSM schlägt hier jedoch bereits speziell ausgewählte Lackierzyklen für Bereiche dieser Art vor (TYP2 - TYP3 - TYP4).

## 1.5 Stato di fornitura

## 1.5 Scope of the supply

## 1.5 Lieferzustand

## RX 800 Series

| Protezione superficiale<br>Surface protection              | Numero di strati<br>Permutation of layers                          | Spessore<br>Coat thick<br>nes                     | Adatto per<br>Suitable for                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>TYP 1</b><br>"STANDARD"                                 | 1x Primer<br>1x Two-component top coat                             | Circa/Approx.<br><b>120 micron</b><br>A Secco/Dry | 1 - Impatto ambientale BASSO - (condizioni ambientali normali)<br>Low environment impact (Normal ambient condition)<br>2 - Umidità relativa inferiore al 90%<br>Relative humidity below 90 %<br>3 - Temperatura superficiale massima 120 °C<br>Surface temperature up to max. 120 °C<br>4 - Categoria di corrosività "C3-M" (DIN EN ISO 12,944-2)<br>Corrosivity category "C3-M" (DIN EN ISO 12,944-2) |
| <b>TYP 2</b><br>Standard Rinforzato<br>Standard Reinforced | 1x Primer<br>1x Two-pack Intermediate<br>1x Two-pack top coat      | Circa/Approx.<br><b>160 micron</b><br>A Secco/Dry | 1 - Impatto ambientale MEDIO<br>Medium environmental impact<br>2 - Umidità relativa massima 95 %<br>Relative humidity max. 95 %<br>3 - Temperatura superficiale massima 120 °C<br>Surface temperature up to max. 120 °C<br>4 - Categoria di corrosività "C4-M" (DIN EN ISO 12,944-2)<br>Corrosivity category "C4-M" (DIN EN ISO 12,944-2)                                                              |
| <b>TYP 3</b><br>Industriale<br>Industrial                  | 1x Primer<br>2x Two-pack Intermediate<br>1x Two-pack top coat      | Circa/Approx.<br><b>240 micron</b><br>A Secco/Dry | 1 - Impatto ambientale ALTO - Applicazione industriale<br>High environmental impact - Industrial Application<br>2 - Umidità relativa massima 100 %<br>Relative humidity max. 100 %<br>3 - Temperatura superficiale massima 120 °C<br>Surface temperature up to max. 120 °C<br>4 - Categoria di corrosività "C5I-M" (DIN EN ISO 12,944-2)<br>Corrosivity category "C5I-M" (DIN EN ISO 12,944-2)         |
| <b>TYP 4</b><br>Marino<br>Marine                           | 1x Zinc Primer<br>2x Two-pack Intermediate<br>2x Two-pack top coat | Circa/Approx.<br><b>320 micron</b><br>A Secco/Dry | 1 - Alto impatto ambientale - Applicazione ambiente marino<br>High environmental impact - Marine Application<br>2 - Umidità relativa massima 100 %<br>Relative humidity max. 100 %<br>3 - Temperatura superficiale massima 120 °C<br>Surface temperature up to max. 120 °C<br>4 - Categoria di corrosività "C5M-M" (DIN EN ISO 12,944-2)<br>Corrosivity category "C5M-M" (DIN EN ISO 12,944-2)         |

A richiesta é possibile fornire ciclo di verniciatura ,schede tecniche dei prodotti utilizzati e report di prova

If requested, we can supply you with painting procedures, data sheets of the products which have been used and testing reports

Auf Anfrage ist es möglich den Lackierzyklus, technische Leistungsblätter der benutzten Produkte und Testberichte zur Verfügung zu stellen

**OPT2 - Opzioni - Verniciatura**  
Options - Painting and surface protection  
Optionen - Lackierung und Oberflächenschutz

| Serie<br>Series<br>Baureihe | Verniciatura Interna<br>Inner painting<br>Innenlackierung                                                                                              | Verniciatura Esterna<br>Outer painting<br>Außenlackierung                                                                                                                                                                                   |                                                        | Piani lavorati<br>Machined surfaces<br>Bearbeitete Flächen                                                    | Alberi<br>Shafts<br>Wellen                                                                                           |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
|                             |                                                                                                                                                        | Tipo e Caratteristiche vernice<br>Paint type and features<br>Lacktyp und -eigenschaften                                                                                                                                                     | Verniciabile<br>Can be painted<br>Kann lackiert werden |                                                                                                               |                                                                                                                      |
| TYP 1                       |                                                                                                                                                        |                                                                                                                                                                                                                                             |                                                        |                                                                                                               |                                                                                                                      |
| RXP/E                       | fondo epossidico anticorrosivo di colore grigio o rosso<br>Grey or red anticorrosive epoxy primer<br>Epoxidkorrosionsschutz in grauer oder roter Farbe | ricoperto da finitura poliuretanica bicomponente di colore Blu RAL 5010 (TYP1)<br>Covered by a blue RAL 5010 (TYP 1) bi-component polyurethane finishing paint<br>überzogen mit Bikomponentenpolyurethan in der Farbe blau RAL 5010 (TYP 1) | Si                                                     | Protetti con prodotto antiruggine.<br><br>Protected by oxide protectant<br><br>Mit Rostschutzpaste geschützt. | Protetti con prodotto antiruggine<br><br><i>Protected by oxide protectant.</i><br><br>Mit Rostschutzpaste geschützt. |

**ATTENZIONE**

In caso di verniciatura o asportazione del prodotto antiruggine si chiede di porre attenzione alla preventiva protezione:

- Delle superfici lavorate, al fine di evitare che una eventuale verniciatura delle stesse pregiudichi il successivo accoppiamento.

-Delle tenute e più in generale di ogni parte plastica e di gomma, al fine di non variarne le caratteristiche chimico fisiche pregiudicandone così l'efficienza.

-Alla targa di identificazione per evitare la perdita di tracciabilità.

-Al tappo sfiato ed al tappo di livello olio, al fine di evitarne l'occlusione.

**ATTENTION**

If the product must be painted or cleaning off any antirust paint, protect the machined surfaces and oil seals/gaskets in order to prevent any damage. It is also necessary to protect the identification plate, the oil level plug (if fitted) and the hole in the breather plug (if fitted) against obstruction.

**ACHTUNG**

Sollten die Produkte lackiert werden oder Abbau des Rostschutzmittels, muss darauf geachtet werden, dass die bearbeiteten und Dichtflächen dabei geschützt werden, so dass verhindert werden kann, dass die Lackierung die chemisch-physischen Eigenschaften verändert und die Wirkung der Ölabdichtungen einschränkt. In der gleichen Weise und aus gleichem Grund müssen das Typenschild und die Öleinfüllschraube sowie die Bohrung der Entlüftungsschraube (wo vorhanden) geschützt werden.

**1.5 Stato di fornitura**
**1.5 Scope of the supply**
**1.5 Lieferzustand**
**1.5.3 MATERIALI COSTRUTTIVI**
**1.5.3 MATERIAL**
**1.5.3 KOSTRUKTIONSMATERIAL**
**1.5.3.1 Casse - Flange - Coperchi**
**1.5.3.1 Housings - Flanges - Covers**
**1.5.3.1 Gehäuse - Flanschen – Deckel**

|                             |                                                                                                                                                     |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Serie<br>Series<br>Baureihe | Per ulteriori informazioni vedere <b>1.6.5</b><br>For more details, please read <b>1.6.5</b><br>Sie können Weitere Informationen siehe <b>1.6.5</b> |
| <b>RXP/E</b>                |                                                                                                                                                     |

**1.5.3.2 Materiale degli anelli di tenuta**
**1.5.3.2 Materials of Seals**
**1.5.2.2 Dichtungsstoffe**

| Serie<br>Series<br>Baureihe | OPT<br>Opzioni - Materiale degli anelli di tenuta<br>Options - Materials of Seals<br>Optionen - Dichtungsstoffe                                                   |                                                                             |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
|                             | (Tenute STANDARD<br>Oil Seals Standard<br>Ölabdichtungen Standard)                                                                                                | .....<br>Opzioni - Disponibile<br>Options Available<br>Optionen - verfügbar |
| <b>RXP/E</b>                | Per ulteriori informazioni vedere <b>SEZIONE U</b><br>For more details, please read <b>SECTION U</b><br>Sie können Weitere Informationen siehe <b>ABSCHNITT U</b> |                                                                             |

**1.5.4 Lubrificazione**
**1.5.4 Lubrication**
**1.5.4 Schmierung**

| <br><b>E</b> | OPT1 - Opzioni - Stato fornitura olio<br>Options - Scope of the supply - Options - OIL<br>Optionen - Lieferzustand - Optionen - Öl |                                                             |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
|                                                                                                |                                                 | Sigla ordine<br>Designation order<br>Bezeichnung Bestellung |
|                                                                                                | 70                                                                                                                                 | <b>INOIL</b>                                                |
|                                                                                                | 100                                                                                                                                | <b>OUTOIL</b>                                               |
|                                                                                                | 125                                                                                                                                |                                                             |
|                                                                                                | 160                                                                                                                                |                                                             |
|                                                                                                | 180                                                                                                                                |                                                             |
|                                                                                                | 225                                                                                                                                |                                                             |

| <br><b>RXP<br/>800</b> | OPT1 - Opzioni - Stato fornitura olio<br>Options - Scope of the supply - Options - OIL<br>Optionen - Lieferzustand - Optionen - Öl |                                                             |
|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
|                                                                                                           |                                                | Sigla ordine<br>Designation order<br>Bezeichnung Bestellung |
|                                                                                                           | all sizes                                                                                                                          | <b>OUTOIL</b>                                               |

## 1.5 Stato di fornitura

## 1.5 Scope of the supply

## 1.5 Lieferzustand

### 1.5.4 Lubrificazione

### 1.5.4 Lubrication

### 1.5.4 Schmierung

#### ATTENZIONE:

Lo stato di fornitura è messo in evidenza con una targhetta adesiva posta sul riduttore.

Verificare la corrispondenza tra stato di fornitura e targhetta adesiva.

#### CAUTION:

*Gearbox state of supply is indicated on a nameplate applied on gearbox.*

*Ensure that nameplate data and state of supply correspond.*

#### ACHTUNG:

Der entsprechende Lieferzustand wird auf einem Aufkleber am Getriebe angegeben. Überprüfen Sie die Übereinstimmung zwischen effektivem Lieferzustand und Aufkleber.



| OPT1 - Opzioni - Stato fornitura olio-<br>Options - Scope of the supply - Options - OIL<br>Optionen - Lieferzustand - Optionen - Öl                                                     |                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                          |                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Stato fornitura<br>Scope of the supply<br>Lieferzustand                                                                                                                                 | Riduttore - Lubrificazione<br>Gearbox - Lubrication<br>Getriebe - Schmierung                                                                                                                                                                                                                                              | Tipo<br>Type<br>Typ                                                                                                                                                                                    | NOTE<br>Note<br>Hinweis                                                                                                                                                                                                                                                  | Targhetta<br>Nameplate<br>Aufkleber |
| <b>OUTOIL</b><br><br>Riduttore Privo di Lubrificante<br><i>Gearbox with no lubricant</i><br>Getriebe ohne Schmiermittel                                                                 | Si consiglia l'uso di oli a base sintetica PAO.<br>Vedere a tale proposito le indicazioni riportate paragrafo 1.8.<br><br>The use of synthetic oil is recommended PAO.<br>see details in paragraph 1.8.<br><br>Der Einsatz von synthetischem Öl wird empfohlen PAO.<br>Siehe diesbezüglich die Hinweise im Abschnitt 1.8. |                                                                                                                                                                                                        | Se richiedi completi di lubrificante, verranno forniti con olio standard - "INOIL_STD"<br><br>If customer requests supply of gearbox with lubricant, we shall supply - "INOIL_STD"<br><br>Falls diese Getriebe mit Schmiermittelfüllung angefordert werden - "INOIL_STD" |                                     |
| <b>INOIL_STD</b><br><br>Riduttore Completo di Lubrificante Standard STM<br><i>Gearbox with lubricant STM standard</i><br>Getriebe mit Standard Schmiermittel STM                        | E70<br><b>OMALA S4 WE 320</b><br><br>E100 - E125 - E160 - E180 - E225<br><b>PETRONAS GEAR MEP 220</b><br><br>RX 800<br><b>PETRONAS GEAR MEP 220</b>                                                                                                                                                                       | OilGear_TYPE<br>CLP PG<br>Synthetic <b>PG</b><br><br>OilGear_TYPE<br>CLP Mineral                                                                                                                       | —                                                                                                                                                                                                                                                                        | <br><br>                            |
| <b>INOIL_Food</b><br><br>Riduttore Completo di Lubrificante "ALIMENTARE"<br><i>Gearbox with lubricant "FOOD-TYPE"</i><br>Getriebe mit Schmiermittel "LEBENSMITTEL"                      | RX 800 - E<br><b>Klüberoil 4 UH1 N 320</b>                                                                                                                                                                                                                                                                                | OilGear_TYPE<br>CLP HCE<br>Synthetic <b>HCE NSF H1</b>                                                                                                                                                 | —                                                                                                                                                                                                                                                                        | <br>                                |
| <b>ASOIL</b><br><br>Riduttore Completo di Lubrificante Speciale - a richiesta<br><i>Gearbox with Special lubricant - On request</i><br>Getriebe mit Sondern-Schmiermittel - Auf Anfrage | A richiesta<br>On request<br>Auf Anfrage                                                                                                                                                                                                                                                                                  | OilGear_TYPE<br>CLP PG<br>Synthetic <b>PG</b><br>OilGear_TYPE<br>CLP HC<br>Synthetic <b>PAO</b><br>OilGear_TYPE<br>CLP Mineral<br><br>OilGear_TYPE<br>CLP HCE<br>Synthetic <b>HCE NSF H1</b><br>Grease | —                                                                                                                                                                                                                                                                        | <br><br><br><br>                    |

#### Nota campo- ASOIL

Nella targhetta sono riportate le seguenti informazioni:

- Code\_Plate;
- Sigla lubrificante;
- ISO VG;
- Type DIN;
- NSF;
- Altre prescrizioni.

#### Note range-ASOIL

The type plate contains the following information:

- Code\_Plate
- Lubricant type
- ISO VG
- Type DIN
- NSF
- other details

#### Hinweis Bereich-ASOIL

Auf dem Typenschild finden Sie folgende Informationen:

- Code\_Plate
- Schmiermitteltyp
- ISO VG
- Type DIN
- NSF
- andere Hinweise

**1.5 Stato di fornitura****1.5.4.2 - Lubricazione cuscinetti****Lubrificazione cuscinetti superiori RXP3+E**

In caso di montaggio in posizione M5 ed M6 per le grandezze da 802 a 820 la lubrificazione dei cuscinetti superiori del riduttore ad assi paralleli viene assicurata tramite grasso lunga vita ed anelli nilos. Per le grandezze superiori consultare il ns. servizio tecnico commerciale.

**1.5 Scope of the supply****1.5.4.2 - Bearing lubrication****RXP3+E upper bearing lubrication**

*In-line helical gear unit sizes 802 through 820 designated for mounting positions M5 and M6 have upper bearings charged with long-life grease and Nilos rings. For larger sizes, please contact our Sales Engineers.*

**1.5 Lieferzustand****1.5.4.2 - Schmierung der Abtriebslagerung****Schmierung der obenliegenden Lager RXP3+E**

Bei einer Einbaulage in der Position M5 und M6 wird die Schmierung der oberen Lager des Parallelachsengetriebe bei den Baugrößen 802 bis 820 durch den Einsatz eines "long life"-Fetts mit Nilos-Ringen gesichert. Für darüber liegende Baugrößen ist Beratung bei unseren Technischen Kundendienst einzuholen.

**1.5.4.2.1 - G - (grease)**

Pertanto è stato predisposto un ingrassatore per provvedere all'opportuno ringrassaggio.

**Le Caratteristiche tecniche generali del grasso utilizzato sono:**

- Inspessente: base di Litio Complesso;
- NGLI: 2;
- Olio: HCE - con aditivazione EP di viscosità minima ISO VG 220;
- Additivi: l'olio presente nel grasso deve avere caratteristiche di aditivazione EP;

SPECIFICHE E APPROVAZIONI  
DIN51502: **KP-HCE-2 P-40**

**1.5.4.2.1 - G - (grease)**

To this end it is provided with a greaser.

**Following are the general technical features of the lubrication grease:**

- Thickener: Complex Lithium-based;
- NGLI: 2;
- Oil: HCE with EP additives with minimum viscosity as per ISO VG 220;
- Additives: the oil in the grease must feature EP additive;

SPECIFICATIONS AND APPROVALS

**1.5.4.2.1 - G - (grease)**

Daher wurde ein angemessener Schmiernippel für das Nachschmieren vorgesehen.

**Allgemeine technische Eigenschaften des verwendeten Fetts:**

- Verdickungsmittel: auf Lithiumkomplex;
- NGLI: 2;
- Öl: HCE mit Zusatz von EP mit Mindestviskosität gemäß ISO VG 220;
- Additive: das im Fett enthaltene Öl muss die Eigenschaften der EP Additivierung aufweisen;

SPEZIFIKATIONEN  
DIN51502: **KP-HCE-2 P-40**

**1.6 Normative applicate****1.6.1 Specifiche prodotti non "ATEX"**

I riduttori della GSM SpA sono organi meccanici destinati all'uso industriale e all'incorporazione in apparecchiature meccaniche più complesse. Dunque non vanno considerati macchine indipendenti per una predeterminata applicazione ai sensi 2006/42/CE, né tantomeno dispositivi di sicurezza.

**1.6 Standards applied****1.6.1 Specifications of non - "ATEX" products**

GSM SpA gearboxes are mechanical devices for industrial use and incorporation in more complex machines. Consequently, they should not be considered neither self-standing machines for a pre-determined application according to 2006/42/CE nor safety devices.

**1.6 Angewendete Normen****1.6.1 Spezifikationen für produkte, die nicht der "ATEX"-norm entsprechen**

Bei den Getrieben der GSM SpA handelt es sich um Mechanikorgane, die für den industriellen Einsatz und einen Einbau in komplexere Einrichtungen bestimmt sind. Sie werden deshalb weder unter dem Aspekt unabhängiger, für eine bestimmte Anwendung vorgesehener Maschinen im Sinne der 2006/42/CE, noch als Sicherheitsvorrichtungen berücksichtigt.

## 1.6 Normative applicate

## 1.6.2 Specifiche prodotti "ATEX"

## Campo applicabilità

La direttiva ATEX (2014/34/UE) si applica a prodotti elettrici e non elettrici destinati a essere introdotti e svolgere la loro funzione in atmosfera potenzialmente esplosiva. Le atmosfere potenzialmente esplosive vengono suddivise in gruppi e zone a seconda della probabilità di formazione. I prodotti GSM sono Conformi alla seguente classificazione:

## 1.6 Standards applied

## 1.6.2 Specifications of "ATEX" products

## Application field

ATEX set of provisions (2014/34/UE) is referred to electric and non-electric products which are used and run in a potentially explosive environment. The potentially explosive environments are divided into different groups and zones according to the probability of their formation. GSM products are in conformity with following classification:

## 1.6 Angewendete Normen

## 1.6.2 Spezifikationen für "ATEX"-produkte

## Anwendungsbereich

Die ATEX-Richtlinie (2014/34/UE) wird bei elektrischen und nicht elektrischen Produkten angewendet, die dazu bestimmt sind, in potentiell explosionsfähigen Atmosphären eingesetzt und betrieben zu werden. Die potentiell explosionsfähigen Atmosphären werden in Abhängigkeit der Wahrscheinlichkeit in Gruppen und Zonen unterteilt. Die GSM-Produkte entsprechen der folgenden Klassifizierung:

| Type Mark - standard  |              |                                                                                   |                         |          |                   |                          |             |                      |                |
|-----------------------|--------------|-----------------------------------------------------------------------------------|-------------------------|----------|-------------------|--------------------------|-------------|----------------------|----------------|
| Designation Type Mark | Material     | Symbol Mark                                                                       | Group                   | Category | Symbol Protection | Group Dangerous material | Temperature | Protection level EPL | Use limitation |
| Gb-4                  | GAS          |  | II                      | 2G       | Exh               | IIC                      | T4          | Gb                   | -              |
| Gb-5                  |              |                                                                                   |                         |          |                   |                          | T5*         |                      |                |
| Gc-4                  |              |                                                                                   | II                      | 3G       | Exh               | IIC                      | T4          | Gc                   | -              |
| Gc-5                  |              |                                                                                   |                         |          |                   |                          | T5*         |                      |                |
| Db-4                  | DUST         |  | II                      | 2D       | Exh               | IIIC                     | 135 °C      | Db                   | -              |
| Db-5                  |              |                                                                                   |                         |          |                   |                          | 100 °C*     |                      |                |
| Dc-4                  |              |                                                                                   | II                      | 3D       | Exh               | IIIC                     | 135 °C      | Dc                   | -              |
| Dc-5                  |              |                                                                                   |                         |          |                   |                          | 100 °C**    |                      |                |
| ACC5                  | Cooling unit |  | On request              |          |                   |                          |             |                      |                |
| ACC6                  | Lubr. Grease |                                                                                   | Lubrication with grease |          |                   |                          |             |                      |                |
| ACC7G                 | Level        |                                                                                   | On request              |          |                   |                          |             |                      |                |
| ACC7H                 | heater       |                                                                                   |                         |          |                   |                          |             |                      |                |
| ACC7I1                | Temperature  |                                                                                   |                         |          |                   |                          |             |                      |                |
| ACC7M2                | Pressure     |                                                                                   |                         |          |                   |                          |             |                      |                |

(\*) Classe di temperatura ATEX ottenibile a richiesta / ATEX temperature class on request / Auf Anfrage erhältliche ATEX-Temperaturklasse

| Type Mark - with limitation |                                                               |                       |                                            |                          |                                              |                                                                                                                 |
|-----------------------------|---------------------------------------------------------------|-----------------------|--------------------------------------------|--------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Limitation                  | Material                                                      | Designation Type Mark | Category                                   | Group Dangerous material | Note                                         |                                                                                                                 |
| <b>Products Versions</b>    | Versions with compact motor                                   | —                     | —                                          | —                        | All versions are excluded from certification |                                                                                                                 |
| <b>Accessory Option</b>     | <b>Ventilation system And/Or Painting type: TYP3 - TYP4 *</b> | GAS<br>GAS            | b_Gb-4 - b_Gb-5<br>b_Gc-4 - b_Gc-5         | Standard                 | IIB                                          | *For other type painting: Type Mark is Standard<br>On request in available painting type for IIC: TYP3C & TYP4C |
|                             | <b>Ventilation system</b>                                     | DUST<br>DUST          | b_Db-4-x - b_Db-5-x<br>b_Dc-4-x - b_Dc-5-x |                          | IIIB                                         | with limitation Use x                                                                                           |

Nel caso di Classe di temperatura T5 occorre verificare la potenza limite termico declassata;

In tutti gli altri casi vale la potenza riportata a catalogo prevista per i singoli rapporti con fattore di servizio complessivo dell'applicazione pari a 1 e le considerazioni sul limite termico.

I prodotti del gruppo IID (atmosfera polverosa) vengono definiti dalla massima temperatura di superficie effettiva.

La massima temperatura di superficie è determinata in normali condizioni di installazione e ambientali (-20°C e +40°C) e senza depositi di polvere sugli apparecchi. Qualunque scostamento da queste condizioni di riferimento può influenzare notevolmente lo smaltimento del calore e quindi la temperatura.

In case of T5 Class of temperature the extreme down-graded thermic power should be checked.

In all the other instances, the power indicated on the catalogue for the single ratios with overall application service factor equal to 1 and the considerations on temperature limits apply.  
The products of the family IID (dust environment) are defined by the max effective surface temperature.

Max surface temperature is determined in standard installation and environmental conditions (-20°C and +40°C) and in absence of dust on product surface. Any other condition will modify the heat dissipation and consequently the temperature.

Bei der Temperaturklasse T5 muss die zurückgestufte thermische Grenzleistung überprüft werden.

In den anderen Fällen gilt die im Katalog für die einzelnen Übersetzungsverhältnisse angegebene Leistung mit Betriebsfaktor einschließlich Applikation entsprechend 1 und die Berücksichtigungen im Hinblick auf die thermische Grenzleistung.

Die der Gruppe IID (Atmosphäre mit staubförmiger Belastung) angehörigen Produkte werden ihrer effektiven maximalen Oberflächentemperatur gemäß definiert.

Die maximale Oberflächentemperatur wird in normalen Einbau- und Umgebungsbedingungen (-20°C und +40°C) und ohne auf den Vorrichtungen vorhandenen Staubablagerungen bestimmt.

Jedwede Abweichung von diesen Bezugsbedingungen kann sich erheblich auf die Wärmeableitung bzw. auf die Betriebstemperatur auswirken.

## 1.6.3. COME SI APPLICA

Al momento di una richiesta di offerta per prodotto conforme a normativa ATEX 2014/34/UE occorre compilare la **scheda acquisizione dati** ([www.stmspa.com](http://www.stmspa.com)).

Effettuare le verifiche come prima descritto.

I riduttori certificati verranno consegnati con:

-una seconda targhetta contenente i dati ATEX;

-ove previsto un tappo sfiato, tappo sfiato con molla interna;

-se rispondente alla classe di temperatura T4 e T5 verrà allegato un indicatore di temperatura (132 °C nel caso di T4 e 99 °C rispettivamente per la T5)

-Indicatore di temperatura : termometro a singolo rilevamento, una volta raggiunta la temperatura indicata si annerisce segnalando il raggiungimento di tale limite.

## 1.6.3. HOW IS IT APPLIED

In case of request of offer relating to any product in conformity with the provisions ATEX/2014/34/UE, the **specifications paper** should be filled in ([www.stmspa.com](http://www.stmspa.com)).

Perform the inspections as described above. Certified reducers will be delivered with:

- a second nameplate containing ATEX data;

- a breather valve with internal spring, where a breather is needed;

- if in accordance with classes of temperature T4 and T5, a temperature gauge will be included (132 °C in case of T4 and 99 °C in case of T5).

- Temperature gauge: single-reading thermometer, it blackens once temperature is reached, pointing out the achievement of that limit.



## 1.6 Normative applicate

### 1.6.4 UE Direttive marcatura CE- ISO9001

#### Direttiva Bassa Tensione 2014/35/UE

I motoriduttori, motorivvii angolari, motovariatori e i motori elettrici GSM sono conformi alle prescrizioni della direttiva Bassa Tensione .

#### 2014/30/UE Compatibilità elettromagnetica

I motoriduttori, motorivviiangolari, motovariatori e i motori elettrici GSM sono conformi alle specifiche della direttiva di Compatibilità Elettromagnetica.

#### Direttiva Macchine 2006/42/CE

I motoriduttori, motorivviiangolari, motovariatori e i motori elettrici GSM non sono macchine ma organi da installare o assemblare nelle macchine.

#### Marchio CE, dichiarazione del fabbricante e dichiarazione di conformità.

I motoriduttori, motovariatori e i motori elettrici hanno il marchio CE.

Questo marchio indica la loro conformità alla direttiva Bassa Tensione e alla direttiva Compatibilità Elettromagnetica.

Su richiesta, GSM può fornire la dichiarazione di conformità dei prodotti e la dichiarazione del fabbricante secondo la direttiva macchine.

#### ISO 9001

I prodotti GSM sono realizzati all'interno di un sistema di qualità conforme allo standard ISO 9001. A tal fine su richiesta è possibile rilasciare copia del certificato.

### 1.6.5 Normative riferimento Progettazione e Fabbricazione

#### Ingranaggi

Gli ingranaggi cilindrici a dentatura elicoidale e le viti senza fine, sono rettificati dopo cementazione, tempra e rinvenimento finale.

#### Cuscinetti

Tutti i cuscinetti sono del tipo a rulli conici o a rulli orientabili, di elevata qualità e dimensionati per garantire una lunga durata se lubrificati con il tipo di lubrificante previsto a catalogo.

#### Carcassa

La carcassa è ottenuta per fusione in GJL 250 UNI EN 1561 o in ghisa a grafite sferoidale UNI EN 1563 2004 fino alla grandezza 824. Le grandezze in acciaio sono in S275J2 EN UNI 10025 composto elettrosaldato e disteso. I particolari accorgimenti adottati nel disegno della struttura permettono di ottenere un' elevata rigidezza.

## 1.6 Standards applied

### 1.6.4 UE Directives-CE mark-ISO 9001

#### Directive 2014/35/UE Low VoltageGSM

geared motors, right angle drives with motor, motovariators and electric motors meet the specification of the low voltage directive.

#### 2014/30/UE Electromagnetic Compatibility

GSM geared motors, right angle drives with motor, motovariators and electric motors correspond to the specifications of the EMC directive.

#### Machinery Directive 2006/42/CE

GSM geared motors, right angle drives with motor, motovariators and electric motors are not standalone machines, they are exclusively for installation into a machine or for assembly on a machine.

#### CE Mark, Conformity Declarations and Manufacturer's Declaration.

GSM geared motors, right angle drives with motor, motovariators and electric motors carry the CE Mark.

It indicates conformity to the low voltage directive and to electromagnetic compatibility directive.

On request GSM supplies both the conformity declarations and the manufacturer's declaration according to the machine directive.

#### ISO 9001

GSM products have been designed and manufactured according to ISO 9001 quality system standard.

On request a copy of the certification can be issued.

### 1.6.5 Standards applied

#### Gearing

Helical gears and worm shafts are case hardened, hardened and tempered and ground finished.

#### Bearings

All bearings are high quality taper or self-aligning roller bearings suitably sized to ensure long service life provided the approved lubricants indicated in this catalogue are used.

#### Casing

Casings up to size 824 are cast from GJL 250 UNI EN 1561 cast iron or from Spheroidal cast iron.

Sizes use casings fabricated from electrically welded stress relieved S275J2 steel EN UNI 10025.

Casing design incorporates special arrangements to provide superior rigidity.

## 1.6 Angewendete Normen

### 1.6.4 UE-Richtlinien - CE-Zeichen - ISO9001

#### Niederspannungsrichtlinie. 2014/35/UE

Die Getriebemotoren, Winkelgetriebe, Verstellgetriebe und Elektromotoren der GSM entsprechen den Vorschriften der Niederspannungsrichtlinie.

#### 2014/30/UE Elektromagnetische Verträglichkeit

Die Getriebemotoren, Winkelgetriebe, Verstellgetriebe und Elektromotoren der GSM entsprechen den Vorschriften der Richtlinie zur Elektromagnetischen Verträglichkeit.

#### Maschinenrichtlinie 2006/42/CE

Die Getriebemotoren, Winkelgetriebe, Verstellgetriebe und Elektromotoren der GSM sind keine Maschinen sondern Organe, die in Maschinen eingebaut oder an diesen montiert werden.

#### CE-Zeichen, Hersteller- und Konformitätserklärung

Die Getriebemotoren, Verstellgetriebe und Elektromotoren tragen das CE-Zeichen.

Dieses Zeichen weist auf ihre Konformität mit der Niederspannungsrichtlinie und der Richtlinie zur Elektromagnetischen Verträglichkeit hin.

Auf Anfrage kann die GSM die Konformitätserklärung und die Herstellererklärung gemäß Maschinenrichtlinie zu den Produkten liefern.

#### ISO 9001

Die GSM-Produkte werden in einem Qualitätssystem gemäß dem Standard ISO 9001 realisiert. Auf Anfrage kann daher eine Kopie der Zertifizierung geliefert werden.

### 1.6.5 Bezugsnormen Entwicklung und Produktion

#### Zahnräder

Die das Evolventenprofil der Stirnrädergetriebe mit Schrägverzahnung und die Schnecken werden nach dem Einsatzhärten, dem Abschrecken und dem

#### Lager

Bei allen Lagern handelt es sich um hochqualitative Kegelrollenlager mit orientierungsfähigen Rollen und in Maßen, die so ausgelegt sind, dass sie bei Einsatz der gemäß Katalogangaben vorgesehenen Schmiermittel eine lange Lebensdauer garantieren.

#### Gehäuse

Die Gehäuse der Getriebe bis Baugröße 824 werden im Gussverfahren aus GJL 250 UNI EN 1561 oder Sphäroguss UNI EN 1563 2004 gewonnen.

Die Baugrößen von Stahl werden aus elektroverschweißtem und entspanntem S275J2 EN UNI 10025 realisiert.

Die besonderen beim Entwurf der Struktur berücksichtigten Vorkehrungen verleihen ihr eine besondere Steifheit.

## 1.6 Normative applicate

### Alberi

Gli alberi lenti sono verificati a flesso-torsione con elevato coefficiente di sicurezza. Le estremità d'albero cilindriche sono secondo UNI 6397-68, DIN 748, NF E 22.051, BS 4506-70, ISO/R 775-69, escluso corrispondenza R-S, con foro filettato in testa secondo DIN 1414. Linguettes secondo UNI 6604-69, DIN 6885 BI, 1-68, NF E 27.656 22.175, BS 4235.1-72, ISO/R 773-69 escluso corrispondenza I.

Tutti i prodotti della GSM sono progettati nel rispetto delle seguenti normative:

#### Calcolo degli ingranaggi e cuscinetti

ISO 6336 - ISO10400 - DIN3991

La capacità di carico è stata calcolata a pressione superficiale e a rottura secondo la normativa ISO 6336 - ISO10400 - DIN3991 (a richiesta sono possibili verifiche secondo le norme AGMA 2001-C95 e AGMA 2003).

BS 721

Calcolo della capacità di carico delle viti e delle corone elicoidali.

ISO 281

Calcolo della durata a fatica dei cuscinetti volventi.

### Alberi

DIN 743

Calcolo della durata a fatica degli alberi

### Materiali

EN 10084

Acciaio da cementazione per ingranaggi e viti senza fine.

EN 10083

Acciaio da bonifica per alberi uscita tipo - **N-D-FD**

**UB-B** - fino alla grandezza 816.

EN UNI 10025 - Acciaio

Casse

Alberi uscita tipo - **C-CD**

**UB-B** - dalla grandezza maggiore 816.

UNI EN 1982 - UNI 5274

Bronzo per corone elicoidali.

UNI EN 1706

Alluminio e leghe di Alluminio

UNI EN 1561

Fusioni in ghisa grigia.

UNI EN 1563 2004

Getti di ghisa a grafite sferoidale

UNI 3097

Acciaio per cuscinetti per piste rotolamento

## 1.6 Standards applied

### Shafts

*Output shafts are calculations incorporate a high safety factor and are validated by bending and torsional stress analyses. Cylindrical shaft ends are in accordance with UNI 6397-68, DIN 748, NF E 22.051, BS 4506-70, ISO/R 775-69, excluding section R-S, with centre tapped hole at shaft end to DIN 1414. Keys are in accordance with UNI 6604-69, DIN 6885 BI, 1-68, NF E 27.656 22.175, BS 4235.1-72, ISO/R 773-69 excluding section I.*

*All GSM products are designed following these standards:*

#### Calculation of gearboxes and bearings

ISO 6336 - ISO10400 - DIN3991

*The load capacity of gear sets is calculated at contact and root bending stress in accordance with standard ISO 6336 - ISO10400 - DIN3991*

- (gears can be rated to AGMA 2001-C95 and AGMA 2003 on request).

BS 721:

Calculation of load capacity for worm gear-ing.

ISO 281:

Rolling bearings — Dynamic load ratings and rating life

### Shafts

DIN743

Shafts — Dynamic load ratings and rating life

### Materials

EN 10084

Case hardening steels for gears and worms

EN 10083

Quenched and Tempered Steels for shafts **N-D-FD**

**UB-B** up to size 816.

EN UNI 10025 - Steel

Casing

Output shafts type - **C-CD**

**UB-B** from the largest size 816.

UNI EN 1982 - UNI 5274

Copper for helical worm-gears

UNI EN 1706

Aluminium alloy

UNI EN 1561

Grey iron casting

UNI EN 1563 2004

Spheroidal cast iron

UNI 3097

Ball and roller bearing steel

## 1.6 Angewendete Normen

### Wellen

Die Abtriebswellen werden unter Berücksichtigung eines hohen Sicherheitskoeffizienten auf Biegung-Windung getestet.

Die Enden der zylindrischen Wellen entsprechen den Normen UNI 6397-68, DIN 748, NF E 22.051, BS 4506-70, ISO/R 775-69, ausgenommen Zuordnung R-S, mit Gewindebohrung in der Wellenspitze DIN 1414. Die Federkeile entsprechen UNI 6604-69, DIN 6885 BI, 1-68, NF E 27.656 22.175, BS 4235.1-72, ISO/R 773-69, ausgenommen Zuordnung I.

Alle Produkte der GSM werden unter Einhaltung folgender Normen entwickelt:

#### Berechnung der Zahnräder und Lager

ISO 6336 - ISO10400 - DIN3991

Die Belastbarkeit wurde auf Oberflächendruck und Bruch der Richtlinie ISO 6336 - ISO10400 - DIN3991 - gemäß berechnet (auf Anfrage können Überprüfungen den Normen AGMA 2001-C95 und AGMA 2003 gemäß vorgenommen werden).

BS 721

Berechnung der Belastungsfähigkeit der Schnecken und Schräg Zahnräder.

ISO 281

Berechnung der Belastungsdauer der Wälzlager.

### Wellen

DIN743

Berechnung der Belastungsdauer der Wellen.

### Material

EN 10084

Einsatzstahl für Zahnräder und Schnecken.

EN 10083

Vergütungsstahl für Wellen - typ

**N-D-FD**

**UB-B** - bis zur Größe 816.

EN UNI 10025 - Stahl

Gehäuse

Wellen typ - **C-CD**

**UB-B** von der größten Größe 816

UNI EN 1982 - UNI 5274

Bronze für Schräg Zahnräder

UNI EN 1706

Aluminium und Aluminiumlegierungen

UNI EN 1561

Grauguss-Legierungen

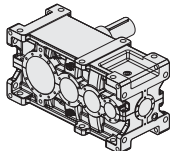
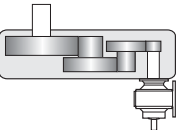
UNI EN 1563 2004

Sphäroguss

UNI 3097

Stahl für Lagergleitbahnen

### 1.7 Bezeichnung

|                                      |                                                                                   |                                 |                                                                                            |                                                                                  |                            |                          |                                             |                                           |
|--------------------------------------|-----------------------------------------------------------------------------------|---------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------|--------------------------|---------------------------------------------|-------------------------------------------|
| <b>CODE:</b><br>Example of Order     | <b>RX</b>                                                                         | <b>P</b>                        | <b>3</b>                                                                                   | <b>802</b>                                                                       | <b>ABU</b>                 | <b>40.2</b>              | <b>E100</b>                                 | <b>-</b>                                  |
| <b>WEB:</b><br>Reference Designation | Maschine<br>00-M                                                                  | Centerline Orientation<br>01-CO | N° of reductions<br>02-NOR                                                                 | Size<br>03-SIZE                                                                  | Shaft arrangement<br>04-SA | Reduction ratio<br>05-IR | Differential unit size<br>06 DUSIZE         | Housing material<br>07-CM                 |
|                                      |  | <b>P</b>                        | <b>3</b>  | 802<br>804<br>806<br>808<br>810<br>812<br>814<br>816<br>818<br>820<br>822<br>824 |                            |                          | E70<br>E100<br>E125<br>E160<br>E180<br>E225 | <b>-</b><br><br><b>GS</b><br><br><b>A</b> |

The image displays a grid of exploded view diagrams for the 800 Series RXP3-E engine. Each diagram shows the engine block with various components (pump, fan, alternator, etc.) shown in their relative positions and orientations. The diagrams are labeled with letters and codes in the top left corner of each image.

| Label | Code |
|-------|------|
| A     | M1S  |
| AUD   | M1S  |
| ABU   | M1S  |
| B     | M1D  |
| BUS   | M1D  |
| BBU   | M1D  |
| C1    | M1S  |
| C2    | M1D  |
| C1S   | M1S  |
| C2S   | M1D  |
| C1D   | M1S  |
| C2D   | M1D  |

At the bottom right, there is a logo for the **RXP3-E** engine, with the text **800 Series** below it.

1.7 Designazione

1.7 Designation

1.7 Bezeichnung

|          |           |          |          |            |            |            |            |          |            |          |          |                 |            |          |          |
|----------|-----------|----------|----------|------------|------------|------------|------------|----------|------------|----------|----------|-----------------|------------|----------|----------|
| <b>N</b> | <b>M1</b> | <b>-</b> | <b>E</b> | <b>9.2</b> | <b>100</b> | <b>PAM</b> | <b>100</b> | <b>D</b> | <b>ECE</b> | <b>-</b> | <b>-</b> | <b>RXP3 802</b> | <b>M1S</b> | <b>1</b> | <b>-</b> |
|----------|-----------|----------|----------|------------|------------|------------|------------|----------|------------|----------|----------|-----------------|------------|----------|----------|

|                       |                             |                   |                                  |                                           |                               |                              |                            |                                           |                                   |                                 |                                                |                                    |                           |                                       |                                            |
|-----------------------|-----------------------------|-------------------|----------------------------------|-------------------------------------------|-------------------------------|------------------------------|----------------------------|-------------------------------------------|-----------------------------------|---------------------------------|------------------------------------------------|------------------------------------|---------------------------|---------------------------------------|--------------------------------------------|
| Output Shaft<br>08-OS | Mounting positions<br>09-MP | Options<br>10-OPT | Differenzial "Maschine"<br>11-EM | Maximum to minimum speed ratio<br>12-SRIR | Differenzial size<br>13-ESIZE | Input Version Main<br>14-IVM | Input Shaft Main<br>15-ISM | IEC type and Input Shaft Main<br>16-IECTM | Input Version Secondary<br>17-IVS | Input Shaft Secondary<br>18-ISS | IEC type and Input Shaft Secondary<br>19-IECTS | Coupled gear unit RXP3<br>20-RSIZE | Mounting Version<br>21-MV | Position Terminal Box Main<br>22-PMTM | Position Terminal Box Secondary<br>23-PMTS |
|-----------------------|-----------------------------|-------------------|----------------------------------|-------------------------------------------|-------------------------------|------------------------------|----------------------------|-------------------------------------------|-----------------------------------|---------------------------------|------------------------------------------------|------------------------------------|---------------------------|---------------------------------------|--------------------------------------------|

**M1**  
**M2**  
**M3**  
**M4**  
**M5**  
**M6**

**U**

70  
100  
125  
160  
180  
225

**M**

**S**

**RXP3 802**  
---  
**RXP3 824**

**1**  
**2**  
**3**  
**4**

**1**  
**2**  
**3**  
**4**

3.3  
5  
6.6  
9.2  
13.1  
16.1  
18.4

E70  
E100  
E125  
E160

4  
5  
6  
10  
13  
15  
19

E180  
E225

**Example for Shaft arrangement "B"**

**B** **M1D**

**M2D**

**M3D**

**M4D**

**M1S**

**M2S**

**M3S**

**M4S**

**N**

**D**

**FD**

**Fn**

**C**

**UB**

**B** Not supplied

**CD**

## 1.7 Designazione

## 1.7 Designation

## 1.7 Bezeichnung

00 M - Macchina

M - Maschine

M - Getriebe

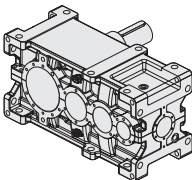
**RX**

01 CO - Posizione Assi

CO - Centerline Orientation

CO - Bauform getriebestufen

**P**



02 NOR - N° Stadi

NOR - N° of reductions

NOR - N° Anzahl der stufen

**3**

03 SIZE - Grandezza

SIZE - Size

SIZE - Größe

|             | 802 | 804 | 806 | 808 | 810 | 812 | 814 | 816 | 818 | 820 | 822 | 824 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>RXP3</b> |     |     |     |     |     |     |     |     |     |     |     |     |

04 SA - Esecuzione grafica

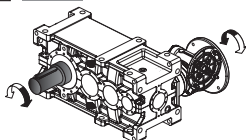
SA - Shaft arrangement

SA - Grafische Ausführung

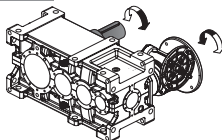
04 - SA

|            |            |            |
|------------|------------|------------|
| <b>A</b>   | <b>AUD</b> | <b>ABU</b> |
| <b>B</b>   | <b>BUS</b> | <b>BBU</b> |
| <b>C1</b>  | <b>C2</b>  |            |
| <b>C1D</b> | <b>C1S</b> |            |
| <b>C2D</b> | <b>C2S</b> |            |

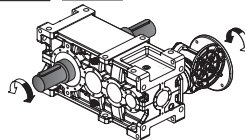
**A M1S**



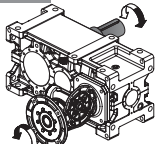
**AUD M1S**



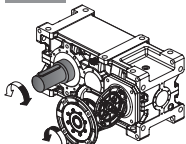
**ABU M1S**



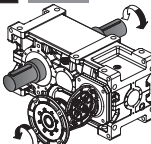
**B M1D**



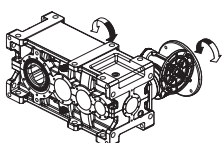
**BUS M1D**



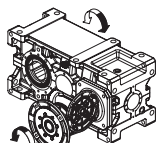
**BBU M1D**



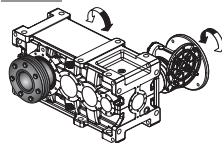
**C1 M1S**



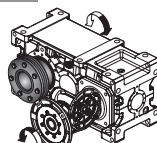
**C2 M1D**



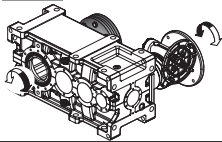
**C1S M1S**



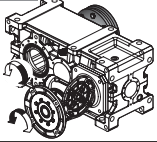
**C2S M1D**



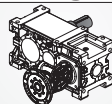
**C1D M1S**



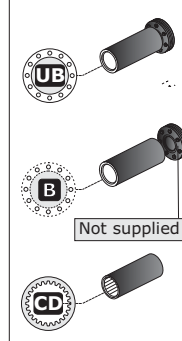
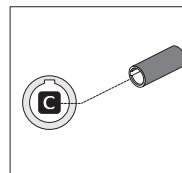
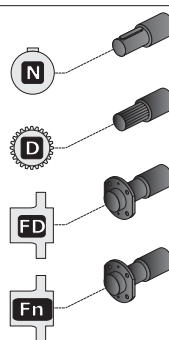
**C2D M1D**



**RXP3-E**



**800 Series**



**1.7 Designazione****1.7 Designation****1.7 Bezeichnung****05 IR - Rapporto di riduzione****IR - Reduction ratio****IR - Übersetzungsverhältnis**

(Vedi prestazioni).  
Tutti i valori dei rapporti sono approssimati.  
Per applicazioni dove necessita il valore  
esatto consultare il ns. servizio tecnico.

(See ratings).  
Ratios are approximate values. If you need  
exact values for a specific application,  
please contact our Engineering.

(Siehe "Leistungen").  
Bei allen Werten der Übersetzungen han-  
delt es sich um approximative Wertanga-  
ben. Bei Applikationen, bei denen die  
exakte Wertangabe erforderlich ist, muss  
unser Technischer Kundendienst  
konsultiert werden.

**06 DUSIZE - Grandezza differenziale****DUSIZE - Differential unit size****DUSIZE - Differentialgröße**

|            |             |             |             |             |             |
|------------|-------------|-------------|-------------|-------------|-------------|
| <b>E70</b> | <b>E100</b> | <b>E125</b> | <b>E160</b> | <b>E180</b> | <b>E225</b> |
|------------|-------------|-------------|-------------|-------------|-------------|

**07 CM - Materiale carcassa****CM - Housing material****CM - Gehäusematerial**

| RXP 3                                                    |           |              |     |     |     |     |     |     |     |     |     |     |     |
|----------------------------------------------------------|-----------|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Materiale carcassa / Housing material<br>Gehäusematerial |           | 802          | 804 | 806 | 808 | 810 | 812 | 814 | 816 | 818 | 820 | 822 | 824 |
| Ghisa meccanica / Engineering cast iron<br>Maschinenguss | <b>G</b>  | "Standard"   |     |     |     |     |     |     |     |     |     |     |     |
| Ghisa sferoidale / Spheroidal cast iron<br>Sphäroguss    | <b>GS</b> | "On request" |     |     |     |     |     |     |     |     |     |     |     |
| Acciaio / Steel / Stahl                                  | <b>A</b>  | "On request" |     |     |     |     |     |     |     |     |     |     |     |

## 1.7 Designazione

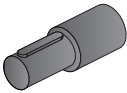
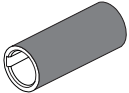
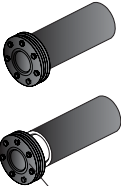
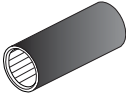
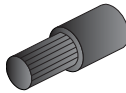
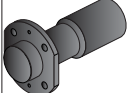
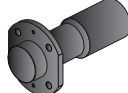
## 1.7 Designation

## 1.7 Bezeichnung

## 08 OS - Estremità uscita

## OS - Output shaft

## OS - Wellenende - Abtrieb

|            | <br> | <br> | <br><br>Not supplied<br> | <br> | <br> | <br> | <br> |                         |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
|            | Standard<br><b>N</b>                                                                                                                                                   | Standard<br><b>C</b>                                                                                                                                                   | Standard<br><b>UB<br/>B</b>                                                                                                                                                                                                                                                 | Standard<br><b>CD</b>                                                                                                                                                  | Standard<br><b>D</b>                                                                                                                                                     | Standard<br><b>FD</b>                                                                                                                                                      | Standard<br><b>F...</b>                                                                                                                                                    | Standard<br><b>F1..</b> |
| <b>802</b> | (Ø 60xL112)                                                                                                                                                            | (Ø 60)                                                                                                                                                                 | (Ø 60)                                                                                                                                                                                                                                                                      | (60 x 55<br>DIN5482)                                                                                                                                                   | (FIAT 60)                                                                                                                                                                | (FIAT 60)                                                                                                                                                                  | —                                                                                                                                                                          |                         |
| <b>804</b> | (Ø 70xL125)                                                                                                                                                            | (Ø 70)                                                                                                                                                                 | (Ø 70)                                                                                                                                                                                                                                                                      | (70 x 64<br>DIN5482)                                                                                                                                                   | (FIAT 70)                                                                                                                                                                | (FIAT 70)                                                                                                                                                                  |                                                                                                                                                                            |                         |
| <b>806</b> | (Ø 80xL140)                                                                                                                                                            | (Ø 80)                                                                                                                                                                 | (Ø 80)                                                                                                                                                                                                                                                                      | (80 x 74<br>DIN5482)                                                                                                                                                   | (FIAT 80)                                                                                                                                                                | (FIAT 80)                                                                                                                                                                  |                                                                                                                                                                            |                         |
| <b>808</b> | (Ø 90xL160)                                                                                                                                                            | (Ø 90)                                                                                                                                                                 | (Ø 90)                                                                                                                                                                                                                                                                      | (90 x 84<br>DIN5482)                                                                                                                                                   | (FIAT 95)                                                                                                                                                                | (FIAT 95)                                                                                                                                                                  | F1                                                                                                                                                                         | F101                    |
| <b>810</b> | (Ø 100xL180)                                                                                                                                                           | (Ø 100)                                                                                                                                                                | (Ø 100)                                                                                                                                                                                                                                                                     | (100 x 94<br>DIN5482)                                                                                                                                                  | (D. 105<br>DIN 5480)                                                                                                                                                     | (D. 105<br>DIN 5480)                                                                                                                                                       | F1                                                                                                                                                                         | F101                    |
| <b>812</b> | (Ø 110xL200)                                                                                                                                                           | (Ø 110)                                                                                                                                                                | (Ø 110)                                                                                                                                                                                                                                                                     | (110 x 3 x 35<br>DIN5480)                                                                                                                                              | (D. 110<br>DIN 5480)                                                                                                                                                     | (D. 110<br>DIN 5480)                                                                                                                                                       | F2                                                                                                                                                                         | F102                    |
| <b>814</b> | (Ø 125xL225)                                                                                                                                                           | (Ø 125)                                                                                                                                                                | (Ø 125)                                                                                                                                                                                                                                                                     | (120 x 5 x 22<br>DIN5480)                                                                                                                                              | (D. 130<br>DIN 5480)                                                                                                                                                     | (D. 130<br>DIN 5480)                                                                                                                                                       | F3                                                                                                                                                                         | F103                    |
| <b>816</b> | (Ø 140xL250)                                                                                                                                                           | (Ø 140)                                                                                                                                                                | (Ø 140)                                                                                                                                                                                                                                                                     | (140 x 5 x 26<br>DIN5480)                                                                                                                                              | (D. 140<br>DIN 5480)                                                                                                                                                     | (D. 140<br>DIN 5480)                                                                                                                                                       | F4                                                                                                                                                                         | F104                    |
| <b>818</b> | (Ø 160xL280)                                                                                                                                                           | (Ø 160)                                                                                                                                                                | (Ø 160)                                                                                                                                                                                                                                                                     | (160 x 5 x 30<br>DIN5480)                                                                                                                                              | (D. 160<br>DIN 5480)                                                                                                                                                     | (D. 160<br>DIN 5480)                                                                                                                                                       | F5                                                                                                                                                                         | F105                    |
| <b>820</b> | (Ø 180xL315)                                                                                                                                                           | (Ø 180)                                                                                                                                                                | (Ø 180)                                                                                                                                                                                                                                                                     | (180 x 8 x 21<br>DIN5480)                                                                                                                                              | (D. 180<br>DIN 5480)                                                                                                                                                     | (D. 180<br>DIN 5480)                                                                                                                                                       | F6                                                                                                                                                                         | F106                    |
| <b>822</b> | (Ø 200xL355)                                                                                                                                                           | (Ø 200)                                                                                                                                                                | (Ø 200)                                                                                                                                                                                                                                                                     | —                                                                                                                                                                      | (D. 200<br>DIN 5480)                                                                                                                                                     | (D. 200<br>DIN 5480)                                                                                                                                                       | F7                                                                                                                                                                         | F107                    |
| <b>824</b> | (Ø 220xL400)                                                                                                                                                           | (Ø 220)                                                                                                                                                                | (Ø 220)                                                                                                                                                                                                                                                                     | —                                                                                                                                                                      | (D. 220<br>DIN 5480)                                                                                                                                                     | —                                                                                                                                                                          | F8                                                                                                                                                                         | F108                    |
|            |                                                                                                                                                                        |                                                                                                                                                                        |                                                                                                                                                                                                                                                                             |                                                                                                                                                                        |                                                                                                                                                                          |                                                                                                                                                                            | F9                                                                                                                                                                         | F108                    |

Per ulteriori informazioni vedere 1.12 / For more details, please read 1.12 / Sie können Weitere Informationen siehe 1.12

**FD**  
Non fornibili per classe di sollevamento M8**FD**  
Not available for lifting class M8.**FD**  
Für Hubklass M8 nicht lieferbar.

| <b>RXP 3</b>                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>802</b> | <b>804</b> | <b>806</b> | <b>808</b>  | <b>810</b> | <b>812</b> | <b>814</b> | <b>816</b> | <b>818</b> | <b>820</b> | <b>822</b> | <b>824</b> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|-------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <br><br><br><br> | 495<br>549 | 494<br>542 | 518<br>568 | Ok !<br>All | 485<br>537 | 487<br>540 | 495<br>549 | 494<br>542 | 518<br>568 | 512<br>561 | 537        | 487<br>531 |

Nei rapporti contrassegnati non è disponibile la versione uscita con albero cavo - "C"-"UB"-"B"-"CD" / Hollow output shaft "C"-"UB"-"B"-"CD" not available for ratios / Bei den gekennzeichneten Übersetzungsverhältnissen ist die Version „Abtrieb mit Hohlwelle "C"-"UB"-"B"-"CD" Nicht verfügbar

|                    |                                                                                                                                                                                                                            |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>N</b>           | Sporgente Integrale / <i>Output shaft</i> / Vollwelle                                                                                                                                                                      |
| <b>C</b>           | Albero Cavo / <i>Hollow Shaft</i> / Holwelle                                                                                                                                                                               |
| <b>UB - B</b>      | Albero cavo con unità di bloccaggio / <i>Hollow output shaft with shrink disc</i> / Hohlwelle mit Schrumpfscheibe                                                                                                          |
| <b>CD</b>          | Albero lento cavo scanalato / <i>Splined hollow shaft</i> / Verzahnte Hohlwelle                                                                                                                                            |
| <b>D</b>           | Estremità albero lento scanalato senza flangia brocciata / <i>Splined output shaft without broached flange</i> / Abtriebswelle mit Keilende ohne geräumtem Flansch                                                         |
| <b>FD</b>          | Estremità scanalata albero lento flangia brocciata / <i>Splined output shaft and broached flange</i> / Abtriebswelle mit Keilende und geräumtem Flansch                                                                    |
| <b>F1...F9</b>     | Estremità scanalata albero lento con giunto <u>dentato</u> flangiato / <i>Splined output shaft with flanged <u>splined</u> coupling</i> / Abtriebswelle mit Keilende mit geflanschter <u>Klaunen</u> kupplung              |
| <b>F101...F108</b> | Estremità scanalata albero lento con giunto flangiato a rulli bombati / <i>Splined output shaft with flanged <u>barrel rollers</u> coupling</i> / Abtriebswelle mit Keilende mit geflanschter <u>Tonnenrollen</u> kupplung |

**1.7 Designazione****1.7 Designation****1.7 Bezeichnung****09 MP - Posizioni di montaggio****MP - Mounting positions****MP - Einbaulagen**Per ulteriori informazioni vedere **1.8** / For more details, please read **1.8** / Sie können Weitere Informationen siehe **1.8****10 OPT-ACC. - Opzioni****OPT-ACC. - Options****OPT-ACC. - Optionen**

|  | ACC1 | Code  | Per ulteriori informazioni vedere <b>1.12</b> /For more details, please read <b>1.12</b> / Sie können Weitere Informationen siehe <b>1.12</b> . |                       |                             |
|--|------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------|
|  |      | PROT. |                                                                                                                                                 |                       |                             |
|  |      | Code  |                                                                                                                                                 |                       |                             |
|  | ACC7 | AI    | Accessori idraulici                                                                                                                             | Hydraulic accessories | Hydraulisches Zubehör       |
|  | ACC8 | DT.   | Doppia tenuta...                                                                                                                                | Double seal...        | Doppelte Dichtung...        |
|  | OPT  | VT.   | Paraoli in Viton...                                                                                                                             | Viton oil seals...    | Ölabdichtungen aus Viton... |
|  |      | SL.   | Paraoli in silicone...                                                                                                                          | Silicon oil seals...  | Silikon-Dichtungsring...    |
|  | ACC9 | IS    | Coperchio d'ispezione                                                                                                                           | Inspection cover      | Inspektionsdeckel           |

Per ulteriori informazioni vedere **SEZIONE U**/For more details, please read **SECTION U**/Sie können Weitere Informationen siehe **ABSCHNITT U****KIT**

|  | ACC1 | Code |                          |                     |                    |
|--|------|------|--------------------------|---------------------|--------------------|
|  |      | FF   |                          |                     |                    |
|  |      | RR   | Kit rosetta di montaggio | Mounting washer kit | Kit Montagescheibe |

Per ulteriori informazioni vedere **1.12** / For more details, please read **1.12** / Sie können Weitere Informationen siehe **1.12****11 EM - Macchina "Differenziale"****EM - Differenzial "Maschine"****EM - Differenzialgetriebe****E****12 SRIR - Rapporto fra la velocità massima e****SRIR - Maximum to minimum speed ratio.****SRIR - Verhältnis zwischen geforderter max. und min. Drehzahl**

| $n_2/n_{2II}$ |   |     |     |      |      |      | Grandezza / Size / Größe  |
|---------------|---|-----|-----|------|------|------|---------------------------|
| 3.3           | 5 | 6.6 | 9.2 | 13.1 | 16.1 | 18.4 | E70 - E100<br>E125 - E160 |
| 4             | 5 | 6   | 10  | 13   | 15   | 19   | E180 - E225               |

**13 ESIZE - Grandezza differenziale****ESIZE - Differenzial size****ESIZE - Differenzialgröße**

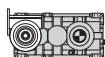
|          | 70 | 100 | 125 | 160 | 180 | 225 |
|----------|----|-----|-----|-----|-----|-----|
| <b>E</b> |    |     |     |     |     |     |

Nella tabella seguente sono riportati gli abbinamenti possibili tra differenziali e riduttori ad assi paralleli a 3 stadi di riduzione.

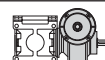
Listed in the table below are the possible combinations of differential units and triple-reduction in-line helical gear units.

In der nachstehenden Tabelle werden die zwischen Differential- und Parallelachsengetrieben mit 3 Übersetzungsstufen möglichen Passungen angegeben.

Grandezza riduttore accoppiato  
Coupled gear unit  
Gepasstes Getriebe



|          | E70 | E100 | E125 | E160 | E180 | E225 |
|----------|-----|------|------|------|------|------|
| RXP3 802 |     |      |      |      |      |      |
| RXP3 804 |     |      |      |      |      |      |
| RXP3 806 |     |      |      |      |      |      |
| RXP3 808 |     |      |      |      |      |      |
| RXP3 810 |     |      |      |      |      |      |
| RXP3 812 |     |      |      |      |      |      |
| RXP3 814 |     |      |      |      |      |      |
| RXP3 816 |     |      |      |      |      |      |
| RXP3 818 |     |      |      |      |      |      |
| RXP3 820 |     |      |      |      |      |      |
| RXP3 822 |     |      |      |      |      |      |
| RXP3 824 |     |      |      |      |      |      |



Differenziale  
Differential unit  
Differential

## 1.7 Designazione

## 1.7 Designation

## 1.7 Bezeichnung

| M<br>(Entrata Principale/ Main Input /Hauptantrieb)     |                                                |                                                                                             |   | S<br>(Entrata Secondaria / Secondary Input /<br>Nebenantrieb) |                                                |                                                                                             |   |
|---------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------------|---|---------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------------|---|
| 14<br>IVM                                               | 15<br>ISM                                      | 16<br>IECTM                                                                                 |   | 17<br>IVS                                                     | 18<br>ISS                                      | 19<br>IECTS                                                                                 |   |
| Versione Entrata<br>Input Version<br>Antriebsausführung | Albero Entrata<br>Input Shaft<br>Antriebswelle | Tipo IEC e Albero<br>Entrata<br>IEC type and Input<br>Shaft<br>IEC Typ und<br>Antriebswelle |   | Versione Entrata<br>Input Version<br>Antriebsausführung       | Albero Entrata<br>Input Shaft<br>Antriebswelle | Tipo IEC e Albero<br>Entrata<br>IEC type and Input<br>Shaft<br>IEC Typ und<br>Antriebswelle |   |
| ECE                                                     | ECE                                            | —                                                                                           | — | ECE                                                           | ECE                                            | —                                                                                           | — |
| PAM..D                                                  | PAM                                            | 80<br>90<br>...                                                                             | D | PAM..D                                                        | PAM                                            | 80<br>90<br>...                                                                             | D |

|             |  |                             |                       |                       |
|-------------|--|-----------------------------|-----------------------|-----------------------|
| <br>ECE     |  | Entrata con albero pieno    | Solid input shaft     | Antrieb mit Vollwelle |
| <br>PAM...D |  | IEC - Accoppiamento diretto | IEC - Direct coupling | IEC - direkte Passung |

|                                                                                                             |       |    |                   |     |   |     |     |      |      |      |                                                                                                 |     |     |     |     |     |     |     |     |     |     |     |  |
|-------------------------------------------------------------------------------------------------------------|-------|----|-------------------|-----|---|-----|-----|------|------|------|-------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| <div><div>E70</div></div> | ECE   |    | PAM...D           |     |   |     |     |      |      |      |                                                                                                 |     |     |     |     |     |     |     |     |     |     |     |  |
|                                                                                                             |       |    | i <sub>1/II</sub> |     |   |     |     |      |      |      | Grandezza riduttore accoppiato - RXP3<br>Coupled gear unit - RXP3<br>Gepassetes Getriebe - RXP3 |     |     |     |     |     |     |     |     |     |     |     |  |
|                                                                                                             | U1    | S1 |                   | 3.3 | 5 | 6.6 | 9.2 | 13.1 | 16.1 | 18.4 | 802                                                                                             | 804 | 806 | 808 | 810 | 812 | 814 | 816 | 818 | 820 | 822 | 824 |  |
|                                                                                                             | 19 j6 | 40 | 71                |     |   |     |     |      |      |      |                                                                                                 |     |     |     |     |     |     |     |     |     |     |     |  |
|                                                                                                             |       |    | 80                |     |   |     |     |      |      |      |                                                                                                 |     |     |     |     |     |     |     |     |     |     |     |  |
|                                                                                                             |       |    | 90                |     |   |     |     |      |      |      |                                                                                                 |     |     |     |     |     |     |     |     |     |     |     |  |



## 1.7 Designazione

## 1.7 Designation

## 1.7 Bezeichnung

**20** RSIZE - Grandezza riduttore accoppiato - RXP3

**RSIZE - Coupled gear unit - RXP3**

**RSIZE - Gepassetes Getriebe - RXP3**

|             |             |             |             |             |             |             |             |             |             |             |             |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| RXP3<br>802 | RXP3<br>804 | RXP3<br>806 | RXP3<br>808 | RXP3<br>810 | RXP3<br>812 | RXP3<br>814 | RXP3<br>816 | RXP3<br>818 | RXP3<br>820 | RXP3<br>822 | RXP3<br>824 |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|

**21** MV - Versione di Montaggio

**MV - Mounting Version**

**MV - Montagausführung**

|     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|
| M1D | M2D | M3D | M4D | M1S | M2S | M3S | M4S |
|-----|-----|-----|-----|-----|-----|-----|-----|

Lubrificazione:  
Vedi paragrafo Lubrificazione.

Lubrication:  
See paragraph Lubrication.

Schmierung:  
Siehe Paragraph „Schmierung“

**22** PMTM - Posizione della Morsettiera - Principale

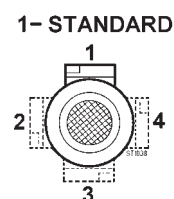
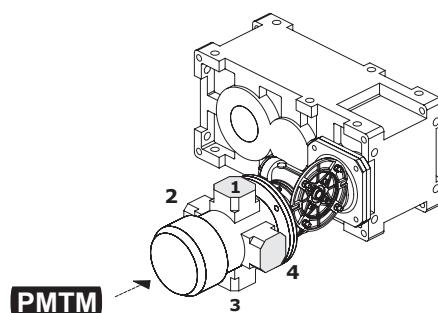
**PMTM - Position Terminal Box - Main**

**PMTM - Haupt - Montagposition Klemmenkasten**

[2, 3, 4] Posizione della morsettiera del motore se diversa da quella standard (1).

[2, 3, 4] Position of the motor terminal box if different from the standard one (1).

Montageposition Klemmenkasten [2, 3, 4], wenn abweichend von Standardposition [1] (für Motorgetriebe).



N.B.: Schema rappresentativo per Esecuzione Grafica **B-BUS-BBU-C2-C2D-C2S**:  
NOTE: Diagram applies to Shaft arrangement **B-BUS-BBU-C2-C2D-C2S**:  
HINWEIS: Schema für Grafische Ausführung **B-BUS-BBU-C2-C2D-C2S** gültig.

**23** PMTS - Posizione della Morsettiera - Secondaria

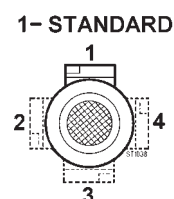
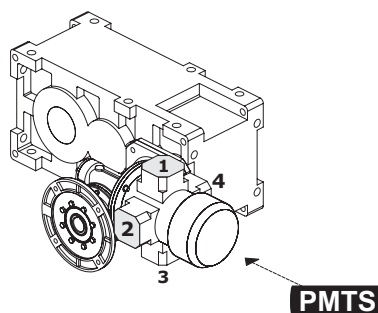
**PMTS - Position Terminal Box - Secondary**

**PMTS - Neben - Montagposition Klemmenkasten**

[2, 3, 4] Posizione della morsettiera del motore se diversa da quella standard (1).

[2, 3, 4] Position of the motor terminal box if different from the standard one (1).

Montageposition Klemmenkasten [2, 3, 4], wenn abweichend von Standardposition [1] (für Motorgetriebe).



## 1.8 Lubrificazione

Gli oli disponibili appartengono generalmente a tre grandi famiglie:

- 1) Oli minerali
- 2) Oli sintetici Poli-Alfa-Olefine
- 3) Oli sintetici Poli-Glicole

La scelta più appropriata è generalmente legata alle condizioni di impiego. riduttori non particolarmente caricati e con un ciclo di impiego discontinuo, senza escursioni termiche importanti, possono certamente essere lubrificati con olio minerale.

Nei casi di impiego gravoso, quando i riduttori saranno prevedibilmente caricati molto ed in modo continuativo, con conseguente prevedibile innalzamento della temperatura, è bene utilizzare lubrificanti sintetici tipo polialfaolefine (PAO).

Gli oli di tipo poliglicole (PG) sono da utilizzare strettamente nel caso di applicazioni con forti strisciamenti fra i contatti, ad esempio nelle viti senza fine. Debbono essere impiegati con grande attenzione poiché non sono compatibili con gli altri oli e sono invece completamente miscibili con l'acqua. Questo fenomeno è particolarmente pericoloso poiché non si nota, ma deprime velocemente le caratteristiche lubrificanti dell'olio.

Oltre a questi già menzionati, ricordiamo che esistono gli oli per l'industria alimentare. Questi trovano specifico impiego nell'industria alimentare in quanto sono prodotti speciali non nocivi alla salute.

Vari produttori forniscono oli appartenenti a tutte le famiglie con caratteristiche molto simili. Più avanti proponiamo una tabella comparativa.

## 1.8 Lubrication

*Available oils are typically grouped into three major classes:*

- 1) *Mineral oils*
- 2) *Poly-Alpha-Olefin synthetic oils*
- 3) *Polyglycol synthetic oils*

*Oil is normally selected in accordance with environmental and operating conditions. Mineral oil is the appropriate choice for moderate load, non-continuous duty applications free from temperature extremes.*

*In severe applications, where gear units are to operate under heavy loads in continuous duty and high temperatures are expected, synthetic Poly-Alpha-Olefin oils (PAO) are the preferred choice.*

*Polyglycol oils (PG) should only be used in applications involving high sliding friction, as is the case with worm shafts. These particular oils should be used with great care, as they are not compatible with other oils, but are totally mixable with water. The oil mixed with water cannot be told from uncontaminated oil, but will degrade very rapidly.*

*In addition to the oils mentioned above, there are food-grade oils. These are special oils harmless to human health for use in the food industry.*

*Oils with similar characteristics are available from a number of manufacturers.*

*A comparative overview table is provided at the next pages.*

## 1.8 Schmierung

Die verfügbaren Öle gehören im Allgemeinen drei großen Familien an:

- 1) Mineralöle
- 2) Polyalphaolefine-Synthetiköle
- 3) Polyglykol-Synthetiköle

Die angemessene Wahl ist im Allgemeinen an die Einsatzbedingungen gebunden. Getriebe, die keinen besonders schweren Belastungen ausgesetzt sind und einem unregelmäßigen Einsatzzyklus unterliegen, ohne starke thermische Ausschläge, können problemlos mit Mineralöl geschmiert werden.

Bei einem Einsatz unter harten Bedingungen, d.h. wenn die Getriebe stark und andauernd belastet werden, woraus sich ein sicherer Temperaturanstieg ergibt, sollten Synthetiköle, Typ Polyalphaolefine (PAO), verwendet werden.

Die Öle, Typ Polyglykole (PG), sind ausschließlich für einen Einsatz ausgelegt, bei denen es zu starken Reibungen zwischen den in Kontakt stehenden Elementen kommt, z.B. bei Schnecken. Bei ihrem Einsatz in besondere Aufmerksamkeit erforderlich, da sie nicht mit anderen Ölen kompatibel sind, sich jedoch vollständig mit Wasser vermischen lassen. Diese Tatsache erweist sich daher als besonders gefährlich, da sie sich nicht feststellen lässt, jedoch die Schmiereigenschaften des Öls bereits nach kurzer Zeit unterdrückt.

Über die bereits genannten Öle hinaus, gibt es auch Öle, die speziell für die Lebensmittelindustrie ausgelegt sind. Diese finden demzufolge dort ihren Einsatz, da es sich dabei um spezielle Produkte handelt, die für die Gesundheit unschädlich sind.

Die den jeweiligen Familien angehörigen Ölarten werden von verschiedenen Herstellern angeboten; sie weisen jeweils sehr ähnliche Eigenschaften auf.

Auf der folgenden Seite finden Sie eine entsprechende Vergleichstabelle.

| Input speed<br>$n_1$ (min <sup>-1</sup> ) | Absorbed power<br>(kW) | Viscosity ISO VG at 40° (cSt)                      |                                    |
|-------------------------------------------|------------------------|----------------------------------------------------|------------------------------------|
|                                           |                        | Differenziale<br>Differential unit<br>Differential | Riduttore<br>Gear unit<br>Getriebe |
| 1000 < $n_1$ ≤ 2000                       | P < 7.5                | 220                                                | 220                                |
|                                           | 7.5 ≤ P ≤ 37           |                                                    | 320                                |
|                                           | P > 37                 |                                                    | 460                                |

## 1.8 Lubrificazione

Nel caso di lubrificazione forzata con pompa, qualora siano richieste ISO VG > 220 e/o temperature < 10°C, consultarci.

La tabella è valida per velocità periferiche normali; in caso di velocità > 13m/s, consultarci.

Se la temperatura ambiente  $T < 0^{\circ}\text{C}$  ridurre di una gradazione la viscosità prevista in tabella, viceversa aumentarla di una se  $T > 40^{\circ}\text{C}$ .

Le temperature ammissibili per gli oli minerali sono:  
(-10 =  $T = 90^{\circ}\text{C}$ ) (fino a  $100^{\circ}\text{C}$  per periodi limitati).

Le temperature ammissibili per gli oli sintetici sono:  
(-20 =  $T = 110^{\circ}\text{C}$ ) (fino a  $120^{\circ}\text{C}$  per periodi limitati).

Per temperature dell'olio esterne a quelle ammissibili per il minerale e per aumentare l'intervallo di sostituzione del lubrificante adottare olio sintetico a base di polialfaolefine.

## 1.8 Lubrication

In case of forced lubrication by pump, when ISO VG > 220 and/or temperatures <  $10^{\circ}\text{C}$ , are requested, it is advisable to contact us.

The table is valid for normal peripheral speeds; in case of speed > 13 m/s, contact us.

If the environment temperature  $T < 0^{\circ}\text{C}$ , decrease viscosity class by one, vice versa increase by one if  $T > 40^{\circ}\text{C}$ .

Permissible temperatures for mineral oil are:  
(-10 =  $T = 90^{\circ}\text{C}$ ), up to  $100^{\circ}\text{C}$  for a short time.

Permissible temperatures for synthetic oil are:  
(-20 =  $T = 110^{\circ}\text{C}$ ), up to  $120^{\circ}\text{C}$  for a short time.

If the oil temperature is not permissible for mineral oil and for decreasing frequency of oil change, use synthetic oil with polyalphaolefins (PAOs).

## 1.8 Schmierung

Im Fall einer Zwangsschmierung über eine Pumpe, falls die ISO VG > 220 und/oder Temperaturen <  $10^{\circ}\text{C}$  gefordert werden, setzen Sie sich bitte mit uns in Verbindung.

Die Tabelle ist für normale Umfangsgeschwindigkeiten gültig. Bei Geschwindigkeiten > 13m/s, setzen Sie sich bitte mit uns in Verbindung.

Bei einer Umgebungstemperatur  $T < 0^{\circ}\text{C}$  den von der Tabelle vorgesehenen Viskositätsgrad um eine Gradation mindern und, im entgegengesetzten Fall, bei einer Temperatur  $T > 40^{\circ}\text{C}$ , um eine anheben.  
Für Mineralöle zulässige Temperaturen:

(-10 =  $T = 90^{\circ}\text{C}$ ) (bis  $100^{\circ}\text{C}$  über begrenzte Zeiträume).  
Für Synthetiköle zulässige Temperaturen:  
(-20 =  $T = 110^{\circ}\text{C}$ ) (bis  $120^{\circ}\text{C}$  über begrenzte Zeiträume).

Bei Temperaturen, die diese für Mineralöle zulässigen Werte überschreiten und um die Auswechselzeiten verlängern zu können, sollte Synthetiköl auf Basis von Polyalphaolefinen verwendet werden.

| Manufacturer                    | Mineral oils(MINERAL) |                       |                       | Poly-Alpha-Olefin synthetic oils (PAO) |                             |                              | Polyglycol synthetic oils (PG) |                           |                           |
|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------------------|-----------------------------|------------------------------|--------------------------------|---------------------------|---------------------------|
|                                 | ISO VG                | ISO VG                | ISO VG                | ISO VG                                 | ISO VG                      | ISO VG                       | ISO VG                         | ISO VG                    | ISO VG                    |
|                                 | 150                   | 220                   | 320                   | 150                                    | 220                         | 320                          | 150                            | 220                       | 320                       |
| AGIP                            | Blasia 150            | Blasia 220            | Blasia 320            | -                                      | Blasia SX 220               | Blasia SX 320                | Blasia S 150                   | Blasia S 220              | Blasia S 320              |
| ARAL                            | Degol BG 150 Plus     | Degol BG 220 Plus     | Degol BG 320 Plus     | Degol PAS 150                          | Degol PAS 220               | Degol PAS 320                | Degol GS 150                   | Degol GS 220              | Degol GS 320              |
| BP                              | Energol GR-XP 150     | Energol GR-XP 220     | Energol GR-XP 320     | Energol EPX 150                        | Energol EPX 220             | Energol EPX 320              | Energol SG 150                 | Energol SG-XP 220         | Energol SG-XP 320         |
| CASTROL                         | Alpha SP 150          | Alpha SP 220          | Alpha SP 320          | Alphasyn EP 150                        | Alphasyn EP 220             | Alphasyn EP 320              | Alphasyn PG 150                | Alphasyn PG 220           | Alphasyn PG 320           |
| CHEVRON                         | Ultra Gear 150        | Ultra Gear 220        | Ultra Gear 320        | Tegra Synthetic Gear 150               | Tegra Synthetic Gear 220    | Tegra Synthetic Gear 320     | HiPerSYN 150                   | HiPerSYN 220              | HiPerSYN 320              |
| ESSO                            | Spartan EP 150        | Spartan EP 220        | Spartan EP 320        | Spartan S EP 150                       | Spartan S EP 220            | Spartan S EP 320             | Glycolube 150                  | Glycolube 220             | Glycolube 320             |
| KLÜBER                          | Klüberoil GEM 1-150   | Klüberoil GEM 1-220   | Klüberoil GEM 1-320   | Klübersynth EG 4-150                   | Klübersynth EG 4-220        | Klübersynth EG 4-320         | Klübersynth GH 6-150           | Klübersynth GH 6-220      | Klübersynth GH 6-320      |
| MOBIL                           | Mobilgear XMP 150     | Mobilgear XMP 220     | Mobilgear XMP 320     | Mobilgear SHC XMP 150                  | Mobilgear SHC XMP 220       | Mobilgear SHC XMP 320        | Glygoyle 22                    | Glygoyle 30               | Glygoyle HE320            |
| MOLIKOTE                        | L-0115                | L-0122                | L-0132                | L-1115                                 | L-1122                      | L-1132                       | -                              | -                         | -                         |
| OPTIMOL                         | Optigear BM 150       | Optigear BM 220       | Optigear BM 320       | Optigear Synthetic A 150               | Optigear Synthetic A 220    | Optigear Synthetic A 320     | Optiflex A 150                 | Optiflex A 220            | Optiflex A 320            |
| PAKELO                          | EROLUBE EP C ISO 150  | EROLUBE EP C ISO 220  | EROLUBE EP C ISO 320  | GEARSINT EPN ISO 150                   | GEARSINT EPN ISO 220        | GEARSINT EPN ISO 320         | ALLSINT HS ISO 150             | ALLSINT HS ISO 220        | ALLSINT HS ISO 320        |
| PETRONAS                        | PETRONAS GEAR MEP 150 | PETRONAS GEAR MEP 220 | PETRONAS GEAR MEP 320 | PETRONAS GEAR SYN PAO 150              | PETRONAS GEAR SYN PAO 220   | PETRONAS GEAR SYN PAO 320    | PETRONAS GEAR SYN PAG 150      | PETRONAS GEAR SYN PAG 220 | PETRONAS GEAR SYN PAG 320 |
| Q8                              | Goya 150              | Goya 220              | Goya 320              | El Greco 150                           | El Greco 220                | El Greco 320                 | Gade 150                       | Gade 220                  | Gade 320                  |
| SHELL                           | OMALA S2 GX 150       | OMALA S2 GX 220       | OMALA S2 GX 320       | Omala S4 GXV 150                       | Omala S4 GXV 220            | Omala S4 GXV 320             | OMALA S4 WE 150                | OMALA S4 WE 220           | OMALA S4 WE 320           |
| TEXACO                          | Meropa 150            | Meropa 220            | Meropa 320            | Pinnacle EP 150                        | Pinnacle EP 220             | Pinnacle EP 320              | -                              | Synlube CLP 220           | Synlube CLP 320           |
| TOTAL                           | Carter EP 150         | Carter EP 220         | Carter EP 320         | Carter SH 150                          | Carter SH 220               | Carter SH 320                | Carter SY 150                  | Carter SY 220             | Carter SY 320             |
| TRIBOL                          | 1100/150              | 1100/220              | 1100/320              | 1510/150                               | 1510/220                    | 1510/320                     | 800/150                        | 800/220                   | 800/320                   |
| Food-grade synthetic lubricants |                       |                       |                       |                                        |                             |                              |                                |                           |                           |
| AGIP                            |                       |                       |                       | Rocol Foodlube Hi-Torque 150           | —                           | Rocol Foodlube Hi-Torque 320 |                                |                           |                           |
| ESSO                            |                       |                       |                       | —                                      | Gear Oil FM 220             | —                            |                                |                           |                           |
| FUCHS                           |                       |                       |                       | Cassida Fluid GL 150                   | Cassida Fluid GL 220        | Cassida Fluid GL 320         |                                |                           |                           |
| KLÜBER                          |                       |                       |                       | Klüberoil 4 UH1 N 150                  | Klüberoil 4 UH1 N 220       | Klüberoil 4 UH1 N 320        |                                |                           |                           |
| MOBIL                           |                       |                       |                       | Mobil SHC Cibus Series 150             | Mobil SHC Cibus Series 220  | Mobil SHC Cibus Series 320   |                                |                           |                           |
| PAKELO                          |                       |                       |                       | NON TOX OIL GEAR EP ISO 150            | NON TOX OIL GEAR EP ISO 220 | NON TOX OIL GEAR EP ISO 320  |                                |                           |                           |

## 1.8 Lubrificazione

## 1.8 Lubrication

## 1.8 Schmierung

## Lubrificazione differenziale

## Differential unit lubrication

## Schmierung des Differentials

## Generalità

Si consiglia l'uso di oli a base sintetica PAO.

Nella tab. 2.2 sono riportati i quantitativi di olio necessari per il corretto funzionamento dei riduttori.

## Prescrizioni in fase di ordine e stato di fornitura

I riduttori delle grandezze 70 sono forniti completi di olio sintetico di viscosità ISO 320.

I riduttori delle grandezze 100, 125, 160, 180, 225 sono forniti predisposti per lubrificazione ad olio ma privi di lubrificante il quale potrà essere fornito a richiesta. È sempre necessario specificare la posizione di montaggio.

## General information

The use of synthetic oil PAO is recommended.

The correct oil quantities for proper gear unit operation are reported in tab. 2.2.

## Information required on order - Delivery condition

Size 70 gear units are factory filled with ISO 320 synthetic oil.

Sizes 100, 125, 160, 180 and 225 are oil lubricated, but are supplied dry. Lubricant is available on request. Always specify the desired mounting position.

## Allgemeines

Es wird der Einsatz von synthetischem Öl PAO empfohlen. In der Tabelle Tab. 2.2 werden die für einen störungsfreien Betrieb der Getriebe erforderlichen Ölfüllmengen angegeben.

## Vorgaben für Bestellung und Lieferzustand

Die Getriebe in den Baugrößen 70 werden komplett mit Synthetiköl mit einer Viskosität ISO 320 geliefert.

Die Getriebe in den Baugrößen 100, 125, 160, 180 und 225 sind bei der Lieferung für die Ölschmierung vorbereitet, enthalten jedoch kein Schmiermittel. Dieses kann jedoch auf Anfrage geliefert werden. Bei diesen Getrieben muss immer die Einbaulage angegeben werden.

|     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     |     |     |     |     |
| M1S | M2S | M3S | M4S | M1D | M2D | M3D | M4D |

| Quantità di lubrificante / Lubricant Quantity / Schmiermittelmenge (l) |                                                                      |    |                     |    |    |    |
|------------------------------------------------------------------------|----------------------------------------------------------------------|----|---------------------|----|----|----|
| E                                                                      | Posizioni di montaggio<br>Mounting Positions<br>Einbaulage (S,I,D,F) |    |                     |    |    |    |
|                                                                        | M1                                                                   | M2 | M3                  | M4 | M5 | M6 |
| 70                                                                     | 0.700                                                                |    |                     |    |    |    |
| 100                                                                    | 4.0                                                                  |    | 2.1 <sup>(1)</sup>  |    |    |    |
| 125                                                                    | 5.5                                                                  |    | 2.9 <sup>(1)</sup>  |    |    |    |
| 160                                                                    | 9.0                                                                  |    | 5.0 <sup>(1)</sup>  |    |    |    |
| 180                                                                    | 17.0                                                                 |    | 7.8 <sup>(1)</sup>  |    |    |    |
| 225                                                                    | 25.0                                                                 |    | 11.5 <sup>(1)</sup> |    |    |    |

(1) Quantità indicative; durante il riempimento attenersi alla spia di livello.

(1) Indicative quantities, check the oil sight glass during filling.

(1) Ungefähre Mengen; beim Füllen auf das Schauglas Bezug nehmen.

A) In tutte le grandezze di differenziale è necessario in fase d'ordine indicare la posizione di montaggio sia se i riduttori sono richiesti con olio sia privi di lubrificante. Particolare attenzione va posta per i riduttori da gr. 100 a gr. 125 montati nelle posizioni M3 e M4 che sono forniti con il cuscinetto schermato.

A) For differential units, mounting position must always be specified for all sizes, regardless of gear unit delivery condition (factory filled or dry). Particular attention is required for gear unit sizes 100 to 125 designated for mounting positions M3 and M4, as they use a shielded bearing.

A) Für alle Baugrößen der Differentialgetriebe muss in der Auftragsphase die Einbaulage angegeben werden. Dies gilt sowohl für Bestellung von mit Öl gefüllten Getrieben als auch für Getriebe ohne Schmiermittel. Besondere Aufmerksamkeit sollte den Getrieben der Größen 100 bis 125 zukommen, die in den Einbaulagen M3 und M4 montiert werden und mit abgeschirmtem Lager geliefert werden.

B) Per i differenziali delle grandezze 100, 125, 160, 180, 225 nelle posizioni M1 non fare riferimento alla spia di livello ma attenersi ai quantitativi indicati. (La quantità d'olio necessaria supera il livello del differenziale).

B) For size 100, 125, 160, 180, 225 differential units in mounting position M1, disregard the sight glass and fill with the specified quantity of oil. (Correct oil level exceeds level mark on differential unit sight glass).

B) Bei den Differentialgetrieben der Baugrößen 100, 125, 160, 180, 225 in den Einbaulagen M1 ist nicht auf das Schauglas, sondern auf die angegebenen Mengen Bezug zu nehmen. (Die erforderliche Ölmenge übersteigt den Füllstand des Differentialgetriebes).

C) Il tappo di sfiato è allegato solo nei riduttori che hanno più di un tappo olio.

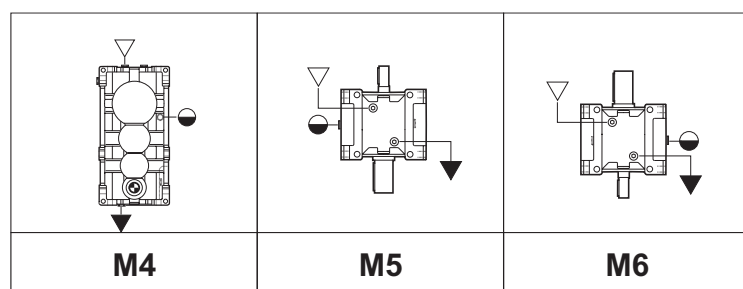
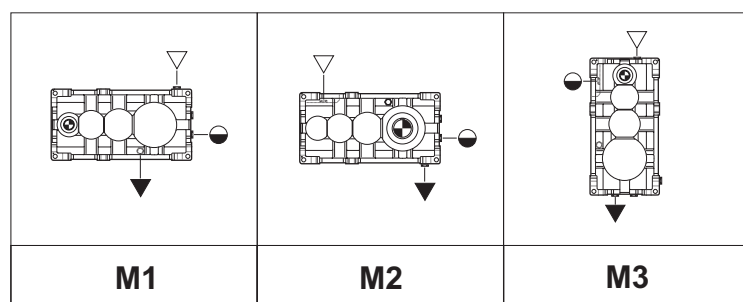
C) A breather plug is only supplied when gear unit has more than one oil plugs.

C) Die Entlüftungsschraube ist lediglich bei den Getrieben vorhanden, die über mehr als einen Ölfüllstopfen verfügen.

## 1.8 Lubrificazione

## Lubrificazione RXP3

## Posizioni di montaggio



▽ Carico / Filler plug / Einfüllschraube  
 ▼ Scarico / Drain plug / Ablassschraube  
 ● Livello / Level plug / Schauglas

## 1.8 Lubrication

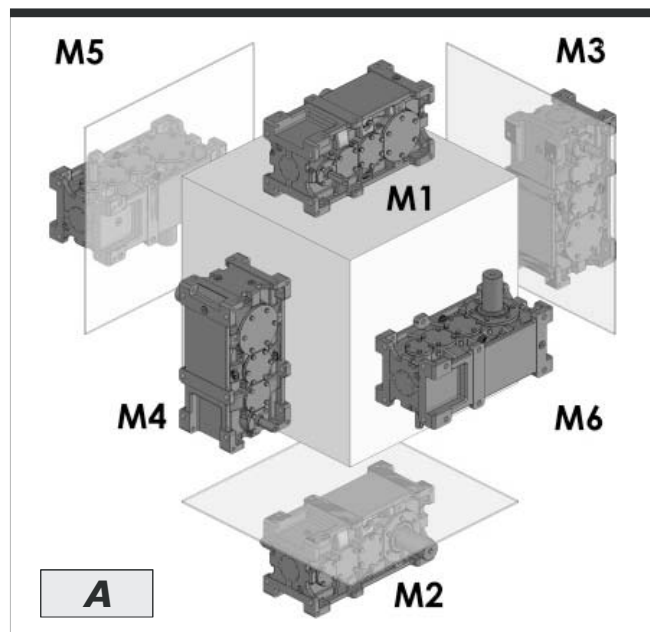
## RXP3 lubrication

## Mounting positions

## 1.8 Schmierung

## Schmierung RXP3

## Einbaulagen



L'esecuzione grafica rappresentata è la A.  
 The noted version is A.  
 Die dargestellte Version ist A.

|      |         | Quantità di lubrificante / Lubricant Quantity / Schmiermittelmenge (l) |     |     |     |     |     |     |     |     |     |     |     |
|------|---------|------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|      |         | 802                                                                    | 804 | 806 | 808 | 810 | 812 | 814 | 816 | 818 | 820 | 822 | 824 |
| RXP3 | M1 - M2 | 3.9                                                                    | 5.5 | 7.6 | 11  | 15  | 21  | 29  | 41  | 58  | 81  | 113 | 158 |
|      | M3      | 8.1                                                                    | 11  | 15  | 22  | 32  | 44  | 62  | 87  | 125 | 175 | 246 | 345 |
|      | M4      | 6.6                                                                    | 9.2 | 13  | 18  | 26  | 36  | 50  | 71  | 102 | 144 | 201 | 285 |
|      | M5 - M6 | 5.1                                                                    | 7.3 | 10  | 14  | 20  | 28  | 40  | 56  | 79  | 111 | 156 | 218 |

Le quantità di olio sono approssimative; per una corretta lubrificazione occorre fare riferimento al livello segnato sul riduttore.

*Oil quantities listed in the table are approximate; to ensure correct lubrication, please refer to the level mark on the gear unit.*

Bei den Ölmengenangaben handelt es sich um approximative Werte; für den Erhalt einer korrekten Schmierung muss Bezug auf den am Getriebe gekennzeichneten Füllstand genommen werden.

**ATTENZIONE**

Eventuali forniture con predisposizioni tappi diverse da quella indicata in tabella, dovranno essere concordate.

**WARNING**

*Any plug arrangements other than that indicated in the table must be agreed upon.*

**ACHTUNG**

Eventuelle Lieferungen mit einer von den Tabellenangaben abweichenden Anordnung der Stopfen, müssen zuvor abgestimmt werden.

**Lubrificazione cuscinetti superiori RXP3 E**

In caso di montaggio in posizione M5 ed M6 per le grandezze da 802 a 820 la lubrificazione dei cuscinetti superiori del riduttore ad assi paralleli viene assicurata tramite grasso lunga vita ed anelli nilos. Per le grandezze superiori consultare il ns. servizio tecnico commerciale.

**RXP3 E upper bearing lubrication**

*In-line helical gear unit sizes 802 through 820 designated for mounting positions M5 and M6 have upper bearings charged with long-life grease and Nilos rings. For larger sizes, please contact our Sales Engineers.*

**Schmierung der obenliegenden Lager RXP3 E**

Bei einer Einbaulage in der Position M5 und M6 wird die Schmierung der oberen Lager des Parallelachsengetriebe bei den Baugrößen 802 bis 820 durch den Einsatz eines "long life"-Fetts mit Nilos-Ringen gesichert. Für darüber liegende Baugrößen ist Beratung bei unseren Technischen Kundendienst einzuholen.

# 1.8 Lubrificazione

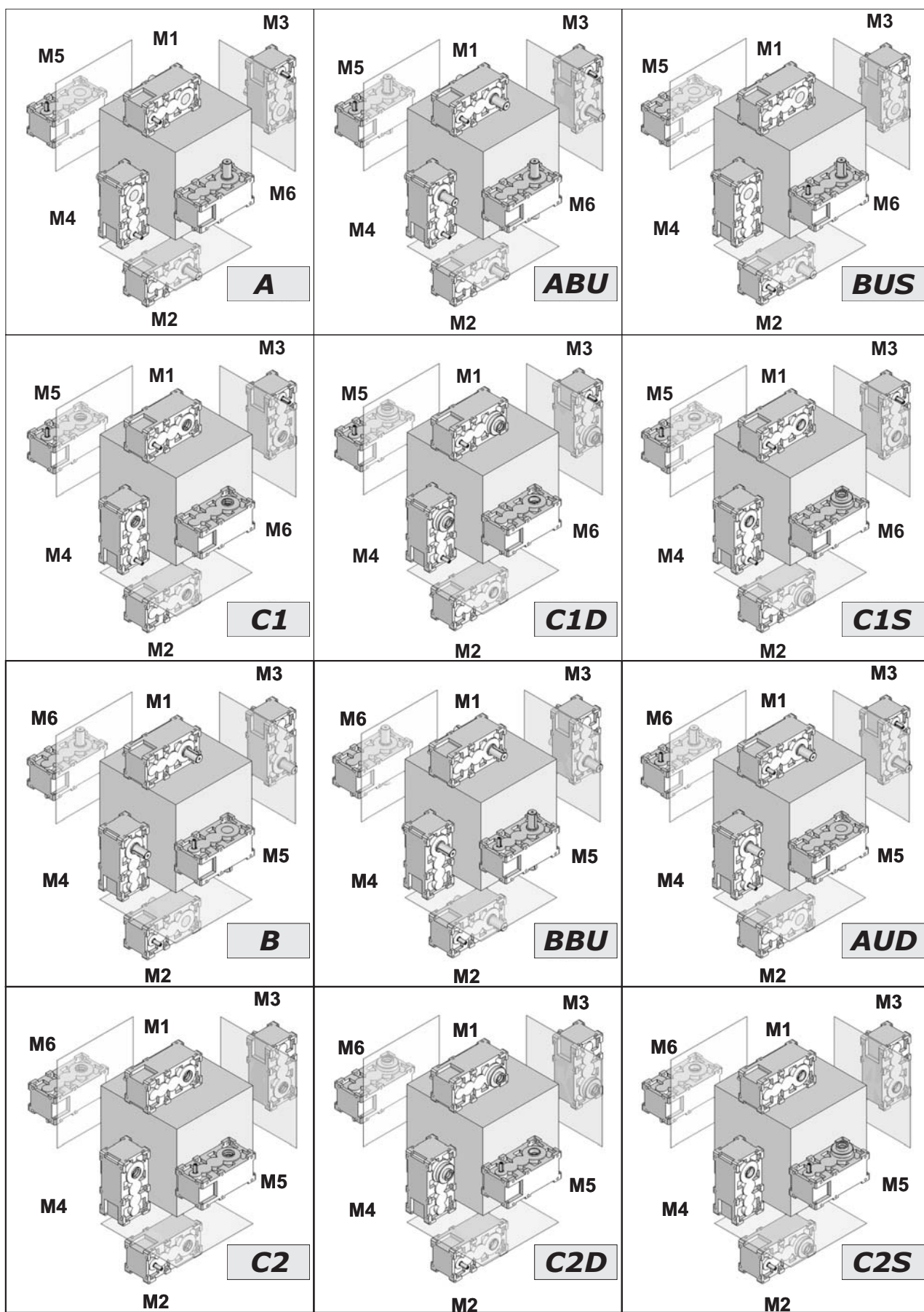
# 1.8 Lubrication

# 1.8 Schmierung

## Lubrificazione RXP3

## RXP3 lubrication

## Schmierung RXP3



## 1.9 RXP3 applicato al differenziale

## 1.9 RXP3 coupled with differential unit

## 1.9 Am Differential appliziertes RXP3-Getriebe

| $n_1$<br>min <sup>-1</sup> | Kg 99 802 |                            |             |              |              | Kg 138 804 |                            |             |              |              | Kg 243 806 |                            |             |              |              | Kg 273 808 |                            |             |              |              |
|----------------------------|-----------|----------------------------|-------------|--------------|--------------|------------|----------------------------|-------------|--------------|--------------|------------|----------------------------|-------------|--------------|--------------|------------|----------------------------|-------------|--------------|--------------|
|                            | ir        | $n_2$<br>min <sup>-1</sup> | $P_N$<br>kW | $T_N$<br>kNm | $Fr_2$<br>kN | ir         | $n_2$<br>min <sup>-1</sup> | $P_N$<br>kW | $T_N$<br>kNm | $Fr_2$<br>kN | ir         | $n_2$<br>min <sup>-1</sup> | $P_N$<br>kW | $T_N$<br>kNm | $Fr_2$<br>kN | ir         | $n_2$<br>min <sup>-1</sup> | $P_N$<br>kW | $T_N$<br>kNm | $Fr_2$<br>kN |
| 1450                       | 31.7      | 45.8                       | 14.0        | 2.7          | 12           | 33.5       | 43.3                       | 19.7        | 4.0          | 16           | 33.5       | 43.2                       | 27          | 5.6          | 21           | 29.4       | 49.3                       | 37          | 6.6          | 38           |
|                            | 35.6      | 40.7                       | 14.0        | 3.0          | 12           | 37.6       | 38.6                       | 19.7        | 4.5          | 16           | 39.8       | 36.5                       | 27          | 6.6          | 21           | 34.8       | 41.6                       | 37          | 7.8          | 38           |
|                            | 40.2      | 36.0                       | 13.8        | 3.4          | 12           | 42.4       | 34.2                       | 18.7        | 4.8          | 16           | 42.2       | 34.4                       | 27          | 7.0          | 21           | 39.2       | 37.0                       | 37          | 8.8          | 38           |
|                            | 45.7      | 31.7                       | 12.2        | 3.4          | 12           | 48.2       | 30.1                       | 16.5        | 4.8          | 16           | 47.7       | 30.4                       | 25          | 7.3          | 21           | 44.2       | 32.8                       | 37          | 9.9          | 38           |
|                            | 52.4      | 27.7                       | 10.7        | 3.4          | 12           | 51.5       | 28.2                       | 15.5        | 4.8          | 16           | 54.3       | 26.7                       | 22          | 7.3          | 21           | 47.1       | 30.8                       | 36          | 10.4         | 38           |
|                            | 56.3      | 25.8                       | 10.0        | 3.4          | 12           | 59.2       | 24.5                       | 13.6        | 4.9          | 16           | 58.1       | 24.9                       | 21          | 7.4          | 21           | 57.6       | 25.2                       | 30          | 10.5         | 38           |
|                            | 60.6      | 23.9                       | 9.3         | 3.4          | 11.5         | 63.8       | 22.7                       | 12.7        | 4.9          | 15.5         | 67.1       | 21.6                       | 18.2        | 7.4          | 20           | 66.6       | 21.8                       | 26          | 10.6         | 36           |
|                            | 71.0      | 20.4                       | 8.0         | 3.5          | 11.5         | 74.7       | 19.4                       | 10.9        | 4.9          | 15.5         | 72.5       | 20.0                       | 16.9        | 7.4          | 20           | 78.1       | 18.6                       | 23          | 10.7         | 36           |
|                            | 77.3      | 18.8                       | 7.5         | 3.5          | 11.5         | 81.3       | 17.8                       | 10.1        | 5.0          | 15.5         | 85.5       | 17.0                       | 14.5        | 7.5          | 20           | 85.0       | 17.1                       | 21          | 10.7         | 36           |
|                            | 84.6      | 17.1                       | 6.8         | 3.5          | 11.5         | 89.0       | 16.3                       | 9.3         | 5.0          | 15.5         | 93.5       | 15.5                       | 13.2        | 7.5          | 20           | 93.0       | 15.6                       | 19.2        | 10.8         | 36           |
|                            | 101       | 14.3                       | 5.7         | 3.5          | 11           | 102        | 14.2                       | 8.1         | 5.0          | 15           | 102        | 14.2                       | 12.3        | 7.6          | 19           | 105        | 13.8                       | 17.0        | 10.8         | 34           |
|                            | 115       | 12.6                       | 5.0         | 3.5          | 11           | 115        | 12.6                       | 7.2         | 5.0          | 15           | 108        | 13.4                       | 11.6        | 7.6          | 19           | 112        | 13.0                       | 15.9        | 10.8         | 34           |
|                            | 132       | 11.0                       | 4.4         | 3.5          | 11           | 123        | 11.8                       | 6.7         | 5.0          | 15           | 122        | 11.9                       | 10.3        | 7.6          | 19           | 128        | 11.4                       | 14.0        | 10.8         | 34           |
|                            | 142       | 10.2                       | 4.1         | 3.5          | 11           | 142        | 10.2                       | 5.8         | 5.0          | 15           | 139        | 10.4                       | 9.0         | 7.6          | 19           | 137        | 10.6                       | 13.0        | 10.8         | 34           |
|                            | 153       | 9.5                        | 3.8         | 3.5          | 11           | 152        | 9.5                        | 5.4         | 5.0          | 15           | 172        | 8.4                        | 7.3         | 7.6          | 19           | 158        | 9.2                        | 11.3        | 10.8         | 34           |
|                            | 179       | 8.1                        | 3.2         | 3.5          | 11           | 178        | 8.1                        | 4.6         | 5.0          | 15           | 186        | 7.8                        | 6.8         | 7.6          | 19           | 185        | 7.8                        | 9.6         | 10.8         | 34           |
|                            | 195       | 7.4                        | 3.0         | 3.5          | 11           | 194        | 7.5                        | 4.3         | 5.0          | 15           | 219        | 6.6                        | 5.7         | 7.6          | 19           | 202        | 7.2                        | 8.8         | 10.8         | 34           |
|                            | 213       | 6.8                        | 2.7         | 3.5          | 11           | 213        | 6.8                        | 3.9         | 5.0          | 15           | 239        | 6.1                        | 5.2         | 7.6          | 19           | 221        | 6.6                        | 8.1         | 10.8         | 34           |
|                            | 243       | 6.0                        | 2.4         | 3.5          | 11           | 270        | 5.4                        | 3.1         | 5.0          | 15           | 240        | 6.0                        | 5.2         | 7.6          | 19           | 236        | 6.1                        | 7.5         | 10.8         | 34           |
|                            | 299       | 4.8                        | 1.9         | 3.5          | 11           | 290        | 5.0                        | 2.8         | 5.0          | 15           | 278        | 5.2                        | 4.5         | 7.6          | 19           | 273        | 5.3                        | 6.5         | 10.8         | 34           |
|                            | 322       | 4.5                        | 1.8         | 3.5          | 11           | 340        | 4.3                        | 2.4         | 5.0          | 15           | 300        | 4.8                        | 4.2         | 7.6          | 19           | 320        | 4.5                        | 5.6         | 10.8         | 34           |
|                            | 378       | 3.8                        | 1.5         | 3.5          | 11           | 370        | 3.9                        | 2.2         | 5.0          | 15           | 354        | 4.1                        | 3.5         | 7.6          | 19           | 349        | 4.2                        | 5.1         | 10.8         | 34           |
|                            | 411       | 3.5                        | 1.4         | 3.5          | 11           | 405        | 3.6                        | 2.0         | 5.0          | 15           | 387        | 3.8                        | 3.2         | 7.6          | 19           | 420        | 3.5                        | 4.2         | 10.8         | 34           |
|                            | 450       | 3.2                        | 1.3         | 3.5          | 11           | 444        | 3.3                        | 1.7         | 4.5          | 15           | 425        | 3.4                        | 2.9         | 7.6          | 19           | 465        | 3.1                        | 3.8         | 10.8         | 34           |
|                            | 495*      | 2.9                        | 1.2         | 3.5          | 11           | 494*       | 2.9                        | 1.7         | 5.0          | 15           | 518*       | 2.8                        | 2.4         | 7.6          | 19           | 512        | 2.8                        | 3.5         | 10.8         | 34           |
|                            | 549*      | 2.6                        | 1.1         | 3.5          | 11           | 542*       | 2.7                        | 1.4         | 4.5          | 15           | 568*       | 2.6                        | 1.9         | 6.7          | 19           | 561        | 2.6                        | 2.9         | 9.8          | 34           |

| $n_1$<br>min <sup>-1</sup> | Kg 382 810 |                            |             |              |              | Kg 534 812 |                            |             |              |              | Kg 758 814 |                            |             |              |              | Kg 1045 816 |                            |             |              |              |
|----------------------------|------------|----------------------------|-------------|--------------|--------------|------------|----------------------------|-------------|--------------|--------------|------------|----------------------------|-------------|--------------|--------------|-------------|----------------------------|-------------|--------------|--------------|
|                            | ir         | $n_2$<br>min <sup>-1</sup> | $P_N$<br>kW | $T_N$<br>kNm | $Fr_2$<br>kN | ir         | $n_2$<br>min <sup>-1</sup> | $P_N$<br>kW | $T_N$<br>kNm | $Fr_2$<br>kN | ir         | $n_2$<br>min <sup>-1</sup> | $P_N$<br>kW | $T_N$<br>kNm | $Fr_2$<br>kN | ir          | $n_2$<br>min <sup>-1</sup> | $P_N$<br>kW | $T_N$<br>kNm | $Fr_2$<br>kN |
| 1450                       | 31.7       | 45.8                       | 52          | 10.0         | 48           | 31.2       | 46.5                       | 77          | 14.5         | 53           | 31.7       | 45.8                       | 112         | 21.5         | 63           | 33.5        | 43.3                       | 155         | 31.5         | 75           |
|                            | 37.7       | 38.4                       | 52          | 11.9         | 48           | 35.1       | 41.4                       | 77          | 16.3         | 53           | 35.6       | 40.7                       | 112         | 24.2         | 63           | 37.6        | 38.6                       | 155         | 35.4         | 75           |
|                            | 42.6       | 34.0                       | 52          | 13.5         | 48           | 39.6       | 36.6                       | 77          | 18.4         | 53           | 40.2       | 36.0                       | 112         | 27.4         | 63           | 42.4        | 34.2                       | 155         | 39.9         | 75           |
|                            | 45.4       | 32.0                       | 52          | 14.2         | 48           | 45.0       | 32.2                       | 77          | 20.9         | 53           | 45.7       | 31.7                       | 104         | 28.8         | 63           | 48.2        | 30.1                       | 142         | 41.3         | 75           |
|                            | 51.8       | 28.0                       | 46          | 14.3         | 48           | 51.6       | 28.1                       | 68          | 21.2         | 53           | 52.4       | 27.7                       | 91          | 29.0         | 63           | 51.5        | 28.2                       | 133         | 41.5         | 75           |
|                            | 55.5       | 26.1                       | 43          | 14.4         | 48           | 55.4       | 26.2                       | 63          | 21.3         | 53           | 56.3       | 25.8                       | 85          | 29.1         | 63           | 59.2        | 24.5                       | 116         | 41.8         | 75           |
|                            | 64.2       | 22.6                       | 37          | 14.5         | 46           | 64.4       | 22.5                       | 55          | 21.5         | 51           | 60.6       | 23.9                       | 79          | 29.2         | 60           | 63.8        | 22.7                       | 108         | 41.9         | 72           |
|                            | 75.2       | 19.3                       | 32          | 14.6         | 46           | 69.9       | 20.7                       | 51          | 21.5         | 51           | 71.0       | 20.4                       | 68          | 29.4         | 60           | 74.7        | 19.4                       | 93          | 42.2         | 72           |
|                            | 81.9       | 17.7                       | 29          | 14.6         | 46           | 83.3       | 17.4                       | 43          | 21.7         | 51           | 77.3       | 18.8                       | 63          | 29.5         | 60           | 81.3        | 17.8                       | 86          | 42.4         | 72           |
|                            | 89.6       | 16.2                       | 27          | 14.7         | 46           | 88.3       | 16.4                       | 41          | 21.8         | 51           | 84.6       | 17.1                       | 58          | 29.7         | 60           | 89.0        | 16.3                       | 79          | 42.6         | 72           |
|                            | 98.0       | 14.8                       | 25          | 14.8         | 44           | 99.8       | 14.5                       | 36          | 21.9         | 49           | 101        | 14.3                       | 49          | 29.9         | 58           | 96.3        | 15.1                       | 73          | 42.8         | 70           |
|                            | 118        | 12.3                       | 21          | 14.8         | 44           | 113        | 12.8                       | 32          | 21.9         | 49           | 115        | 12.6                       | 43          | 29.9         | 58           | 109         | 13.3                       | 65          | 42.8         | 70           |
|                            | 135        | 10.8                       | 18.2        | 14.8         | 44           | 130        | 11.2                       | 28          | 21.9         | 49           | 132        | 11.0                       | 37          | 29.9         | 58           | 123         | 11.7                       | 57          | 42.8         | 70           |
|                            | 144        | 10.1                       | 16.9        | 14.8         | 44           | 140        | 10.4                       | 26          | 21.9         | 49           | 142        | 10.2                       | 35          | 29.9         | 58           | 152         | 9.6                        | 47          | 42.8         | 70           |
|                            | 167        | 8.7                        | 14.6        | 14.8         | 44           | 162        | 8.9                        | 22          | 21.9         | 49           | 153        | 9.5                        | 32          | 29.9         | 58           | 163         | 8.9                        | 43          | 42.8         | 70           |
|                            | 195        | 7.4                        | 12.5        | 14.8         | 44           | 176        | 8.2                        | 21          | 21.9         | 49           | 179        | 8.1                        | 28          | 29.9         | 58           | 191         | 7.6                        | 37          | 42.8         | 70           |
|                            | 213        | 6.8                        | 11.5        | 14.8         | 44           | 192        | 7.6                        | 18.8        | 21.9         | 49           | 195        | 7.4                        | 25          | 29.9         | 58           | 208         | 7.0                        | 34          | 42.8         | 70           |
|                            | 233        | 6.2                        | 10.5        | 14.8         | 44           | 210        | 6.9                        | 17.2        | 21.9         | 49           | 213        | 6.8                        | 23          | 29.9         | 58           | 228         | 6.4                        | 31          | 42.8         | 70           |
|                            | 255        | 5.7                        | 9.6         | 14.8         | 44           | 239        | 6.1                        | 15.1        | 21.9         | 49           | 243        | 6.0                        | 20          | 29.9         | 58           | 270         | 5.4                        | 26          | 42.8         | 70           |
|                            | 273        | 5.3                        | 9.0         | 14.8         | 44           | 294        | 4.9                        | 12.3        | 21.9         | 49           | 299        | 4.8                        | 16.5        | 29.9         | 58           | 290         | 5.0                        | 24          | 42.8         | 70           |
|                            | 316        | 4.6                        | 7.7         | 14.8         | 44           | 343        | 4.2                        | 10.5        | 21.9         | 49           | 322        | 4.5                        | 15.3        | 29.9         | 58           | 340         | 4.3                        | 21          | 42.8         | 70           |
|                            | 370        | 3.9                        | 6.6         | 14.8         | 44           | 372        | 3.9                        | 9.7         | 21.9         | 49           | 378        | 3.8                        | 13.1        | 29.9         | 58           | 370         | 3.9                        | 19.1        | 42.8         | 70           |
|                            | 403        | 3.6                        | 6.1         | 14.8         | 44           | 405        | 3.6                        | 8.9         | 21.9         | 49           | 411        | 3.5                        | 12.0        | 29.9         | 58           | 405         | 3.6                        | 17.4        | 42.8         | 70           |
|                            | 441        | 3.3                        | 5.5         | 14.8         | 44           | 443        | 3.3                        | 8.2         | 21.9         | 49           | 450        | 3.2                        | 11.0        | 29.9         | 58           | 444         | 3.3                        | 14.3        | 38.5         | 70           |
|                            | 485*       | 3.0                        | 5.0         | 14.8         | 44           | 487*       | 3.0                        | 7.4         | 21.9         | 49           | 495*       | 2.9                        | 10.0        | 29.9         | 58           | 494*        | 2.9                        | 14.3        | 42.8         | 70           |
|                            | 537*       | 2.7                        | 4.5         | 14.8         | 44           | 540*       | 2.7                        | 6.7         | 21.9         | 49           | 549*       | 2.6                        | 9.0         | 29.9         | 58           | 542*        | 2.7                        | 11.9        | 38.5         | 70           |

\* Nei rapporti contrassegnati non è disponibile la versione uscita con albero cavo "C"-UB"-B"-CD".

\* Hollow output shaft "C"-UB"-B"-CD" not available for ratios marked with this symbol.

\* Bei den gekennzeichneten Übersetzungsverhältnissen ist die Version "Abtrieb mit Hohlwelle" "C"-UB"-B"-CD" nicht verfügbar.

## 1.9 RXP3 applicato al differenziale

## 1.9 RXP3 coupled with differential unit

## 1.9 Am Differential appliziertes RXP3-Getriebe

| $n_1$<br>min <sup>-1</sup> | Kg 1464 <b>818</b> |                            |             |              |              | Kg G-2049 A-2106 <b>820</b> |                            |             |              |              | Kg 3000 <b>822</b> |                            |             |              |              | Kg G-4100 A-4000 <b>824</b> |                            |             |              |              |
|----------------------------|--------------------|----------------------------|-------------|--------------|--------------|-----------------------------|----------------------------|-------------|--------------|--------------|--------------------|----------------------------|-------------|--------------|--------------|-----------------------------|----------------------------|-------------|--------------|--------------|
|                            | ir                 | $n_2$<br>min <sup>-1</sup> | $P_N$<br>kW | $T_N$<br>kNm | $Fr_2$<br>kN | ir                          | $n_2$<br>min <sup>-1</sup> | $P_N$<br>kW | $T_N$<br>kNm | $Fr_2$<br>kN | ir                 | $n_2$<br>min <sup>-1</sup> | $P_N$<br>kW | $T_N$<br>kNm | $Fr_2$<br>kN | ir                          | $n_2$<br>min <sup>-1</sup> | $P_N$<br>kW | $T_N$<br>kNm | $Fr_2$<br>kN |
| 1450                       | 33.5               | 43.2                       | 213         | 43.3         | 108          | 29.4                        | 49.3                       | 298         | 53.1         | 150          | 33.6               | 45.8                       | 418         | 80.3         | 188          | 31.2                        | 46.5                       | 613         | 116          | 210          |
|                            | 37.5               | 38.6                       | 213         | 48.5         | 108          | 34.8                        | 41.6                       | 297         | 62.8         | 150          | 37.7               | 38.4                       | 418         | 95.5         | 188          | 35.1                        | 41.4                       | 613         | 130          | 210          |
|                            | 42.2               | 34.4                       | 213         | 54.5         | 108          | 39.2                        | 37.0                       | 297         | 70.6         | 150          | 42.6               | 34.0                       | 418         | 108          | 188          | 39.6                        | 36.6                       | 613         | 147          | 210          |
|                            | 47.7               | 30.4                       | 211         | 60.9         | 108          | 44.2                        | 32.8                       | 297         | 79.8         | 150          | 48.4               | 29.9                       | 390         | 114          | 188          | 45.0                        | 32.2                       | 613         | 167          | 210          |
|                            | 54.3               | 26.7                       | 186         | 61.3         | 108          | 47.1                        | 30.8                       | 293         | 83.6         | 150          | 51.8               | 28.0                       | 366         | 115          | 188          | 51.6                        | 28.1                       | 549         | 171          | 210          |
|                            | 58.1               | 24.9                       | 175         | 61.5         | 108          | 53.8                        | 27.0                       | 258         | 84.1         | 150          | 55.5               | 26.1                       | 343         | 115          | 188          | 55.4                        | 26.2                       | 513         | 172          | 210          |
|                            | 67.1               | 21.6                       | 152         | 62.0         | 103          | 61.9                        | 23.4                       | 226         | 84.7         | 145          | 64.2               | 22.6                       | 298         | 116          | 182          | 64.4                        | 22.5                       | 444         | 173          | 205          |
|                            | 72.5               | 20.0                       | 142         | 62.2         | 103          | 72.0                        | 20.1                       | 196         | 85.4         | 145          | 75.2               | 19.3                       | 257         | 117          | 182          | 69.9                        | 20.7                       | 411         | 174          | 205          |
|                            | 85.5               | 17.0                       | 121         | 62.7         | 103          | 78.1                        | 18.6                       | 181         | 85.7         | 145          | 81.9               | 17.7                       | 236         | 117          | 182          | 83.3                        | 17.4                       | 349         | 176          | 205          |
|                            | 93.5               | 15.5                       | 111         | 63.0         | 103          | 93.0                        | 15.6                       | 153         | 86.5         | 145          | 89.6               | 16.2                       | 217         | 118          | 182          | 91.7                        | 15.8                       | 317         | 176          | 205          |
|                            | 96.1               | 15.1                       | 108         | 63.1         | 103          | 105                         | 13.8                       | 136         | 86.8         | 142          | 98.0               | 14.8                       | 199         | 118          | 178          | 99.8                        | 14.5                       | 293         | 177          | 200          |
|                            | 108                | 13.4                       | 97          | 63.2         | 100          | 112                         | 13.0                       | 128         | 86.8         | 142          | 111                | 13.1                       | 177         | 119          | 178          | 113                         | 12.8                       | 258         | 177          | 200          |
|                            | 122                | 11.9                       | 85          | 63.2         | 100          | 128                         | 11.4                       | 112         | 86.8         | 142          | 126                | 11.5                       | 156         | 119          | 178          | 130                         | 11.2                       | 225         | 177          | 200          |
|                            | 139                | 10.4                       | 75          | 63.2         | 100          | 147                         | 9.9                        | 97          | 86.8         | 142          | 144                | 10.1                       | 136         | 119          | 178          | 140                         | 10.4                       | 209         | 177          | 200          |
|                            | 172                | 8.4                        | 61          | 63.2         | 100          | 171                         | 8.5                        | 84          | 86.8         | 142          | 167                | 8.7                        | 118         | 119          | 178          | 162                         | 8.9                        | 180         | 177          | 200          |
|                            | 186                | 7.8                        | 56          | 63.2         | 100          | 185                         | 7.8                        | 77          | 86.8         | 142          | 195                | 7.4                        | 101         | 119          | 178          | 176                         | 8.2                        | 166         | 177          | 200          |
|                            | 219                | 6.6                        | 48          | 63.2         | 100          | 202                         | 7.2                        | 71          | 86.8         | 142          | 213                | 6.8                        | 92          | 119          | 178          | 210                         | 6.9                        | 139         | 177          | 200          |
|                            | 239                | 6.1                        | 44          | 63.2         | 100          | 221                         | 6.6                        | 65          | 86.8         | 142          | 233                | 6.2                        | 84          | 119          | 178          | 231                         | 6.3                        | 126         | 177          | 200          |
|                            | 247                | 5.9                        | 42          | 63.2         | 100          | 243                         | 6.0                        | 59          | 86.8         | 142          | 255                | 5.7                        | 77          | 119          | 178          | 247                         | 5.9                        | 118         | 177          | 200          |
|                            | 265                | 5.5                        | 39          | 63.2         | 100          | 279                         | 5.2                        | 51          | 86.8         | 142          | 273                | 5.3                        | 72          | 119          | 178          | 266                         | 5.5                        | 110         | 177          | 200          |
|                            | 306                | 4.7                        | 34          | 63.2         | 100          | 325                         | 4.5                        | 44          | 86.8         | 142          | 316                | 4.6                        | 62          | 119          | 178          | 309                         | 4.7                        | 94          | 177          | 200          |
|                            | 330                | 4.4                        | 32          | 63.2         | 100          | 352                         | 4.1                        | 41          | 86.8         | 142          | 370                | 3.9                        | 53          | 119          | 178          | 335                         | 4.3                        | 87          | 177          | 200          |
|                            | 389                | 3.7                        | 27          | 63.2         | 100          | 384                         | 3.8                        | 37          | 86.8         | 142          | 403                | 3.6                        | 49          | 119          | 178          | 400                         | 3.6                        | 73          | 177          | 200          |
|                            | 425                | 3.4                        | 25          | 63.2         | 100          | 420                         | 3.5                        | 34          | 86.8         | 142          | 441                | 3.3                        | 45          | 119          | 178          | 440                         | 3.3                        | 66          | 177          | 200          |
|                            | 518*               | 2.8                        | 20          | 63.2         | 100          | 512*                        | 2.8                        | 28          | 86.8         | 142          | 485                | 3.0                        | 40          | 119          | 178          | 487*                        | 3.0                        | 60          | 177          | 200          |
|                            | 568*               | 2.6                        | 16.4        | 56.5         | 100          | 561*                        | 2.6                        | 24          | 80.0         | 142          | 537*               | 2.7                        | 37          | 119          | 178          | 531*                        | 2.7                        | 50          | 160          | 200          |

\* Nei rapporti contrassegnati non è disponibile la versione uscita con albero cavo "C"- "UB"- "B"- "CD".

\* Hollow output shaft "C"- "UB"- "B"- "CD" not available for ratios marked with this symbol.

\* Bei den gekennzeichneten Übersetzungsverhältnissen ist die Version "Abtrieb mit Hohlwelle" "C"- "UB"- "B"- "CD" nicht verfügbar.

## 1.9 Prestazioni differenziale

## 1.9 Differential unit ratings

## 1.9 Leistungen- Differentialgetriebe

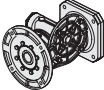
|                                                                                     | E70 | E100 | E125 | E160 | E180 | E225 |
|-------------------------------------------------------------------------------------|-----|------|------|------|------|------|
|  | 14  | 43   | 65   | 110  | 215  | 330  |
| PD [kW]<br>(1450 rpm)                                                               | 7.5 | 15   | 30   | 55   | 75   | 200  |
| T1D [Nm]                                                                            | 49  | 99   | 198  | 362  | 494  | 1317 |

## 1.10 Momenti d'inerzia

## 1.10 Moments of inertia

## 1.10 Trägheitsmomente

| RXP 3  |                  | 802     | 804     | 806     | 808     | 810    | 812    | 814    | 816    | 818    | 820    | 822    | 824    |
|-----------------------------------------------------------------------------------------|------------------|---------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| ir                                                                                      | —                | 31.7    | 33.5    | 33.5    | 29.4    | 31.7   | 31.2   | 31.7   | 33.5   | 33.5   | 29.4   | 31.7   | 31.2   |
| J1                                                                                      | kgm <sup>2</sup> | 0.00004 | 0.00006 | 0.00023 | 0.00027 | 0.0008 | 0.0012 | 0.0019 | 0.0034 | 0.0059 | 0.0112 | 0.0197 | 0.0347 |
| ir                                                                                      | —                | 35.6    | 37.6    | 39.8    | 34.8    | 37.7   | 35.1   | 35.6   | 37.6   | 37.5   | 34.8   | 37.7   | 35.1   |
| J1                                                                                      | kgm <sup>2</sup> | 0.00004 | 0.00006 | 0.00021 | 0.00026 | 0.0007 | 0.0011 | 0.0018 | 0.0032 | 0.0056 | 0.0105 | 0.0185 | 0.0327 |
| ir                                                                                      | —                | 40.2    | 42.4    | 42.2    | 39.2    | 42.6   | 39.6   | 40.2   | 42.4   | 42.2   | 39.2   | 42.6   | 39.6   |
| J1                                                                                      | kgm <sup>2</sup> | 0.00004 | 0.00006 | 0.00020 | 0.00024 | 0.0007 | 0.0011 | 0.0017 | 0.0031 | 0.0053 | 0.0099 | 0.0174 | 0.0308 |
| ir                                                                                      | —                | 45.7    | 48.2    | 47.7    | 44.2    | 45.4   | 45.0   | 45.7   | 48.2   | 47.7   | 44.2   | 48.4   | 45.0   |
| J1                                                                                      | kgm <sup>2</sup> | 0.00004 | 0.00006 | 0.00018 | 0.00024 | 0.0006 | 0.0010 | 0.0016 | 0.0029 | 0.0050 | 0.0093 | 0.0164 | 0.0290 |
| ir                                                                                      | —                | 52.4    | 51.5    | 54.3    | 47.1    | 51.8   | 51.6   | 52.4   | 51.5   | 54.4   | 47.1   | 51.8   | 51.6   |
| J1                                                                                      | kgm <sup>2</sup> | 0.00004 | 0.00006 | 0.00017 | 0.00023 | 0.0006 | 0.0009 | 0.0015 | 0.0027 | 0.0047 | 0.0087 | 0.0155 | 0.0273 |
| ir                                                                                      | —                | 56.3    | 59.2    | 58.1    | 57.6    | 55.5   | 55.4   | 56.3   | 59.2   | 58.1   | 53.8   | 55.5   | 55.4   |
| J1                                                                                      | kgm <sup>2</sup> | 0.00004 | 0.00006 | 0.00016 | 0.00022 | 0.0005 | 0.0009 | 0.0014 | 0.0026 | 0.0045 | 0.0082 | 0.0146 | 0.0257 |
| ir                                                                                      | —                | 60.6    | 63.8    | 67.1    | 66.6    | 64.2   | 64.4   | 60.6   | 63.8   | 57.1   | 61.9   | 64.2   | 64.4   |
| J1                                                                                      | kgm <sup>2</sup> | 0.00003 | 0.00006 | 0.00015 | 0.00021 | 0.0005 | 0.0008 | 0.0013 | 0.0024 | 0.0042 | 0.0077 | 0.0137 | 0.0242 |
| ir                                                                                      | —                | 71.0    | 74.7    | 72.5    | 78.1    | 75.2   | 69.9   | 71.0   | 74.7   | 72.5   | 72.0   | 75.2   | 69.9   |
| J1                                                                                      | kgm <sup>2</sup> | 0.00003 | 0.00006 | 0.00014 | 0.00020 | 0.0005 | 0.0008 | 0.0013 | 0.0023 | 0.0040 | 0.0073 | 0.0129 | 0.0228 |
| ir                                                                                      | —                | 77.3    | 81.3    | 85.5    | 85.0    | 81.9   | 83.3   | 77.3   | 81.3   | 85.5   | 78.1   | 81.9   | 83.3   |
| J1                                                                                      | kgm <sup>2</sup> | 0.00003 | 0.00006 | 0.00013 | 0.00019 | 0.0004 | 0.0007 | 0.0012 | 0.0021 | 0.0038 | 0.0069 | 0.0121 | 0.0215 |
| ir                                                                                      | —                | 84.6    | 89.0    | 93.5    | 93.0    | 89.6   | 88.3   | 84.6   | 89.0   | 93.5   | 93.0   | 89.6   | 91.7   |
| J1                                                                                      | kgm <sup>2</sup> | 0.00003 | 0.00006 | 0.00012 | 0.00018 | 0.0004 | 0.0007 | 0.0011 | 0.0020 | 0.0035 | 0.0064 | 0.0114 | 0.0203 |
| ir                                                                                      | —                | 101     | 102     | 102     | 105     | 98.0   | 99.6   | 101    | 96.3   | 96.1   | 105    | 98.0   | 99.8   |
| J1                                                                                      | kgm <sup>2</sup> | 0.00003 | 0.00006 | 0.00011 | 0.00018 | 0.0004 | 0.0006 | 0.0011 | 0.0019 | 0.0034 | 0.0061 | 0.0108 | 0.0191 |
| ir                                                                                      | —                | 115     | 115     | 108     | 112     | 118    | 113    | 115    | 109    | 108    | 112    | 111    | 113    |
| J1                                                                                      | kgm <sup>2</sup> | 0.00003 | 0.00005 | 0.00010 | 0.00017 | 0.0003 | 0.0006 | 0.0010 | 0.0018 | 0.0032 | 0.0057 | 0.0101 | 0.0180 |
| ir                                                                                      | —                | 132     | 123     | 122     | 128     | 135    | 130    | 132    | 123    | 122    | 128    | 126    | 130    |
| J1                                                                                      | kgm <sup>2</sup> | 0.00003 | 0.00005 | 0.00009 | 0.00016 | 0.0003 | 0.0005 | 0.0009 | 0.0017 | 0.0030 | 0.0054 | 0.0095 | 0.0169 |
| ir                                                                                      | —                | 142     | 142     | 139     | 137     | 144    | 140    | 142    | 152    | 139    | 147    | 144    | 140    |
| J1                                                                                      | kgm <sup>2</sup> | 0.00003 | 0.00005 | 0.00009 | 0.00016 | 0.0003 | 0.0005 | 0.0009 | 0.0016 | 0.0028 | 0.0051 | 0.0090 | 0.0160 |
| ir                                                                                      | —                | 153     | 152     | 172     | 158     | 167    | 162    | 153    | 163    | 172    | 171    | 167    | 162    |
| J1                                                                                      | kgm <sup>2</sup> | 0.00003 | 0.00005 | 0.00008 | 0.00015 | 0.0003 | 0.0005 | 0.0008 | 0.0015 | 0.0027 | 0.0048 | 0.0085 | 0.0150 |
| ir                                                                                      | —                | 179     | 178     | 186     | 186     | 195    | 176    | 179    | 191    | 186    | 186    | 195    | 176    |
| J1                                                                                      | kgm <sup>2</sup> | 0.00003 | 0.00004 | 0.00008 | 0.00014 | 0.0003 | 0.0005 | 0.0008 | 0.0014 | 0.0025 | 0.0045 | 0.0080 | 0.0142 |
| ir                                                                                      | —                | 195     | 194     | 219     | 202     | 213    | 192    | 195    | 208    | 219    | 202    | 213    | 210    |
| J1                                                                                      | kgm <sup>2</sup> | 0.00003 | 0.00004 | 0.00008 | 0.00013 | 0.0002 | 0.0004 | 0.0008 | 0.0013 | 0.0024 | 0.0042 | 0.0075 | 0.0133 |
| ir                                                                                      | —                | 213     | 213     | 239     | 221     | 233    | 210    | 213    | 228    | 239    | 221    | 233    | 231    |
| J1                                                                                      | kgm <sup>2</sup> | 0.00003 | 0.00004 | 0.00007 | 0.00013 | 0.0002 | 0.0004 | 0.0007 | 0.0013 | 0.0022 | 0.0040 | 0.0071 | 0.0125 |
| ir                                                                                      | —                | 243     | 270     | 240     | 236     | 255    | 239    | 243    | 270    | 247    | 243    | 255    | 248    |
| J1                                                                                      | kgm <sup>2</sup> | 0.00002 | 0.00004 | 0.00007 | 0.00012 | 0.0002 | 0.0004 | 0.0007 | 0.0012 | 0.0021 | 0.0037 | 0.0067 | 0.0119 |
| ir                                                                                      | —                | 299     | 290     | 278     | 273     | 273    | 294    | 299    | 290    | 265    | 279    | 273    | 266    |
| J1                                                                                      | kgm <sup>2</sup> | 0.00002 | 0.00004 | 0.00006 | 0.00011 | 0.0002 | 0.0004 | 0.0006 | 0.0011 | 0.0020 | 0.0035 | 0.0063 | 0.0112 |
| ir                                                                                      | —                | 322     | 340     | 300     | 320     | 316    | 343    | 322    | 340    | 306    | 325    | 316    | 309    |
| J1                                                                                      | kgm <sup>2</sup> | 0.00002 | 0.00003 | 0.00006 | 0.00011 | 0.0002 | 0.0003 | 0.0006 | 0.0011 | 0.0019 | 0.0034 | 0.0060 | 0.0107 |
| ir                                                                                      | —                | 378     | 370     | 354     | 349     | 370    | 372    | 378    | 370    | 330    | 352    | 370    | 336    |
| J1                                                                                      | kgm <sup>2</sup> | 0.00002 | 0.00003 | 0.00006 | 0.00011 | 0.0002 | 0.0003 | 0.0006 | 0.0010 | 0.0018 | 0.0033 | 0.0058 | 0.0103 |
| ir                                                                                      | —                | 411     | 405     | 387     | 420     | 403    | 405    | 411    | 405    | 389    | 384    | 403    | 400    |
| J1                                                                                      | kgm <sup>2</sup> | 0.00002 | 0.00003 | 0.00006 | 0.00010 | 0.0002 | 0.0003 | 0.0006 | 0.0010 | 0.0018 | 0.0032 | 0.0057 | 0.0101 |
| ir                                                                                      | —                | 450     | 444     | 425     | 466     | 441    | 443    | 450    | 444    | 426    | 420    | 441    | 440    |
| J1                                                                                      | kgm <sup>2</sup> | 0.00002 | 0.00003 | 0.00006 | 0.00010 | 0.0002 | 0.0003 | 0.0006 | 0.0010 | 0.0017 | 0.0031 | 0.0055 | 0.0098 |
| ir                                                                                      | —                | 495     | 494     | 518     | 512     | 485    | 488    | 495    | 494    | 518    | 512    | 485    | 488    |
| J1                                                                                      | kgm <sup>2</sup> | 0.00002 | 0.00003 | 0.00006 | 0.00009 | 0.0002 | 0.0003 | 0.0005 | 0.0010 | 0.0017 | 0.0030 | 0.0054 | 0.0095 |
| ir                                                                                      | —                | 549     | 542     | 568     | 561     | 537    | 540    | 549    | 542    | 568    | 561    | 537    | 531    |
| J1                                                                                      | kgm <sup>2</sup> | 0.00002 | 0.00003 | 0.00005 | 0.00009 | 0.0002 | 0.0003 | 0.0005 | 0.0009 | 0.0017 | 0.0030 | 0.0053 | 0.0094 |

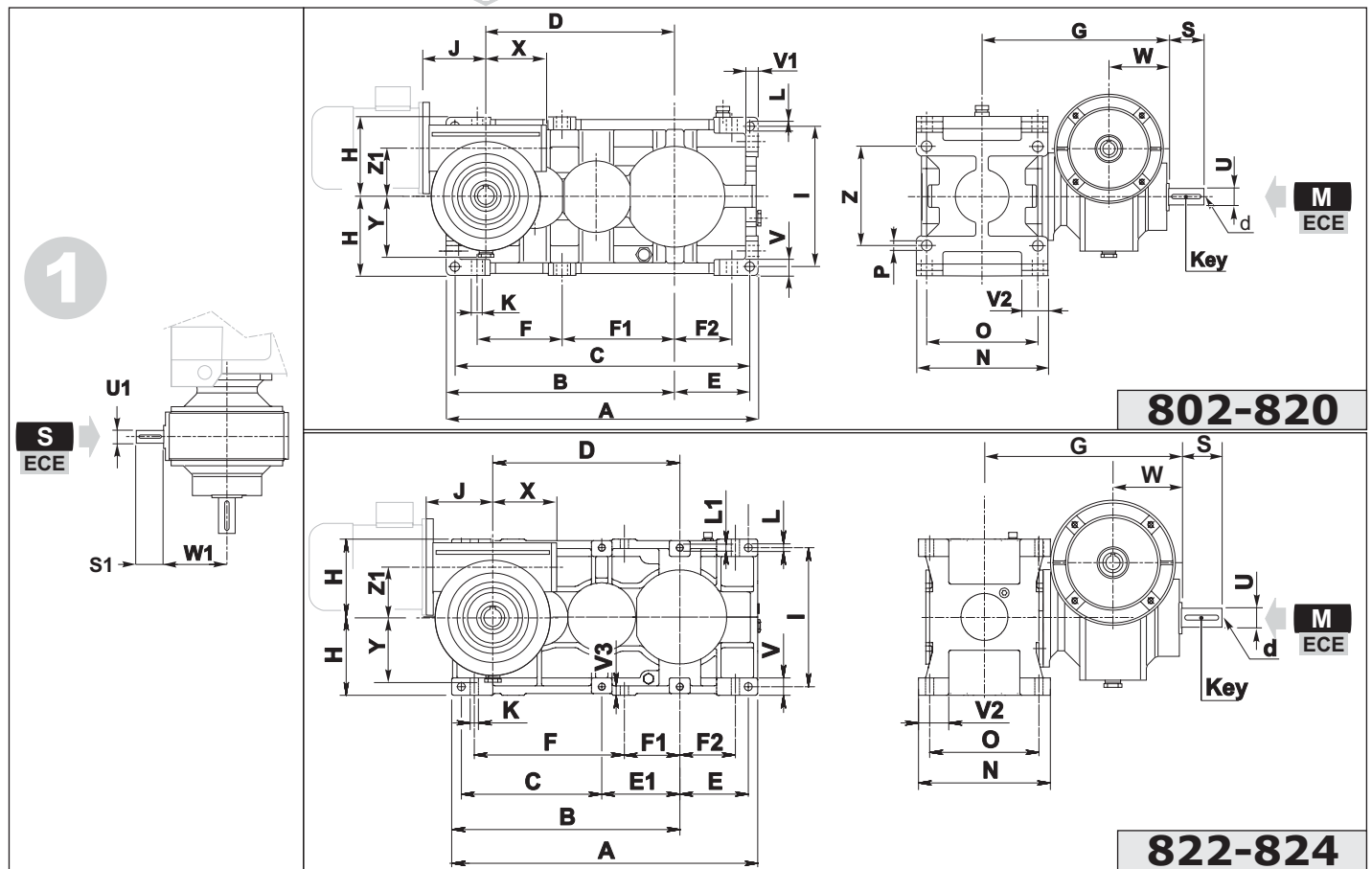
| E  |                  | 70     | 100    | 125    | 160    | 180    | 225    |
|---------------------------------------------------------------------------------------|------------------|--------|--------|--------|--------|--------|--------|
| J1                                                                                    | kgm <sup>2</sup> | 0.0002 | 0.0013 | 0.0032 | 0.0072 | 0.0201 | 0.0478 |



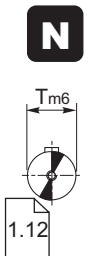
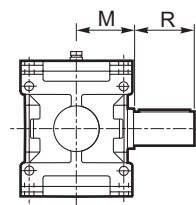
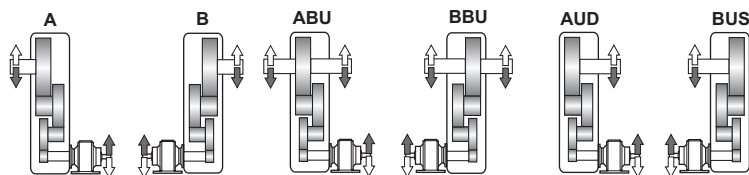
**1.11 Dimensioni**  
Materiale Carcassa - "Ghisa"

**1.11 Dimensions**  
Housing Material- "Cast Iron"

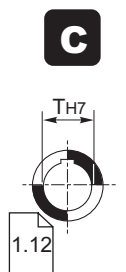
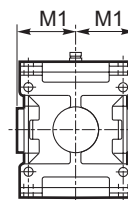
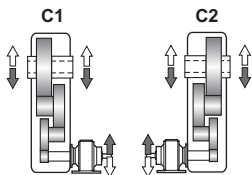
**1.11 Abmessungen**  
Gehäusematerial - "Guss"



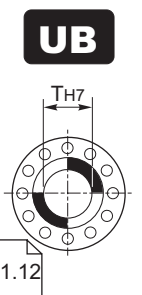
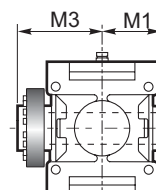
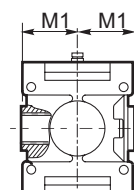
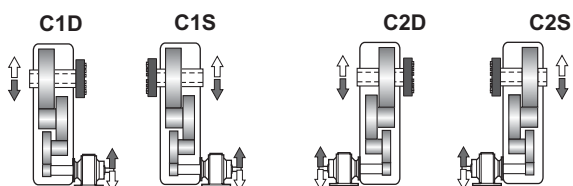
➔ **N D FD Fn**



➔ **C**



➔ **UB B CD**



**1.11 Dimensioni**  
**Materiale Carcassa - "Ghisa"**
**1.11 Dimensions**  
**Housing Material- "Cast Iron"**
**1.11 Abmessungen**  
**Gehäusematerial - "Guss"**

|     | Dimensioni generali / Dimensions / Allgemeine Abmessungen |      |      |      |       |     |     |       |       |                  |     |    |    |     |                  |     |    |     |      |       |    |     | Kg   |
|-----|-----------------------------------------------------------|------|------|------|-------|-----|-----|-------|-------|------------------|-----|----|----|-----|------------------|-----|----|-----|------|-------|----|-----|------|
|     | A                                                         | B    | C    | D    | E     | E1  | F   | F1    | F2    | H <sub>h11</sub> | I   | K  | L  | L1  | N <sub>h11</sub> | O   | P  | V   | V1   | V2    | V3 | Z   |      |
| 802 | 498                                                       | 368  | 470  | 305  | 116   | —   | 136 | 182   | 90    | 125              | 224 | 18 | 14 | —   | 213              | 180 | 18 | 25  | 20   | 44.5  | 19 | 160 | 99   |
| 804 | 562                                                       | 412  | 530  | 342  | 134   | —   | 153 | 202.5 | 103.5 | 140              | 250 | 20 | 16 | —   | 237              | 200 | 20 | 28  | 22.5 | 49    | 23 | 180 | 128  |
| 806 | 635                                                       | 465  | 601  | 385  | 153   | —   | 173 | 229   | 117   | 160              | 280 | 22 | 18 | —   | 269              | 225 | 22 | 32  | 25   | 56.5  | 25 | 200 | 193  |
| 808 | 712                                                       | 522  | 674  | 432  | 171   | —   | 194 | 258   | 130   | 180              | 320 | 25 | 20 | —   | 297              | 250 | 25 | 36  | 28   | 59.5  | 28 | 224 | 273  |
| 810 | 795                                                       | 585  | 755  | 485  | 190   | —   | 216 | 288   | 144   | 200              | 360 | 27 | 22 | —   | 335              | 280 | 27 | 40  | 32   | 67.5  | 32 | 250 | 382  |
| 812 | 897                                                       | 657  | 852  | 545  | 217.5 | —   | 242 | 324.5 | 159.5 | 225              | 400 | 30 | 24 | —   | 379              | 315 | 30 | 45  | 36   | 78.5  | 36 | 280 | 534  |
| 814 | 1000                                                      | 735  | 950  | 610  | 240   | —   | 271 | 363   | 179   | 250              | 450 | 33 | 27 | —   | 427              | 355 | 33 | 50  | 40   | 89    | 40 | 320 | 758  |
| 816 | 1125                                                      | 825  | 1069 | 685  | 272   | —   | 305 | 407.5 | 202.5 | 280              | 500 | 36 | 30 | —   | 479              | 400 | 36 | 56  | 45   | 96.5  | 45 | 360 | 1045 |
| 818 | 1270                                                      | 930  | 1206 | 770  | 308   | —   | 345 | 460   | 230   | 315              | 560 | 39 | 35 | —   | 541              | 450 | 39 | 63  | 50   | 114.5 | 48 | 400 | 1464 |
| 820 | 1425                                                      | 1045 | 1353 | 865  | 344   | —   | 388 | 516.5 | 259.5 | 355              | 638 | 42 | 39 | —   | 599              | 500 | 42 | 70  | 56   | 124   | 56 | 450 | 2049 |
| 822 | 1570                                                      | 1170 | 1520 | 970  | 350   | 400 | 770 | 300   | 300   | 400              | 710 | 45 | 42 | M39 | 675              | 560 | -  | 90  | -    | 162   | 50 | -   | 3000 |
| 824 | 1765                                                      | 1315 | 810  | 1090 | 395   | 450 | 865 | 320   | 320   | 450              | 800 | 48 | 45 | M42 | 761              | 630 | -  | 100 | -    | 175   | 55 | -   | 4100 |

**Albero uscita / Output shaft / Abtriebswelle**

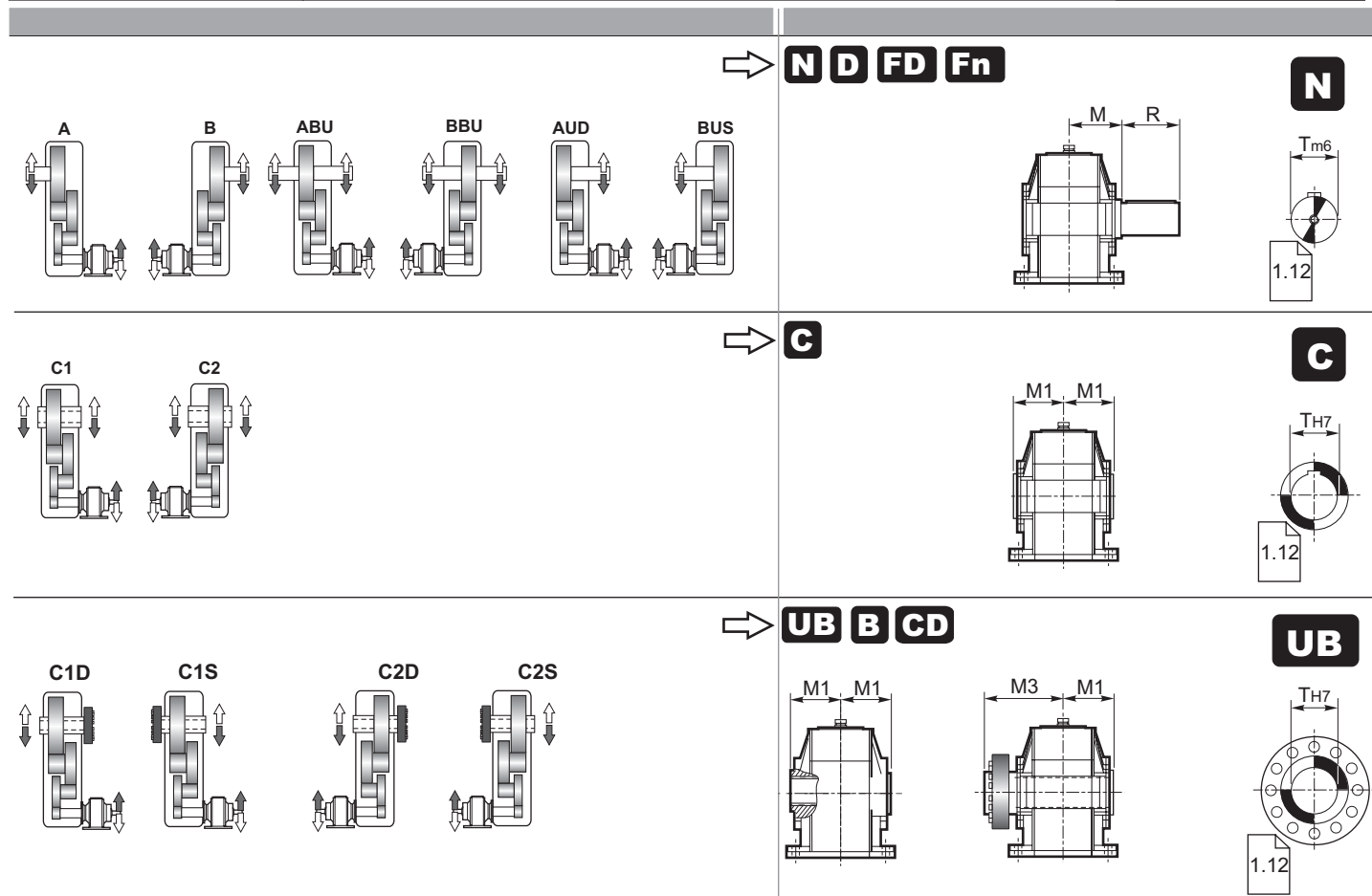
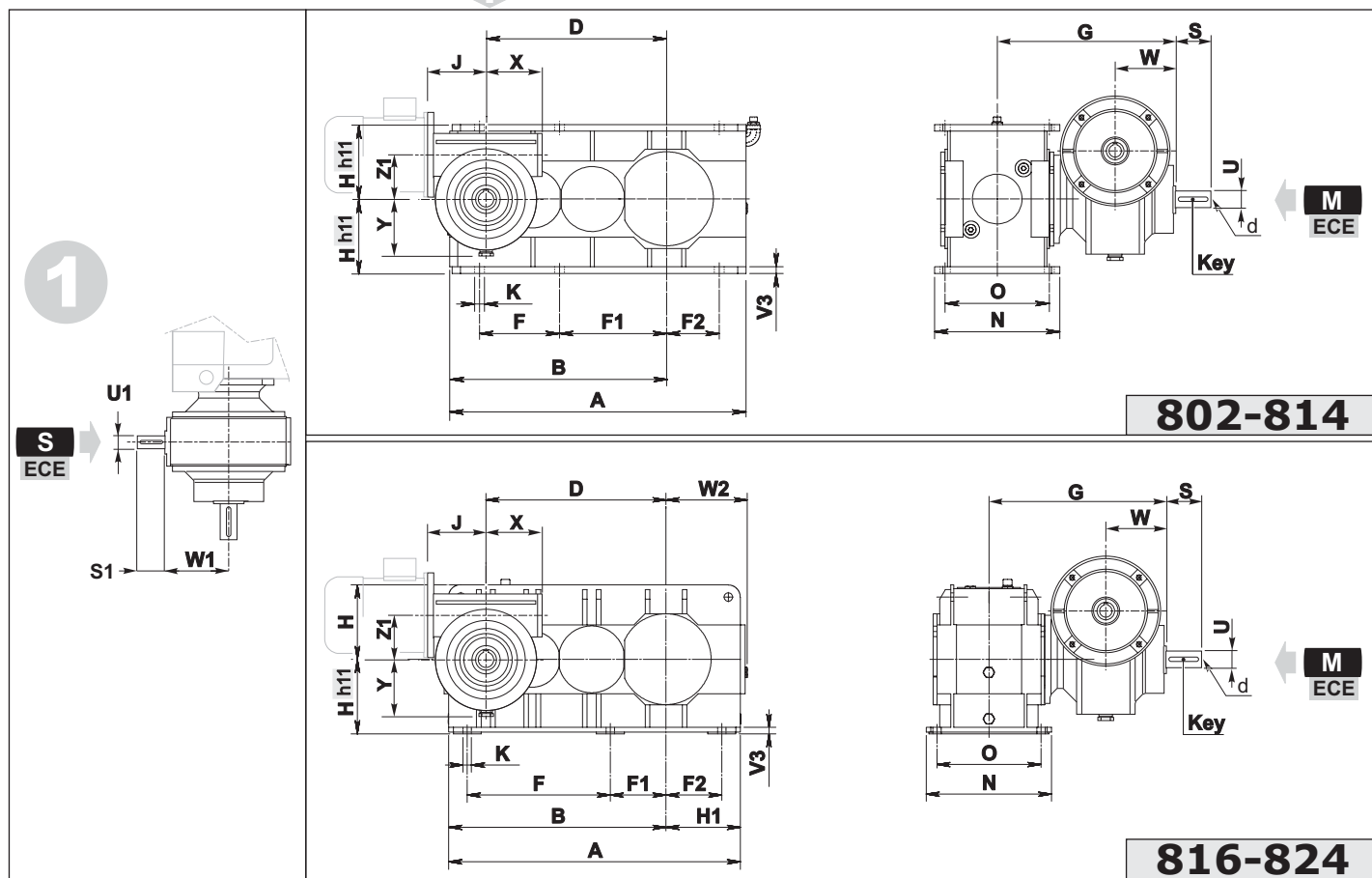
|            |   |     |     |   |     |   |     |     |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
|            | T m6                                                                                                                                                                | R   | M   | T H7                                                                                                                                                                | M1  | T H7                                                                                                                                                                    | M1  | M3  |
| <b>802</b> | 60                                                                                                                                                                  | 112 | 109 | 60                                                                                                                                                                  | 109 | 60                                                                                                                                                                      | 109 | 170 |
| <b>804</b> | 70                                                                                                                                                                  | 125 | 121 | 70                                                                                                                                                                  | 121 | 70                                                                                                                                                                      | 121 | 192 |
| <b>806</b> | 80                                                                                                                                                                  | 140 | 137 | 80                                                                                                                                                                  | 137 | 80                                                                                                                                                                      | 137 | 215 |
| <b>808</b> | 90                                                                                                                                                                  | 160 | 151 | 90                                                                                                                                                                  | 151 | 90                                                                                                                                                                      | 151 | 246 |
| <b>810</b> | 100                                                                                                                                                                 | 180 | 170 | 100                                                                                                                                                                 | 170 | 100                                                                                                                                                                     | 170 | 266 |
| <b>812</b> | 110                                                                                                                                                                 | 200 | 192 | 110                                                                                                                                                                 | 192 | 110                                                                                                                                                                     | 192 | 302 |
| <b>814</b> | 125                                                                                                                                                                 | 225 | 216 | 125                                                                                                                                                                 | 216 | 125                                                                                                                                                                     | 216 | 335 |
| <b>816</b> | 140                                                                                                                                                                 | 250 | 242 | 140                                                                                                                                                                 | 242 | 140                                                                                                                                                                     | 242 | 370 |
| <b>818</b> | 160                                                                                                                                                                 | 280 | 273 | 160                                                                                                                                                                 | 273 | 160                                                                                                                                                                     | 273 | 422 |
| <b>820</b> | 180                                                                                                                                                                 | 315 | 302 | 180                                                                                                                                                                 | 302 | 180                                                                                                                                                                     | 302 | 477 |
| <b>822</b> | 209                                                                                                                                                                 | 355 | 340 | 200                                                                                                                                                                 | 340 | 200                                                                                                                                                                     | 340 | 570 |
| <b>824</b> | 220                                                                                                                                                                 | 400 | 383 | 220                                                                                                                                                                 | 383 | 220                                                                                                                                                                     | 383 | 617 |

| <b>ECE</b>  |            |          | E70    | E100    | E125     | E160      | E180      | E225      |
|------------------------------------------------------------------------------------------------|------------|----------|--------|---------|----------|-----------|-----------|-----------|
| <b>M</b><br><b>ECE</b>                                                                         | <b>802</b> | <b>G</b> | 418.5  | 407.5   |          |           |           |           |
|                                                                                                | <b>804</b> |          | 430.5  | 419.5   | 478.5    |           |           |           |
|                                                                                                | <b>806</b> |          | 448.5  | 437.5   | 496.5    |           |           |           |
|                                                                                                | <b>808</b> |          | 462.5  | 451.5   | 510.5    | 590.5     |           |           |
|                                                                                                | <b>810</b> |          | 461.5  | 450.5   | 509.5    | 611.5     |           |           |
|                                                                                                | <b>812</b> |          | 482.5  | 471.5   | 530.5    | 633.5     | 648       |           |
|                                                                                                | <b>814</b> |          |        | 497     | 556      | 657.5     | 650       | 784       |
|                                                                                                | <b>816</b> |          |        | 522.5   | 581.5    | 686.5     | 700       | 808       |
|                                                                                                | <b>818</b> |          |        |         | 611.5    | 684.5     | 624       | 840       |
|                                                                                                | <b>820</b> |          |        |         |          | 714.5     | 649       | 880       |
|                                                                                                | <b>822</b> |          |        |         |          | 530       | 679       | 750       |
|                                                                                                | <b>824</b> |          |        |         |          |           | 714       | 785       |
| <b>S</b><br><b>ECE</b>                                                                         | <b>d</b>   |          | M6x18  | M8x21   | M10x27   | M16x39    | M16x39    | M16x39    |
|                                                                                                | <b>Key</b> |          | 8x7x40 | 10x8x70 | 14x9x100 | 16x10x100 | 20x12x110 | 22x14x125 |
|                                                                                                | <b>U</b>   |          | 28 j6  | 38 k6   | 48 k6    | 55 m6     | 70 m6     | 80 m6     |
|                                                                                                | <b>S</b>   |          | 50     | 80      | 110      | 110       | 125       | 140       |
|                                                                                                | <b>W</b>   |          | 120    | 138     | 154      | 172       | 240       | 290       |
|                                                                                                | <b>U1</b>  |          | 19 j6  | 28 j6   | 38 j6    | 42 j6     | 55 m6     | 60 m6     |
| <b>S</b><br><b>ECE</b>                                                                         | <b>S1</b>  |          | 40     | 60      | 80       | 100       | 100       | 112       |
|                                                                                                | <b>W1</b>  |          | 97     | 146     | 166      | 195       | 240       | 290       |
|                                                                                                | <b>X</b>   |          | 92     | 142     | 163      | 191       | 238       | 280       |
|                                                                                                | <b>Y</b>   |          | 84     | 139     | 152      | 177       | 212       | 247       |
|                                                                                                | <b>Z1</b>  |          | 70     | 110     | 130      | 150       | 180       | 215       |

## 1.11 Dimensioni Materiale Carcassa - "Acciao"

## 1.11 Dimensions Housing Material- "Steel"

## 1.11 Abmessungen Gehäusematerial - "Stahl"



**1.11 Dimensioni**  
**Materiale Carcassa - "Acciao"**
**1.11 Dimensions**  
**Housing Material- "Steel"**
**1.11 Abmessungen**  
**Gehäusematerial - "Stahl"**

|     | Dimensioni generali / Dimensions / Allgemeine Abmessungen |      |      |     |       |       |     |     |    |     |     |    |     |      |
|-----|-----------------------------------------------------------|------|------|-----|-------|-------|-----|-----|----|-----|-----|----|-----|------|
|     | A                                                         | B    | D    | F   | F1    | F2    | H   | H1  | K  | N   | O   | V3 | W2  | kg   |
| 802 | 498                                                       | 368  | 305  | 136 | 182   | 90    | 125 | 125 | 18 | 213 | 180 | 10 | -   | 99   |
| 804 | 562                                                       | 412  | 342  | 153 | 202.5 | 103.5 | 140 | 140 | 20 | 237 | 200 | 12 | -   | 128  |
| 806 | 635                                                       | 465  | 385  | 173 | 229   | 117   | 160 | 160 | 22 | 269 | 225 | 15 | -   | 193  |
| 808 | 712                                                       | 522  | 432  | 194 | 258   | 130   | 180 | 180 | 25 | 297 | 250 | 15 | -   | 273  |
| 810 | 795                                                       | 585  | 485  | 216 | 288   | 144   | 200 | 200 | 27 | 335 | 280 | 20 | -   | 382  |
| 812 | 897                                                       | 657  | 545  | 242 | 324.5 | 159.5 | 225 | 225 | 30 | 379 | 315 | 20 | -   | 534  |
| 814 | 1000                                                      | 735  | 610  | 271 | 363   | 179   | 250 | 250 | 33 | 427 | 355 | 20 | -   | 758  |
| 816 | 1105                                                      | 825  | 685  | 305 | 407.5 | 202.5 | 280 | 280 | 36 | 479 | 400 | 30 | 318 | 1045 |
| 818 | 1245                                                      | 930  | 770  | 345 | 460   | 230   | 315 | 315 | 39 | 541 | 450 | 30 | 357 | 1464 |
| 820 | 1400                                                      | 1045 | 865  | 388 | 516.5 | 259.5 | 355 | 355 | 42 | 599 | 500 | 30 | 407 | 2106 |
| 822 | 1570                                                      | 1170 | 970  | 770 | 300   | 300   | 400 | 400 | 45 | 675 | 560 | 35 | 437 | 3000 |
| 824 | 1635                                                      | 1255 | 1090 | 865 | 320   | 320   | 450 | 380 | 48 | 761 | 630 | 37 | 480 | 4000 |

**Albero uscita / Output shaft / Abtriebswelle**

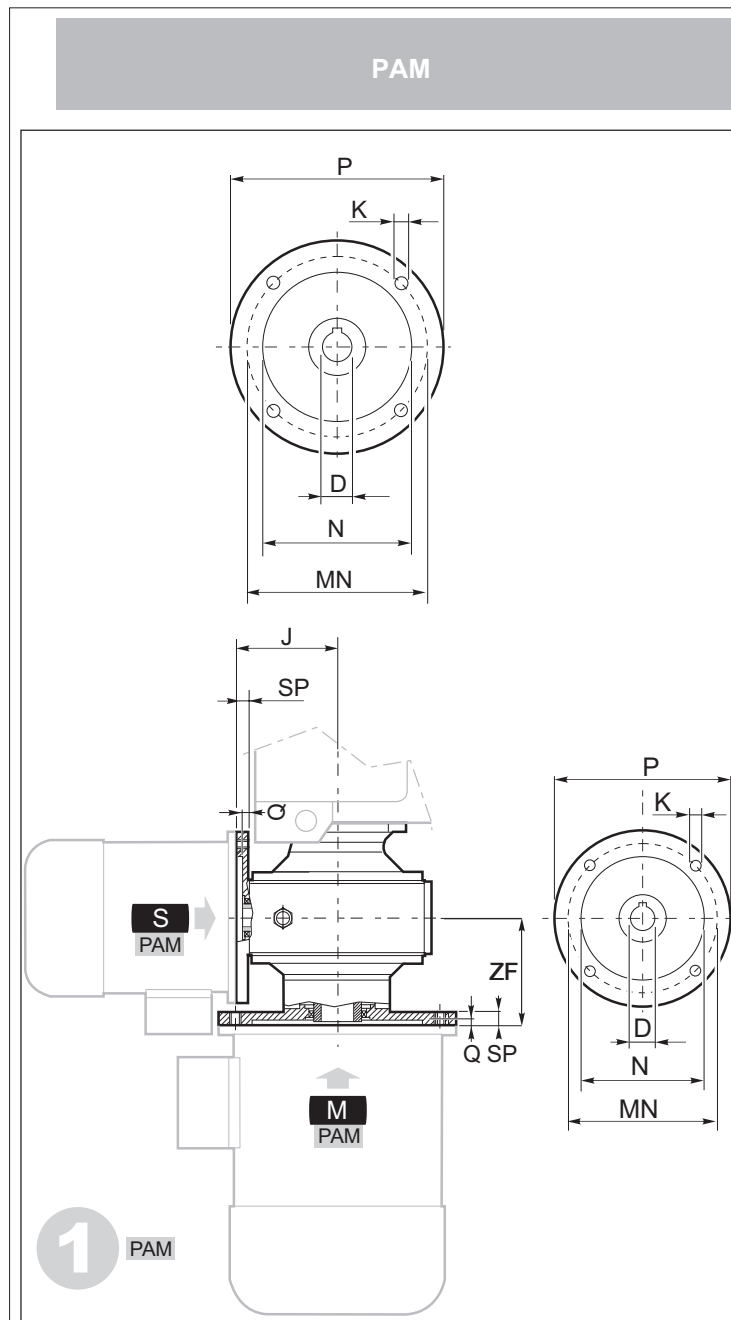
|     |   |     |     |   |     |   |     |     |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
|     | T m6                                                                                                                                                                | R   | M   | T H7                                                                                                                                                                | M1  | T H7                                                                                                                                                                    | M1  | M3  |
| 802 | 60                                                                                                                                                                  | 112 | 109 | 60                                                                                                                                                                  | 109 | 60                                                                                                                                                                      | 109 | 170 |
| 804 | 70                                                                                                                                                                  | 125 | 121 | 70                                                                                                                                                                  | 121 | 70                                                                                                                                                                      | 121 | 192 |
| 806 | 80                                                                                                                                                                  | 140 | 137 | 80                                                                                                                                                                  | 137 | 80                                                                                                                                                                      | 137 | 215 |
| 808 | 90                                                                                                                                                                  | 160 | 151 | 90                                                                                                                                                                  | 151 | 90                                                                                                                                                                      | 151 | 246 |
| 810 | 100                                                                                                                                                                 | 180 | 170 | 100                                                                                                                                                                 | 170 | 100                                                                                                                                                                     | 170 | 266 |
| 812 | 110                                                                                                                                                                 | 200 | 192 | 110                                                                                                                                                                 | 192 | 110                                                                                                                                                                     | 192 | 302 |
| 814 | 125                                                                                                                                                                 | 225 | 216 | 125                                                                                                                                                                 | 216 | 125                                                                                                                                                                     | 216 | 335 |
| 816 | 140                                                                                                                                                                 | 250 | 242 | 140                                                                                                                                                                 | 242 | 140                                                                                                                                                                     | 242 | 370 |
| 818 | 160                                                                                                                                                                 | 280 | 273 | 160                                                                                                                                                                 | 273 | 160                                                                                                                                                                     | 273 | 422 |
| 820 | 180                                                                                                                                                                 | 315 | 302 | 180                                                                                                                                                                 | 302 | 180                                                                                                                                                                     | 302 | 477 |
| 822 | 209                                                                                                                                                                 | 355 | 340 | 200                                                                                                                                                                 | 340 | 200                                                                                                                                                                     | 340 | 570 |
| 824 | 220                                                                                                                                                                 | 400 | 383 | 220                                                                                                                                                                 | 383 | 220                                                                                                                                                                     | 383 | 617 |

| <b>ECE</b>  |     |            | E70    | E100    | E125     | E160      | E180      | E225      |
|------------------------------------------------------------------------------------------------|-----|------------|--------|---------|----------|-----------|-----------|-----------|
| <b>M</b><br><b>ECE</b>                                                                         | 802 | <b>G</b>   | 418.5  | 407.5   |          |           |           |           |
|                                                                                                | 804 |            | 430.5  | 419.5   | 478.5    |           |           |           |
|                                                                                                | 806 |            | 448.5  | 437.5   | 496.5    |           |           |           |
|                                                                                                | 808 |            | 462.5  | 451.5   | 510.5    | 590.5     |           |           |
|                                                                                                | 810 |            | 461.5  | 450.5   | 509.5    | 611.5     |           |           |
|                                                                                                | 812 |            | 482.5  | 471.5   | 530.5    | 633.5     | 648       |           |
|                                                                                                | 814 |            |        | 497     | 556      | 657.5     | 650       | 784       |
|                                                                                                | 816 |            |        | 522.5   | 581.5    | 686.5     | 700       | 808       |
|                                                                                                | 818 |            |        |         | 611.5    | 684.5     | 624       | 840       |
|                                                                                                | 820 |            |        |         |          | 714.5     | 649       | 880       |
|                                                                                                | 822 |            |        |         |          | 530       | 679       | 750       |
|                                                                                                | 824 |            |        |         |          |           | 714       | 785       |
|                                                                                                |     | <b>d</b>   | M6x18  | M8x21   | M10x27   | M16x39    | M16x39    | M16x39    |
| <b>S</b><br><b>ECE</b>                                                                         |     | <b>Key</b> | 8x7x40 | 10x8x70 | 14x9x100 | 16x10x100 | 20x12x110 | 22x14x125 |
|                                                                                                |     | <b>U</b>   | 28 j6  | 38 k6   | 48 k6    | 55 m6     | 70 m6     | 80 m6     |
|                                                                                                |     | <b>S</b>   | 50     | 80      | 110      | 110       | 125       | 140       |
|                                                                                                |     | <b>W</b>   | 120    | 138     | 154      | 172       | 240       | 290       |
|                                                                                                |     | <b>U1</b>  | 19 j6  | 28 j6   | 38 j6    | 42 j6     | 55 m6     | 60 m6     |
|                                                                                                |     | <b>S1</b>  | 40     | 60      | 80       | 100       | 100       | 112       |
|                                                                                                |     | <b>W1</b>  | 97     | 146     | 166      | 195       | 240       | 290       |
|                                                                                                |     | <b>X</b>   | 92     | 142     | 163      | 191       | 238       | 280       |
|                                                                                                |     | <b>Y</b>   | 84     | 139     | 152      | 177       | 212       | 247       |
|                                                                                                |     | <b>Z1</b>  | 70     | 110     | 130      | 150       | 180       | 215       |

## 1.11 Dimensioni

## 1.11 Dimensions

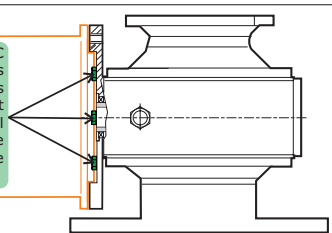
## 1.11 Abmessungen



| <div>M</div> <div>PAM</div> |     | Grandezza riduttore accoppiato - RXP3<br>Coupled gear unit - RXP3<br>Gepasstes Getriebe - RXP3 |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----------------------------|-----|------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|                             |     | IEC                                                                                            | 802 | 804 | 806 | 808 | 810 | 812 | 814 | 816 | 818 | 820 | 822 | 824 |  |  |
|                             |     | ZF                                                                                             |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| E70                         | 90  | 121                                                                                            | 121 | 121 | 121 | 121 | 121 |     |     |     |     |     |     |     |  |  |
|                             | 100 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|                             | 112 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|                             | 132 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| E100                        | 132 |                                                                                                |     | 157 |     | 157 | 157 | 157 | 157 | 157 |     |     |     |     |  |  |
|                             | 160 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| E125                        | 160 |                                                                                                |     |     |     |     | 173 | 173 | 173 | 173 | 173 |     |     |     |  |  |
|                             | 180 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| E160                        | 180 |                                                                                                |     |     |     |     |     |     |     | 204 | 204 | 204 |     |     |  |  |
|                             | 200 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| E180                        | 200 |                                                                                                |     |     |     |     |     |     |     |     | 250 | 250 | 250 |     |  |  |
|                             | 225 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |

| <div>S</div> <div>PAM</div> |     | Grandezza riduttore accoppiato - RXP3<br>Coupled gear unit - RXP3<br>Gepasstes Getriebe - RXP3 |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
|-----------------------------|-----|------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--|
|                             |     | IEC                                                                                            | 802 | 804 | 806 | 808 | 810 | 812 | 814 | 816 | 818 | 820 | 822 | 824 |  |  |  |  |  |
|                             |     | J                                                                                              |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
| E70                         | 71  | 100                                                                                            | 100 | 100 | 100 | 100 | 100 |     |     |     |     |     |     |     |  |  |  |  |  |
|                             | 80  |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
|                             | 90  |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
| E100                        | 90  | 145                                                                                            | 145 | 145 | 145 | 145 | 145 | 145 | 145 |     |     |     |     |     |  |  |  |  |  |
|                             | 100 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
|                             | 112 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
| E125                        | 100 | 163                                                                                            | 163 | 163 | 163 | 163 | 163 | 163 | 163 |     |     |     |     |     |  |  |  |  |  |
|                             | 112 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
|                             | 132 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
| E160                        | 100 |                                                                                                |     | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 190 |     |     |     |  |  |  |  |  |
|                             | 112 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
|                             | 132 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
|                             | 160 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
| E180                        | 100 |                                                                                                |     |     |     | 245 | 245 | 245 | 245 | 245 | 245 | 245 | 245 |     |  |  |  |  |  |
|                             | 112 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
|                             | 132 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
|                             | 160 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
|                             | 180 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
| E225                        | 132 |                                                                                                |     |     |     |     | 285 | 285 | 285 | 285 | 285 | 285 | 285 |     |  |  |  |  |  |
|                             | 160 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
|                             | 180 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |
|                             | 200 |                                                                                                |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |

If a device other than the IEC standard electric motor is installed on the gearbox, it is necessary to request a fitment verification by the Technical Department to avoid interference with the fixing screws of the gearbox PAM.

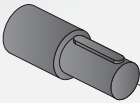
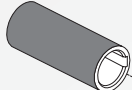
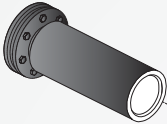
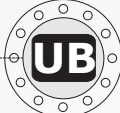
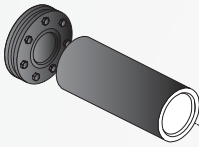
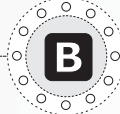
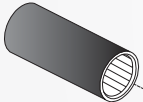
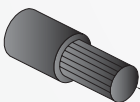
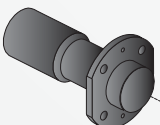
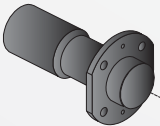


| IEC | P   | MN  | N<br>G6 | Q   | Look at<br>tables | K | SP | D  |
|-----|-----|-----|---------|-----|-------------------|---|----|----|
| 71  | 160 | 130 | 110     | 4.5 |                   |   | 12 | 14 |
| 80  | 200 | 165 | 130     | 4.5 |                   |   | 12 | 19 |
| 90  | 200 | 165 | 130     | 4.5 |                   |   | 12 | 24 |
| 100 | 250 | 215 | 180     | 5   |                   |   | 14 | 28 |
| 112 | 250 | 215 | 180     | 5   |                   |   | 14 | 28 |
| 132 | 300 | 265 | 230     | 5   |                   |   | 16 | 38 |
| 160 | 350 | 300 | 250     | 6   |                   |   | 18 | 42 |
| 180 | 350 | 300 | 250     | 6   |                   |   | 18 | 48 |
| 200 | 400 | 350 | 300     | 6   |                   |   | 20 | 55 |
| 225 | 450 | 400 | 350     | 6   |                   |   | 20 | 60 |

| M<br>PAM | IEC | K       |
|----------|-----|---------|
| E70      | 90  | N.4 Ø11 |
|          | 100 | N.4 M12 |
|          | 112 | N.4 M12 |
| E100     | 132 | N.4 M12 |
|          | 132 | N.4 M12 |
| E125     | 160 | N.4 M16 |
|          | 160 | N.4 M16 |
| E160     | 180 | N.4 M16 |
|          | 180 | N.4 Ø19 |
| E180     | 200 | N.4 Ø19 |
|          | 200 | N.4 M16 |
|          | 225 | N.8 M16 |

| S<br>PAM | IEC | K       |
|----------|-----|---------|
| E70      | 71  | N.4 Ø9  |
|          | 80  | N.4 Ø11 |
|          | 90  | N.4 Ø11 |
| E100     | 90  | N.4 Ø11 |
|          | 100 | N.4 M12 |
|          | 112 | N.4 M12 |
| E125     | 100 | N.4 M12 |
|          | 112 | N.4 M12 |
|          | 132 | N.4 M12 |
| E160     | 100 | N.4 M12 |
|          | 112 | N.4 M12 |
|          | 132 | N.4 M12 |
|          | 160 | N.4 M16 |
| E180     | 100 | N.4 M12 |
|          | 112 | N.4 M12 |
|          | 132 | N.4 M12 |
|          | 160 | N.4 M16 |
|          | 180 | N.4 M16 |
| E225     | 132 | N.4 M12 |
|          | 160 | N.4 M16 |
|          | 180 | N.4 M16 |
|          | 200 | N.4 M16 |

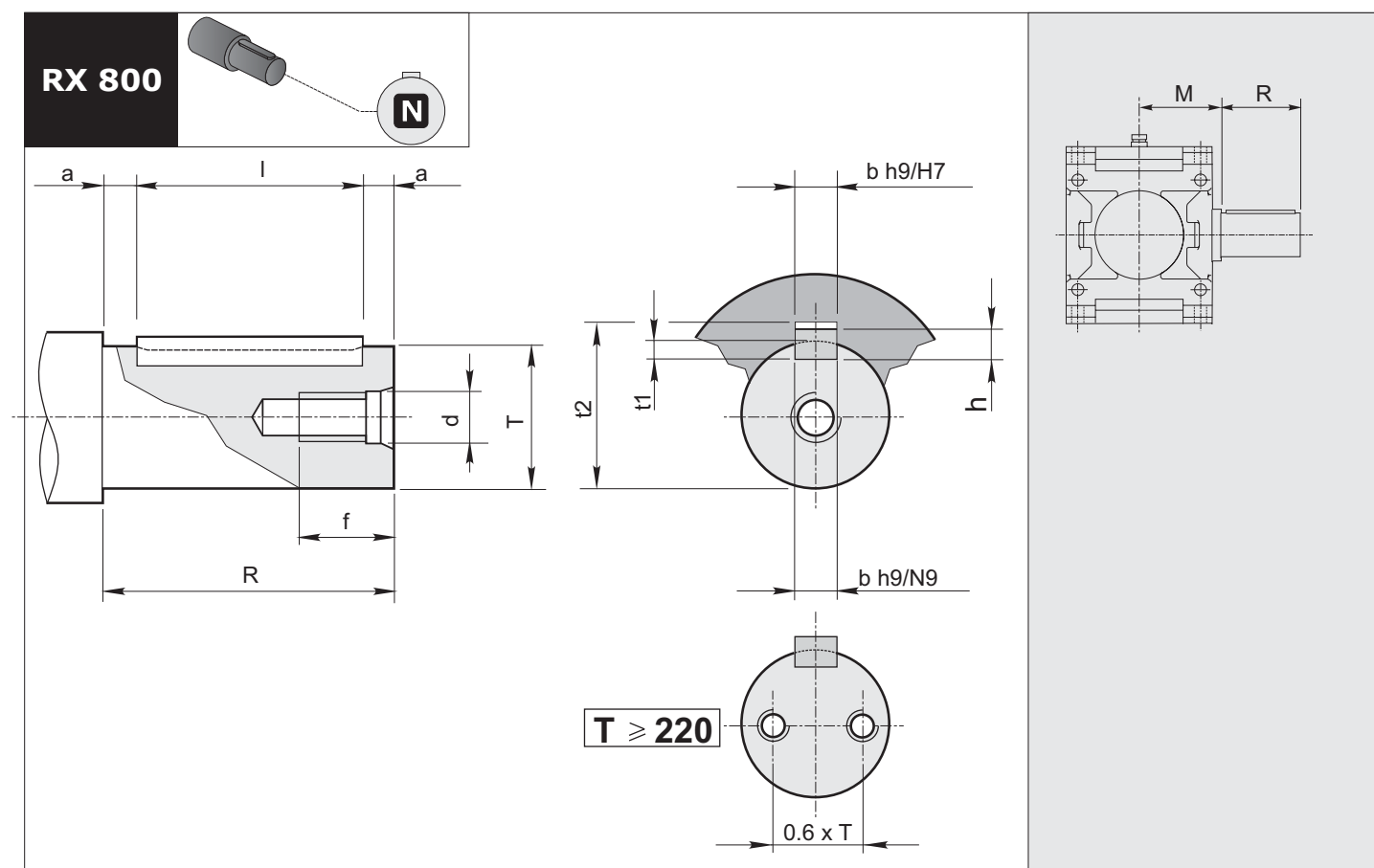
1.12 - ESTREMITÀ USCITA  
1.12 - OUTPUT CONFIGURATIONS  
1.12 - ENDEN DER AUSGANGSWELLEN

|                                                                                     |                                                                                     |                                              |     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------|-----|
|    |    | Output shaft                                 | A40 |
|    |    | Hollow shaft                                 | A41 |
|    |    | Hollow output shaft with shrink disc         | A42 |
|   |  | Hollow output shaft with shrink disc         | A42 |
|  |  | Splined hollow shaft                         | A43 |
|  |  | Splined output shaft without broached flange | A44 |
|  |  | Splined output shaft and broached flange     | A44 |
|  |  | Splined output shaft with flanged coupling   | A45 |

## 1.12.1 - Sporgente Integrale

## 1.12.1 - Output shaft

## 1.12.1 - Vollwelle



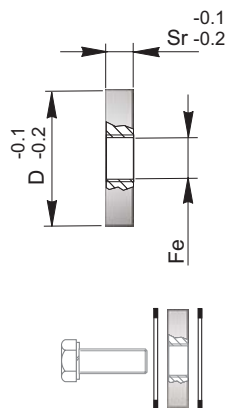
| RX. Series | Ø Albero<br>Ø Shaft<br>Ø Welle |     | Foro fil. testa<br>Tapped hole<br>Gewindebohrung Kopf |    | Cava<br>Keyway<br>Nut |                |                | Estremità d'albero<br>Shaft end<br>Wellenende |      | Linguetta<br>Key<br>Federkeil |
|------------|--------------------------------|-----|-------------------------------------------------------|----|-----------------------|----------------|----------------|-----------------------------------------------|------|-------------------------------|
|            | T                              | M   | d                                                     | f  | b                     | t <sub>1</sub> | t <sub>2</sub> | R a11                                         | a    |                               |
| 802        | 60 m6                          | 109 | M12                                                   | 35 | 18                    | 7              | 64.4           | 112                                           | 6    | 18x11x100                     |
| 804        | 70 m6                          | 121 | M16                                                   | 39 | 20                    | 7.5            | 74.9           | 125                                           | 7.5  | 20x12x110                     |
| 806        | 80 m6                          | 137 | M16                                                   | 39 | 22                    | 9              | 85.4           | 140                                           | 7.5  | 22x14x125                     |
| 808        | 90 m6                          | 151 | M16                                                   | 39 | 25                    | 9              | 95.4           | 160                                           | 10   | 25x14x140                     |
| 810        | 100 m6                         | 170 | M20                                                   | 46 | 28                    | 10             | 106.4          | 180                                           | 10   | 28x16x160                     |
| 812        | 110 m6                         | 192 | M20                                                   | 46 | 28                    | 10             | 116.4          | 200                                           | 10   | 28x16x180                     |
| 814        | 125 m6                         | 216 | M20                                                   | 46 | 32                    | 11             | 132.4          | 225                                           | 12.5 | 32x18x200                     |
| 816        | 140 m6                         | 242 | M24                                                   | 56 | 36                    | 12             | 148.4          | 250                                           | 15   | 36x20x220                     |
| 818        | 160 m6                         | 273 | M24                                                   | 56 | 40                    | 13             | 169.4          | 280                                           | 15   | 40x22x250                     |
| 820        | 180 m6                         | 302 | M30                                                   | 72 | 45                    | 15             | 190.4          | 315                                           | 17.5 | 45x25x280                     |
| 822        | 200 m6                         | 340 | M30                                                   | 72 | 45                    | 15             | 210.4          | 355                                           | 17.5 | 45x25x320                     |
| 824        | 220 m6                         | 383 | N°2 M24                                               | 56 | 50                    | 17             | 231.4          | 400                                           | 20   | 50x28x360                     |

Estremità d'albero cilindriche secondo UNI 6397-68, DIN748, NFE 22.051, BS 4506-70, ISO/R 775/69, escluso corrispondenza R-S.  
Linguette secondo UNI6604-69, DIN6885 Bl. 1-68, NFE 27.656 e 22.175, BS 4235.1-72, ISO/R 773/69, escluso corrispondenza I.

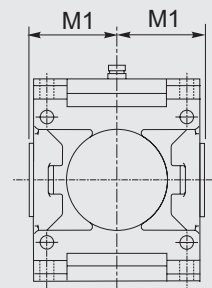
Cylindrical shaft ends in accordance with UNI 6397-68, DIN748, NFE 22.051, BS 4506-70, ISO/R 775/69, excluding section R-S.  
Key according to UNI6604-69, DIN6885 Bl. 1-68, NFE 27.656 e 22.175, BS 4235.1-72, ISO/R 773/69, excluding section I.

Zylindrische Wellenenden gemäß UNI 6397-68, DIN748, NFE 22.051, BS 4506-70, ISO/R 775/69, ausgenommen Zuordnung R-S.  
Federkeile UNI6604-69, DIN6885 Bl. 1-68, NFE 27.656 und 22.175, BS 4235.1-72, ISO/R 773/69, ausgenommen Zuordnung I.

### 1.12.2 - Hohlwelle



Kit fornito su richiesta  
Kit available on request  
Auf Anfrage lieferbares Kit

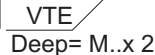


Coperchio di protezione richiesta  
Protection cover available on  
request  
Schutzdeckel auf Anfrage

| <div>RX 800 Series</div> | A1  | M1  | D   | Dp  | E   | Fe  | G   | Lu    | Sr |
|--------------------------|-----|-----|-----|-----|-----|-----|-----|-------|----|
| 802                      | 218 | 109 | 60  | 165 | 50  | M27 | 120 | 184   | 15 |
| 804                      | 242 | 121 | 70  | 184 | 56  | M27 | 135 | 207.5 | 15 |
| 806                      | 274 | 137 | 80  | 208 | 63  | M27 | 150 | 239.5 | 15 |
| 808                      | 302 | 151 | 90  | 234 | 70  | M30 | 170 | 261   | 18 |
| 810                      | 340 | 170 | 100 | 254 | 80  | M30 | 190 | 299   | 18 |
| 812                      | 384 | 192 | 110 | 290 | 90  | M30 | 210 | 339   | 21 |
| 814                      | 432 | 216 | 125 | 316 | 100 | M30 | 235 | 384   | 24 |
| 816                      | 484 | 242 | 140 | 365 | 110 | M39 | 260 | 431   | 24 |
| 818                      | 546 | 273 | 160 | 415 | 125 | M39 | 295 | 490   | 27 |
| 820                      | 604 | 302 | 180 | 454 | 140 | M39 | 325 | 548   | 27 |
| 822                      | 680 | 340 | 200 | —   | 160 | M42 | —   | 616   | 30 |
| 824                      | 766 | 383 | 220 |     | 180 | M42 |     | 693   | 30 |

Albero macchina / *Machine shaft* / Machine shaft

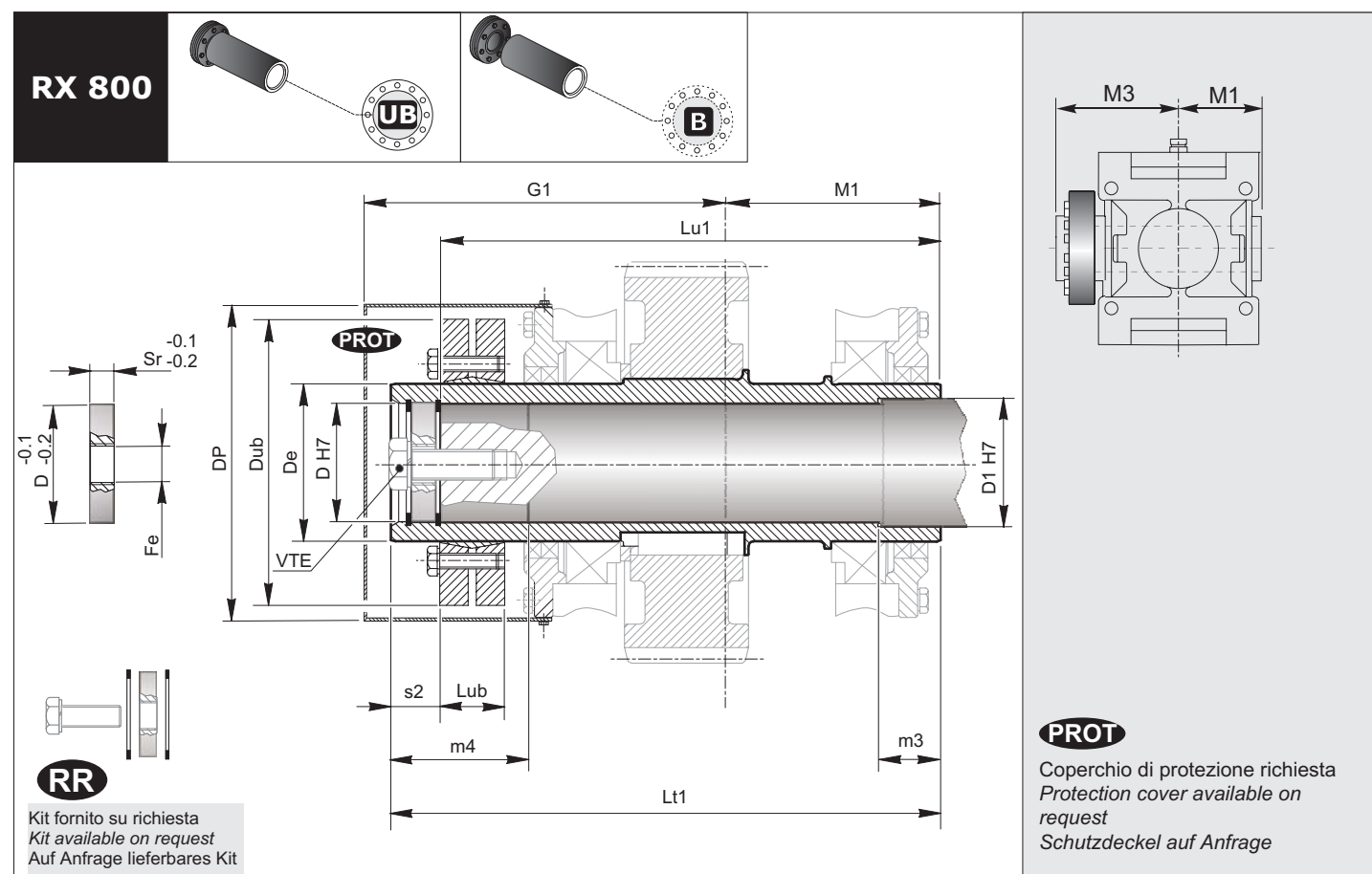
|     | B    | C   | D   | E   | F   | G  | L   | Lu    | VTE |
|-----|------|-----|-----|-----|-----|----|-----|-------|-----|
| 802 | 21   | 3.5 | 60  | 55  | 108 | 22 | 160 | 184   | M20 |
| 804 | 26.5 | 4   | 70  | 61  | 120 | 25 | 180 | 207.5 | M20 |
| 806 | 33.5 | 4.5 | 80  | 68  | 138 | 36 | 200 | 239.5 | M20 |
| 808 | 36   | 5   | 90  | 77  | 148 | 37 | 220 | 261   | M24 |
| 810 | 44   | 5.5 | 100 | 85  | 170 | 43 | 250 | 299   | M24 |
| 812 | 50   | 6   | 110 | 95  | 194 | 15 | 320 | 339   | M24 |
| 814 | 61   | 7   | 125 | 105 | 218 | 57 | 320 | 384   | M24 |
| 816 | 62   | 8   | 140 | 115 | 254 | 62 | 360 | 431   | M30 |
| 818 | 74   | 9   | 160 | 130 | 286 | 36 | 450 | 490   | M30 |
| 820 | 89   | 10  | 180 | 145 | 314 | 42 | 500 | 548   | M30 |
| 822 | 100  | 12  | 200 | 165 | 351 | 46 | 560 | 616   | M33 |
| 824 | 112  | 14  | 220 | 185 | 396 | 50 | 630 | 693   | M33 |



### 1.12.3 - Albero uscita cavo con unità di bloccaggio

### 1.12.3 - Hollow output shaft with shrink disc

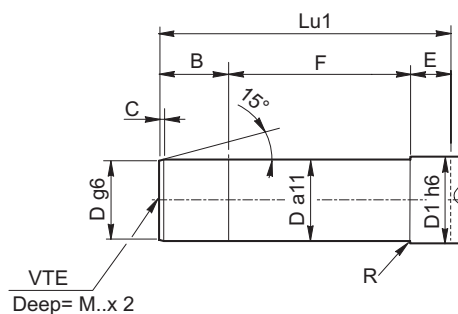
### 1.12.3 - Hohlwelle mit Schrumpfscheibe



| RX 800 Series | D   | D1  | De  | Dp  | Dub | Fe  | G1  | Lt1  | Lub  | Lu1 | M1  | M3  | m4  | m3  | Sr | s2 |
|---------------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|-----|-----|----|----|
| 802           | 60  | 65  | 80  | 165 | 145 | M27 | 185 | 279  | 32.5 | 254 | 109 | 170 | 70  | 32  | 15 | 25 |
| 804           | 70  | 75  | 90  | 184 | 155 | M27 | 205 | 313  | 39   | 286 | 121 | 192 | 80  | 35  | 15 | 27 |
| 806           | 80  | 85  | 100 | 208 | 170 | M27 | 230 | 352  | 44   | 324 | 137 | 215 | 90  | 40  | 15 | 28 |
| 808           | 90  | 95  | 120 | 234 | 215 | M30 | 260 | 397  | 54   | 364 | 151 | 246 | 100 | 45  | 18 | 33 |
| 810           | 100 | 110 | 130 | 254 | 215 | M30 | 285 | 436  | 54   | 402 | 170 | 266 | 110 | 50  | 18 | 34 |
| 812           | 110 | 120 | 140 | 290 | 230 | M30 | 320 | 494  | 60.5 | 454 | 192 | 302 | 125 | 56  | 21 | 40 |
| 814           | 125 | 135 | 160 | 316 | 265 | M30 | 355 | 551  | 64.5 | 507 | 216 | 335 | 140 | 63  | 24 | 44 |
| 816           | 140 | 150 | 180 | 365 | 300 | M39 | 390 | 612  | 71   | 567 | 242 | 370 | 160 | 70  | 24 | 45 |
| 818           | 160 | 170 | 200 | 415 | 350 | M39 | 440 | 695  | 86   | 645 | 273 | 422 | 180 | 80  | 27 | 50 |
| 820           | 180 | 195 | 240 | 454 | 405 | M39 | 500 | 779  | 109  | 727 | 302 | 477 | 200 | 90  | 27 | 52 |
| 822           | 200 | 215 | 260 | 515 | 430 | M42 | 600 | 910  | 160  | 852 | 340 | 570 | 225 | 100 | 30 | 58 |
| 824           | 220 | 235 | 280 | —   | 460 | M42 | —   | 1000 | 172  | 938 | 383 | 617 | 253 | 110 | 30 | 62 |

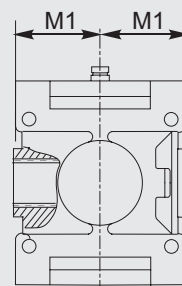
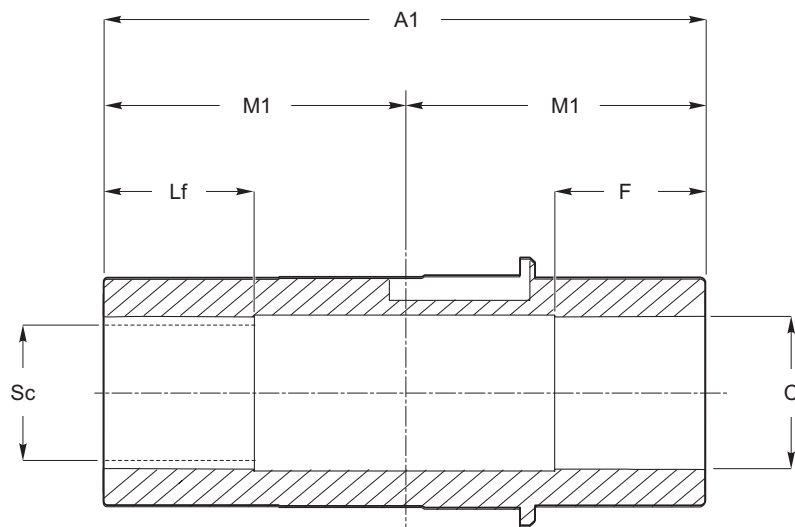
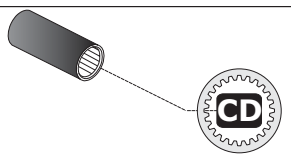
### Albero macchina / Machine shaft / Machine shaft

|     | B   | C   | D   | D1  | E  | F   | Lu1 | M   | R   | VTE |
|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|
| 802 | 50  | 3.5 | 60  | 65  | 28 | 176 | 254 | M20 | 2   | M20 |
| 804 | 58  | 4   | 70  | 75  | 30 | 198 | 286 | M20 | 2.2 | M20 |
| 806 | 67  | 4.5 | 80  | 85  | 32 | 225 | 324 | M20 | 2.5 | M20 |
| 808 | 72  | 5   | 90  | 95  | 35 | 257 | 364 | M24 | 2.8 | M24 |
| 810 | 81  | 5.5 | 100 | 110 | 40 | 281 | 402 | M24 | 3   | M24 |
| 812 | 90  | 6   | 110 | 120 | 45 | 319 | 454 | M24 | 3.5 | M24 |
| 814 | 101 | 7   | 125 | 135 | 50 | 356 | 507 | M24 | 4   | M24 |
| 816 | 120 | 8   | 140 | 150 | 56 | 391 | 567 | M30 | 4.5 | M30 |
| 818 | 135 | 9   | 160 | 170 | 63 | 447 | 645 | M30 | 5   | M30 |
| 820 | 153 | 10  | 180 | 195 | 71 | 503 | 727 | M30 | 5.5 | M30 |
| 822 | 167 | 11  | 200 | 215 | 80 | 605 | 852 | M33 | 6   | M33 |
| 824 | 200 | 14  | 220 | 235 | 90 | 648 | 938 | M33 | 6.5 | M33 |



## 1.12.4 - Albero lento cavo scanalato 12.4 - Splined hollow shaft

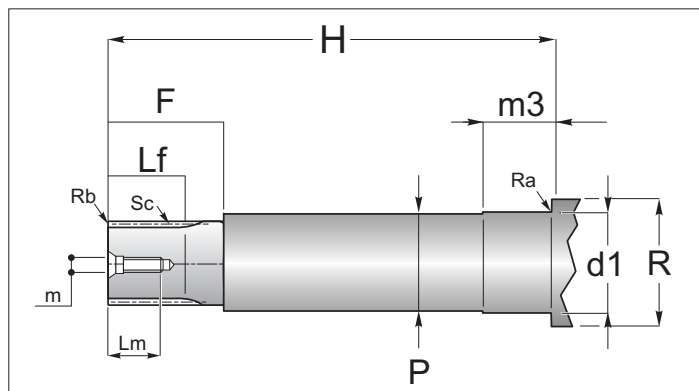
## 1.12.4 - Verzahnte Hohlwelle

**RX 800**


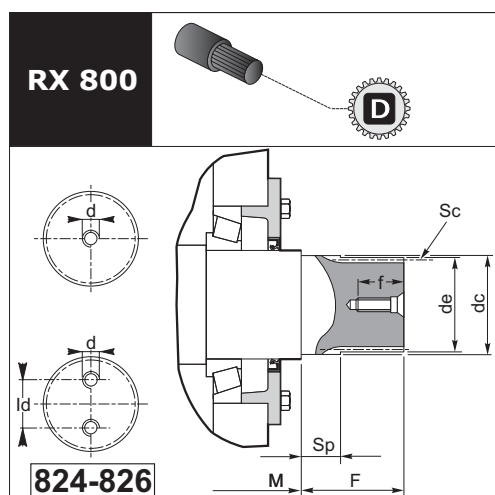
| RX 800 Series | A1  | M1  | C<br>H7 | F   | Lf  | Sc                     |
|---------------|-----|-----|---------|-----|-----|------------------------|
| 802           | 218 | 109 | 62      | 70  | 70  | 60 x 55 - DIN5482      |
| 804           | 242 | 121 | 72      | 70  | 70  | 70 x 64 - DIN5482      |
| 806           | 274 | 137 | 82      | 90  | 90  | 80 x 74 - DIN5482      |
| 808           | 302 | 151 | 92      | 90  | 90  | 90 x 84 - DIN5482      |
| 810           | 340 | 170 | 102     | 110 | 110 | 100 x 94 - DIN5482     |
| 812           | 384 | 192 | 112     | 110 | 110 | 110 x 3 x 35 - DIN5480 |
| 814           | 432 | 216 | 122     | 120 | 120 | 120 x 5 x 22 - DIN5480 |
| 816           | 484 | 242 | 142     | 140 | 140 | 140 x 5 x 26 - DIN5480 |
| 818           | 546 | 273 | 162     | 160 | 160 | 160 x 5 x 30 - DIN5480 |
| 820           | 604 | 302 | 182     | 180 | 180 | 180 x 8 x 21 - DIN5480 |

## Albero macchina / Machine shaft / Machine shaft

|     | d1<br>h6                                                                                                         | m3 | H | HS | P | R | Ra | Rb | Sc                                                                                                               | F | Lf | Lm | m |
|-----|------------------------------------------------------------------------------------------------------------------|----|---|----|---|---|----|----|------------------------------------------------------------------------------------------------------------------|---|----|----|---|
| 802 | Contattare il ns. servizio tecnico / Contact our technical dept / Wenden Sie sich an unseren technischen Service |    |   |    |   |   |    |    | Contattare il ns. servizio tecnico / Contact our technical dept / Wenden Sie sich an unseren technischen Service |   |    |    |   |
| 804 |                                                                                                                  |    |   |    |   |   |    |    |                                                                                                                  |   |    |    |   |
| 806 |                                                                                                                  |    |   |    |   |   |    |    |                                                                                                                  |   |    |    |   |
| 808 |                                                                                                                  |    |   |    |   |   |    |    |                                                                                                                  |   |    |    |   |
| 810 |                                                                                                                  |    |   |    |   |   |    |    |                                                                                                                  |   |    |    |   |
| 812 |                                                                                                                  |    |   |    |   |   |    |    |                                                                                                                  |   |    |    |   |
| 814 |                                                                                                                  |    |   |    |   |   |    |    |                                                                                                                  |   |    |    |   |
| 816 |                                                                                                                  |    |   |    |   |   |    |    |                                                                                                                  |   |    |    |   |
| 818 |                                                                                                                  |    |   |    |   |   |    |    |                                                                                                                  |   |    |    |   |
| 820 |                                                                                                                  |    |   |    |   |   |    |    |                                                                                                                  |   |    |    |   |



### 1.12.5 - Estremità albero lento scanalato senza flangia brocciata



### 1.12.5 - Splined output shaft without broached flange

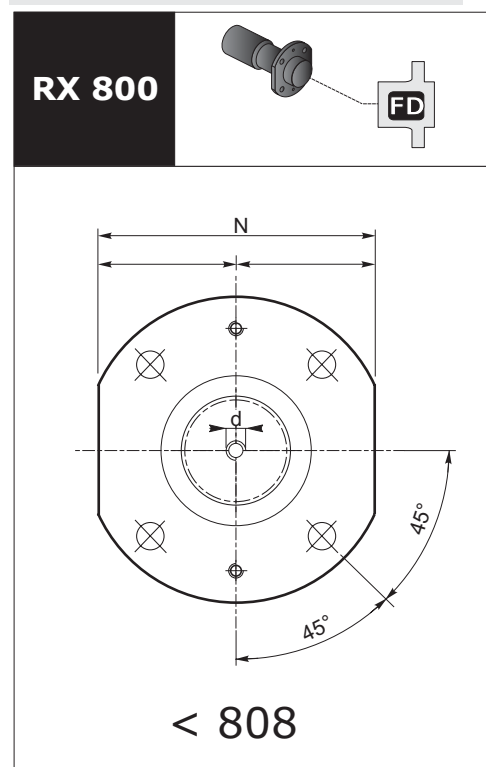
|     | de<br>(h10) | F   | M   | Foro fil. testa<br>Tapped hole<br>Gewindebohrung Kopf |     | Profilo scanalato / Splined profile / Keilprofil |                 |    |      |          |            |    |
|-----|-------------|-----|-----|-------------------------------------------------------|-----|--------------------------------------------------|-----------------|----|------|----------|------------|----|
|     |             |     |     | d                                                     | Id  | f                                                | Sc              | Z  | mn   | $\alpha$ | dc<br>(f7) | Sp |
| 802 | 59.5        | 62  | 109 | M12                                                   | —   | 35                                               | FIAT 60         | 22 | 2.6  | 30°      | 60         | 22 |
| 804 | 69.3        | 69  | 121 | M16                                                   |     | 39                                               | FIAT 70         | 26 | 2.58 | 30°      | 70         | 25 |
| 806 | 79.3        | 69  | 137 | M16                                                   |     | 39                                               | FIAT 80         | 27 | 2.82 | 30°      | 80         | 20 |
| 808 | 94.3        | 74  | 151 | M16                                                   |     | 39                                               | FIAT 95         | 31 | 2.97 | 30°      | 95         | 25 |
| 810 | 104.4       | 79  | 170 | M20                                                   |     | 46                                               | D. 105 DIN 5480 | 34 | 3    | 30°      | 106        | 25 |
| 812 | 109.4       | 94  | 192 | M20                                                   |     | 46                                               | D. 110 DIN 5480 | 35 | 3    | 30°      | 111        | 25 |
| 814 | 129         | 124 | 216 | M20                                                   |     | 46                                               | D. 130 DIN 5480 | 24 | 5    | 30°      | 130        | 32 |
| 816 | 139         | 139 | 242 | M24                                                   |     | 56                                               | D. 140 DIN 5480 | 26 | 5    | 30°      | 140        | 35 |
| 818 | 159         | 159 | 273 | M24                                                   |     | 56                                               | D. 160 DIN 5480 | 30 | 5    | 30°      | 160        | 38 |
| 820 | 178.4       | 179 | 302 | M30                                                   |     | 71                                               | D. 180 DIN 5480 | 21 | 8    | 30°      | 180        | 42 |
| 822 | 198.4       | 200 | 340 | M30                                                   |     | 71                                               | D. 200 DIN 5480 | 24 | 8    | 30°      | 200        | 44 |
| 824 | 218.4       | 218 | 383 | M24                                                   | 132 | 48                                               | D. 220 DIN 5480 | 26 | 8    | 30°      | 220        | 48 |

**FF**
**FF -**

Kit fornito su richiesta  
Kit available on request  
Auf Anfrage lieferbares Kit

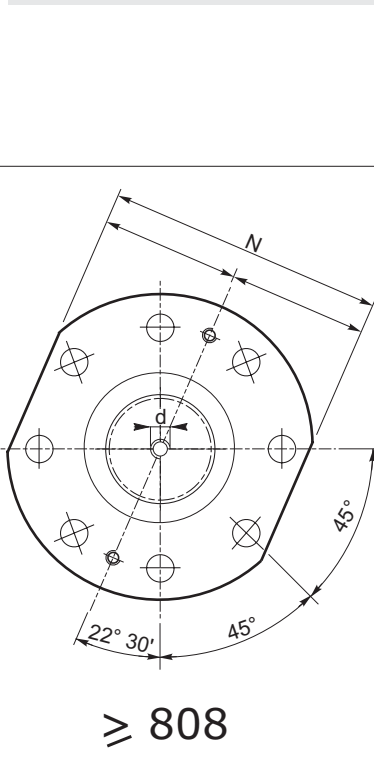
### 1.12.6 - Estremità scanalata albero lento flangia brocciata

Non fornibili per classe di sollevamento M8.



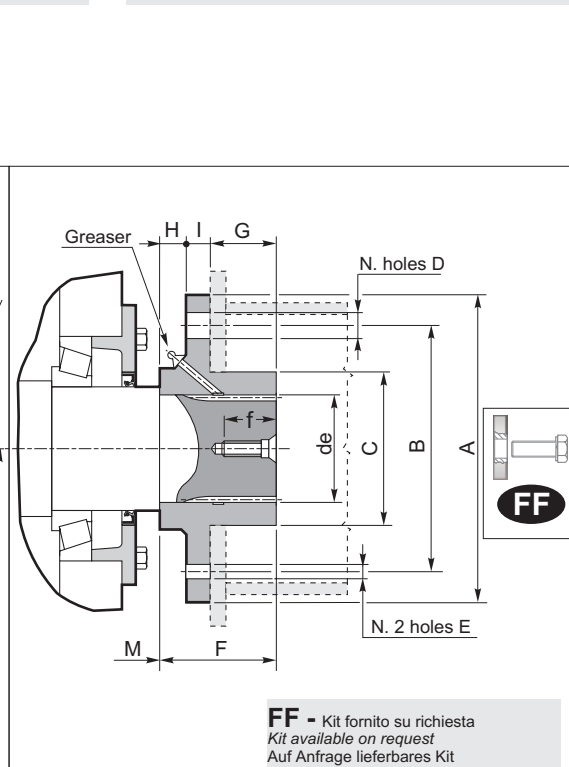
### 1.12.6 - Splined output shaft and broached flange

Not available for lifting class M8.



### 1.12.6 - Abtriebswelle mit Keilende und geräumtem Flansch

Für Hubklass M8 nicht lieferbar.


**FF -** Kit fornito su richiesta  
Kit available on request  
Auf Anfrage lieferbares Kit

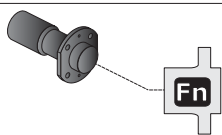
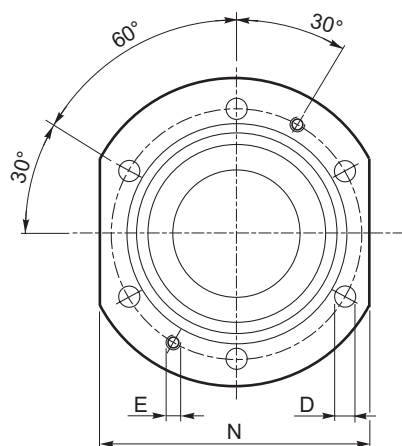
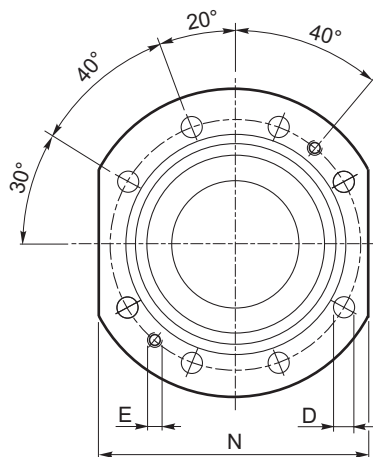
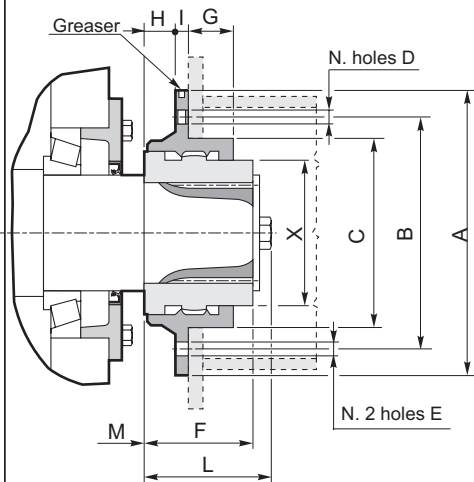
| RX 800 Series | Dimensioni generali / General dimensions / Allgemeine Abmessungen |     |     |        |                                                       |    |                                 |      |     |     |     |    |    |     |         |
|---------------|-------------------------------------------------------------------|-----|-----|--------|-------------------------------------------------------|----|---------------------------------|------|-----|-----|-----|----|----|-----|---------|
|               | de                                                                | Ø A | Ø B | Ø C f8 | Foro fil. testa<br>Tapped hole<br>Gewindebohrung Kopf |    | N° Fori<br>Anzahl der Bohrungen | Ø D  | E   | F   | G   | H  | I  | M   | N<br>h9 |
|               |                                                                   |     |     |        | d                                                     | f  |                                 |      |     |     |     |    |    |     |         |
| 802           | 60                                                                | 180 | 140 | 90     | M12                                                   | 35 | 4                               | 17.5 | M8  | 63  | 38  | 9  | 16 | 109 | 160     |
| 804           | 70                                                                | 200 | 160 | 100    | M16                                                   | 39 | 4                               | 17.5 | M10 | 70  | 43  | 11 | 16 | 121 | 180     |
| 806           | 80                                                                | 220 | 180 | 110    | M16                                                   | 39 | 4                               | 19.5 | M10 | 70  | 40  | 12 | 18 | 137 | 200     |
| 808           | 95                                                                | 240 | 190 | 130    | M16                                                   | 39 | 8                               | 19.5 | M10 | 75  | 40  | 15 | 20 | 151 | 220     |
| 810           | 105                                                               | 250 | 200 | 145    | M20                                                   | 46 | 8                               | 21.5 | M12 | 80  | 40  | 20 | 20 | 170 | 230     |
| 812           | 110                                                               | 280 | 225 | 150    | M20                                                   | 46 | 8                               | 21.5 | M12 | 95  | 52  | 20 | 23 | 192 | 250     |
| 814           | 130                                                               | 355 | 280 | 180    | M20                                                   | 46 | 8                               | 23.5 | M14 | 125 | 80  | 20 | 25 | 216 | 315     |
| 816           | 140                                                               | 400 | 315 | 200    | M24                                                   | 56 | 8                               | 23.5 | M14 | 140 | 90  | 22 | 28 | 242 | 355     |
| 818           | 160                                                               | 450 | 355 | 225    | M24                                                   | 56 | 8                               | 29   | M16 | 160 | 103 | 25 | 32 | 273 | 400     |
| 820           | 180                                                               | 500 | 400 | 250    | M30                                                   | 71 | 8                               | 32   | M16 | 180 | 118 | 28 | 34 | 302 | 450     |
| 822           | 200                                                               | 560 | 450 | 280    | M30                                                   | 71 | 8                               | 35   | M18 | 200 | 132 | 32 | 36 | 340 | 500     |

### 1.12.7 - Estremità scanalata albero lento con giunto dentato flangiato

### 1.12.7 - Splined output shaft with flanged splined coupling

### 1.12.7 - Abtriebswelle mit Keilende mit geflanschter Klauenkupplung

RX 800


**F1-F2-F3-F4-F5-F6-F7-F8-F9**

 $\leq F8$ 

 $= F9$ 


Accoppiamenti riduttori giunti / Gear unit+coupling combinations / Passung von Getrieben-Kupplungen

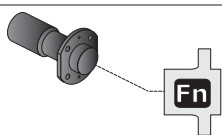
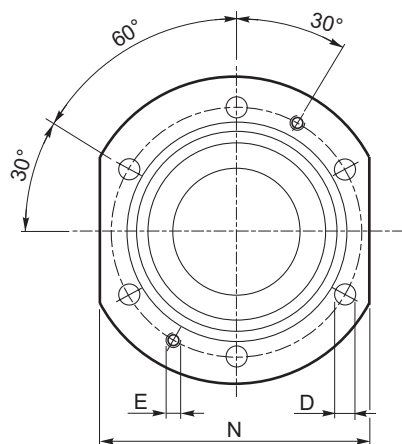
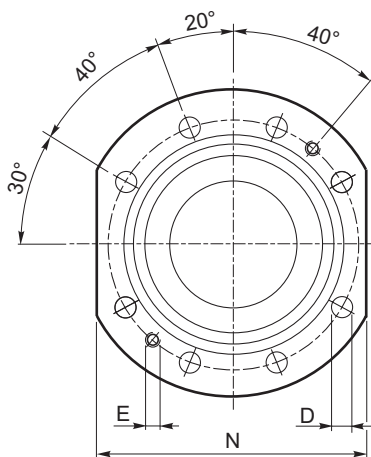
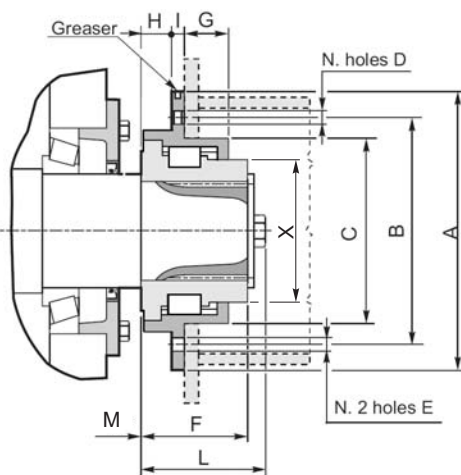
|     | F   | L   | M   | Class M  | Fr<br>MAX<br>(kN) | Tipo di<br>giunto<br>Coupling<br>size<br>Kupplungs<br>größe |
|-----|-----|-----|-----|----------|-------------------|-------------------------------------------------------------|
| 808 | 105 | 117 | 151 | $\leq 7$ | 44                | F1                                                          |
|     |     |     |     | $> 7$    |                   | F1                                                          |
| 810 | 105 | 117 | 170 | $\leq 7$ | 44                | F1                                                          |
|     |     |     |     | $> 7$    | 49                | F2                                                          |
| 812 | 125 | 137 | 192 | $\leq 7$ | 49                | F2                                                          |
|     |     |     |     | $> 7$    | 58                | F3                                                          |
| 814 | 125 | 150 | 216 | $\leq 7$ | 58                | F3                                                          |
|     |     |     |     | $> 7$    | 70                | F4                                                          |
| 816 | 140 | 168 | 242 | $\leq 7$ | 70                | F4                                                          |
|     |     |     |     | $> 7$    | 80                | F5                                                          |
| 818 | 160 | 188 | 273 | $\leq 6$ | 80                | F5                                                          |
|     |     |     |     | $> 6$    | 130               | F6                                                          |
| 820 | 180 | 215 | 302 | $\leq 6$ | 130               | F6                                                          |
|     |     |     |     | $> 6$    | 160               | F7                                                          |
| 822 | 200 | 235 | 340 | $< 7$    | 160               | F7                                                          |
|     |     |     |     | $\geq 7$ | 180               | F8                                                          |
| 824 | 220 | 250 | 383 | $< 5$    | 180               | F8                                                          |
|     |     |     |     | $\geq 5$ | 200               | F9                                                          |

| Tipo di giunto<br>Coupling size<br>Kupplungsgröße | Dimensioni generali / General dimensions / Allgemeine Abmessungen |                 |                       |                                                   |                 |     |           |    |    |         |     |
|---------------------------------------------------|-------------------------------------------------------------------|-----------------|-----------------------|---------------------------------------------------|-----------------|-----|-----------|----|----|---------|-----|
|                                                   | $\varnothing A$                                                   | $\varnothing B$ | $\varnothing C$<br>f8 | N.<br>Fori<br>Holes<br>Anzahl<br>der<br>Bohrungen | $\varnothing D$ | E   | G         | H  | I  | N<br>h9 | X   |
| F1                                                | 320                                                               | 280             | 200                   | 6                                                 | 18              | M16 | 42.5 - 47 | 30 | 15 | 280     | 149 |
| F2                                                | 340                                                               | 300             | 220                   | 6                                                 | 18              | M16 | 46 - 54   | 30 | 15 | 300     | 165 |
| F3                                                | 380                                                               | 340             | 260                   | 6                                                 | 18              | M16 | 52.5 - 58 | 30 | 15 | 340     | 195 |
| F4                                                | 400                                                               | 360             | 280                   | 6                                                 | 18              | M16 | 59.5 - 65 | 30 | 15 | 360     | 222 |
| F5                                                | 420                                                               | 380             | 310                   | 6                                                 | 18              | M16 | 62.5 - 67 | 30 | 15 | 380     | 253 |
| F6                                                | 450                                                               | 400             | 340                   | 6                                                 | 23              | M20 | 66 - 73   | 40 | 20 | 400     | 266 |
| F7                                                | 510                                                               | 460             | 400                   | 6                                                 | 23              | M20 | 70 - 75   | 40 | 20 | 460     | 317 |
| F8                                                | 550                                                               | 500             | 420                   | 6                                                 | 23              | M20 | 80 - 82   | 40 | 20 | 500     | 330 |
| F9                                                | 580                                                               | 530             | 450                   | 8                                                 | 23              | M20 | 90 - 92   | 40 | 20 | 530     | 368 |

### 1.12.8 - Estremità scanalata albero lento con giunto flangiato a rulli

### 1.12.8 - Splined output shaft with flanged barrel rollers coupling .

### 1.12.8 - Abtriebswelle mit Keilende mit geflanschter Tonnenrollenkupplung.

**RX 800**

**F101-F102-F103-F104-F105-F106-F107-F108**

 $\leq F106$ 

 $> F106$ 


Accoppiamenti riduttori giunti / Gear unit+coupling combinations / Passung von Getrieben-Kupplungen

|     | F   | L   | M   | Class M  | Fr<br>MAX<br>(kN) | Tipo di<br>giunto<br>Coupling<br>size<br>Kupplung<br>s<br>größe |
|-----|-----|-----|-----|----------|-------------------|-----------------------------------------------------------------|
| 808 | 105 | 117 | 151 | $\leq 7$ | 42                | F101                                                            |
|     |     |     |     | $> 7$    | 42                | F101                                                            |
| 810 | 105 | 117 | 170 | $\leq 7$ | 42                | F101                                                            |
|     |     |     |     | $> 7$    | 52                | F102                                                            |
| 812 | 125 | 137 | 192 | $\leq 7$ | 52                | F102                                                            |
|     |     |     |     | $> 7$    | 63                | F103                                                            |
| 814 | 125 | 150 | 216 | $\leq 7$ | 63                | F103                                                            |
|     |     |     |     | $> 7$    | 79.5              | F104                                                            |
| 816 | 140 | 168 | 242 | $\leq 7$ | 79.5              | F104                                                            |
|     |     |     |     | $> 7$    | 112.5             | F105                                                            |
| 818 | 160 | 188 | 273 | $\leq 6$ | 112.5             | F105                                                            |
|     |     |     |     | $> 6$    | 123               | F106                                                            |
| 820 | 180 | 215 | 302 | $\leq 6$ | 123               | F106                                                            |
|     |     |     |     | $> 6$    | 145               | F107                                                            |
| 822 | 200 | 235 | 340 | $< 7$    | 145               | F107                                                            |
|     |     |     |     | $\geq 7$ | 202               | F108                                                            |
| 824 | 220 | 250 | 383 | $< 5$    | 202               | F108                                                            |
|     |     |     |     | $\geq 5$ | 202               | F108                                                            |

| Tipo di giunto<br>Coupling size<br>Kupplungsgröße | Dimensioni generali / General dimensions / Allgemeine Abmessungen |                 |                       |                                                        |                 |     |    |    |    |         |     |
|---------------------------------------------------|-------------------------------------------------------------------|-----------------|-----------------------|--------------------------------------------------------|-----------------|-----|----|----|----|---------|-----|
|                                                   | $\varnothing A$                                                   | $\varnothing B$ | $\varnothing C$<br>f8 | N.<br>Fori<br>Holes<br>Anza<br>hl der<br>Bohru<br>ngen | $\varnothing D$ | E   | G  | H  | I  | N<br>h9 | X   |
| F101                                              | 380                                                               | 340             | 260                   | 6                                                      | 18              | M16 | 36 | 30 | 15 | 340     | 149 |
| F102                                              | 400                                                               | 360             | 280                   | 6                                                      | 18              | M16 | 36 | 30 | 15 | 360     | 165 |
| F103                                              | 420                                                               | 380             | 310                   | 6                                                      | 18              | M16 | 36 | 30 | 15 | 380     | 195 |
| F104                                              | 450                                                               | 400             | 340                   | 6                                                      | 24              | M20 | 46 | 40 | 20 | 400     | 222 |
| F105                                              | 510                                                               | 460             | 400                   | 6                                                      | 24              | M20 | 46 | 40 | 20 | 460     | 253 |
| F106                                              | 550                                                               | 500             | 420                   | 6                                                      | 24              | M20 | 56 | 40 | 20 | 500     | 266 |
| F107                                              | 580                                                               | 530             | 450                   | 8                                                      | 24              | M20 | 56 | 40 | 20 | 530     | 317 |