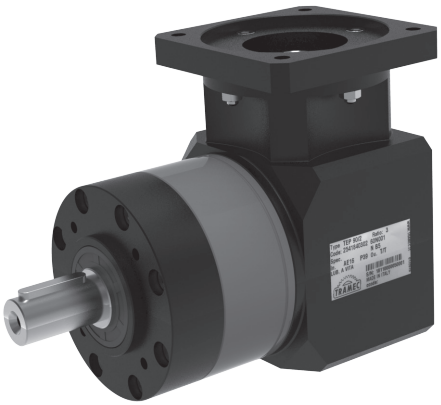
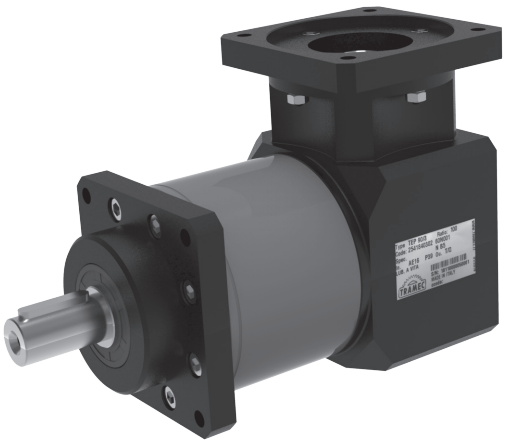
3.0 RIDUTTORI EPICICLOIDALI ANGOLARI SERIE TEP / *RIGHT ANGLE PLANETARY GEARBOXES TEP SERIES* / WINKEL-PLANETENGETRIEBE SERIE TEP





04/2021

3.1 Caratteristiche

La serie di riduttori epicicloidali angolari TEP 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 è costituita da 5 grandezze (55, 75, 90, 120 e 155), a 2 e 3 stadi di riduzione, ognuna con due tipi di alberi uscita (tipo A e tipo T) e flange uscita di tipo A, T e Q.

Corpo: costruito in acciaio nitrurato, 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.

3.1 Characteristics

The right angle planetary gearboxes TEP series is the result of the outstanding ratio 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 and packaging machines*
- *Automation*
- *Mechanical hands*
- *Silk-screen process machines*
- *Linear guides*

The TEP series is available in 5 sizes (55, 75, 90, 120 and 155), with 2 or 3 reduction stages, with two types of output shaft (A and T) and three types of output flange (A, T and Q).

***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.*

3.1 Merkmale

Die TEP Serie von Winkel-planetengetrieben ist das Ergebnis des hervorragenden Verhältnis guten 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 TEP Serie ist in 5 Größen (55, 75, 90, 120 und 155) mit 2 oder 3 Untersetzungsstufen, mit zwei Typen von Abtriebswellen (A und T) und drei Typen von Abtriebsflanschen (A, T und Q) 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 Einsatzstahl mit geschliffenen Zahnflanken.

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

3.2 Designazione

3.2 Designation

3.2 Bezeichnung

Riduttore epicicloidale angoalre *Right angle planetary gearbox* Winkel-planetengetriebe	Grandezza *Size* Größe	Numero di stadi *Steps* Untersetzungsstufen	*Angolare Right angle* Winkelgetriebe	Rapporto di riduzione *Ratio* Untersetzungsverhältnis	Albero uscita *Ouput shaft* Durchmesser Abtriebswelle	Flangia uscita *Output flange* Abtriebsflansch	Albero entrata *Input shaft* Antriebswelle	Flangia in entrata *Input flange* Eingangsflansch	Posizione di montaggio *Mounting position* Baulage
TEP	**55**	**2**	**T**	**100**	**A**	**A**	**AE..**	**P..**	**B5**
	55 **75** **90** **120** **155**	**2** **3**	**T**	**3 - 100**	**A** **T**	**A** **T** **Q**	Vedi tabelle *See tables* Siehe Tab.	Vedi tabelle *See tables* Siehe Tab.	**B5** **B6** **B8** **V1** **V3** **OS**

3.3 Selezione

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

3.3 Selection

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

3.3 Getriebeauswahl

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

3.4 Gioco angolare (α_{max})

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

3.4 Backlash (α_{max})

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

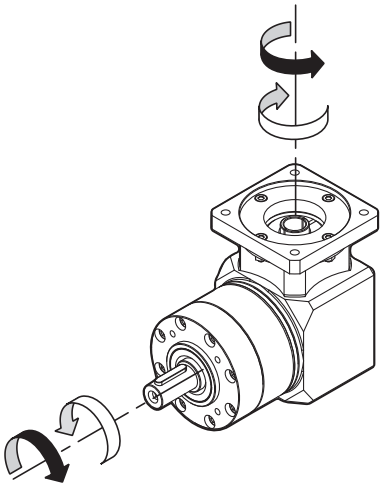
3.4 Spiel (α_{max})

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

3.5 Sensi di rotazione alberi

3.5 Direction of shaft rotation

3.5 Drehrichtungen der Wellen



3.6 Carichi radiali e assiali su albero lento

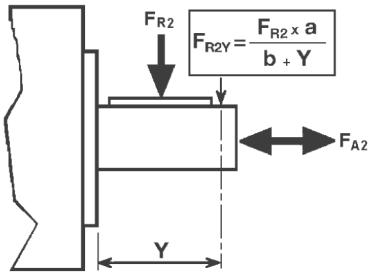
Nella tabella delle prestazioni sono indicati i valori, espressi in N, dei carichi assiali e radiali ammissibili alle diverse velocità per una durata dei cuscinetti di 20.000 ore. Il carico radiale F_{R2} si considera applicato ad una distanza dalla battuta pari alla metà della lunghezza dell'albero lento. Per distanze y diverse, è possibile calcolare il nuovo carico massimo ammissibile F_{R2Y} utilizzando formula e coefficienti indicati nella tabella.

3.6 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 20.000 hours.Radial load F_{R2} calculations have been based on loads applied to the center line of 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.

3.6 Radial-und Axiallasten an der Abtriebswelle

Die Leistungstabelle enthält die in N ausgedrückten Werte der Axial- und Radiallasten für verschiedene Umdrehungszahlen. Diesen Werten liegt eine Lebensdauer der Lager von 20.000 Stunden zugrunde. Die Radiallast F_{R2} greift hierbei auf der Mitte der Abtriebswelle an. Greift die Radiallast an einem anderen Punkt der Abtriebswelle an, so kann man die zulässige Radiallast mit der folgenden Formel sowie den dazugehörigen Koeffizienten berechnen:



	TEP 55	TEP 75	TEP 90	TEP 120	TEP 155
a	27	46	56	77	95
b	18	32	39	52	64

3.7 Lubrificazione

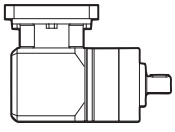
I riduttori TEP sono forniti completi di lubrificante a vita pertanto non necessitano di manutenzione. In fase di ordine specificare la posizione di montaggio.

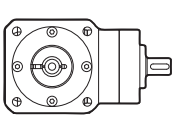
3.7 Lubrication

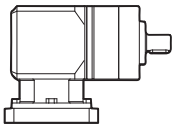
TEP gearboxes are supplied filled with long-life lubricant and do not require any maintenance. When ordering it is important to specify the exact mounting position.

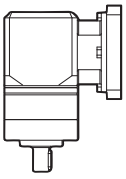
3.7 Schmierung

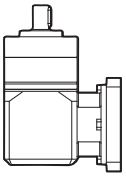
Die Planetengetriebe TEP werden inklusive Dauerschmierung geliefert und sind wartungsfrei. Bei der Bestellung bitte die Einbauposition angeben.

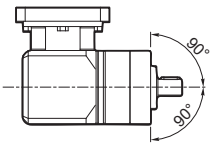

B5


B6


B8


V1


V3



OS

3.8 Momento d'inerzia J [kg·cm²]

3.8 Moment of inertia J [kg·cm²]

3.8 Trägheitsmoment J [kg·cm²]

	TEP 55							
	Albero entrata / *Input shaft* / Antriebswelle							
Stadi *Steps* Stufenzahl	**i**	**6**	**6.35**	**7**	**8**	**9**	**9.525**	**11**
2	**3**	0.13	0.13	0.13	0.14	0.14	0.14	0.15
	4	0.12	0.12	0.12	0.13	0.13	0.13	0.13
	5	0.11	0.11	0.11	0.13	0.13	0.13	0.13
	7	0.11	0.11	0.11	0.12	0.12	0.12	0.13
	10	0.11	0.11	0.11	0.12	0.12	0.12	0.13
3	**9**	0.13	0.13	0.13	0.14	0.14	0.14	0.15
	12	0.13	0.13	0.13	0.14	0.14	0.14	0.14
	15	0.13	0.13	0.13	0.14	0.14	0.14	0.14
	16	0.12	0.12	0.12	0.13	0.13	0.13	0.13
	20	0.12	0.12	0.12	0.13	0.13	0.13	0.13
	25	0.11	0.11	0.11	0.13	0.13	0.13	0.13
	28	0.11	0.11	0.11	0.12	0.12	0.12	0.13
	35	0.11	0.11	0.11	0.12	0.12	0.12	0.13
	40	0.11	0.11	0.11	0.12	0.12	0.12	0.13
	50	0.11	0.11	0.11	0.12	0.12	0.12	0.13
	70	0.11	0.11	0.11	0.12	0.12	0.12	0.13
	100	0.11	0.11	0.11	0.12	0.12	0.12	0.13

	TEP 75										
	Albero entrata / *Input shaft* / Antriebswelle										
Stadi *Steps* Stufenzahl	**i**	**6**	**6.35**	**7**	**8**	**9**	**9.525**	**11**	**12**	**12.7**	**14**
2	**3**	0.33	0.33	0.33	0.34	0.34	0.34	0.35	0.36	0.36	0.37
	4	0.27	0.27	0.27	0.29	0.29	0.29	0.30	0.30	0.30	0.32
	5	0.26	0.26	0.26	0.28	0.28	0.28	0.29	0.29	0.29	0.31
	7	0.25	0.25	0.25	0.26	0.26	0.26	0.28	0.28	0.28	0.30
	10	0.24	0.24	0.24	0.26	0.26	0.26	0.27	0.27	0.27	0.29
3	**9**	0.32	0.32	0.32	0.33	0.33	0.33	0.34	0.35	0.35	0.36
	12	0.31	0.31	0.31	0.33	0.33	0.33	0.34	0.34	0.34	0.36
	15	0.31	0.31	0.31	0.33	0.32	0.32	0.34	0.34	0.34	0.36
	16	0.27	0.27	0.27	0.29	0.29	0.29	0.30	0.30	0.30	0.32
	20	0.27	0.27	0.27	0.29	0.29	0.29	0.30	0.30	0.30	0.32
	25	0.26	0.26	0.26	0.27	0.27	0.27	0.28	0.29	0.29	0.31
	28	0.25	0.25	0.25	0.26	0.26	0.26	0.28	0.28	0.28	0.30
	35	0.25	0.25	0.25	0.26	0.26	0.26	0.28	0.28	0.28	0.30
	40	0.24	0.24	0.24	0.26	0.26	0.26	0.27	0.27	0.27	0.29
	50	0.24	0.24	0.24	0.26	0.26	0.26	0.27	0.27	0.27	0.29
	70	0.24	0.24	0.24	0.26	0.26	0.26	0.27	0.27	0.27	0.29
	100	0.24	0.24	0.24	0.26	0.26	0.26	0.27	0.27	0.27	0.29

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.

3.8 Momento d'inerzia J [kg·cm²]

3.8 Moment of inertia J [kg·cm²]

3.8 Trägheitsmoment J [kg·cm²]

	TEP 90									
	Albero entrata / *Input shaft* / Antriebswelle									
Stadi *Steps* Stufenzahl	**i**	**9**	**9.525**	**11**	**12**	**12.7**	**14**	**15.87**	**16**	**19**
2	**3**	1.14	1.14	1.15	1.16	1.15	1.17	1.37	1.37	1.34
	4	0.96	0.96	0.97	0.98	0.98	1.00	1.19	1.19	1.16
	5	0.90	0.90	0.91	0.91	0.91	0.93	1.13	1.13	1.10
	7	0.85	0.85	0.86	0.87	0.86	0.88	1.08	1.08	1.05
	10	0.83	0.83	0.84	0.84	0.84	0.86	1.06	1.06	1.03
3	**9**	1.15	1.14	1.15	1.16	1.16	1.18	1.38	1.37	1.34
	12	1.13	1.12	1.14	1.14	1.14	1.16	1.36	1.35	1.32
	15	1.12	1.12	1.13	1.13	1.13	1.15	1.35	1.35	1.32
	16	0.95	0.95	0.96	0.97	0.97	0.99	1.18	1.18	1.15
	20	0.95	0.95	0.96	0.96	0.96	0.98	1.18	1.18	1.15
	25	0.89	0.89	0.90	0.91	0.90	0.92	1.12	1.12	1.09
	28	0.85	0.85	0.86	0.86	0.86	0.88	1.08	1.08	1.05
	35	0.85	0.85	0.86	0.86	0.86	0.88	1.08	1.08	1.04
	40	0.83	0.82	0.83	0.84	0.84	0.86	1.05	1.05	1.02
	50	0.82	0.82	0.83	0.84	0.84	0.86	1.05	1.05	1.02
	70	0.82	0.82	0.83	0.84	0.84	0.86	1.05	1.05	1.02
	100	0.82	0.82	0.83	0.84	0.84	0.86	1.05	1.05	1.02

	TEP 120							
	Albero entrata / *Input shaft* / Antriebswelle							
Stadi *Steps* Stufenzahl	**i**	**14**	**15.87**	**16**	**19**	**22**	**24**	**28**
2	**3**	3.97	4.14	4.14	4.10	6.25	6.21	6.06
	4	3.08	3.25	3.25	3.21	5.36	5.32	5.17
	5	2.80	2.97	2.97	2.94	5.08	5.04	4.89
	7	2.57	2.74	2.74	2.70	4.85	4.81	4.66
	10	2.45	2.62	2.62	2.59	4.73	4.69	4.54
3	**9**	3.95	4.12	4.12	4.08	6.23	6.19	6.04
	12	3.86	4.03	4.03	4.00	6.14	6.10	5.96
	15	3.82	3.99	3.99	3.96	6.10	6.06	5.92
	16	3.02	3.19	3.19	3.15	5.30	5.26	5.11
	20	2.99	3.16	3.16	3.13	5.28	5.24	5.09
	25	2.74	2.92	2.91	2.88	5.03	4.99	4.84
	28	2.55	2.72	2.72	2.69	4.83	4.79	4.64
	35	2.54	2.71	2.71	2.68	4.82	4.78	4.64
	40	2.44	2.61	2.61	2.58	4.72	4.68	4.53
	50	2.43	2.60	2.60	2.57	4.72	4.68	4.53
	70	2.43	2.60	2.60	2.57	4.72	4.68	4.53
	100	2.43	2.60	2.60	2.57	4.72	4.67	4.53

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.

3.8 Momento d'inerzia J [kg·cm²]

3.8 Moment of inertia J [kg·cm²]

3.8 Trägheitsmoment J [kg·cm²]

	TEP 155									
	Albero entrata / *Input shaft* / Antriebswelle									
Stadi *Steps* Stufenzahl	**i**	**15.87**	**16.00**	**19**	**22**	**24**	**28**	**32**	**35**	**38**
2	**3**	11.69	11.69	11.72	12.96	12.93	16.93	18.77	18.64	18.31
	4	9.17	9.17	9.20	10.44	10.40	14.41	16.24	16.12	15.79
	5	8.29	8.29	8.32	9.56	9.52	13.52	15.36	15.23	14.91
	7	7.58	7.58	7.61	8.85	8.81	12.81	14.65	14.53	14.20
	10	7.21	7.21	7.24	8.48	8.44	12.45	14.28	14.16	13.83
3	**9**	11.56	11.56	11.59	12.83	12.79	16.79	18.63	18.51	18.18
	12	11.27	11.27	11.31	12.55	12.51	16.51	18.35	18.23	17.90
	15	11.18	11.18	11.21	12.45	12.41	16.42	18.25	18.13	17.80
	16	8.94	8.94	8.97	10.21	10.17	14.17	16.01	15.89	15.56
	20	8.88	8.88	8.91	10.15	10.12	14.12	15.96	15.83	15.50
	25	8.10	8.10	8.13	9.37	9.34	13.34	15.18	15.05	14.72
	28	7.50	7.50	7.53	8.77	8.74	12.74	14.58	14.45	14.12
	35	7.48	7.48	7.51	8.75	8.72	12.72	14.56	14.43	14.10
	40	7.17	7.17	7.20	8.44	8.41	12.41	14.25	14.12	13.79
	50	7.16	7.16	7.19	8.43	8.40	12.40	14.24	14.11	13.78
	70	7.16	7.16	7.19	8.43	8.39	12.39	14.23	14.10	13.78
	100	7.15	7.15	7.18	8.42	8.39	12.39	14.23	14.10	13.77

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.

3.9 Dati tecnici — *3.9 Technical data* — 3.9 Technische Daten

TEP 55																		Stadi *Steps* Stufenzahl	
Stadi *Steps* Stufenzahl	2					3													
i	**3**	**4**	**5**	**7**	**10**	**9**	**12**	**15**	**16**	**20**	**25**	**28**	**35**	**40**	**50**	**70**	**100**		**2**	**3**
$T2_N$	9	12	15	12	10	14	16	16	16	16	16	16	16	16	16	14	12	**n_{1nom}**	3500	
$T2_A$	13	17	22	22	20	24	28	28	28	28	28	28	28	28	28	24	22	**n_{1max}**	5000	
$T2_S$	26	34	44	44	40	48	56	56	56	56	56	56	56	56	56	48	44	**LpA**	< 65	
J	Vedi pag. 53 / See page 53 / Siehe auf Seite 53																	**Lh**	20000	
R_t	0.85				0.8	0.85											0.8	**F_{R2}**	300	
R_d	0.94					0.91												**F_{A2}**	450	
Kg	1.3					2.3												**α_{max}**	17 '	20 '

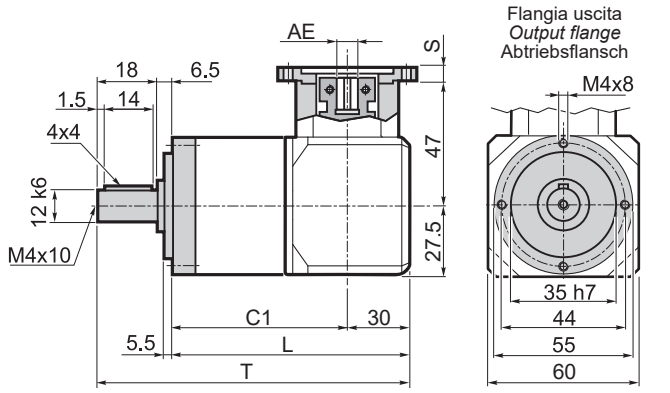
F_{R2} Carico radiale nominale in uscita [N] a $100min^{-1}$ — *Rated output radial load [N] at $100min^{-1}$* — Nenn-Radiallast an der Abtriebswelle bei $100min^{-1}$

F_{A2} Carico assiale in uscita [N] a $100min^{-1}$ — *Output axial load [N] at $100min^{-1}$* — Axiallast an der Abtriebswelle bei $100min^{-1}$

3.10 Dimensioni — *3.10 Dimensions* — 3.10 Abmessungen

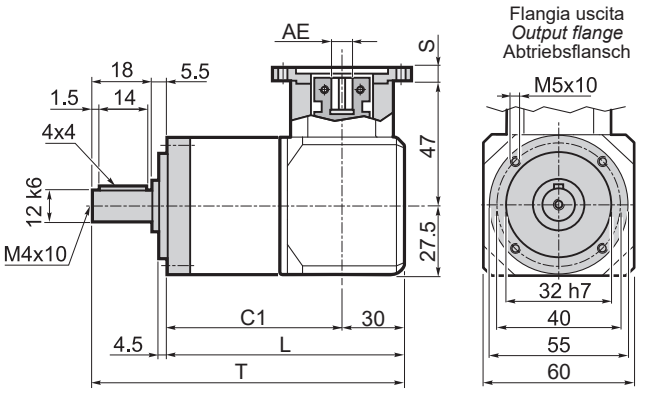
Dimensioni generali e uscite / *General and output dimensions* / General-und Abtriebsabmessungen

AA



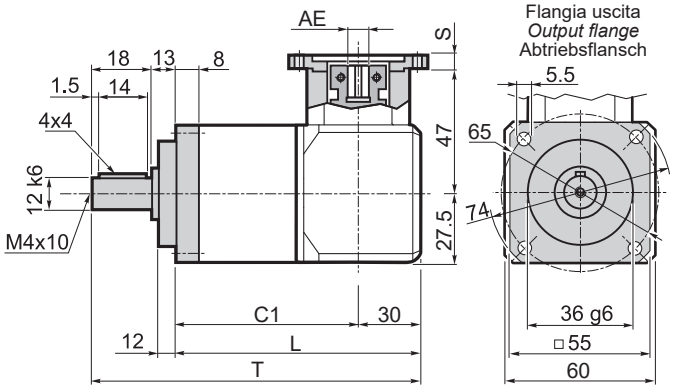
Stadi / *Steps* / Stufenzahl	2	3	
C1	65	84	AE= 6 - 6.35 - 7 - 8 - 9 - 9.52 - 11
L	95	114	
T	119.5	138.5	

TT



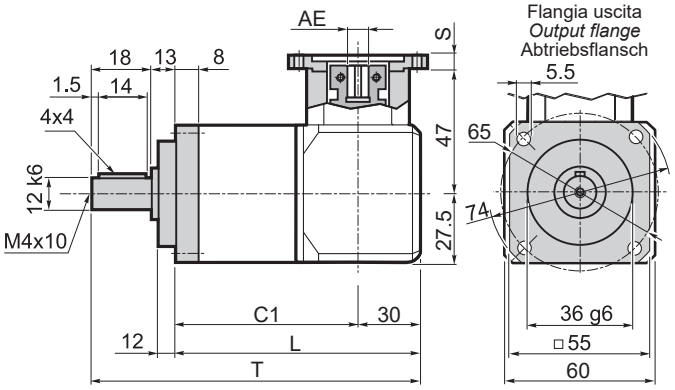
Stadi / *Steps* / Stufenzahl	2	3	
C1	66	85	AE= 6 - 6.35 - 7 - 8 - 9 - 9.52 - 11
L	96	115	
T	119.5	138.5	

AQ



Stadi / *Steps* / Stufenzahl	2	3	
C1	58.5	77.5	AE= 6 - 6.35 - 7 - 8 - 9 - 9.52 - 11
L	88.5	107.5	
T	119.5	138.5	

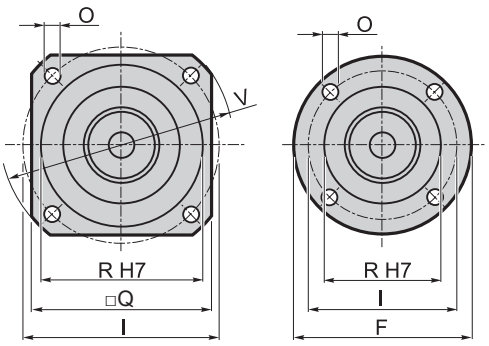
TQ

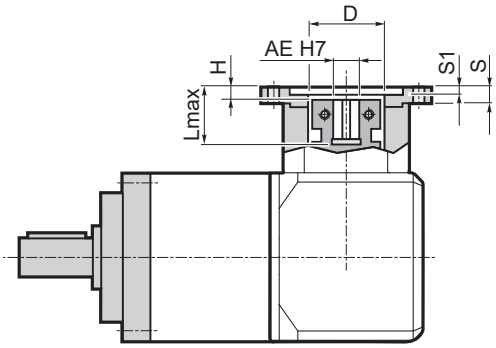


Stadi / *Steps* / Stufenzahl	2	3	
C1	58.5	77.5	AE= 6 - 6.35 - 7 - 8 - 9 - 9.52 - 11
L	88.5	107.5	
T	119.5	138.5	

Dimensioni entrate / *Input dimensions* / Antriebsabmessungen

Flangia entrata
Input flange
Antriebsflansch





Flange entrata / *Input flange* / Antriebsflansch										Albero entrata / *Input shaft* / Antriebswelle													
										AE													
										6		6.35		7		8		9		9.52		11	
	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
P01*	60	=	=	43.82	22	4.5	10	3	22	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P02*	=	60	80	66.67	38.1	5.5	10	3	32	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P03*	=	60	80	63	40	5.5	10	3.5	32	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P04	=	70	90	75	60	6.5	10.5	3.5	32	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5
P05	105	=	=	85	70	6.5	10.5	3.5	32	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5
P06	=	80	110	98.42	73.02	6	11	3.5	35	31	8	31	8	31	8	31	8	31	8	31	8	31	8
P07	=	95	120	100	80	6.5	11.5	4	32	31.5	8.5	31.5	8.5	31.5	8.5	31.5	8.5	31.5	8.5	31.5	8.5	31.5	8.5
P08	=	98	130	115	95	9	11.5	4	32	31.5	8.5	31.5	8.5	31.5	8.5	31.5	8.5	31.5	8.5	31.5	8.5	31.5	8.5
P09	=	116	160	130	110	9	12	4.5	32	32	9	32	9	32	9	32	9	32	9	32	9	32	9
P10*	60	=	=	39	26	4.5	10	3	26	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P11*	60	=	=	42	32	4.5	10	3	32	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P12*	65	=	=	46	32	4.5	10	3.5	32	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P13*	80	=	=	65	50	5.5	10	3.5	32	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P14*	60	=	=	39	20	4.5	10	2.5	20	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P15	=	75	100	90	60	5.8	12	3.5	32	32	9	32	9	32	9	32	9	32	9	32	9	32	9
P16*	60	=	=	45	30	3.5	14	7	30	34	11	34	11	34	11	34	11	34	11	34	11	34	11
P17	=	60	82	70	50	4.5	16.5	8	32	36.5	13.5	36.5	13.5	36.5	13.5	36.5	13.5	36.5	13.5	36.5	13.5	36.5	13.5
P18	=	60	80	60	50	M4	10.5	3.5	32	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5
P19*	60	=	=	36	25	4.5	10	3	25	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P20	=	60	82	70	50	5.5	10.5	3.5	32	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5
P21*	60	=	=	46	30	4.5	10	3	30	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P22	=	60	80	70.71	36	4.5	10	2	32	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P23	=	62	85	70	50	5.5	15.5	3.5	32	35.5	12.5	35.5	12.5	35.5	12.5	35.5	12.5	35.5	12.5	35.5	12.5	35.5	12.5
P24	=	75	100	90	70	5.8	12	3.5	32	32	9	32	9	32	9	32	9	32	9	32	9	32	9
P25	=	70	95	85	55	5.8	12	3.5	32	32	9	32	9	32	9	32	9	32	9	32	9	32	9
P26*	=	60	80	65.5	34	5.5	10	3.5	33	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P27	=	80	110	95	50	6.5	12	3.5	32	32	9	32	9	32	9	32	9	32	9	32	9	32	9
P28	=	60	80	66.67	38.1	M4	9	2.5	32	29	6	29	6	29	6	29	6	29	6	29	6	29	6
P29	60	=	=	45	30	M3	11	4	32	31	8	31	8	31	8	31	8	31	8	31	8	31	8
P30	=	70	95	85	60	5.8	12	3.5	32	32	9	32	9	32	9	32	9	32	9	32	9	32	9
P31	=	62	85	70	50	M4	11	3.5	32	31	8	31	8	31	8	31	8	31	8	31	8	31	8
P32	=	60	80	65	40	M5	10	3.5	32	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P33	=	85	115	99	60	5.5	11	3.5	35	31	8	31	8	31	8	31	8	31	8	31	8	31	8
P34	=	65	87	73.54	40	M4	10	3.5	32	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P35	=	60	80	70.71	36	M4	14	2	32	34	11	34	11	34	11	34	11	34	11	34	11	34	11
P36	=	85	115	98.42	73.02	6	15	3.5	35	35	12	35	12	35	12	35	12	35	12	35	12	35	12
P37	=	95	120	100	80	6.5	16.5	5	32														
P38	60	=	=	48	30	M3	11	7	32	31	8	31	8	31	8	31	8	31	8	31	8	31	8
P41*	68	=	=	50	30	5.5	10	10	30	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P43	=	60	80	66.67	50	M5	9	2.5	32	29	6	29	6	29	6	29	6	29	6	29	6	29	6
P44*	60	=	=	32	25	4.5	9	2.5	20	29	6	29	6	29	6	29	6	29	6	29	6	29	6
P45	=	62	85	73.54	50	M5	10	3	32	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P46	70	=	=	55	45	4.5	9	3	32	29	6	29	6	29	6	29	6	29	6	29	6	29	6
P47	=	90	118	104	83	6.5	14	3.5	32	34	11	34	11	34	11	34	11	34	11	34	11	34	11
P48*	60	=	=	38.88	25	4.5	10	3	25	30	7	30	7	30	7	30	7	30	7	30	7	30	7
P49	=	70	90	75	60	M5	10.5	3.5	32	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5	30.5	7.5

* Per assemblare il motore è necessario smontare la flangia dal riduttore (vedere **schema di montaggio 2** a pag. 67).

** 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 67).*

* Vor dem Einbauen des Motors soll die Getriebeflansch abmontiert werden (siehe **Bauanleitung 2** auf Seite 67).

3.9 Dati tecnici — *3.9 Technical data* — 3.9 Technische Daten

TEP 75																		Stadi *Steps* Stufenzahl	
Stadi *Steps* Stufenzahl	2					3													
i	**3**	**4**	**5**	**7**	**10**	**9**	**12**	**15**	**16**	**20**	**25**	**28**	**35**	**40**	**50**	**70**	**100**		**2**	**3**
$T2_N$	18	25	30	28	20	26	32	36	36	36	36	36	36	36	36	30	22	**n_{1nom}**	3000	
$T2_A$	30	40	50	45	40	50	60	60	60	60	60	60	60	60	60	50	45	**n_{1max}**	4500	
$T2_S$	60	80	100	90	80	100	120	120	120	120	120	120	120	120	120	100	90	**LpA**	< 68	
J	Vedi pag. 53 / See page 53 / Siehe auf Seite 53																	**Lh**	20000	
R_t	2.5				2	2.5											2	**F_{R2}**	1800	
R_d	0.94					0.91												**F_{A2}**	1400	
Kg	2.4					3												**α_{max}**	15 '	18 '

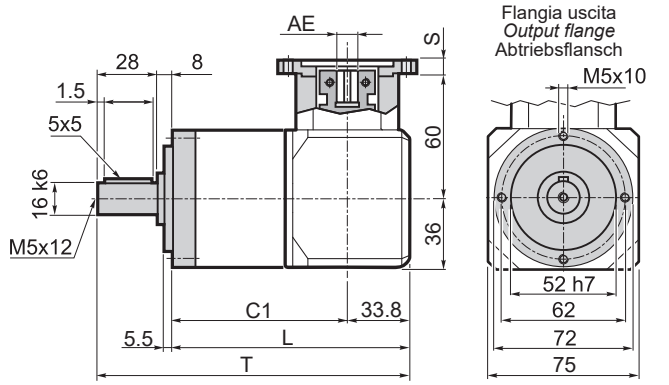
F_{R2} Carico radiale nominale in uscita [N] a 100min^{-1} — *Rated output radial load [N] at 100min^{-1}* — Nenn-Radiallast an der Abtriebswelle bei 100min^{-1}

F_{A2} Carico assiale in uscita [N] a 100min^{-1} — *Output axial load [N] at 100min^{-1}* — Axiallast an der Abtriebswelle bei 100min^{-1}

3.10 Dimensioni — *3.10 Dimensions* — 3.10 Abmessungen

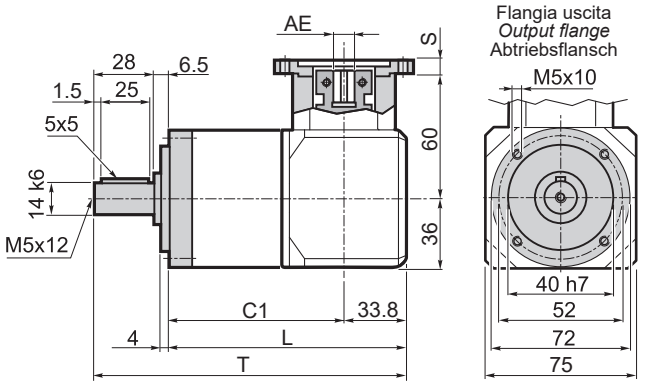
Dimensioni generali e uscite / *General and output dimensions* / General-und Abtriebsabmessungen

AA



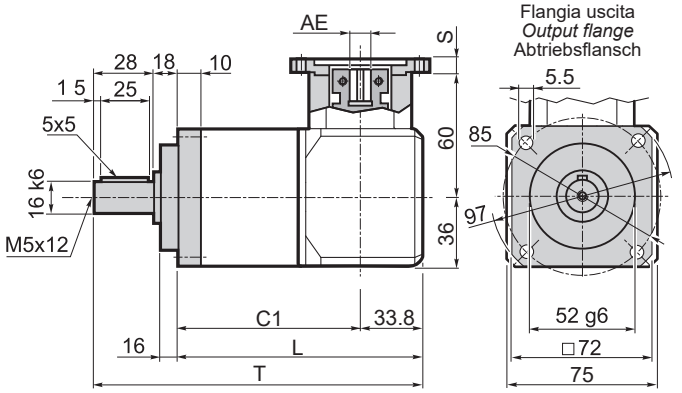
Stadi / *Steps* / Stufenzahl	2	3	
C1	84.7	107.2	AE= 6-6.35-7-8-9-9.52-11-12-12.7-14
L	118.5	141	
T	154.5	177	

TT



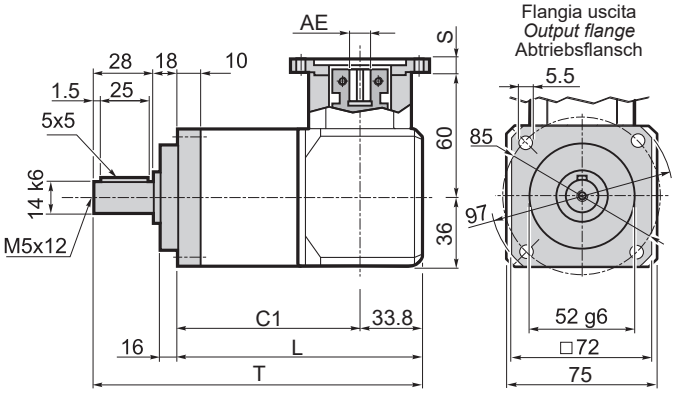
Stadi / *Steps* / Stufenzahl	2	3	
C1	86.2	108.7	AE= 6-6.35-7-8-9-9.52-11-12-12.7-14
L	120	142.5	
T	154.5	177	

AQ



Stadi / *Steps* / Stufenzahl	2	3	
C1	74.7	97.2	AE= 6-6.35-7-8-9-9.52-11-12-12.7-14
L	108.5	131	
T	154.5	177	

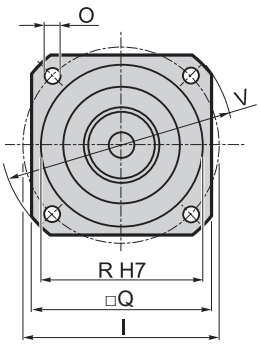
TQ

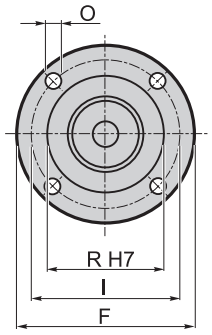


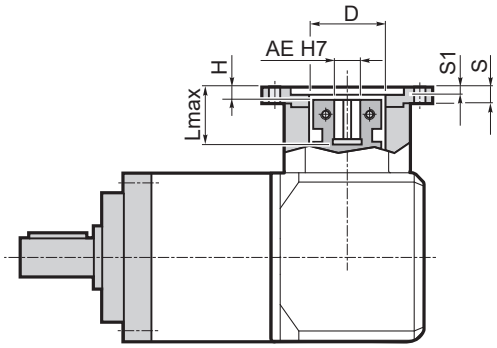
Stadi / *Steps* / Stufenzahl	2	3	
C1	74.7	97.2	AE= 6-6.35-7-8-9-9.52-11-12-12.7-14
L	108.5	131	
T	154.5	177	

Dimensioni entrate / *Input dimensions* / Antriebsabmessungen

Flangia entrata
Input flange
Antriebsflansch







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	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P02*	=	60	80	66.67	38.1	5.5	10	3	32	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P03*	=	60	80	63	40	5.5	10	3.5	32	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P04	=	70	90	75	60	6.5	10.5	3.5	32	35.5	5	35.5	5	35.5	5	26.5	7	26.5	7	35.5	7	26.5	7	35.5	7	35.5	7	35.5	7
P05	105	=	=	85	70	6.5	10.5	3.5	32	35.5	5	35.5	5	35.5	5	26.5	7	26.5	7	35.5	7	26.5	7	35.5	7	35.5	7	35.5	7
P06	=	80	110	98.42	73.02	6	11	3.5	35	36	5.5	36	5.5	36	5.5	27	7.5	27	7.5	36	7.5	27	7.5	36	7.5	36	7.5	36	7.5
P07	=	95	120	100	80	6.5	11.5	4	32	36.5	6	36.5	6	36.5	6	27.5	8	27.5	8	36.5	8	27.5	8	36.5	8	36.5	8	36.5	8
P08	=	98	130	115	95	9	11.5	4	32	36.5	6	36.5	6	36.5	6	27.5	8	27.5	8	36.5	8	27.5	8	36.5	8	36.5	8	36.5	8
P09	=	116	160	130	110	9	12	4.5	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
P10*	60	=	=	39	26	4.5	10	3	26	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P11*	60	=	=	42	32	4.5	10	3	32	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P12*	65	=	=	46	32	4.5	10	3.5	32	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P13*	80	=	=	65	50	5.5	10	3.5	32	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P14*	60	=	=	39	20	4.5	10	2.5	20	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P15	=	75	100	90	60	5.8	12	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
P16*	60	=	=	45	30	3.5	14	7	30	39	8.5	39	8.5	39	8.5	30	10.5	30	10.5	39	10.5	30	10.5	39	10.5	39	10.5	39	10.5
P17	=	60	82	70	50	4.5	16.5	8	32	41.5	11	41.5	11	41.5	11	32.5	13	32.5	13	41.5	13	32.5	13	41.5	13	41.5	13	41.5	13
P18	=	60	80	60	50	M4	10.5	3.5	32	35.5	5	35.5	5	35.5	5	26.5	7	26.5	7	35.5	7	26.5	7	35.5	7	35.5	7	35.5	7
P19*	60	=	=	36	25	4.5	10	3	25	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P20	=	60	82	70	50	5.5	10.5	3.5	32	35.5	5	35.5	5	35.5	5	26.5	7	26.5	7	35.5	7	26.5	7	35.5	7	35.5	7	35.5	7
P21*	60	=	=	46	30	4.5	10	3	30	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P22	=	60	80	70.71	36	4.5	10	2	32	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P23	=	62	85	70	50	5.5	15.5	3.5	32	40.5	10	40.5	10	40.5	10	31.5	12	31.5	12	40.5	12	31.5	12	40.5	12	40.5	12	40.5	12
P24	=	75	100	90	70	5.8	12	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
P25	=	70	95	85	55	5.8	12	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
P26*	=	60	80	65.5	34	5.5	10	3.5	33	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P27	=	80	110	95	50	6.5	12	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
P28	=	60	80	66.67	38.1	M4	9	2.5	32	34	3.5	34	3.5	34	3.5	25	5.5	25	5.5	34	5.5	25	5.5	34	5.5	34	5.5	34	5.5
P29	60	=	=	45	30	M3	11	4	32	36	5.5	36	5.5	36	5.5	27	7.5	27	7.5	36	7.5	27	7.5	36	7.5	36	7.5	36	7.5
P30	=	70	95	85	60	5.8	12	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
P31	=	62	85	70	50	M4	11	3.5	32	36	5.5	36	5.5	36	5.5	27	7.5	27	7.5	36	7.5	27	7.5	36	7.5	36	7.5	36	7.5
P32	=	60	80	65	40	M5	10	3.5	32	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P33	=	85	115	99	60	5.5	11	3.5	32	36	5.5	36	5.5	36	5.5	27	7.5	27	7.5	36	7.5	27	7.5	36	7.5	36	7.5	36	7.5
P34	=	65	87	73.54	40	M4	10	3.5	32	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P35	=	60	80	70.71	36	M4	14	2	32	39	8.5	39	8.5	39	8.5	30	10.5	30	10.5	39	10.5	30	10.5	39	10.5	39	10.5	39	10.5
P36	=	85	115	98.42	73.02	6	15	3.5	35	40	9.5	40	9.5	40	9.5	35	11.5	31	11.5	40	11.5	35	11.5	40	11.5	40	11.5	40	11.5
P37	=	95	120	100	80	6.5	16.5	5	32	41.5	11	41.5	11	41.5	11	32.5	13	32.5	13	41.5	13	32.5	13	41.5	13	41.5	13	41.5	13
P38	60	=	=	48	30	M3	11	7	32	36	5.5	36	5.5	36	5.5	27	7.5	27	7.5	36	7.5	27	7.5	36	7.5	36	7.5	36	7.5
P41*	68	=	=	50	30	5.5	10	10	30	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P43	=	60	80	66.67	50	M5	9	2.5	32	34	3.5	34	3.5	34	3.5	25	5.5	25	5.5	34	5.5	25	5.5	34	5.5	34	5.5	34	5.5
P44*	60	=	=	32	25	4.5	9	2.5	20	34	3.5	34	3.5	34	3.5	25	5.5	25	5.5	34	5.5	25	5.5	34	5.5	34	5.5	34	5.5
P45	=	62	85	73.54	50	M5	10	3	32	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P46	70	=	=	55	45	4.5	9	3	32	34	3.5	34	3.5	34	3.5	25	5.5	25	5.5	34	5.5	25	5.5	34	5.5	34	5.5	34	5.5
P47	=	90	118	104	83	6.5	14	3.5	32	39	8.5	39	8.5	39	8.5	30	10.5	30	10.5	39	10.5	30	10.5	39	10.5	39	10.5	39	10.5
P48	60	=	=	38.88	25	4.5	10	3	25	35	4.5	35	4.5	35	4.5	26	6.5	26	6.5	35	6.5	26	6.5	35	6.5	35	6.5	35	6.5
P49	=	70	90	75	60	M5	10.5	3.5	32	35.5	5	35.5	5	35.5	5	26.5	7	26.5	7	35.5	7	26.5	7	35.5	7	35.5	7	35.5	7

* Per assemblare il motore è necessario smontare la flangia dal riduttore (vedere **schema di montaggio 2** a pag. 67).

** 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 67).*

* Vor dem Einbauen des Motors soll die Getriebeflansch abmontiert werden (siehe **Bauanleitung 2** auf Seite 67).

3.9 Dati tecnici — *3.9 Technical data* — 3.9 Technische Daten

TEP 90																			Stadi *Steps* Stufenzahl	
Stadi *Steps* Stufenzahl	2					3														
i	**3**	**4**	**5**	**7**	**10**	**9**	**12**	**15**	**16**	**20**	**25**	**28**	**35**	**40**	**50**	**70**	**100**		**2**	**3**
$T2_N$	32	42	54	55	50	65	70	75	75	75	75	75	75	75	75	65	55	**n_{1nom}**	3000	
$T2_A$	50	66	84	90	80	100	110	120	120	120	120	120	120	120	120	100	90	**n_{1max}**	4500	
$T2_S$	100	132	168	180	160	200	220	240	240	240	240	240	240	240	240	200	180	**LpA**	< 68	
J	Vedi pag. 54 / See page 54 / Siehe auf Seite 54																	**Lh**	20000	
R_t	6.5				6	6.5											6	**F_{R2}**	2600	
R_d	0.94					0.91												**F_{A2}**	2000	
Kg	4.6					5.5												**α_{max}**	15 '	18 '

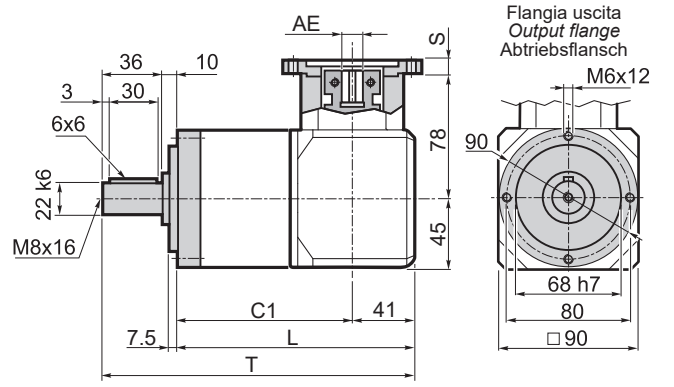
F_{R2} Carico radiale nominale in uscita [N] a 100min^{-1} — *Rated output radial load [N] at 100min^{-1}* — Nenn-Radiallast an der Abtriebswelle bei 100min^{-1}

F_{A2} Carico assiale in uscita [N] a 100min^{-1} — *Output axial load [N] at 100min^{-1}* — Axiallast an der Abtriebswelle bei 100min^{-1}

3.10 Dimensioni — *3.10 Dimensions* — 3.10 Abmessungen

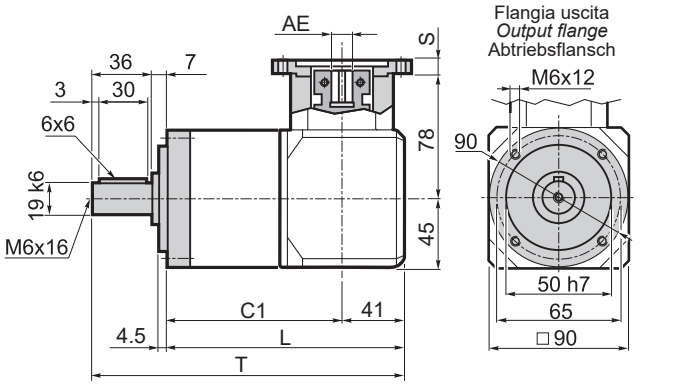
Dimensioni generali e uscite / *General and output dimensions* / General-und Abtriebsabmessungen

AA



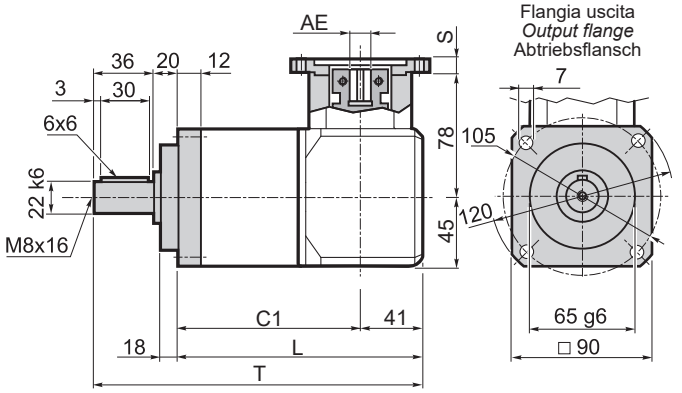
Stadi / *Steps* / Stufenzahl	2	3	
C1	99	128	AE= 9-9.52-11-12-12.7-14-15.87-16-19
L	140	169	
T	186	215	

TT



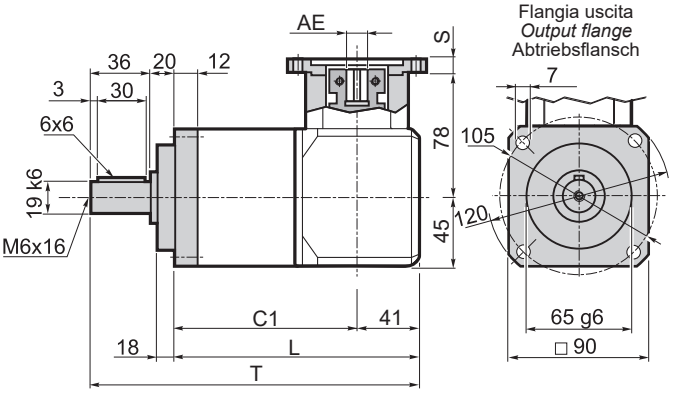
Stadi / *Steps* / Stufenzahl	2	3	
C1	102	131	AE= 9-9.52-11-12-12.7-14-15.87-16-19
L	143	172	
T	186	215	

AQ



Stadi / *Steps* / Stufenzahl	2	3	
C1	89	118	AE= 9-9.52-11-12-12.7-14-15.87-16-19
L	130	159	
T	186	215	

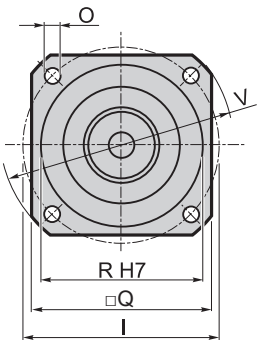
TQ

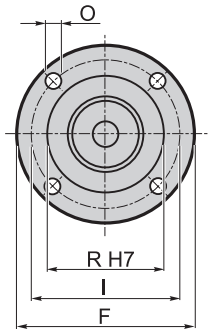


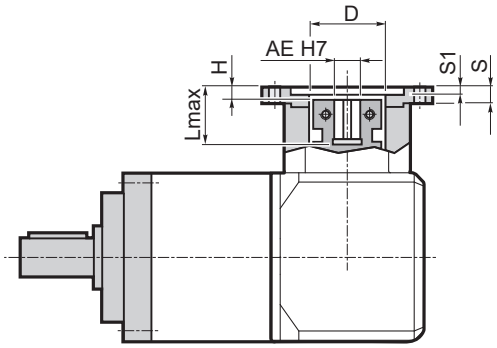
Stadi / *Steps* / Stufenzahl	2	3	
C1	89	118	AE= 9-9.52-11-12-12.7-14-15.87-16-19
L	130	159	
T	186	215	

Dimensioni entrate / *Input dimensions* / Antriebsabmessungen

Flangia entrata
Input flange
Antriebsflansch







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	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P02	=	106.5	140	125.72	55.52	7	11	3	45	43	5.5	43	8	43	8	43	8	43	8	43	8	43	8	43	8	43	8
P03*	=	80	90	75	60	5.5	12	3.5	45	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P04*	105	=	=	85	70	6.5	12	3.5	45	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P05	=	82.5	110	98.425	73.02	6.5	12	3	45	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P06	=	90	120	100	80	6.5	13	4	45	45	7.5	45	10	45	10	45	10	45	10	45	10	45	10	45	10	45	10
P07	=	100	135	115	95	8.5	13	4.5	45	45	7.5	45	10	45	10	45	10	45	10	45	10	45	10	45	10	45	10
P08	=	116	160	130	110	9	13	4.5	45	45	7.5	45	10	45	10	45	10	45	10	45	10	45	10	45	10	45	10
P09*	80	=	=	39	26	4.5	12	4	26	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P10*	80	=	=	65	50	5.5	12	3.5	45	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P11	=	150	182	166	115	9	32	11	50x14	64	26.5	64	29	64	29	64	29	64	29	64	29	64	29	64	29	64	29
P12*	=	80	105	90	70	6.5	12	3.5	32	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P14 *	105	=	=	90	70	6	19	9	32	51	13.5	51	16	51	16	51	16	51	16	51	16	51	16	51	16	51	16
P15 *	80	=	=	70	50	4.5	17	8	45	49	11.5	49	14	49	14	49	14	49	14	49	14	49	14	49	14	49	14
P16	=	142	190	165	130	11	13	4.5	45	45	7.5	45	10	45	10	45	10	45	10	45	10	45	10	45	10	45	10
P17*	80	=	=	63	40	5.5	12	3.5	40	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P18	=	130	170	145	110	M8	31	7	32	63	25.5	63	28	63	28	63	28	63	28	63	28	63	28	63	28	63	28
P19*	=	80	105	90	60	6.5	12	3.5	32	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P20*	=	80	105	85	55	5.5	12	3.5	36	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P21	=	80	110	95	50	M6	12	3.5	45	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P22	80	=	=	70	50	M4	12	4	45	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P23	=	80	90	75	60	M5	12	3.5	45	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P24	80	=	=	46	30	M4	12	4	30	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P26	80	=	=	65	40	M5	12	3.5	40	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P27	=	80	110	82.02	36.8	M6	14	10	36.8	46	8.5	46	11	46	11	46	11	46	11	46	11	46	11	46	11	46	11
P28	=	90	120	100	80	6.5	28	4	45	60	22.5	60	25	60	25	60	25	60	25	60	25	60	25	60	25	60	25
P29*	80	=	=	66.67	50	5.5	12	3	45	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P30	=	115	155	130	80	9	13	4	45	45	7.5	45	10	45	10	45	10	45	10	45	10	45	10	45	10	45	10
P31*	=	80	105	56	44	M6	14	10	36.8	46	8.5	46	11	46	11	46	11	46	11	46	11	46	11	46	11	46	11
P32	=	80	105	90	70	M6	12	3.5	32	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P33	=	130	165	145	110	9	13	4.5	45	45	7.5	45	10	45	10	45	10	45	10	45	10	45	10	45	10	45	10
P34	=	90	120	100	80	M6	19	5	45	51	13.5	51	16	51	16	51	16	51	16	51	16	51	16	51	16	51	16
P36	=	100	135	115	95	M8	25	4.5	45	57	19.5	57	22	57	22	57	22	57	22	57	22	57	22	57	22	57	22
P37	=	85	115	98.99	60	M6	12	3.5	32	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P38	80	=	=	70	50	M5	12	4	45	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P39	=	90	120	100	80	6.5	13	4.5	45	45	7.5	45	10	45	10	45	10	45	10	45	10	45	10	45	10	45	10
P40	=	80	90	75	60	M6	12	3.5	45	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9
P42	=	110	145	125.72	55.5	M8	28	3	45	60	22.5	60	25	60	25	60	25	60	25	60	25	60	25	60	25	60	25
P44*	=	80	105	90	70	6	13	5	32	45	7.5	45	10	45	10	45	10	45	10	45	10	45	10	45	10	45	10
P46	=	100	135	115	95	8.5	17	8	45	49	11.5	49	14	49	14	49	14	49	14	49	14	49	14	49	14	49	14
P47	=	90	120	100	50	M6	12	4.5	45	44	6.5	44	9	44	9	44	9	44	9	44	9	44	9	44	9	44	9

* Per assemblare il motore è necessario smontare la flangia dal riduttore (vedere **schema di montaggio 2** a pag. 67).

** 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 67).*

* Vor dem Einbauen des Motors soll die Getriebeflansch abmontiert werden (siehe **Bauanleitung 2** auf Seite 67).

3.9 Dati tecnici — *3.9 Technical data* — 3.9 Technische Daten

TEP 120																		Stadi *Steps* Stufenzahl	
Stadi *Steps* Stufenzahl	2					3													
i	**3**	**4**	**5**	**7**	**10**	**9**	**12**	**15**	**16**	**20**	**25**	**28**	**35**	**40**	**50**	**70**	**100**		**2**	**3**
$T2_N$	60	80	100	140	100	150	180	180	180	180	180	180	180	180	180	170	110	**n_{1nom}**	2500	
$T2_A$	108	144	180	220	180	240	290	290	290	290	290	290	290	290	290	270	200	**n_{1max}**	4000	
$T2_S$	216	288	360	440	380	500	600	600	600	600	600	600	600	600	600	540	400	**LpA**	< 70	
J	Vedi pag. 54 / See page 54 / Siehe auf Seite 54																	**Lh**	20000	
R_t	16				14.5	16											14.5	**F_{R2}**	4500	
R_d	0.94					0.91												**F_{A2}**	4000	
Kg	11.7					12.2												**α_{max}**	12 '	15 '

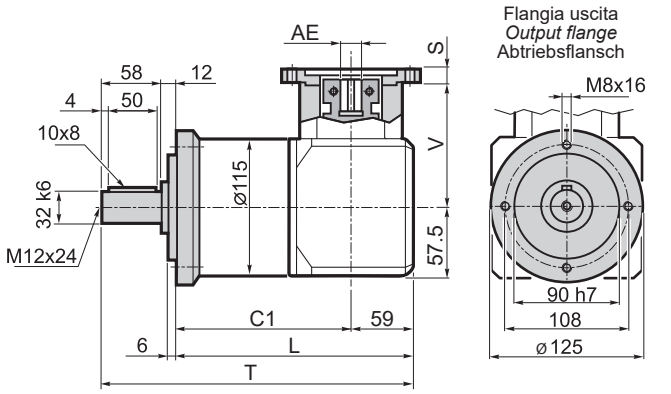
F_{R2} Carico radiale nominale in uscita [N] a 100min^{-1} — *Rated output radial load [N] at 100min^{-1}* — Nenn-Radiallast an der Abtriebswelle bei 100min^{-1}

F_{A2} Carico assiale in uscita [N] a 100min^{-1} — *Output axial load [N] at 100min^{-1}* — Axiallast an der Abtriebswelle bei 100min^{-1}

3.10 Dimensioni — *3.10 Dimensions* — 3.10 Abmessungen

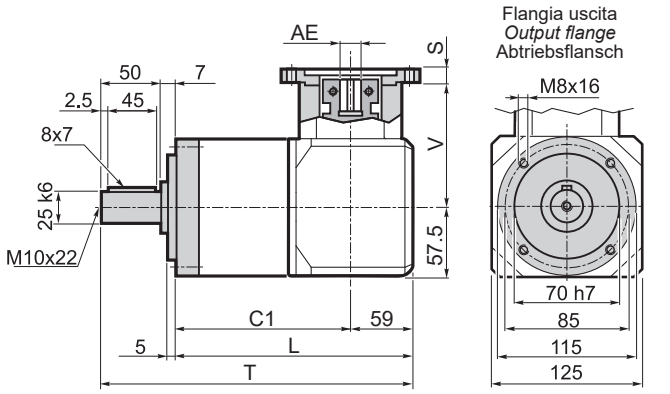
Dimensioni generali e uscite / *General and output dimensions* / General-und Abtriebsabmessungen

AA



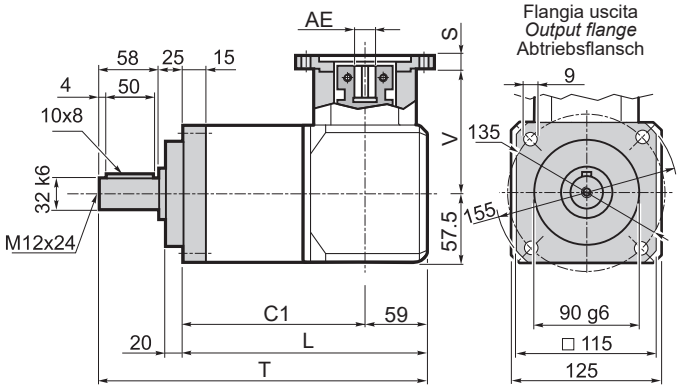
Stadi / *Steps* / Stufenzahl	2	3	
C1	134.5	167.1	AE= 14-15.87-16-19 22-24-25-28
L	193.5	226.1	
T	263.5	296.1	
V	89		AE= 14-15.87-16-19
	108		AE= 22-24-25-28

TT



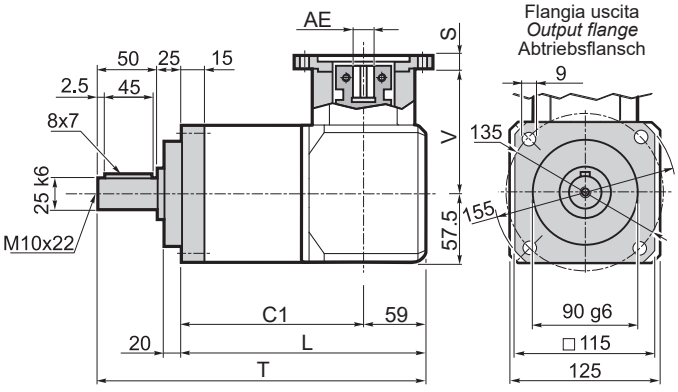
Stadi / *Steps* / Stufenzahl	2	3	
C1	139.5	172.1	AE= 14-15.87-16-19 22-24-25-28
L	198.5	231.1	
T	255.5	288.1	
V	89		AE= 14-15.87-16-19
	108		AE= 22-24-25-28

AQ



Stadi / *Steps* / Stufenzahl	2	3	
C1	121.5	154.1	AE= 14-15.87-16-19 22-24-25-28
L	180.5	213.1	
T	263.5	296.1	
V	89		AE= 14-15.87-16-19
	108		AE= 22-24-25-28

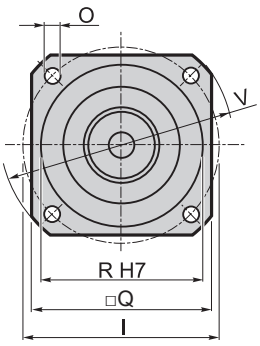
TQ

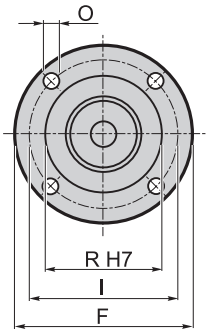


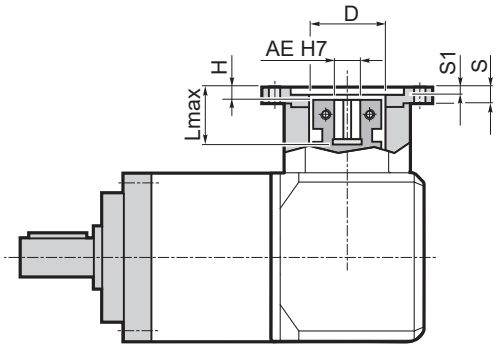
Stadi / *Steps* / Stufenzahl	2	3	
C1	121.5	154.1	AE= 14-15.87-16-19 22-24-25-28
L	180.5	213.1	
T	263.5	296.1	
V	89		AE= 14-15.87-16-19
	108		AE= 22-24-25-28

Dimensioni entrate / *Input dimensions* / Antriebsabmessungen

Flangia entrata
Input flange
Antriebsflansch







Flange entrata / *Input flange* / Antriebsflansch										Albero entrata / *Input shaft* / Antriebswelle															
										AE															
										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
P01*	=	115	140	125.72	55.52	6.5	13	3	55.52	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	62	6	62	6	62	6	62	6
P20	115	=	=	99	60	M6	13	4	60	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	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	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	60	4	60	4	60	4	60	4
P24	120	=	=	100	80	M6	18	7	60	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	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	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	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	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	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. 67).

* *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 67).*

* Vor dem Einbauen des Motors soll die Getriebeflansch abmontiert werden (siehe **Bauanleitung 2** auf Seite 67).

3.9 Dati tecnici — *3.9 Technical data* — 3.9 Technische Daten

TEP 155																			Stadi *Steps* Stufenzahl	
Stadi *Steps* Stufenzahl	2					3														
i	**3**	**4**	**5**	**7**	**10**	**9**	**12**	**15**	**16**	**20**	**25**	**28**	**35**	**40**	**50**	**70**	**100**		**2**	**3**
$T2_N$	170	230	290	300	220	320	400	430	430	430	430	430	430	430	430	350	250	**n_{1nom}**	2500	
$T2_A$	270	360	450	480	400	480	600	650	650	650	650	650	650	650	650	560	460	**n_{1max}**	4000	
$T2_S$	540	720	900	1000	850	1000	1250	1300	1300	1300	1300	1300	1300	1300	1300	1120	920	**LpA**	< 70	
J	Vedi pag. 55 / See page 55 / Siehe auf Seite 55																	**Lh**	20000	
R_t	34.5				31	34.5											31	**$F_{R2\ (AA)}$** **$F_{R2\ (TT)}$**	6500 5300	
R_d	0.94					0.91												**$F_{A2\ (AA)}$** **$F_{A2\ (TT)}$**	3250 2650	
Kg	17.5					22												**α_{max}**	12 '	15 '

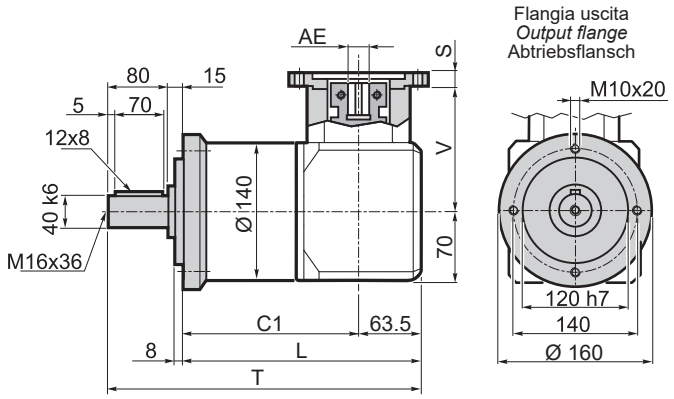
F_{R2} Carico radiale nominale in uscita [N] a 100min^{-1} — *Rated output radial load [N] at 100min^{-1}* — Nenn-Radiallast an der Abtriebswelle bei 100min^{-1}

F_{A2} Carico assiale in uscita [N] a 100min^{-1} — *Output axial load [N] at 100min^{-1}* — Axiallast an der Abtriebswelle bei 100min^{-1}

3.10 Dimensioni — *3.10 Dimensions* — 3.10 Abmessungen

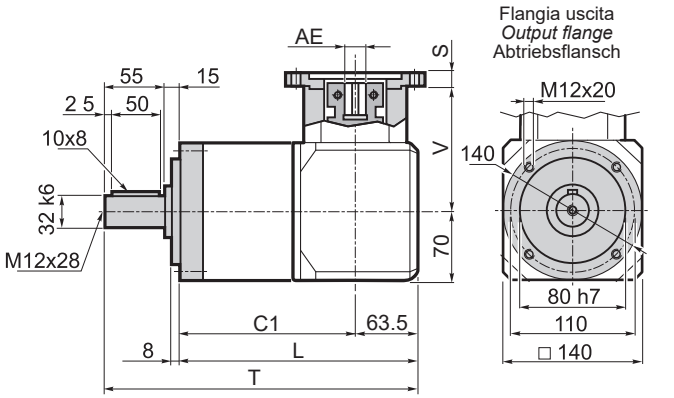
Dimensioni generali e uscite / *General and output dimensions* / General-und Abtriebsabmessungen

AA



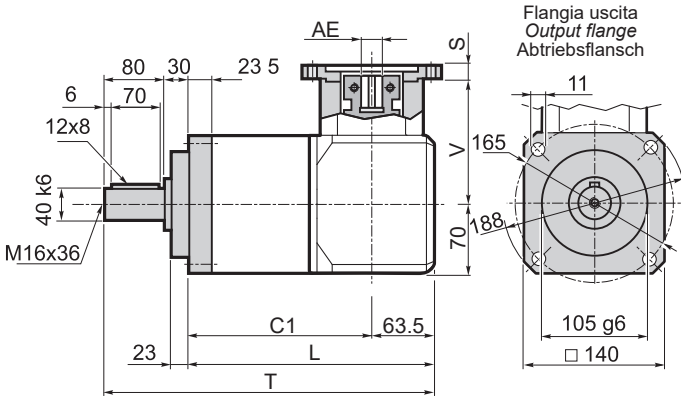
Stadi / *Steps* / Stufenzahl	2	3	
C1	175	216.5	AE= 15.87-16-19-22-24 28-32-35-38
L	238.5	280	
T	333.5	375	
V	105		AE= 15.87-16-19-22-24
	130		AE= 28-32-35-38

TT



Stadi / *Steps* / Stufenzahl	2	3	
C1	175	216.5	AE= 15.87-16-19-22-24 28-32-35-38
L	238.5	280	
T	308.5	350	
V	105		AE= 15.87-16-19-22-24
	130		AE= 28-32-35-38

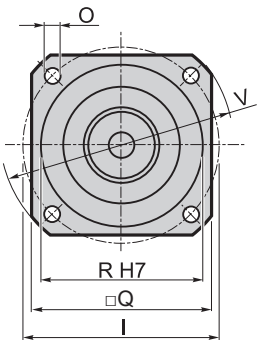
AQ

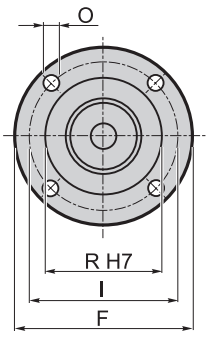


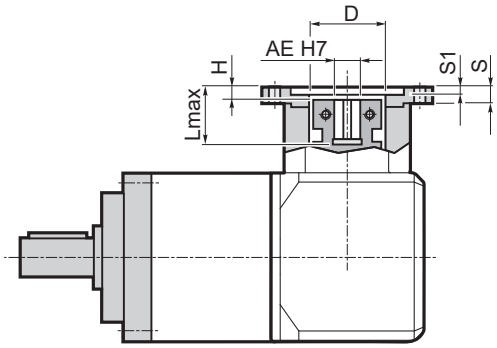
Stadi / *Steps* / Stufenzahl	2	3	
C1	160	201.5	AE= 15.87-16-19-22-24 28-32-35-38
L	223.5	265	
T	333.5	375	
V	105		AE= 15.87-16-19-22-24
	130		AE= 28-32-35-38

Dimensioni entrate / *Input dimensions* / Antriebsabmessungen

Flangia entrata
Input flange
Antriebsflansch



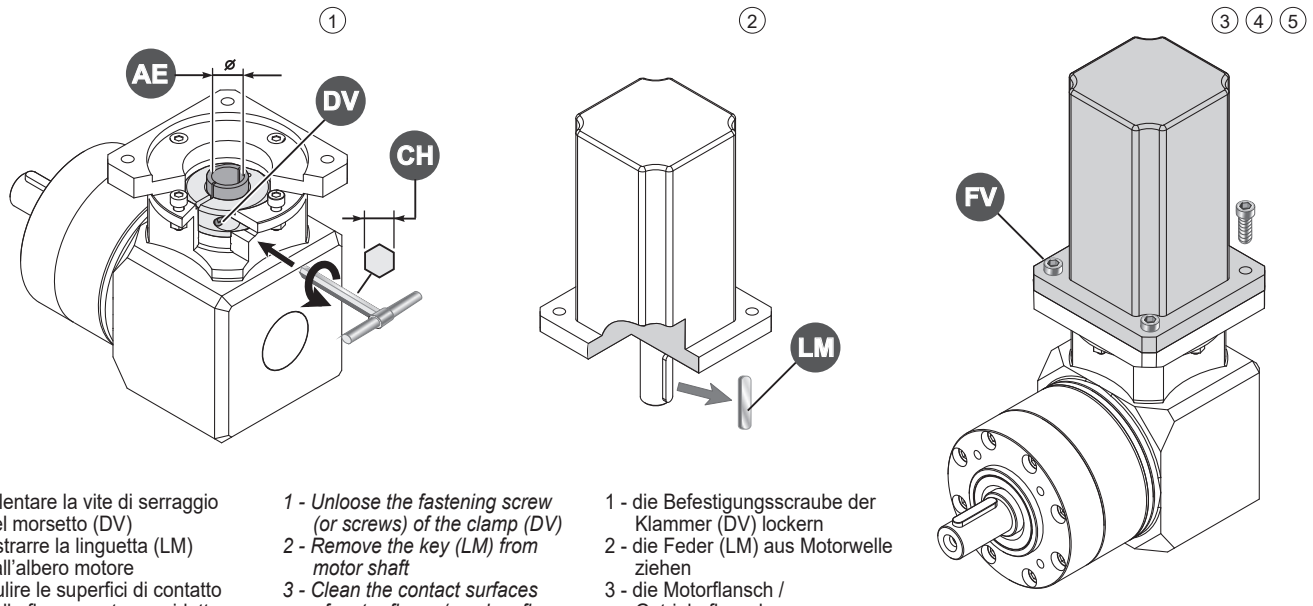




Flange entrata / *Input flange* / Antriebsflansch										Albero entrata / *Input shaft* / Antriebswelle																	
										AE																	
										15.87		16		19		22		24		28		32		35		38	
	F	Q	V	I	R (H7)	O	S	S1	D	L max	H	L max	H	L max	H	L max	H	L max	H	L max	H	L max	H	L max	H	L max	H
P01*	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

3.11 Istruzioni per il montaggio del motore / *3.11 Instructions for assembly of motor* / 3.11 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

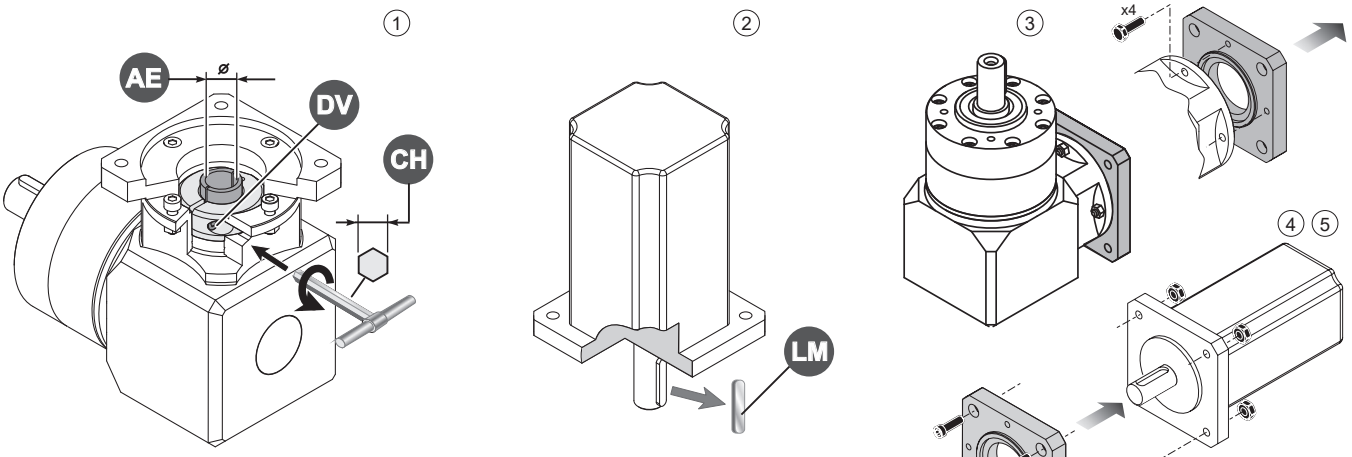
TEP 55	**AE**	**6**	**6.35**	**7**	**8**	**9**	**9.52**	**11**			
	DV	M4 x 16									
	NV	1									
	CH	3									
	CS [Nm]	4.8									
TEP 75	**AE**	**6**	**6.35**	**7**	**8**	**9**	**9.52**	**11**	**12**	**12.7**	**14**
	DV	M4 x 16									
	NV	1									
	CH	3									
	CS [Nm]	4.8									
TEP 90	**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			
TEP 120	**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				
TEP 155	**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

3.11 **Istruzioni per il montaggio del motore** *3.11* ***Instructions for assembly of motor*** 3.11 **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

TEP 55	**AE**	6	6.35	7	8	9	9.52	11			
	DV	M4 x 16									
	NV	1									
	CH	3									
	CS [Nm]	4.8									
TEP 75	**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									
TEP 90	**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			
TEP 120	**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				
TEP 155	**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