04/2021

## 1.1 Caratteristiche

La serie di riduttori epicicloidali REP è il risultato di un ottimo rapporto tra economicità del prezzo e garanzia di precisione delle caratteristiche di funzionamento.
I nostri riduttori sono stati realizzati per un utilizzo prevalente sulle seguenti applicazioni:

- Macchine utensili
- Macchine per la lavorazione del legno
- Linee transfer
- Macchine da stampa
- Macchine automatiche per confezionamento ed imballaggio
- Automazioni
- Manipolatori
- Macchine serigrafiche
- Guide lineari

La gamma dei riduttori REP è costituita da 4 grandezze (075, 100, 125 e 150), a 1, 2 e 3 stadi di riduzione, ognuna con due o tre tipi di alberi uscita (AU...) e flange uscita di tipo FLT e FLQ.

**Corpo:** costruito in acciaio speciale da nitrurazione, garantisce robustezza e una elevata affidabilità nel tempo.

**Flange:** le flange in entrata ed in uscita sono costruite in alluminio e sono disponibili in molteplici varianti costruttive.

**Alberi:** sono costruiti in acciaio legato bonificato.

**Ingranaggi:** in acciaio legato da cementazione e tempra, con dentature rettificate.

**Cuscinetti:** di elevata qualità opportunamente dimensionati per garantire elevate durate e silenziosità di funzionamento.

## *1.1 Characteristics*

*The planetary gearbox REP series is the result of the outstanding combination competitive price / precision guaranteed with regard to operating features.*
*Our gearboxes are manufactured for prevailing utilization in the following applications:*

- *Machine tools*
- *Woodworking machines*
- *Transfer machines*
- *Printing machines*
- *Automatic packing & packaging machines*
- *Automations*
- *Mechanical hands*
- *Silk-screen process machines*
- *Linear guides*

*The REP series is available in 4 sizes (075, 100, 125 and 150), with 1, 2 or 3 reduction stages, with two or three types of output shaft (AU...) and two types of output flange (FLT and FLQ).*

***Housing:** made of special nitrided steel to assure strength, high reliability and long life.*

***Flanges:** input and output flanges made of aluminium and available in several versions.*

***Shafts:** made of hardened and tempered alloy steel.*

***Gears:** made of casehardened and tempered alloy steel, with ground toothing.*

***Bearings:** high quality and suitably sized to assure long life and noiseless working.*

## 1.1 Merkmale

Die REP Serie von Planetengetrieben ist das Ergebnis des hervorragenden Beziehung guter Preis / garantierte Präzision der Betriebseigenschaften.
Unsere Getriebe sind für überwiegende Verwendung in der folgenden Applikationen hergestellt:

- Werkzeugmaschinen
- Holzbearbeitungsmaschinen
- Transfermaschinen
- Druckmaschinen
- Automatische Verpackungsmaschinen
- Automation
- Manipulatoren
- Siebdruckmaschinen
- Linearführungen

Die REP Serie ist in 4 Größen (075, 100, 125 und 150) mit 1, 2 oder 3 Untersetzungsstufen, mit zwei oder drei Typen von Abtriebswellen (AU...) und zwei Typen von Abtriebsflanschen (FLT und FLQ) verfügbar.

**Gehäuse:** aus Spezial-Nitrierstahl. Garantiert Robustheit und dauerhaft hohe Zuverlässigkeit.

**Ein-u. Ausgangsflansche:** aus Aluminium, in zahlreichen Varianten lieferbar.

**Wellen:** aus vergütetem Legierungsstahl.

**Zahnräder:** aus geährteten Einsatz- stahl mit geschliffenen Zahnflanken.

**Lager:** sind hochwertig und zweckmäßig bemessen, um eine lange Lebensdauer und einen geräuscharmen Lauf zu garantieren.

## 1.2 Designazione

## 1.2 *Designation*

## 1.2 Bezeichnung

| Riduttore epicicloidale<br>*Planetary gearbox*<br>Planetengetriebe | Grandezza<br>*Size*<br>Größe | Numero di stadi<br>*Steps*<br>Untersetzungsstufen | *Coassiale*<br>*Coaxial*<br>*Koaxial* | Rapporto di riduzione<br>*Ratio*<br>Untersetzungsverhältnis | Albero uscita<br>*Ouput shaft*<br>Durchmesser Abtriebswelle | Flangia uscita<br>*Output flange*<br>Ausgangsflansch | Albero entrata<br>*Input shaft*<br>Durchmesser Eingangswelle | Flangia in entrata<br>*Input flange*<br>Eingangsflansch | Posizione di montaggio<br>*Mounting position*<br>Baulage |
|---|---|---|---|---|---|---|---|---|---|
| **REP** | **075** | **2** | **C** | **100** | **AU16** | **FLT** | **AE12** | **P03** | **B5** |
| | **075**<br>**100**<br>**125**<br>**150** | **1**<br>**2**<br>**3** | **C** | **3 - 343** | Vedi tabelle<br>*See tables*<br>Siehe Tab. | **FLT**<br>**FLQ** | Vedi tabelle<br>*See tables*<br>Siehe Tab. | Vedi tabelle<br>*See tables*<br>Siehe Tab. | **B5**<br>**V1**<br>**V3**<br>**OS** |

## 2.3 Selezione

Per la selezione dei riduttori epicicloidali REP, seguire la procedura descritta al paragrafo a pag. 6

## 2.3 *Selection*

*Make the selection of the planetary gearboxes REP Series as described at paragraph page 6.*

## 2.3 Getriebeauswahl

Die Wahl der Planetengetriebe Serie REP wird wie im Abschnitt Seite 6.

## 1.4 Verifica termica

Si deve individuare il valore del momento torcente massimo / potenza massima, applicabile, in modo continuativo, in ingresso al riduttore epicicloidale, tale per cui la temperatura del riduttore stesso non superi Tmax=95°C (massimo valore di temperatura raggiungibile nel caso di applicazioni standard). Tali valori devono risultare maggiori rispetto al momento torcente / potenza realmente applicati.

I massimi valori di coppia motrice / potenza applicabili in entrata al riduttore, in servizio continuativo, sono ricavabili dalle seguenti tabelle (tab. 2, tab. 3), in funzione del numero di stadi di riduzione e del numero di giri in entrata, considerata una temperatura ambiente $T_0$=20°C.

## *1.4 Temperature check*

*It is necessary to determine the max. torque/max. power applicable at the planetary gearbox input, continuous duty, so that gearbox temperature does not exceed Tmax=95°C (maximum permitted temperature for standard applications). The max applicable values have to be higher than the torque/power actually applied.*
*The maximum values of driving torque/ power applicable at gearbox input, continuous duty, are listed in the following tables (table 2 and 3), depending on number of reduction stages, number of revolutions at input and considering an ambient temperature $T_0$ = 20°C.*

## 1.4 Temperaturprüfung

Es muss berechnet werden, welches Maximaldrehmoment /welche Maximalleistung am Antrieb des Planetengetriebes im Dauerbetrieb angewendet werden darf, ohne dass die Getriebetemperatur über Tmax=95°C steigt (zulässige Maximaltemperatur bei Standardanwendungen). Der berechnete Wert muss höher als der wirklich angewendete Wert die maximal Werte von Drehmoment / Leistung sein.
Die Maximalwerte von Drehmoment / Leistung (Dauerbetrieb) werden in den folgenden Tabellen (Tab.2 und Tab.3) angegeben. Die Werte hängen von Zahl der Übersetzungsstufen und der Umdrehungen am Antrieb ab dabei wird eine Umgebungstemperatur $T_0$=20°C berücksichtigt.

**Potenza / *Power* / Leistung [kW]**
(Limite termico / *Thermal capacities* / Temperaturgrenze)

Tab. 2

| | Stadi *Steps* Stufenzahl | $n_1$ [min$^{-1}$] 900 | 1400 | 2800 | 3600 |
|---|---|---|---|---|---|
| **REP 75** | 1 | 4.5 | 4.4 | 4.0 | 3.5 |
| | 2 | 2.5 | 2.3 | 2.0 | 1.8 |
| | 3 | 1.9 | 1.8 | 1.5 | 1.4 |
| **REP 100** | 1 | 6.0 | 6.0 | 4.6 | 3.8 |
| | 2 | 3.5 | 3.3 | 2.5 | 2.0 |
| | 3 | 2.7 | 2.5 | 2.0 | 1.6 |
| **REP 125** | 1 | 9.0 | 8.5 | 6.2 | 4.7 |
| | 2 | 5.5 | 4.8 | 3.4 | 2.5 |
| | 3 | 4.0 | 3.7 | 2.8 | 2.0 |
| **REP 150** | 1 | 11.0 | 10.0 | 5.6 | 2.8 |
| | 2 | 6.1 | 5.5 | 2.6 | 1.0 |
| | 3 | 4.7 | 4.3 | 2.3 | 0.9 |

**Coppia / *Torque* / Drehmoment [Nm]**
(Limite termico / *Thermal capacities* / Temperaturgrenze)

Tab. 3

| | Stadi *Steps* Stufenzahl | $n_1$ [min$^{-1}$] 900 | 1400 | 2800 | 3600 |
|---|---|---|---|---|---|
| **REP 75** | 1 | 48 | 30 | 14 | 9 |
| | 2 | 27 | 16 | 7 | 5 |
| | 3 | 20 | 12 | 5 | 4 |
| **REP 100** | 1 | 64 | 41 | 16 | 10 |
| | 2 | 37 | 23 | 9 | 5 |
| | 3 | 29 | 17 | 7 | 4 |
| **REP 125** | 1 | 96 | 58 | 21 | 12 |
| | 2 | 58 | 33 | 12 | 7 |
| | 3 | 42 | 25 | 10 | 5 |
| **REP 150** | 1 | 117 | 68 | 19 | 7 |
| | 2 | 65 | 38 | 9 | 3 |
| | 3 | 50 | 29 | 8 | 2 |

Nel caso in cui l'applicazione preveda l'utilizzo di una coppia motrice / potenza maggiore del valore limite riportato nella tabella precedente, occorre valutare il massimo tempo di utilizzo, tmax (s), del riduttore, in servizio continuo, affinché la temperatura non superi il valore Tmax=95°C.
A tal fine: il massimo tempo di utilizzo, tmax, è ricavabile dalla seguente relazione:

*In case the application requires a driving torque/power higher than the max. permitted values reported in the table above, it is necessary to calculate the maximum length of operation, tmax (s), of the gearbox in continuous duty so that temperature does not exceed Tmax=95°C .*

*The max. duration of operation, tmax, is to be calculated as follows:*

Falls der verlangte Wert von Drehmoment / Leistung höher als der in den o.g. Tabellen angegebenen Wert ist, ist es notwendig, die maximale Anwendungsdauer tmax (s) im Dauerbetrieb zu bestimmen, damit die Temperatur unter Tmax=95°C bleibt.

Die maximale Anwendungsdauer tmax ist wie folgt zu berechnen:

$$tmax = -\tau c \cdot \ln \frac{T_S - T_{MAX}}{T_S - T_0} \quad [s]$$

**Dove :**
$T_{MAX}$ = 95 °C (temperatura massima raggiungibile dal riduttore)
$T_0$ = temperatura ambiente (°C)
$\tau c$ = costante di tempo (s) ricavabile consultando la seguente tabella (Tab. 4):

***Where:***
*$T_{MAX}$ = 95 °C (maximum permitted temperature)*
*$T_0$ = ambient temperature (°C)*
*$\tau c$ = time constant (s), as reported in the following table (Tab. 4):*

**Wobei:**
$T_{MAX}$ = 95 °C (zulässige Maximaltemperatur des Getriebes)
$T_0$ = Umgebungstemperatur (C°)
$\tau c$ = Zeitkostante, aus der folgenden Tabelle erhältlich (Tab. 4):

Tab. 4

| Stadi / *Steps* / Stufenzahl | REP 75 | | | REP 100 | | | REP 125 | | | REP 150 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| **τc (s)** | Costante di tempo / *Time constant* / Zeitkostante | | | | | | | | | | | |
| | 551 | 655 | 748 | 747 | 939 | 1111 | 1255 | 1590 | 1891 | 1858 | 2369 | 2824 |

$T_S$ = temperatura massima (°C) alla quale il riduttore tenderà a stabilizzarsi nel caso in cui sia applicata in ingresso la potenza P1, in condizioni di funzionamento continuo. Il valore di $T_S$ è ricavabile dalla seguente formula:

$T_S$ = *maximum temperature (°C) at which the gearbox will tend to stabilize in case P1 power is applied at input, continuous duty. Calculate Ts value with the following formula:*

$T_S$ = maximale Temperatur (C°), auf die das Getriebe sich stabilisieren wird, falls im Dauerbetrieb P1 Antriebsleistung angewendet wird. Ts ist mit der folgenden Formel zu berechnen:

$$T_S = T_0 + \frac{P_0 + P_\eta}{C \cdot f_V} \qquad [°C]$$

in cui:

$P_0$ = potenza persa a vuoto (W), ricavabile dalla seguente tabella (Tab. 5) in funzione della grandezza del riduttore, del numero degli stadi di riduzione e della velocità di rotazione in ingresso

*Where:*

$P_0$ = *loadless friction power (W), reported in the following table (Tab. 5), depending on gearbox size, number of reduction stages and input rotation speed*

Wobei:

$P_0$ = Verlustleistung ohne Last (W), ist aus der folgenden Tabelle zu entnehmen und hängt von Getriebegröße, Stufenzahl und Antriebsdrehzahl ab.

Tab. 5

| | $n_1$= 900 [min$^{-1}$] | | | $n_1$= 1400 [min$^{-1}$] | | | $n_1$= 2800 [min$^{-1}$] | | | $n_1$= 3600 [min$^{-1}$] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Stadi / *Steps* / Stufenzahl | | | | | | | | | | | |
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| | $P_0$ - Potenza persa a vuoto / *Loadless friction power* / Verlustleistung ohne Last [W] | | | | | | | | | | | |
| **REP 75** | 3 | 4 | 5 | 6 | 8 | 8 | 14 | 18 | 19 | 20 | 26 | 27 |
| **REP 100** | 7 | 9 | 9 | 12 | 15 | 16 | 30 | 38 | 39 | 42 | 53 | 55 |
| **REP 125** | 12 | 15 | 16 | 22 | 27 | 28 | 56 | 71 | 73 | 81 | 101 | 104 |
| **REP 150** | 22 | 27 | 28 | 39 | 50 | 51 | 106 | 132 | 136 | 151 | 191 | 196 |

C = Coefficiente di dispersione termica, ricavabile dalla seguente tabella (Tab.6), in funzione della grandezza del riduttore

*C = loss of heat coefficient, listed in the following table (Tab. 6), according to gearbox size.*

C = Wärmeverlustkoeffizient, wird in der folgenden Tabelle (Tab.6) angegeben und hängt von Getriebegröße ab.

Tab. 6

| | Stadi / *Steps* / Stufenzahl | | |
|---|---|---|---|
| | 1 | 2 | 3 |
| | C - Coefficiente di dispersione termica / *loss of heat coefficient* / Wärmeverlustkoeffizient | | |
| **REP 75** | 1.024 | 1.120 | 1.248 |
| **REP 100** | 1.410 | 1.620 | 1.800 |
| **REP 125** | 2.175 | 2.450 | 2.725 |
| **REP 150** | 2.680 | 3.020 | 3.380 |

$f_V$ = fattore di ventilazione
1.45 con ventilazione forzata efficace con ventola dedicata
1.25 con ventilazione forzata secondaria ad altri dispositivi (pulegge, ventole motore, ecc.)

**1 refrigerazione naturale (situazione standard)**
0.5 in ambiente chiuso e ristretto (carter)

*$f_V$ = ventilation factor*
*1.45 for forced ventilation effective with special fan*
*1.25 for forced ventilation secondary to other devices (pulleys, motor fans, etc.)*

***1 for natural cooling (standard situation)***
*0.5 in a close and narrow place (housing)*

$f_V$ = Lüftungsfaktor
1.45 für wirksame Drücklüftung mit Sonderlaufrad
1.25 für Drücklüftung zweitrangig zu anderen Vorrichtungen (Scheiben, Motorlaufräder, u.s.w.)

**1 für Naturallüftung (Standardsituation)**
0.5 in geschlossenem und engem Raum (Gehäuse)

$P_\eta$ = potenza persa proporzionale alla potenza applicata (W)
P1 . 0.015 (W) nel caso di 1 stadio di riduzione
P1 . 0.03 (W) nel caso di 2 stadi di riduzione
P1 . 0.044 (W) nel caso di 3 stadi di riduzione

*$P_h$ = friction power proportional to the applied power (W)*
*P1 . 0.015 (W) in case of 1 reduction stage*
*P1 . 0.03 (W) in case of 2 reduction stages*
*P1 . 0.044 (W) in case of 3 reduction stages*

$P_h$ = Verlustleistung proportional zu der angewandten Leistung (W)
P1 . 0.015 (W) im Falle von 1 Übersetzungsstufe
P1 . 0.03 (W) im Falle von 2 Übersetzungsstufen
P1 . 0.044 (W) iim Falle von 3 Übersetzungsstufen

P1 è la potenza applicata in ingresso, da esprimersi in W. Nel caso in cui sia invece nota la coppia motrice applicata in ingresso T1, in Nm, si ricava il corrispondente valore di potenza, attraverso la relazione:

*P1 is the power applied at gearbox input and is expressed in W. In case one only knows T1 (driving torque applied at input) expressed in Nm, the corresponding power value can be obtained as follows:*

P1 ist die am Getriebeantrieb angewandte Leistung und wird in W ausgedrückt. Falls nur T1 (Antriebsdrehmoment in Nm) bekannt ist, dann ist den entsprechenden Leistungswert mit der folgenden Formel zu berechnen:

$$P1 = \frac{T1 \cdot n_1}{9550} \cdot 1000 \ [W]$$

con $n_1$ velocità di rotazione in ingresso in $min^{-1}$.
Se il ciclo di lavoro è variabile nel tempo, si determinino i valori della coppia media $T1_E$ e velocità media in ingresso $n1_E$ secondo le seguenti formule:

*where $n_1$ is the input rotation speed in $min^{-1}$.*
*If the operation cycle changes in time, the values of $T1_E$ (average torque) and $n1_E$ (average input speed) can be determined with the following formulae:*

Dabei ist $n_1$ die Antriebsdrehzahl in $min^{-1}$. Falls der Betriebszyklus in Laufe der Zeit wechselnd ist, dann sind Durchschnittsdrehmoment $T1_E$ und Durchschnittsdrehzahl am Antrieb $n1_E$ mit der folgenden Formel zu berechnen:

$$T1_E = \sqrt[3]{\frac{T1_{MAX}^3 \cdot n_{1m} \cdot ta + \ldots + T1_n^3 \cdot n_{1n} \cdot tn}{ta \cdot n_{1m} + \ldots + tn \cdot n_{1n}}} \ [Nm]$$

$T1_n$, $n1n$, $t_n$ = valori riferiti allo step ennesimo
= values referred to nth step.
= Werte mit Bezug auf n-te Stufe.

$$n_{1E} = \frac{n_{1m} \cdot ta + \ldots + n_{1n} \cdot tn}{ta + \ldots + tn} \ [min^{-1}]$$

### 1.5 Gioco Angolare ($\alpha_{max}$)

Gioco massimo [arcmin] misurato sull'albero uscita, con albero entrata bloccato applicando una coppia pari al 2% della coppia nominale.

### *1.5 Backlash* ($\alpha_{max}$)

*Max. backlash measured on output shaft with torque equal to 2% of the nominal torque value with input shaft blocked*

### 1.5 WinkelspieL ($\alpha_{max}$)

Maximales Winkelspiel [arcmin], gemessen an der Abtriebswelle bei blockierter Eingangswelle mit Drehmoment gleich 2% des Nennmoments.

## 1.6 Carichi radiali e assiali su albero lento

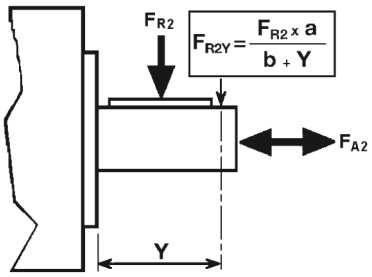
Nella tabella delle prestazioni sono indicati i valori, espressi in N, dei carichi assiali e radiali ammissibili alle diverse velocità per una durata dei cuscinetti di 20000 ore. Il carico radiale $F_{R2}$ si considera applicato ad una distanza dalla battuta pari alla metà della lunghezza dell'albero lento. Per distanze y diverse, è possibile calcolare il nuovo carico massimo ammissibile $F_{R2Y}$ utilizzando formula e coefficienti indicati nella tabella.

## *1.6 Radial and axial loads on output shaft*

*The table of performances shows admissible axial and radial load values expressed in N for different speeds and for a bearing life of 20000 hours. Radial load $F_{R2}$ calculations have been based on loads applied to halfway the output shaft extension. For different y distance it is possible to calculate the new maximum admissible load by using formula and coefficient shown in the table.*

## 1.6 Radial- und axiallast an der Ausgangswelle

Die Leistungstabelle enthält die in N ausgedrückten Werte der Axial- und Radiallasten für verschiedene Umdrehungszahlen. Diesen Werten liegt eine Lebensdauer der Lager von 20000 Stunden zugrunde. Die Radiallast $F_{R2}$ greift hierbei auf der Mitte der Abtriebswelle an. Falls Y-distanz anders ist, ist die Zulässige radiallast $F_{R2Y}$ mit den in der Tabelle angegebenen formel und Koeffizient zu berechnen:




| | REP 75 | REP 100 | REP 125 | REP 150 |
|---|---|---|---|---|
| **a** | 46 | 55 | 85 | 102 |
| **b** | 30 | 37 | 51 | 61 |

## 1.7 Lubrificazione

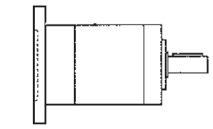
I riduttori REP sono forniti completi di lubrificante a vita pertanto non necessitano di manutenzione. In fase di ordine specificare la posizione di montaggio.

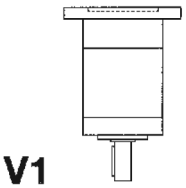
## *1.7 Lubrication*

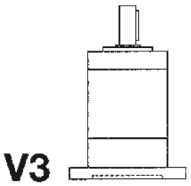
*REP gearboxes are supplied filled with long-life lubricant and do not require any maintenance. When ordering it is important to specify the exact mounting position.*

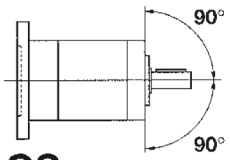
## 1.7 Schmierung

Die REP Planetengetriebe werden inklusiv Dauerschmierung geliefert und sind wartungsfrei. Bei der Bestellung bitte die Einbauposition angeben


B5


V1


V3



OS

1.8 **Momento d'inerzia J [kg·cm²]**

*1.8* ***Moment of inertia J [kg·cm²]***

1.8 **Trägheitsmoment J [kg·cm²]**

| | REP 075 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Albero entrata / *Input shaft* / Antriebswelle | | | | | | | | | | |
| Stadi *Steps* Stufenzahl | i | 6 | 6.35 | 7 | 8 | 9 | 9.52 | 11 | 12 | 12.7 | 14 |
| 1 | 3 | 0.16 | 0.16 | 0.16 | 0.19 | 0.19 | 0.19 | 0.21 | 0.21 | 0.21 | 0.25 |
| | 4 | 0.14 | 0.14 | 0.14 | 0.16 | 0.16 | 0.16 | 0.18 | 0.19 | 0.18 | 0.22 |
| | 5 | 0.12 | 0.12 | 0.12 | 0.14 | 0.14 | 0.14 | 0.16 | 0.16 | 0.16 | 0.20 |
| | 6 | 0.11 | 0.11 | 0.11 | 0.13 | 0.13 | 0.13 | 0.15 | 0.16 | 0.16 | 0.19 |
| 2 | 9 | 0.16 | 0.16 | 0.16 | 0.19 | 0.19 | 0.19 | 0.21 | 0.21 | 0.21 | 0.25 |
| | 12 | 0.16 | 0.16 | 0.16 | 0.19 | 0.19 | 0.18 | 0.21 | 0.21 | 0.21 | 0.25 |
| | 16 | 0.14 | 0.14 | 0.14 | 0.16 | 0.16 | 0.16 | 0.18 | 0.18 | 0.18 | 0.22 |
| | 20 | 0.12 | 0.12 | 0.12 | 0.14 | 0.14 | 0.14 | 0.16 | 0.16 | 0.16 | 0.20 |
| | 24 | 0.11 | 0.11 | 0.11 | 0.13 | 0.13 | 0.13 | 0.15 | 0.16 | 0.15 | 0.19 |
| | 30 | 0.11 | 0.11 | 0.11 | 0.13 | 0.13 | 0.13 | 0.15 | 0.16 | 0.15 | 0.19 |
| | 36 | 0.11 | 0.11 | 0.11 | 0.13 | 0.13 | 0.13 | 0.15 | 0.16 | 0.15 | 0.19 |
| 3 | 27 | 0.16 | 0.16 | 0.16 | 0.19 | 0.19 | 0.19 | 0.21 | 0.21 | 0.21 | 0.25 |
| | 36 | 0.16 | 0.16 | 0.16 | 0.19 | 0.19 | 0.19 | 0.21 | 0.21 | 0.21 | 0.25 |
| | 48 | 0.16 | 0.16 | 0.16 | 0.19 | 0.19 | 0.18 | 0.21 | 0.21 | 0.21 | 0.25 |
| | 64 | 0.14 | 0.14 | 0.14 | 0.16 | 0.16 | 0.16 | 0.18 | 0.18 | 0.18 | 0.22 |
| | 80 | 0.12 | 0.12 | 0.11 | 0.14 | 0.14 | 0.14 | 0.16 | 0.16 | 0.16 | 0.20 |
| | 100 | 0.11 | 0.11 | 0.11 | 0.14 | 0.14 | 0.14 | 0.16 | 0.16 | 0.16 | 0.20 |
| | 120 | 0.11 | 0.11 | 0.11 | 0.13 | 0.13 | 0.13 | 0.15 | 0.16 | 0.15 | 0.19 |
| | 144 | 0.11 | 0.11 | 0.11 | 0.13 | 0.13 | 0.13 | 0.15 | 0.16 | 0.15 | 0.19 |
| | 180 | 0.11 | 0.11 | 0.11 | 0.13 | 0.13 | 0.13 | 0.15 | 0.16 | 0.15 | 0.19 |
| | 216 | 0.11 | 0.11 | 0.11 | 0.13 | 0.13 | 0.13 | 0.15 | 0.16 | 0.15 | 0.19 |

| | REP 100 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Albero entrata / *Input shaft* / Antriebswelle | | | | | | | | |
| Stadi *Steps* Stufenzahl | i | 9 | 9.52 | 11 | 12.7 | 14 | 15.87 | 16 | 19 |
| 1 | 3 | 0.47 | 0.47 | 0.49 | 0.49 | 0.53 | 0.82 | 0.82 | 0.80 |
| | 4 | 0.35 | 0.35 | 0.37 | 0.37 | 0.41 | 0.70 | 0.70 | 0.69 |
| | 5 | 0.28 | 0.28 | 0.30 | 0.30 | 0.34 | 0.63 | 0.63 | 0.62 |
| | 6 | 0.26 | 0.26 | 0.28 | 0.28 | 0.32 | 0.61 | 0.61 | 0.60 |
| 2 | 9 | 0.48 | 0.48 | 0.50 | 0.51 | 0.55 | 0.83 | 0.83 | 0.82 |
| | 12 | 0.47 | 0.47 | 0.49 | 0.49 | 0.53 | 0.82 | 0.82 | 0.81 |
| | 16 | 0.34 | 0.34 | 0.36 | 0.36 | 0.41 | 0.69 | 0.69 | 0.68 |
| | 20 | 0.28 | 0.28 | 0.30 | 0.30 | 0.34 | 0.63 | 0.63 | 0.62 |
| | 24 | 0.26 | 0.26 | 0.28 | 0.28 | 0.32 | 0.61 | 0.61 | 0.59 |
| | 30 | 0.25 | 0.25 | 0.27 | 0.28 | 0.32 | 0.61 | 0.60 | 0.59 |
| | 36 | 0.25 | 0.25 | 0.27 | 0.28 | 0.32 | 0.60 | 0.60 | 0.59 |
| 3 | 27 | 0.49 | 0.49 | 0.51 | 0.51 | 0.55 | 0.84 | 0.84 | 0.82 |
| | 36 | 0.48 | 0.48 | 0.50 | 0.51 | 0.55 | 0.84 | 0.83 | 0.82 |
| | 48 | 0.47 | 0.47 | 0.49 | 0.49 | 0.53 | 0.82 | 0.82 | 0.81 |
| | 64 | 0.34 | 0.34 | 0.36 | 0.36 | 0.41 | 0.69 | 0.69 | 0.68 |
| | 80 | 0.28 | 0.28 | 0.30 | 0.30 | 0.34 | 0.63 | 0.63 | 0.62 |
| | 100 | 0.28 | 0.27 | 0.30 | 0.30 | 0.34 | 0.63 | 0.63 | 0.61 |
| | 120 | 0.25 | 0.25 | 0.27 | 0.28 | 0.32 | 0.61 | 0.60 | 0.59 |
| | 144 | 0.25 | 0.25 | 0.27 | 0.28 | 0.32 | 0.60 | 0.60 | 0.59 |
| | 180 | 0.25 | 0.25 | 0.27 | 0.28 | 0.32 | 0.60 | 0.60 | 0.59 |
| | 216 | 0.25 | 0.25 | 0.27 | 0.28 | 0.32 | 0.60 | 0.60 | 0.59 |

**I valori dei momenti d'inerzia riportati si riferiscono all'albero entrata.**

**The moment of inertia values refer to the input shaft.**

**Die Werte der Trägheitsmoment beziehen sich auf die Antriebswelle.**

## 1.8 Momento d'inerzia J [kg·cm²]

## *1.8 Moment of inertia J [kg·cm²]*

## 1.8 Trägheitsmoment J [kg·cm²]

| | REP 125 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Albero entrata / *Input shaft* / Antriebswelle | | | | | | | | |
| Stadi *Steps* Stufenzahl | i | **12.7** | **14** | **15.87** | **16** | **19** | **22** | **24** | **28** |
| **1** | **3** | 1.91 | 1.98 | 2.26 | 2.26 | 2.24 | 4.95 | 4.91 | 5.10 |
| | **4** | 1.18 | 1.25 | 1.53 | 1.53 | 1.50 | 4.22 | 4.18 | 4.36 |
| | **5** | 0.84 | 0.91 | 1.19 | 1.19 | 1.16 | 3.88 | 3.84 | 4.02 |
| | **7** | 0.64 | 0.70 | 0.99 | 0.99 | 0.96 | 3.67 | 3.63 | 3.82 |
| **2** | **9** | 1.93 | 1.99 | 2.28 | 2.28 | 2.25 | 4.97 | 4.92 | 5.11 |
| | **12** | 1.85 | 1.91 | 2.20 | 2.20 | 2.17 | 4.88 | 4.84 | 5.03 |
| | **16** | 1.14 | 1.21 | 1.49 | 1.49 | 1.47 | 4.18 | 4.14 | 4.33 |
| | **20** | 0.82 | 0.88 | 1.17 | 1.16 | 1.14 | 3.85 | 3.81 | 4.00 |
| | **28** | 0.62 | 0.69 | 0.97 | 0.97 | 0.95 | 3.66 | 3.62 | 3.81 |
| | **35** | 0.63 | 0.69 | 0.98 | 0.98 | 0.95 | 3.66 | 3.62 | 3.81 |
| | **49** | 0.62 | 0.69 | 0.97 | 0.97 | 0.95 | 3.66 | 3.62 | 3.81 |
| **3** | **36** | 1.92 | 1.99 | 2.27 | 2.27 | 2.24 | 4.96 | 4.92 | 5.11 |
| | **48** | 1.84 | 1.91 | 2.19 | 2.19 | 2.17 | 4.88 | 4.84 | 5.03 |
| | **64** | 1.14 | 1.21 | 1.49 | 1.49 | 1.46 | 4.18 | 4.14 | 4.32 |
| | **80** | 0.81 | 0.88 | 1.16 | 1.16 | 1.14 | 3.85 | 3.81 | 4.00 |
| | **100** | 0.80 | 0.87 | 1.15 | 1.15 | 1.12 | 3.84 | 3.80 | 3.98 |
| | **140** | 0.62 | 0.68 | 0.97 | 0.97 | 0.94 | 3.65 | 3.61 | 3.80 |
| | **196** | 0.61 | 0.68 | 0.96 | 0.96 | 0.94 | 3.65 | 3.61 | 3.80 |
| | **245** | 0.61 | 0.68 | 0.96 | 0.96 | 0.93 | 3.65 | 3.61 | 3.79 |
| | **343** | 0.61 | 0.68 | 0.96 | 0.96 | 0.93 | 3.65 | 3.61 | 3.79 |

| | REP 150 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Albero entrata / *Input shaft* / Antriebswelle | | | | | | | | | |
| Stadi *Steps* Stufenzahl | i | **15.87** | **16** | **19** | **22** | **24** | **28** | **32** | **35** | **38** |
| **1** | **3** | 6.58 | 6.58 | 6.62 | 7.57 | 7.53 | 11.55 | 13.38 | 13.28 | 12.94 |
| | **4** | 4.64 | 4.64 | 4.68 | 5.63 | 5.59 | 9.62 | 11.44 | 11.34 | 11.00 |
| | **5** | 3.64 | 3.64 | 3.68 | 4.63 | 4.59 | 8.62 | 10.45 | 10.35 | 10.01 |
| | **7** | 3.05 | 3.05 | 3.09 | 4.04 | 4.00 | 8.03 | 9.86 | 9.76 | 9.42 |
| **2** | **9** | 6.54 | 6.54 | 6.58 | 7.53 | 7.49 | 11.51 | 13.34 | 13.24 | 12.90 |
| | **12** | 6.32 | 6.32 | 6.36 | 7.31 | 7.27 | 11.30 | 13.13 | 13.03 | 12.69 |
| | **16** | 4.49 | 4.49 | 4.53 | 5.48 | 5.44 | 9.47 | 11.30 | 11.20 | 10.86 |
| | **20** | 3.55 | 3.55 | 3.59 | 4.54 | 4.50 | 8.53 | 10.36 | 10.26 | 9.92 |
| | **28** | 3.01 | 3.01 | 3.05 | 4.00 | 3.96 | 7.98 | 9.81 | 9.71 | 9.37 |
| | **35** | 2.99 | 2.99 | 3.03 | 3.97 | 3.94 | 7.96 | 9.79 | 9.69 | 9.35 |
| | **49** | 2.97 | 2.97 | 3.01 | 3.96 | 3.92 | 7.95 | 9.78 | 9.68 | 9.34 |
| **3** | **36** | 6.51 | 6.51 | 6.55 | 7.50 | 7.46 | 11.49 | 13.31 | 13.21 | 12.87 |
| | **48** | 6.31 | 6.31 | 6.35 | 7.29 | 7.26 | 11.28 | 13.11 | 13.01 | 12.67 |
| | **64** | 4.49 | 4.48 | 4.52 | 5.47 | 5.44 | 9.46 | 11.29 | 11.19 | 10.85 |
| | **80** | 3.55 | 3.54 | 3.59 | 4.53 | 4.50 | 8.52 | 10.35 | 10.25 | 9.91 |
| | **100** | 3.51 | 3.51 | 3.55 | 4.50 | 4.46 | 8.48 | 10.31 | 10.21 | 9.87 |
| | **140** | 2.98 | 2.98 | 3.02 | 3.97 | 3.93 | 7.96 | 9.79 | 9.69 | 9.35 |
| | **196** | 2.97 | 2.97 | 3.01 | 3.96 | 3.92 | 7.95 | 9.78 | 9.68 | 9.34 |
| | **245** | 2.97 | 2.97 | 3.01 | 3.96 | 3.92 | 7.95 | 9.78 | 9.68 | 9.34 |
| | **343** | 2.97 | 2.97 | 3.01 | 3.96 | 3.92 | 7.95 | 9.78 | 9.68 | 9.34 |

**I valori dei momenti d'inerzia riportati si riferiscono all'albero entrata.**

**The moment of inertia values refer to the input shaft.**

**Die Werte der Trägheitsmoment beziehen sich auf die Antriebswelle.**

## 1.9 Dati tecnici — *1.9 Technical data* — 1.9 Technische Daten

| Stadi / *Steps* / Stufenzahl | 1 | | | | 2 | | | | | | | 3 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **i** | **3** | **4** | **5** | **6** | **9** | **12** | **16** | **20** | **24** | **30** | **36** | **27** | **36** | **48** | **64** | **80** | **100** | **120** | **144** | **180** | **216** |
| $n_{1\ nom}$ | 4000 | | | | 4500 | | | | | | | 5000 | | | | | | | | | |
| $n_{1\ max}$ | 6000 | | | | | | | | | | | | | | | | | | | | |
| $T2_N$ | 35 | 45 | 35 | 30 | 40 | 50 | 50 | 50 | 50 | 40 | 35 | 40 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 40 | 35 |
| $T2_A$ | 55 | 65 | 55 | 50 | 60 | 70 | 70 | 70 | 70 | 60 | 55 | 60 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 60 | 55 |
| $T2_S$ | 110 | 130 | 110 | 100 | 120 | 140 | 140 | 140 | 140 | 120 | 110 | 120 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 120 | 110 |
| **J** | Vedi pag. 16 / See page 16 / Siehe auf Seite 16 | | | | | | | | | | | | | | | | | | | | |
| **LpA** | < 70 | | | | | | | | | | | | | | | | | | | | |
| $R_d$ | 0.96 | | | | 0.93 | | | | | | | 0.91 | | | | | | | | | |
| $L_h$ | 20000 | | | | | | | | | | | | | | | | | | | | |
| $F_{R2}$ | 1400 | | | | | | | | | | | | | | | | | | | | |
| $F_{A2}$ | 700 | | | | | | | | | | | | | | | | | | | | |
| $R_t$ | 4 | | | | | | | | | | | | | | | | | | | | |
| $\alpha_{max}$ | 4’ | | | | 6’ | | | | | | | 8’ | | | | | | | | | |
| **Kg** | 1.3 | | | | 1.6 | | | | | | | 1.9 | | | | | | | | | |

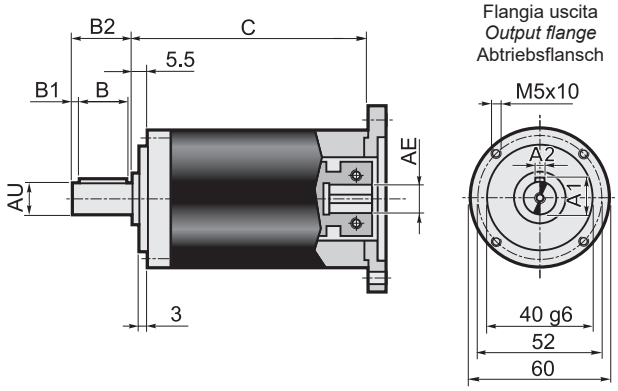
**$F_{R2}$** Carico radiale nominale in uscita [N] a 300min$^{-1}$ — *Rated output radial load [N] at 300min$^{-1}$* — Nenn-Radiallast an der Abtriebswelle bei 300min$^{-1}$

**$F_{A2}$** Carico assiale in uscita [N] a 300min$^{-1}$ — *Output axial load [N] at 300min$^{-1}$* — Axiallast an der Abtriebswelle bei 300min$^{-1}$

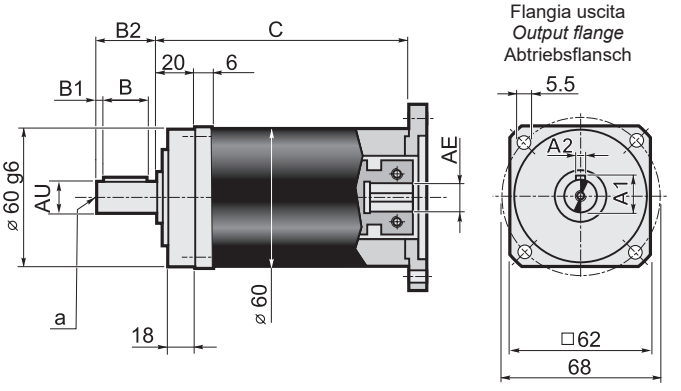
## 1.10 Dimensioni — *1.10 Dimensions* — 1.10 Abmessungen

**Dimensioni generali e uscite / *General and output dimensions* / General-und Abtriebsabmessungen**

### FLT



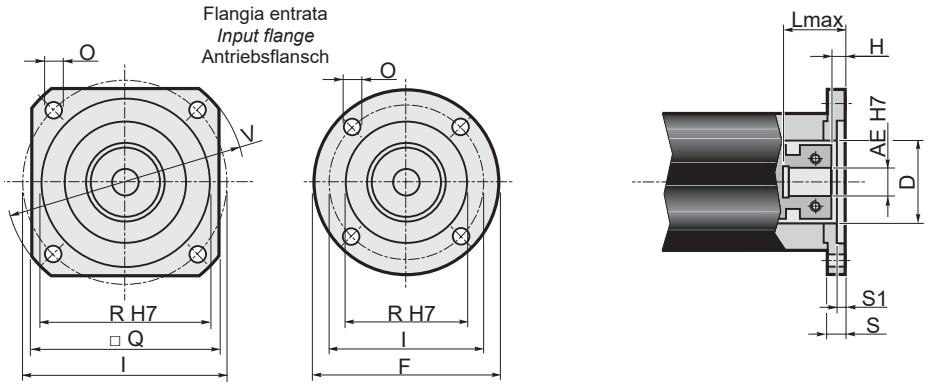

### FLQ




| Stadi / *Steps* / Stufenzahl | 1 | 2 | 3 | |
|---|---|---|---|---|
| **C** | 86.2 | 103.9 | 121.6 | AE=<br>6-6.35-7-8-9-9.52<br>11-12-12.7-14 |

| | Albero uscita - *Output shaft* - Abtriebswelle | | | | | | |
|---|---|---|---|---|---|---|---|
| | **AU j6** | **A1** | **A2** | **B** | **B1** | **B2** | **a** |
| **AU12** | 12 | 13.5 | 4 | 15 | 3 | 21 | M4x10 |
| **AU14** | 14 | 16 | 5 | 25 | 2 | 28 | M5x13 |
| **AU16** | 16 | 18 | 5 | 25 | 2 | 28 | M5x13 |

**Dimensioni entrate / *Input dimensions* / Antriebsabmessungen**




| Flange entrata / *Input flange* / Antriebsflansch | | | | | | | | | | Albero entrata / *Input shaft* / Antriebswelle | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | AE | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 6 | | 6.35 | | 7 | | 8 | | 9 | | 9.52 | | 11 | | 12 | | 12.7 | | 14 | |
| | F | Q | V | I | R (H7) | O | S | S1 | D | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H |
| **P01*** | 60 | = | = | 43.82 | 22 | 4.5 | 10 | 3 | 22 | 37 | 6.5 | 37 | 6.5 | 37 | 6.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 |
| **P02*** | = | 60 | 80 | 66.67 | 38.1 | 5.5 | 10 | 3 | 32 | 37 | 6.5 | 37 | 6.5 | 37 | 6.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 |
| **P03*** | = | 60 | 80 | 63 | 40 | 5.5 | 10 | 3.5 | 32 | 37 | 6.5 | 37 | 6.5 | 37 | 6.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 |
| **P04** | = | 70 | 90 | 75 | 60 | 6.5 | 10.5 | 3.5 | 32 | 37 | 6.5 | 37 | 6.5 | 37 | 6.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 |
| **P05** | 105 | = | = | 85 | 70 | 6.5 | 10.5 | 3.5 | 32 | 37 | 6.5 | 37 | 6.5 | 37 | 6.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 |
| **P06** | = | 80 | 110 | 98.42 | 73.02 | 6 | 11 | 3.5 | 35 | 39 | 8.5 | 39 | 8.5 | 39 | 8.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 |
| **P07** | = | 95 | 120 | 100 | 80 | 6.5 | 11.5 | 4 | 32 | 41 | 10.5 | 41 | 10.5 | 41 | 10.5 | 41 | 12.5 | 41 | 12.5 | 41 | 12.5 | 41 | 12.5 | 41 | 12.5 | 41 | 12.5 | 41 | 12.5 |
| **P08** | = | 98 | 130 | 115 | 95 | 9 | 11.5 | 4 | 32 | 43.5 | 13 | 43.5 | 13 | 43.5 | 13 | 43.5 | 15 | 43.5 | 15 | 43.5 | 15 | 43.5 | 15 | 43.5 | 15 | 43.5 | 15 | 43.5 | 15 |
| **P09** | = | 116 | 160 | 130 | 110 | 9 | 12 | 4.5 | 32 | 37.5 | 7 | 37.5 | 7 | 37.5 | 7 | 37.5 | 9 | 37.5 | 9 | 37.5 | 9 | 37.5 | 9 | 37.5 | 9 | 37.5 | 9 | 37.5 | 9 |
| **P10*** | 60 | = | = | 39 | 26 | 4.5 | 10 | 3 | 26 | 37 | 6.5 | 37 | 6.5 | 37 | 6.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 |
| **P11*** | 60 | = | = | 42 | 32 | 4.5 | 10 | 3 | 32 | 37.5 | 7 | 37.5 | 7 | 37.5 | 7 | 37.5 | 9 | 37.5 | 9 | 37.5 | 9 | 37.5 | 9 | 37.5 | 9 | 37.5 | 9 | 37.5 | 9 |
| **P12*** | 65 | = | = | 46 | 32 | 4.5 | 10 | 3.5 | 32 | 37 | 6.5 | 37 | 6.5 | 37 | 6.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 |
| **P13*** | 80 | = | = | 65 | 50 | 5.5 | 10 | 3.5 | 32 | 37 | 6.5 | 37 | 6.5 | 37 | 6.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 |
| **P14*** | 60 | = | = | 39 | 20 | 4.5 | 10 | 2.5 | 20 | 42.5 | 12 | 42.5 | 12 | 42.5 | 12 | 42.5 | 14 | 42.5 | 14 | 42.5 | 14 | 42.5 | 14 | 42.5 | 14 | 42.5 | 14 | 42.5 | 14 |
| **P15** | = | 75 | 100 | 90 | 60 | 5.8 | 12 | 3.5 | 32 | 39 | 8.5 | 39 | 8.5 | 39 | 8.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 |
| **P16*** | 60 | = | = | 45 | 30 | 3.5 | 14 | 7 | 30 | 39 | 8.5 | 39 | 8.5 | 39 | 8.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 |
| **P17** | = | 60 | 82 | 70 | 50 | 4.5 | 16.5 | 8 | 32 | 37 | 6.5 | 37 | 6.5 | 37 | 6.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 |
| **P18** | = | 60 | 80 | 60 | 50 | M4 | 10.5 | 3.5 | 32 | 39 | 8.5 | 39 | 8.5 | 39 | 8.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 |
| **P19*** | 60 | = | = | 36 | 25 | 4.5 | 10 | 3 | 25 | 36 | 5.5 | 36 | 5.5 | 36 | 5.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 |
| **P20** | = | 60 | 82 | 70 | 50 | 5.5 | 10.5 | 3.5 | 32 | 38 | 7.5 | 38 | 7.5 | 38 | 7.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 |
| **P21*** | 60 | = | = | 46 | 30 | 4.5 | 10 | 3 | 30 | 39 | 8.5 | 39 | 8.5 | 39 | 8.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 |
| **P22** | = | 60 | 80 | 70.71 | 36 | 4.5 | 10 | 2 | 32 | 38 | 7.5 | 38 | 7.5 | 38 | 7.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 |
| **P23** | = | 62 | 85 | 70 | 50 | 5.5 | 15.5 | 3.5 | 32 | 37 | 6.5 | 37 | 6.5 | 37 | 6.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 |
| **P24** | = | 75 | 100 | 90 | 70 | 5.8 | 12 | 3.5 | 32 | 38 | 7.5 | 38 | 7.5 | 38 | 7.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 |
| **P25** | = | 70 | 95 | 85 | 55 | 5.8 | 12 | 3.5 | 32 | 37 | 6.5 | 37 | 6.5 | 37 | 6.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 |
| **P26*** | = | 60 | 80 | 65.5 | 34 | 5.5 | 10 | 3.5 | 33 | 41 | 10.5 | 41 | 10.5 | 41 | 10.5 | 41 | 12.5 | 41 | 12.5 | 41 | 12.5 | 41 | 12.5 | 41 | 12.5 | 41 | 12.5 | 41 | 12.5 |
| **P27** | = | 80 | 110 | 95 | 50 | 6.5 | 12 | 3.5 | 32 | 42 | 11.5 | 42 | 11.5 | 42 | 11.5 | 42 | 13.5 | 42 | 13.5 | 42 | 13.5 | 42 | 13.5 | 42 | 13.5 | 42 | 13.5 | 42 | 13.5 |
| **P28** | = | 60 | 80 | 66.67 | 38.1 | M4 | 9 | 2.5 | 32 | 43.5 | 13 | 43.5 | 13 | 43.5 | 13 | 43.5 | 15 | 43.5 | 15 | 43.5 | 15 | 43.5 | 15 | 43.5 | 15 | 43.5 | 15 | 43.5 | 15 |
| **P29** | 60 | = | = | 45 | 30 | M3 | 11 | 4 | 32 | 38 | 7.5 | 38 | 7.5 | 38 | 7.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 |
| **P30** | = | 70 | 95 | 85 | 60 | 5.8 | 12 | 3.5 | 32 | 39 | 8.5 | 39 | 8.5 | 39 | 8.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 | 30 | 10.5 | 39 | 10.5 | 39 | 10.5 | 39 | 10.5 |
| **P31** | = | 62 | 85 | 70 | 50 | M4 | 11 | 3.5 | 32 | 38 | 7.5 | 38 | 7.5 | 38 | 7.5 | 29 | 9.5 | 29 | 9.5 | 38 | 9.5 | 29 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 |
| **P32** | = | 60 | 80 | 65 | 40 | M5 | 10 | 3.5 | 32 | 37 | 6.5 | 37 | 6.5 | 37 | 6.5 | 28 | 8.5 | 28 | 8.5 | 37 | 8.5 | 28 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 |
| **P33** | = | 85 | 115 | 99 | 60 | 5.5 | 11 | 3.5 | 32 | 38 | 7.5 | 38 | 7.5 | 38 | 7.5 | 29 | 9.5 | 29 | 9.5 | 38 | 9.5 | 29 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 |
| **P34** | = | 65 | 87 | 73.54 | 40 | M4 | 10 | 3.5 | 32 | 37 | 6.5 | 37 | 6.5 | 37 | 6.5 | 28 | 8.5 | 28 | 8.5 | 37 | 8.5 | 28 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 |
| **P35** | = | 60 | 80 | 70.71 | 36 | M4 | 14 | 2 | 32 | 41 | 10.5 | 41 | 10.5 | 41 | 10.5 | 32 | 12.5 | 32 | 12.5 | 41 | 12.5 | 32 | 12.5 | 41 | 12.5 | 41 | 12.5 | 41 | 12.5 |
| **P36** | = | 85 | 115 | 98.42 | 73.02 | 6 | 15 | 3.5 | 35 | 42 | 11.5 | 42 | 11.5 | 42 | 11.5 | 33 | 13.5 | 33 | 13.5 | 42 | 13.5 | 33 | 13.5 | 42 | 13.5 | 42 | 13.5 | 42 | 13.5 |
| **P37** | = | 95 | 120 | 100 | 80 | 6.5 | 16.5 | 5 | 32 | 43.5 | 13 | 43.5 | 13 | 43.5 | 13 | 34.5 | 15 | 34.5 | 15 | 43.5 | 15 | 34.5 | 15 | 43.5 | 15 | 43.5 | 15 | 43.5 | 15 |
| **P38** | 60 | = | = | 48 | 30 | M3 | 11 | 7 | 32 | 38 | 7.5 | 38 | 7.5 | 38 | 7.5 | 29 | 9.5 | 29 | 9.5 | 38 | 9.5 | 29 | 9.5 | 38 | 9.5 | 38 | 9.5 | 38 | 9.5 |
| **P41*** | 68 | = | = | 50 | 30 | 5.5 | 10 | 10 | 30 | 37 | 6.5 | 37 | 6.5 | 37 | 6.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 |
| **P43** | = | 60 | 80 | 66.67 | 50 | M5 | 9 | 2.5 | 32 | 36 | 5.5 | 36 | 5.5 | 36 | 5.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 |
| **P44*** | 60 | = | = | 32 | 25 | 4.5 | 9 | 2.5 | 20 | 36 | 5.5 | 36 | 5.5 | 36 | 5.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 |
| **P45** | = | 62 | 85 | 73.54 | 50 | M5 | 10 | 3 | 32 | 37 | 6.5 | 37 | 6.5 | 37 | 6.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 |
| **P46** | 70 | = | = | 55 | 45 | 4.5 | 9 | 3 | 32 | 36 | 5.5 | 36 | 5.5 | 36 | 5.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 | 36 | 7.5 |
| **P47** | = | 90 | 118 | 104 | 83 | 6.5 | 14 | 3.5 | 32 | 41 | 10.5 | 41 | 10.5 | 41 | 10.5 | 41 | 12.5 | 41 | 12.5 | 41 | 12.5 | 41 | 12.5 | 41 | 12.5 | 41 | 12.5 | 41 | 12.5 |
| **P48** | 60 | = | = | 38.88 | 25 | 4.5 | 10 | 3 | 25 | 37 | 6.5 | 37 | 6.5 | 37 | 6.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 | 37 | 8.5 |
| **P49** | = | 70 | 90 | 75 | 60 | M5 | 10.5 | 3.5 | 32 | 37.5 | 7 | 37.5 | 7 | 37.5 | 7 | 37.5 | 9 | 37.5 | 9 | 37.5 | 9 | 37.5 | 9 | 37.5 | 9 | 37.5 | 9 | 37.5 | 9 |

* Per assemblare il motore è necessario smontare la flangia dal riduttore (vedere **schema di montaggio 2** a pag. 27).

** Before the mounting of the motor it is necessary to remove the flange from the gearbox (see **structural arrangement 2** at the top of the page 27).*

* Vor dem Einbauen des Motors soll die Getriebeflansch abmontiert werden (siehe **Bauanleitung 2** auf Seite 27).

## 1.9 Dati tecnici — *1.9 Technical data* — 1.9 Technische Daten

| Stadi *Steps* Stufenzahl | 1 | | | | 2 | | | | | | | 3 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **i** | **3** | **4** | **5** | **6** | **9** | **12** | **16** | **20** | **24** | **30** | **36** | **27** | **36** | **48** | **64** | **80** | **100** | **120** | **144** | **180** | **216** |
| $n_{1\ nom}$ | 4000 | | | | 4500 | | | | | | | 5000 | | | | | | | | | |
| $n_{1\ max}$ | 6000 | | | | | | | | | | | | | | | | | | | | |
| $T2_N$ | 90 | 110 | 90 | 75 | 100 | 115 | 115 | 115 | 115 | 85 | 75 | 100 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 95 | 80 |
| $T2_A$ | 145 | 170 | 130 | 120 | 160 | 180 | 180 | 180 | 180 | 140 | 130 | 160 | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 150 | 130 |
| $T2_S$ | 290 | 340 | 260 | 240 | 320 | 360 | 360 | 360 | 360 | 280 | 260 | 320 | 380 | 380 | 380 | 380 | 380 | 380 | 380 | 300 | 260 |
| **J** | Vedi pag. 16 / See page 16 / Siehe auf Seite 16 | | | | | | | | | | | | | | | | | | | | |
| **LpA** | < 70 | | | | | | | | | | | | | | | | | | | | |
| $R_d$ | 0.96 | | | | 0.93 | | | | | | | 0.91 | | | | | | | | | |
| $L_h$ | 20000 | | | | | | | | | | | | | | | | | | | | |
| $F_{R2}$ | 2100 | | | | | | | | | | | | | | | | | | | | |
| $F_{A2}$ | 1050 | | | | | | | | | | | | | | | | | | | | |
| $R_t$ | 11 | | | | | | | | | | | | | | | | | | | | |
| $\alpha_{max}$ | 4’ | | | | 6’ | | | | | | | 8’ | | | | | | | | | |
| **Kg** | 2.7 | | | | 3.5 | | | | | | | 4.3 | | | | | | | | | |

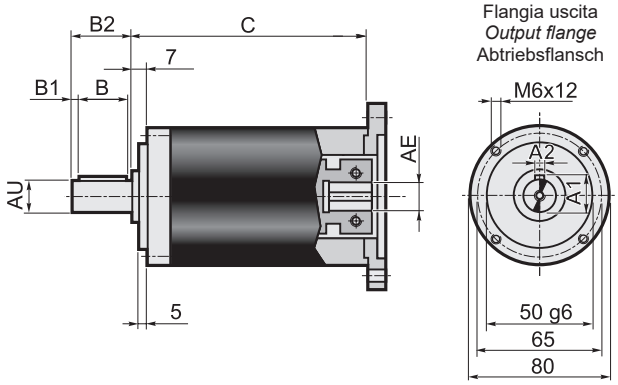
**$F_{R2}$** Carico radiale nominale in uscita [N] a 300min$^{-1}$ — *Rated output radial load [N] at 300min$^{-1}$* — Nenn-Radiallast an der Abtriebswelle bei 300min$^{-1}$

**$F_{A2}$** Carico assiale in uscita [N] a 300min$^{-1}$ — *Output axial load [N] at 300min$^{-1}$* — Axiallast an der Abtriebswelle bei 300min$^{-1}$

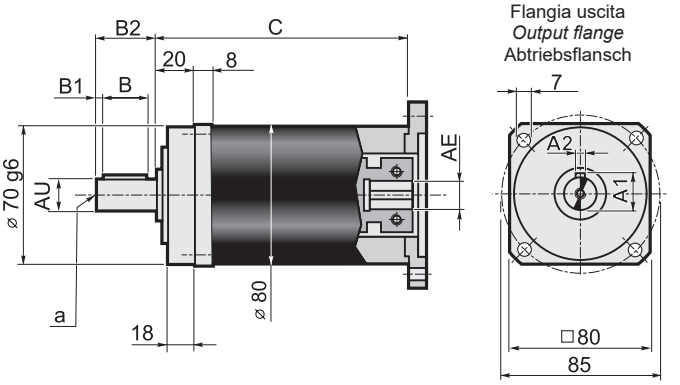
## 1.10 Dimensioni — *1.10 Dimensions* — 1.10 Abmessungen

**Dimensioni generali e uscite / *General and output dimensions* / General-und Abtriebsabmessungen**

### FLT



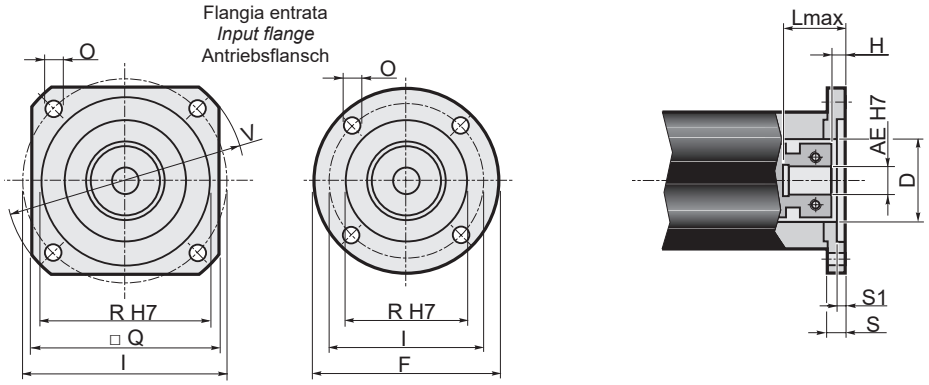

### FLQ




| Stadi / *Steps* / Stufenzahl | 1 | 2 | 3 | |
|---|---|---|---|---|
| **C** | 102 | 127 | 152.5 | AE=<br>9-9.52-11-12.7<br>14-15.87-16-19 |

| | Albero uscita - *Output shaft* - Abtriebswelle | | | | | | |
|---|---|---|---|---|---|---|---|
| | **AU j6** | **A1** | **A2** | **B** | **B1** | **B2** | **a** |
| **AU19** | 19 | 21.5 | 6 | 30 | 3 | 36 | M6x16 |
| **AU22** | 22 | 24.5 | 6 | 30 | 3 | 36 | M6x16 |

## Dimensioni entrate / *Input dimensions* / Antriebsabmessungen




| Flange entrata / *Input flange* / Antriebsflansch | | | | | | | | | | Albero entrata / *Input shaft* / Antriebswelle | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | AE | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 9 | | 9.525 | | 11 | | 12 | | 12.7 | | 14 | | 15.87 | | 16 | | 19 | |
| | F | Q | V | I | R (H7) | O | S | S1 | D | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H |
| **P01*** | 80 | = | = | 66.67 | 38.1 | 5.5 | 12 | 3 | 38.1 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P02** | = | 106.5 | 140 | 125.72 | 55.52 | 7 | 11 | 3 | 45 | 40 | 2.5 | 40 | 5 | 40 | 5 | 40 | 5 | 40 | 5 | 40 | 5 | 40 | 5 | 40 | 5 | 40 | 5 |
| **P03*** | = | 80 | 90 | 75 | 60 | 5.5 | 12 | 3.5 | 45 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P04*** | 105 | = | = | 85 | 70 | 6.5 | 12 | 3.5 | 45 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P05** | = | 82.5 | 110 | 98.425 | 73.02 | 6.5 | 12 | 3 | 45 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P06** | = | 90 | 120 | 100 | 80 | 6.5 | 13 | 4 | 45 | 42 | 4.5 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 |
| **P07** | = | 100 | 135 | 115 | 95 | 8.5 | 13 | 4.5 | 45 | 42 | 4.5 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 |
| **P08** | = | 116 | 160 | 130 | 110 | 9 | 13 | 4.5 | 45 | 42 | 4.5 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 |
| **P09*** | 80 | = | = | 39 | 26 | 4.5 | 12 | 4 | 26 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P10*** | 80 | = | = | 65 | 50 | 5.5 | 12 | 3.5 | 45 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P11** | = | 150 | 182 | 166 | 115 | 9 | 32 | 11 | 50x14 | 61 | 23.5 | 61 | 26 | 61 | 26 | 61 | 26 | 61 | 26 | 61 | 26 | 61 | 26 | 61 | 26 | 61 | 26 |
| **P12*** | = | 80 | 105 | 90 | 70 | 6.5 | 12 | 3.5 | 32 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P14 *** | 105 | = | = | 90 | 70 | 6 | 19 | 9 | 32 | 48 | 10.5 | 48 | 13 | 48 | 13 | 48 | 13 | 48 | 13 | 48 | 13 | 48 | 13 | 48 | 13 | 48 | 13 |
| **P15 *** | 80 | = | = | 70 | 50 | 4.5 | 17 | 8 | 45 | 46 | 8.5 | 46 | 11 | 46 | 11 | 46 | 11 | 46 | 11 | 46 | 11 | 46 | 11 | 46 | 11 | 46 | 11 |
| **P16** | = | 142 | 190 | 165 | 130 | 11 | 13 | 4.5 | 45 | 42 | 4.5 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 |
| **P17*** | 80 | = | = | 63 | 40 | 5.5 | 12 | 3.5 | 40 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P18** | = | 130 | 170 | 145 | 110 | M8 | 31 | 7 | 32 | 60 | 22.5 | 60 | 25 | 60 | 25 | 60 | 25 | 60 | 25 | 60 | 25 | 60 | 25 | 60 | 25 | 60 | 25 |
| **P19*** | = | 80 | 105 | 90 | 60 | 6.5 | 12 | 3.5 | 32 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P20*** | = | 80 | 105 | 85 | 55 | 5.5 | 12 | 3.5 | 36 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P21** | = | 80 | 110 | 95 | 50 | M6 | 12 | 3.5 | 45 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P22** | 80 | = | = | 70 | 50 | M4 | 12 | 4 | 45 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P23** | = | 80 | 90 | 75 | 60 | M5 | 12 | 3.5 | 45 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P24** | 80 | = | = | 46 | 30 | M4 | 12 | 4 | 30 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P26** | 80 | = | = | 65 | 40 | M5 | 12 | 3.5 | 40 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 3.5 |
| **P27** | = | 80 | 110 | 82.02 | 36.8 | M6 | 14 | 10 | 36.8 | 43 | 5.5 | 43 | 8 | 43 | 8 | 43 | 8 | 43 | 8 | 43 | 8 | 43 | 8 | 43 | 8 | 43 | 5.5 |
| **P28** | = | 90 | 120 | 100 | 80 | 6.5 | 28 | 4 | 45 | 57 | 19.5 | 57 | 22 | 57 | 22 | 57 | 22 | 57 | 22 | 57 | 22 | 57 | 22 | 57 | 22 | 57 | 22 |
| **P29*** | 80 | = | = | 66.67 | 50 | 5.5 | 12 | 3 | 45 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P30** | = | 115 | 155 | 130 | 80 | 9 | 13 | 4 | 45 | 42 | 4.5 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 |
| **P31*** | = | 80 | 105 | 56 | 44 | M6 | 14 | 10 | 36.8 | 43 | 5.5 | 43 | 8 | 43 | 8 | 43 | 8 | 43 | 8 | 43 | 8 | 43 | 8 | 43 | 8 | 43 | 8 |
| **P32** | = | 80 | 105 | 90 | 70 | M6 | 12 | 3.5 | 32 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P33** | = | 130 | 165 | 145 | 110 | 9 | 13 | 4.5 | 45 | 42 | 4.5 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 |
| **P34** | = | 90 | 120 | 100 | 80 | M6 | 19 | 5 | 45 | 48 | 10.5 | 48 | 13 | 48 | 13 | 48 | 13 | 48 | 13 | 48 | 13 | 48 | 13 | 48 | 13 | 48 | 13 |
| **P36** | = | 100 | 135 | 115 | 95 | M8 | 25 | 4.5 | 45 | 54 | 16.5 | 54 | 19 | 54 | 19 | 54 | 19 | 54 | 19 | 54 | 19 | 54 | 19 | 54 | 19 | 54 | 19 |
| **P37** | = | 85 | 115 | 98.99 | 60 | M6 | 12 | 3.5 | 32 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P38** | 80 | = | = | 70 | 50 | M5 | 12 | 4 | 45 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P39** | = | 90 | 120 | 100 | 80 | 6.5 | 13 | 4.5 | 45 | 42 | 4.5 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 |
| **P40** | = | 80 | 90 | 75 | 60 | M6 | 12 | 3.5 | 45 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |
| **P42** | = | 110 | 145 | 125.72 | 55.5 | M8 | 28 | 3 | 45 | 57 | 19.5 | 57 | 22 | 57 | 22 | 57 | 22 | 57 | 22 | 57 | 22 | 57 | 22 | 57 | 22 | 57 | 22 |
| **P44*** | = | 80 | 105 | 90 | 70 | 6 | 13 | 5 | 32 | 42 | 4.5 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 | 42 | 7 |
| **P46** | = | 100 | 135 | 115 | 95 | 8.5 | 17 | 8 | 45 | 46 | 8.5 | 46 | 11 | 46 | 11 | 46 | 11 | 46 | 11 | 46 | 11 | 46 | 11 | 46 | 11 | 46 | 11 |
| **P47** | = | 90 | 120 | 100 | 50 | M6 | 12 | 4.5 | 45 | 41 | 3.5 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 | 41 | 6 |

* Per assemblare il motore è necessario smontare la flangia dal riduttore (vedere **schema di montaggio 2** a pag. 27).

** Before the mounting of the motor it is necessary to remove the flange from the gearbox (see **structural arrangement 2** at the top of the page 27).*

* Vor dem Einbauen des Motors soll die Getriebeflansch abmontiert werden (siehe **Bauanleitung 2** auf Seite 27).

## 1.9 Dati tecnici — *1.9 Technical data* — 1.9 Technische Daten

| Stadi *Steps* Stufenzahl | 1 | | | | 2 | | | | | | | 3 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **i** | **3** | **4** | **5** | **7** | **9** | **12** | **16** | **20** | **28** | **35** | **49** | **36** | **48** | **64** | **80** | **100** | **140** | **196** | **245** | **343** |
| $n_{1\ nom}$ | 3000 | | | | 3500 | | | | | | | 4000 | | | | | | | | |
| $n_{1\ max}$ | 5000 | | | | | | | | | | | | | | | | | | | |
| $T2_N$ | 220 | 230 | 200 | 160 | 250 | 260 | 260 | 260 | 260 | 230 | 180 | 280 | 280 | 280 | 280 | 280 | 280 | 280 | 250 | 200 |
| $T2_A$ | 350 | 370 | 320 | 300 | 400 | 420 | 420 | 420 | 420 | 370 | 350 | 450 | 450 | 450 | 450 | 450 | 450 | 450 | 400 | 370 |
| $T2_S$ | 700 | 750 | 650 | 600 | 800 | 850 | 850 | 850 | 850 | 750 | 700 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 800 | 750 |
| **J** | Vedi pag. 17 / See page 17 / Siehe auf Seite 17 | | | | | | | | | | | | | | | | | | | |
| **LpA** | < 70 | | | | | | | | | | | | | | | | | | | |
| $R_d$ | 0.96 | | | | 0.93 | | | | | | | 0.91 | | | | | | | | |
| $L_h$ | 20000 | | | | | | | | | | | | | | | | | | | |
| $F_{R2}$ | 3700 | | | | | | | | | | | | | | | | | | | |
| $F_{A2}$ | 1850 | | | | | | | | | | | | | | | | | | | |
| $R_t$ | 32 | | | | | | | | | | | | | | | | | | | |
| $\alpha_{max}$ | 4’ | | | | 6’ | | | | | | | 8’ | | | | | | | | |
| **Kg** | 7.2 | | | | 9.3 | | | | | | | 11.4 | | | | | | | | |

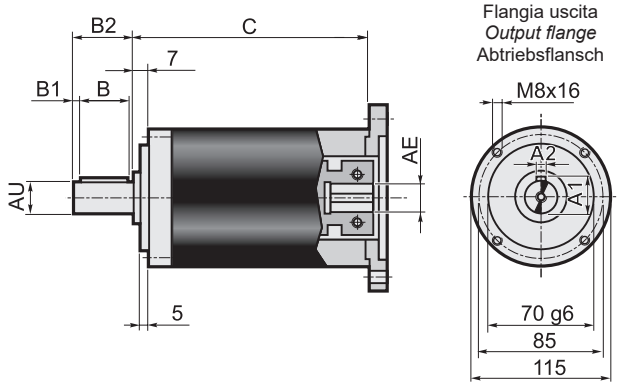
**$F_{R2}$** Carico radiale nominale in uscita [N] a 300min$^{-1}$ — *Rated output radial load [N] at 300min$^{-1}$* — Nenn-Radiallast an der Abtriebswelle bei 300min$^{-1}$

**$F_{A2}$** Carico assiale in uscita [N] a 300min$^{-1}$ — *Output axial load [N] at 300min$^{-1}$* — Axiallast an der Abtriebswelle bei 300min$^{-1}$

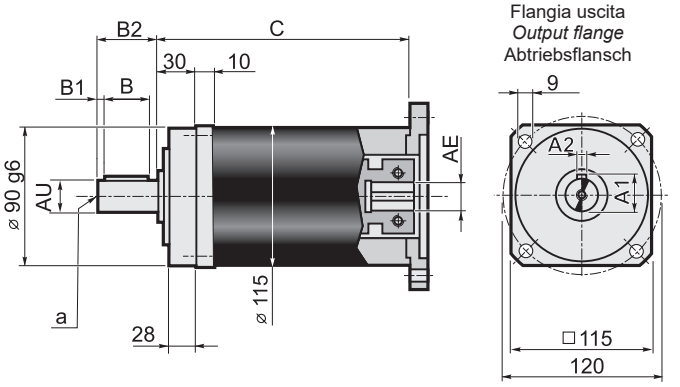
## 1.10 Dimensioni — *1.10 Dimensions* — 1.10 Abmessungen

**Dimensioni generali e uscite / *General and output dimensions* / General-und Abtriebsabmessungen**

### FLT



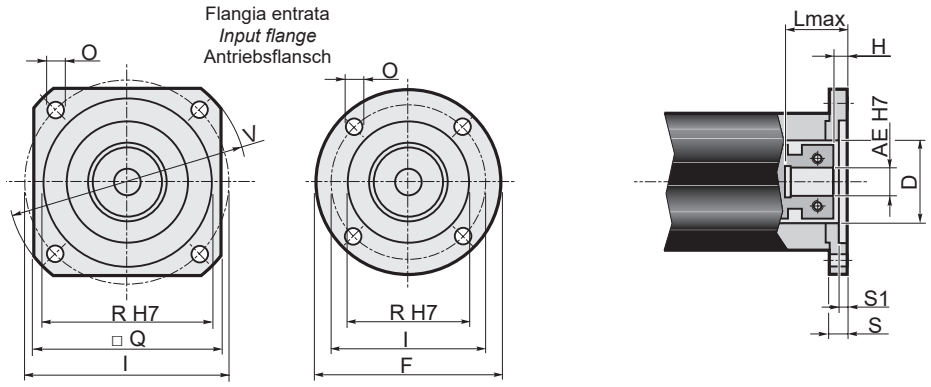

### FLQ




| Stadi / *Steps* / Stufenzahl | 1 | 2 | 3 | |
|---|---|---|---|---|
| **C** | 126 | 158.4 | 191 | AE= 12.7-14-15.87-16-19 |
| | 145 | 177 | 210 | AE= 22-24-25-28 |

| | Albero uscita - *Output shaft* - Abtriebswelle | | | | | | |
|---|---|---|---|---|---|---|---|
| | **AU j6** | **A1** | **A2** | **B** | **B1** | **B2** | **a** |
| **AU25** | 25 | 28 | 8 | 40 | 5 | 50 | M8x20 |
| **AU32** | 32 | 35 | 10 | 50 | 4 | 58 | M10x25 |

## Dimensioni entrate / *Input dimensions* / Antriebsabmessungen




| Flange entrata / *Input flange* / Antriebsflansch | | | | | | | | | | Albero entrata / *Input shaft* / Antriebswelle | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | AE | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 12.7 | | 14 | | 15.87 | | 16 | | 19 | | 22 | | 24 | | 25 | | 28 | |
| | F | Q | V | I | R (H7) | O | S | S1 | D | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H |
| **P01*** | = | 115 | 140 | 125.72 | 55.52 | 6.5 | 13 | 3 | 55.52 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |
| **P02*** | 115 | = | = | 75 | 60 | 5.5 | 13 | 3.5 | 60 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |
| **P03*** | 115 | = | = | 85 | 70 | 6.5 | 13 | 3.5 | 60 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |
| **P04*** | 115 | = | = | 98.42 | 73.02 | 6.5 | 13 | 3 | 60 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |
| **P05*** | 120 | = | = | 100 | 80 | 6.5 | 13 | 4 | 60 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |
| **P06*** | = | 115 | 140 | 115 | 95 | 9 | 13 | 4.5 | 60 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |
| **P07** | = | 115 | 160 | 130 | 110 | 8.5 | 13 | 4.5 | 60 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |
| **P08** | = | 142 | 190 | 165 | 130 | 11 | 13 | 4.5 | 60 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |
| **P09** | = | 192 | 250 | 215 | 180 | 13 | 14 | 4.5 | 60 | 44 | 7 | 44 | 7 | 44 | 7 | 44 | 7 | 44 | 7 | 63 | 7 | 63 | 7 | 63 | 7 | 63 | 7 |
| **P10*** | 115 | = | = | 65 | 50 | 6.5 | 13 | 3.5 | 50 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |
| **P11** | = | 130 | 170 | 145 | 110 | M 8 | 31 | 7 | 60 | 61 | 24 | 61 | 24 | 61 | 24 | 61 | 24 | 61 | 24 | 80 | 24 | 80 | 24 | 80 | 24 | 80 | 24 |
| **P12** | = | 130 | 170 | 145 | 110 | M 8 | 17 | 7 | 60 | 47 | 10 | 47 | 10 | 47 | 10 | 47 | 10 | 47 | 10 | 66 | 10 | 66 | 10 | 66 | 10 | 66 | 10 |
| **P13** | = | 115 | 160 | 130 | 110 | M 8 | 13 | 4.5 | 60 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |
| **P14*** | 115 | = | = | 70 | 50 | 6.5 | 13 | 3.5 | 50 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |
| **P15** | 115 | = | = | 90 | 70 | M5 | 11 | 3.5 | 60 | 41 | 4 | 41 | 4 | 41 | 4 | 41 | 4 | 41 | 4 | 60 | 4 | 60 | 4 | 60 | 4 | 60 | 4 |
| **P17*** | 115 | = | = | 90 | 70 | 6.5 | 13 | 3.5 | 60 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |
| **P18** | = | 115 | 155 | 130 | 95 | 8.5 | 13 | 4.5 | 60 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |
| **P19*** | 115 | = | = | 95 | 50 | 6.5 | 13 | 3.5 | 50 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |
| **P20** | 115 | = | = | 99 | 60 | M6 | 13 | 4 | 60 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |
| **P21*** | 130 | = | = | 106 | 82.5 | 12.5 | 26.5 | 15 | 60 | 56.5 | 19.5 | 56.5 | 19.5 | 56.5 | 19.5 | 56.5 | 19.5 | 56.5 | 19.5 | 75.5 | 19.5 | 75.5 | 19.5 | 75.5 | 19.5 | 75.5 | 19.5 |
| **P22** | = | 144 | 190 | 165 | 110 | 11 | 15 | 4.5 | 60 | 45 | 8 | 45 | 8 | 45 | 8 | 45 | 8 | 45 | 8 | 64 | 8 | 64 | 8 | 64 | 8 | 64 | 8 |
| **P23*** | 115 | = | = | 63 | 40 | 5.5 | 11 | 3.5 | 40 | 41 | 4 | 41 | 4 | 41 | 4 | 41 | 4 | 41 | 4 | 60 | 4 | 60 | 4 | 60 | 4 | 60 | 4 |
| **P24** | 120 | = | = | 100 | 80 | M6 | 18 | 7 | 60 | 48 | 11 | 48 | 11 | 48 | 11 | 48 | 11 | 48 | 11 | 67 | 11 | 67 | 11 | 67 | 11 | 67 | 11 |
| **P25** | = | 115 | 155 | 115 | 95 | M8 | 27 | 4.5 | 60 | 57 | 20 | 57 | 20 | 57 | 20 | 57 | 20 | 57 | 20 | 76 | 20 | 76 | 20 | 76 | 20 | 76 | 20 |
| **P26** | = | 115 | 155 | 131.95 | 55.52 | M8 | 27 | 4.5 | 60 | 57 | 20 | 57 | 20 | 57 | 20 | 57 | 20 | 57 | 20 | 76 | 20 | 76 | 20 | 76 | 20 | 76 | 20 |
| **P27** | 170 | = | = | 148 | 114 | 8.5 | 13 | 4 | 60 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |
| **P28** | = | 115 | 140 | 115 | 95 | M8 | 16 | 6 | 60 | 46 | 9 | 46 | 9 | 46 | 9 | 46 | 9 | 46 | 9 | 65 | 9 | 65 | 9 | 65 | 9 | 65 | 9 |
| **P29** | 133,5 | = | = | 121.5 | 60 | M6 | 13 | 13 | 60 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 43 | 6 | 62 | 6 | 62 | 6 | 62 | 6 | 62 | 6 |

* Per assemblare il motore è necessario smontare la flangia dal riduttore (vedere **schema di montaggio 2** a pag. 27).

** Before the mounting of the motor it is necessary to remove the flange from the gearbox (see **structural arrangement 2** at the top of the page 27).*

* Vor dem Einbauen des Motors soll die Getriebeflansch abmontiert werden (siehe **Bauanleitung 2** auf Seite 27).

## 1.9 Dati tecnici — *1.9 Technical data* — 1.9 Technische Daten

| Stadi / *Steps* / Stufenzahl | 1 | | | | 2 | | | | | | | 3 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **i** | **3** | **4** | **5** | **7** | **9** | **12** | **16** | **20** | **28** | **35** | **49** | **36** | **48** | **64** | **80** | **100** | **140** | **196** | **245** | **343** |
| $n_{1\ nom}$ | 3000 | | | | 3500 | | | | | | | 4000 | | | | | | | | |
| $n_{1\ max}$ | 5000 | | | | | | | | | | | | | | | | | | | |
| $T2_N$ | 430 | 470 | 410 | 340 | 500 | 560 | 560 | 560 | 560 | 470 | 370 | 600 | 600 | 600 | 600 | 600 | 600 | 600 | 500 | 450 |
| $T2_A$ | 700 | 750 | 650 | 600 | 800 | 900 | 900 | 900 | 900 | 750 | 700 | 950 | 950 | 950 | 950 | 950 | 950 | 950 | 800 | 750 |
| $T2_S$ | 1400 | 1500 | 1300 | 1200 | 1600 | 1800 | 1800 | 1800 | 1800 | 1500 | 1400 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1600 | 1500 |
| **J** | Vedi pag. 17 / See page 17 / Siehe auf Seite 17 | | | | | | | | | | | | | | | | | | | |
| **LpA** | < 70 | | | | | | | | | | | | | | | | | | | |
| $R_d$ | 0.96 | | | | 0.93 | | | | | | | 0.91 | | | | | | | | |
| $L_h$ | 20000 | | | | | | | | | | | | | | | | | | | |
| $F_{R2}$ | 6600 | | | | | | | | | | | | | | | | | | | |
| $F_{A2}$ | 3300 | | | | | | | | | | | | | | | | | | | |
| $R_t$ | 60 | | | | | | | | | | | | | | | | | | | |
| $\alpha_{max}$ | 4’ | | | | 6’ | | | | | | | 8’ | | | | | | | | |
| **Kg** | 13.0 | | | | 17.0 | | | | | | | 21 | | | | | | | | |

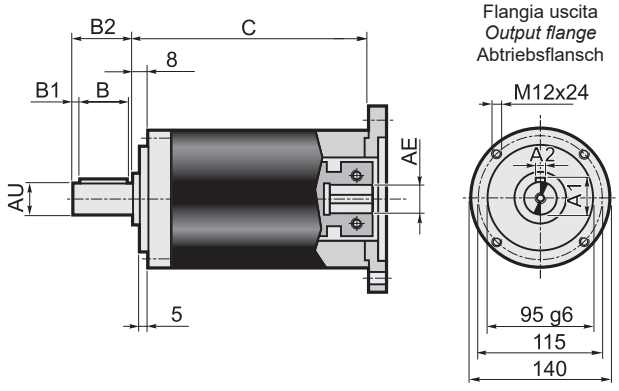
**$F_{R2}$** Carico radiale nominale in uscita [N] a 300min$^{-1}$ — *Rated output radial load [N] at 300min$^{-1}$* — Nenn-Radiallast an der Abtriebswelle bei 300min$^{-1}$

**$F_{A2}$** Carico assiale in uscita [N] a 300min$^{-1}$ — *Output axial load [N] at 300min$^{-1}$* — Axiallast an der Abtriebswelle bei 300min$^{-1}$

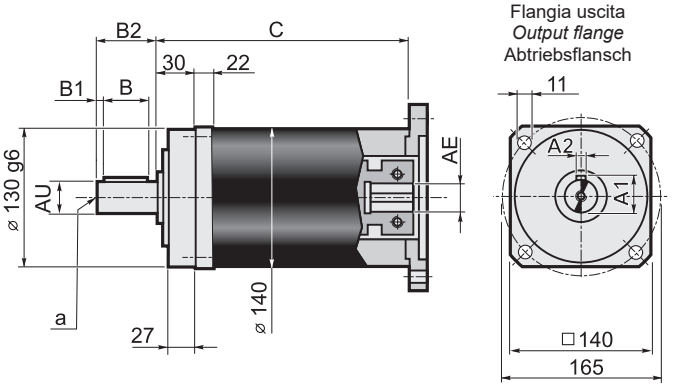
## 1.10 Dimensioni — *1.10 Dimensions* — 1.10 Abmessungen

**Dimensioni generali e uscite / *General and output dimensions* / General-und Abtriebsabmessungen**

### FLT



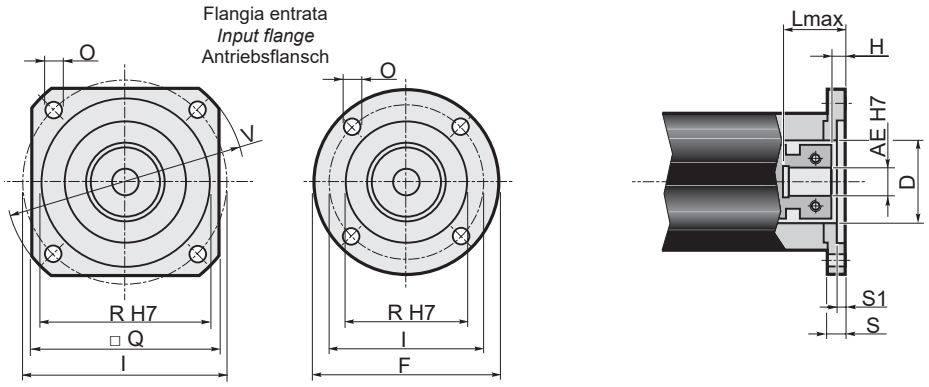

### FLQ




| Stadi / *Steps* / Stufenzahl | 1 | 2 | 3 | |
|---|---|---|---|---|
| **C** | 160 | 201 | 242 | AE= 15.87-16-19-22-24 |
| | 185 | 226 | 267 | AE= 28-32-35-38 |

| | Albero uscita - *Output shaft* - Abtriebswelle | | | | | | |
|---|---|---|---|---|---|---|---|
| | **AU j6** | **A1** | **A2** | **B** | **B1** | **B2** | **a** |
| **AU38** | 38 | 41 | 10 | 70 | 5 | 80 | M10x25 |
| **AU40** | 40 | 43 | 12 | 70 | 5 | 80 | M10x25 |

**Dimensioni entrate / *Input dimensions* / Antriebsabmessungen**




| Flange entrata / *Input flange* / Antriebsflansch | | | | | | | | | | Albero entrata / *Input shaft* / Antriebswelle | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | **AE** | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | **15.87** | | **16** | | **19** | | **22** | | **24** | | **28** | | **32** | | **35** | | **38** | |
| | **F** | **Q** | **V** | **I** | **R** (H7) | **O** | **S** | **S1** | **D** | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H | L max | H |
| **P01*** | 140 | = | = | 125.72 | 55.52 | 6.5 | 15 | 4 | 55.52 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 |
| **P02*** | 140 | = | = | 100 | 80 | 6.5 | 15 | 4 | 70 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 |
| **P03*** | 140 | = | = | 115 | 95 | 8.5 | 15 | 4.5 | 70 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 |
| **P04*** | = | 140 | 160 | 130 | 110 | 8.5 | 15 | 4.5 | 70 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 |
| **P05** | = | 142 | 190 | 165 | 130 | 11 | 15 | 4.5 | 70 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 |
| **P06** | = | 190 | 250 | 215 | 180 | 13 | 15 | 4.5 | 70 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 |
| **P07** | = | 250 | 300 | 265 | 230 | 13 | 15 | 4.5 | 70 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 |
| **P08** | = | 130 | 165 | 145 | 110 | M 8 | 18 | 7 | 70 | 60.8 | 9.8 | 60.8 | 9.8 | 60.8 | 9.8 | 60.8 | 9.8 | 60.8 | 9.8 | 85.8 | 10.3 | 85.8 | 10.3 | 85.8 | 10.3 | 85.8 | 10.3 |
| **P09** | = | 180 | 230 | 200 | 114.3 | 13.5 | 22 | 11 | 70 | 64.8 | 13.8 | 64.8 | 13.8 | 64.8 | 13.8 | 64.8 | 13.8 | 64.8 | 13.8 | 89.8 | 14.3 | 89.8 | 14.3 | 89.8 | 14.3 | 89.8 | 14.3 |
| **P10** | = | 115 | 150 | 130 | 95 | M 8 | 15 | 4.5 | 70 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 |
| **P11** | = | 180 | 230 | 198 | 155 | 13.5 | 22 | 7 | 120x11 | 64.8 | 13.8 | 64.8 | 13.8 | 64.8 | 13.8 | 64.8 | 13.8 | 64.8 | 13.8 | 89.8 | 14.3 | 89.8 | 14.3 | 89.8 | 14.3 | 89.8 | 14.3 |
| **P12** | = | 220 | 270 | 235 | 200 | 13.5 | 15 | 5 | 70 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 |
| **P13** | = | 190 | 250 | 215 | 130 | 13 | 15 | 4.5 | 70 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 |
| **P14** | = | 142 | 190 | 165 | 110 | 11 | 15 | 4.5 | 70 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 |
| **P15*** | 150 | = | = | 90 | 70 | 6.5 | 15 | 4 | 70 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 |
| **P16** | = | 146 | 200 | 177.8 | 114.3 | 10.5 | 15 | 3.5 | 70 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 57.8 | 6.8 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 | 82.8 | 7.3 |
| **P17** | = | 130 | 165 | 145 | 110 | M 8 | 28 | 7 | 70 | 70.8 | 19.8 | 70.8 | 19.8 | 70.8 | 19.8 | 70.8 | 19.8 | 70.8 | 19.8 | 95.8 | 20.3 | 95.8 | 20.3 | 95.8 | 20.3 | 95.8 | 20.3 |
| **P18** | 140 | = | = | 100 | 80 | M 6 | 22 | 6 | 70 | 64.8 | 13.8 | 64.8 | 13.8 | 64.8 | 13.8 | 64.8 | 13.8 | 64.8 | 13.8 | 89.8 | 14.3 | 89.8 | 14.3 | 89.8 | 14.3 | 89.8 | 14.3 |
| **P19** | = | 130 | 165 | 145 | 110 | M 8 | 27 | 7 | 70 | 69.8 | 18.8 | 69.8 | 18.8 | 69.8 | 18.8 | 69.8 | 18.8 | 69.8 | 18.8 | 94.8 | 19.3 | 94.8 | 19.3 | 94.8 | 19.3 | 94.8 | 19.3 |

* Per assemblare il motore è necessario smontare la flangia dal riduttore (vedere **schema di montaggio 2** a pag. 27).

** Before the mounting of the motor it is necessary to remove the flange from the gearbox (see **structural arrangement 2** at the top of the page 27).*

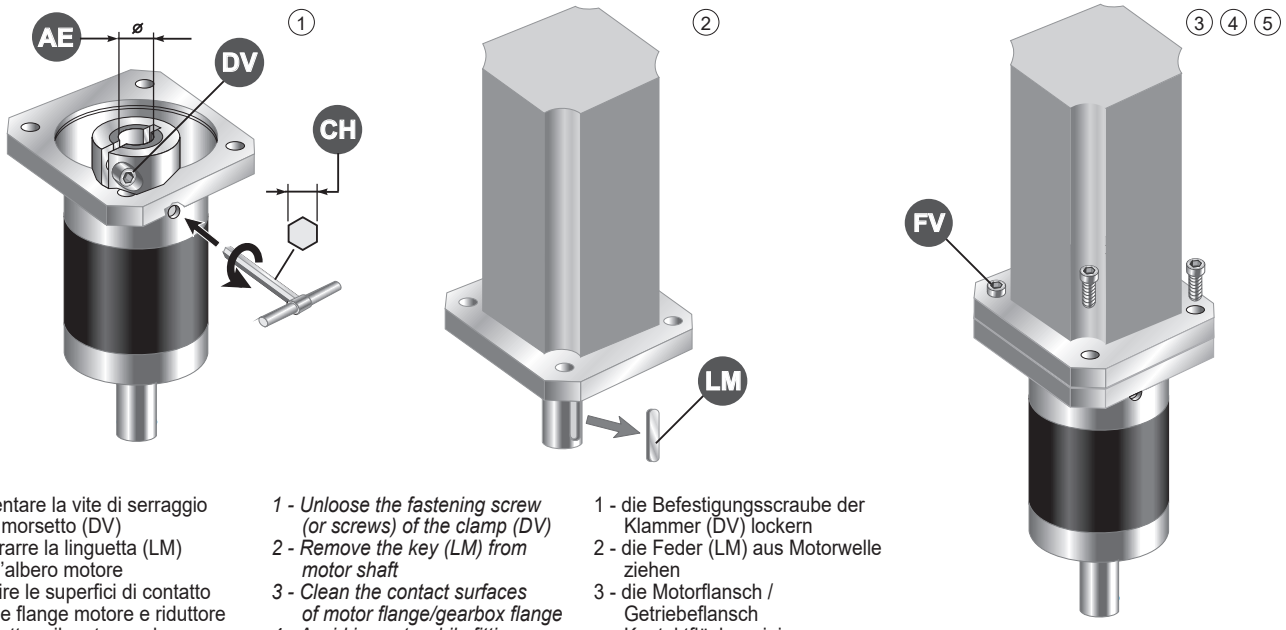
* Vor dem Einbauen des Motors soll die Getriebeflansch abmontiert werden (siehe **Bauanleitung 2** auf Seite 27).

## 1.11 Istruzioni per il montaggio del motore

## *1.11 Instructions for assembly of motor*

## 1.11 Anleitung für motormontage

### 1 Schema di montaggio / *Assembly drawing* / Bauanleitung 1




1 - Allentare la vite di serraggio del morsetto (DV)
2 - Estrarre la linguetta (LM) dall'albero motore
3 - Pulire le superfici di contatto delle flange motore e riduttore
4 - Calettare il motore sul riduttore evitando urti
5 - Stringere le viti di assemblaggio (FV) in modo alternato
6 - Assicurarsi che il morsetto venga serrato posizionandolo verso il motore e rispettando la fasatura dei tagli
7 - Serrare la vite (o le viti) del morsetto (DV) alla coppia (CS) indicata in tabella

*1 - Unloose the fastening screw (or screws) of the clamp (DV)*
*2 - Remove the key (LM) from motor shaft*
*3 - Clean the contact surfaces of motor flange/gearbox flange*
*4 - Avoid impacts while fitting motor to gearbox*
*5 - Tighten the assembling scews (FV) alternatively*
*6 - Fix the clamp towards the motor and tighten it in compliance with the cuts timing*
*7 - Tighten the clamp screw,or screws (DV) according to the torque (CS) reported in the table*

1 - die Befestigungsscraube der Klammer (DV) lockern
2 - die Feder (LM) aus Motorwelle ziehen
3 - die Motorflansch / Getriebeflansch Kontaktfläche reinigen
4 - Motor und Getriebe ohne Stöße verkeilen
5 - die Befestigungsscrauben (FV) abwechselnd anziehen
6 - Die Klammer soll zum Motor angezogen. Dabei soll die Zuendeinstellung de Schnitte geachtet
7 - die Schraube (oder Schrauben) der Klammer (DV) zu dem in der Tabelle angegebenen Anzugsmoment anziehen

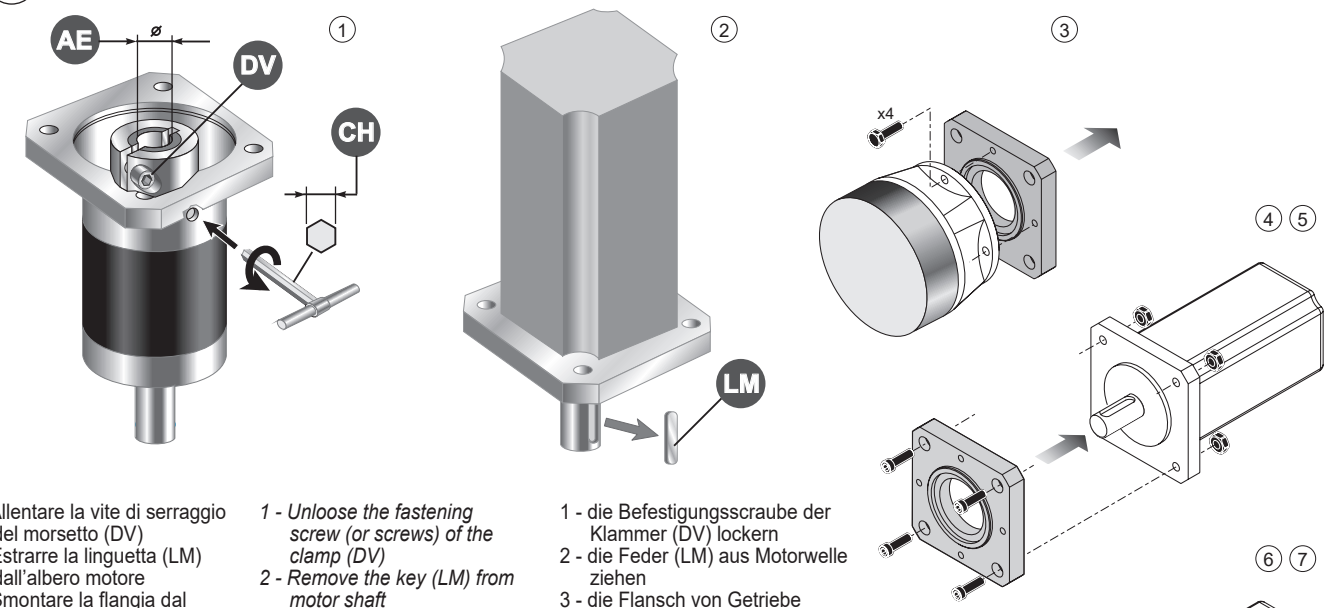
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **REP 075** | **AE** | **6** | **6.35** | **7** | **8** | **9** | **9.52** | **11** | **12** | **12.7** | **14** |
| | **DV** | M4 x 16 | | | | | | | | | |
| | **NV** | 1 | | | | | | | | | |
| | **CH** | 3 | | | | | | | | | |
| | **CS** [Nm] | 4.8 | | | | | | | | | |
| **REP 100** | **AE** | **9** | **9.52** | **11** | **12** | **12.7** | **14** | **15.87** | **16** | **19** | |
| | **DV** | M4 x 16 | | | | | | M5 x 20 | | | |
| | **NV** | 1 | | | | | | 1 | | | |
| | **CH** | 3 | | | | | | 4 | | | |
| | **CS** [Nm] | 4.8 | | | | | | 9.4 | | | |
| **REP 125** | **AE** | **12.7** | **14** | **15.87** | **16** | **19** | **22** | **24** | **25** | **28** | |
| | **DV** | M4 x 16 | | M5 x 20 | | | M6 x 20 | | | | |
| | **NV** | 1 | | 1 | | | 2 | | | | |
| | **CH** | 3 | | 4 | | | 5 | | | | |
| | **CS** [Nm] | 4.8 | | 9.4 | | | 16.2 | | | | |
| **REP 150** | **AE** | **15.87** | **16** | **19** | **22** | **24** | **28** | **32** | **35** | **38** | |
| | **DV** | M6 x 20 | | | M6 x 20 | | | M6 x 20 | | | |
| | **NV** | 1 | | | 2 | | | 3 | | | |
| | **CH** | 5 | | | 5 | | | 5 | | | |
| | **CS** [Nm] | 16.2 | | | 16.2 | | | 16.2 | | | |

Tutte le viti hanno classe di resistenza 12.9
*All screws supplied according to strenght class 12.9*
*Alle Schrauben nach Festigkeitsklasse 12.9 geliefert*

AE= Albero entrata / *Input shaft* / Antriebswelle
DV= Diametro vite / *Screw diameter* / Schraubendurchmesser
NV= Numero viti / *Number of screw* / Schraubenanzahl
CS= Coppia di serraggio / *Setting torque* / Spannungsmoment

# 1.11 Istruzioni per il montaggio del motore / *1.11 Instructions for assembly of motor* / 1.11 Anleitung für motormontage

## 2 Schema di montaggio / *Assembly drawing* / Bauanleitung 2




1 - Allentare la vite di serraggio del morsetto (DV)
2 - Estrarre la linguetta (LM) dall'albero motore
3 - Smontare la flangia dal riduttore
4 - Pulire le superfici di contatto delle flange motore e riduttore
5 - Fissare la flangia sul motore
6 - Calettare il motore sul riduttore evitando urti
7 - Stringere le viti di assemblaggio (FV) in modo alternato
8 - Assicurarsi che il morsetto venga serrato posizionandolo verso il motore e rispettando la fasatura dei tagli
9 - Serrare la vite (o le viti) del morsetto (DV) alla coppia (CS) indicata in tabella

*1 - Unloose the fastening screw (or screws) of the clamp (DV)*
*2 - Remove the key (LM) from motor shaft*
*3 - Remove the flange from the gearbox*
*4 - Clean the contact surfaces of motor flange/gearbox flange*
*5 - Fix the flange on the motor*
*6 - Avoid impacts while fitting motor to gearbox*
*7 - Tighten the assembling scews (FV) alternatively*
*8 - Fix the clamp towards the motor and tighten it in compliance with the cuts timing*
*9 - Tighten the clamp screw,or screws (DV) according to the torque (CS) reported in the table*

1 - die Befestigungsscraube der Klammer (DV) lockern
2 - die Feder (LM) aus Motorwelle ziehen
3 - die Flansch von Getriebe abmontieren
4 - die Motorflansch / Getriebeflansch Kontaktfläche reinigen
5 - die Flansch an Motor befestigen
6 - Motor und Getriebe ohne Stöße verkeilen
7 - die Befestigungsscrauben (FV) abwechselnd anziehen
8 - Die Klammer soll zum Motor angezogen. Dabei soll die Zuendeinstellung de Schnitte geachtet
9 - die Schraube (oder Schrauben) der Klammer (DV) zu dem in der Tabelle angegebenen Anzugsmoment anziehen

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **REP 075** | **AE** | 6 | 6.35 | 7 | 8 | 9 | 9.52 | 11 | 12 | 12.7 | 14 |
| | **DV** | M4 x 16 | | | | | | | | | |
| | **NV** | 1 | | | | | | | | | |
| | **CH** | 3 | | | | | | | | | |
| | **CS** [Nm] | 4.8 | | | | | | | | | |
| **REP 100** | **AE** | 9 | 9.52 | 11 | 12 | 12.7 | 14 | 15.87 | 16 | 19 | |
| | **DV** | M4 x 16 | | | | | | M5 x 20 | | | |
| | **NV** | 1 | | | | | | 1 | | | |
| | **CH** | 3 | | | | | | 4 | | | |
| | **CS** [Nm] | 4.8 | | | | | | 9.4 | | | |
| **REP 125** | **AE** | 12.7 | 14 | 15.87 | 16 | 19 | 22 | 24 | 25 | 28 | |
| | **DV** | M4 x 16 | | M5 x 20 | | | M6 x 20 | | | | |
| | **NV** | 1 | | 1 | | | 2 | | | | |
| | **CH** | 3 | | 4 | | | 5 | | | | |
| | **CS** [Nm] | 4.8 | | 9.4 | | | 16.2 | | | | |
| **REP 150** | **AE** | 15.87 | 16 | 19 | 22 | 24 | 28 | 32 | 35 | 38 | |
| | **DV** | M6 x 20 | | | M6 x 20 | | | M6 x 20 | | | |
| | **NV** | 1 | | | 2 | | | 3 | | | |
| | **CH** | 5 | | | 5 | | | 5 | | | |
| | **CS** [Nm] | 16.2 | | | 16.2 | | | 16.2 | | | |

Tutte le viti hanno classe di resistenza 12.9
*All screws supplied according to strenght class 12.9*
*Alle Schrauben nach Festigkeitsklasse 12.9 geliefert*

AE= Albero entrata / *Input shaft* / Antriebswelle
DV= Diametro vite / *Screw diameter* / Schraubendurchmesser
NV= Numero viti / *Number of screw* / Schraubenanzahl
CS= Coppia di serraggio / *Setting torque* / Spannungsmoment