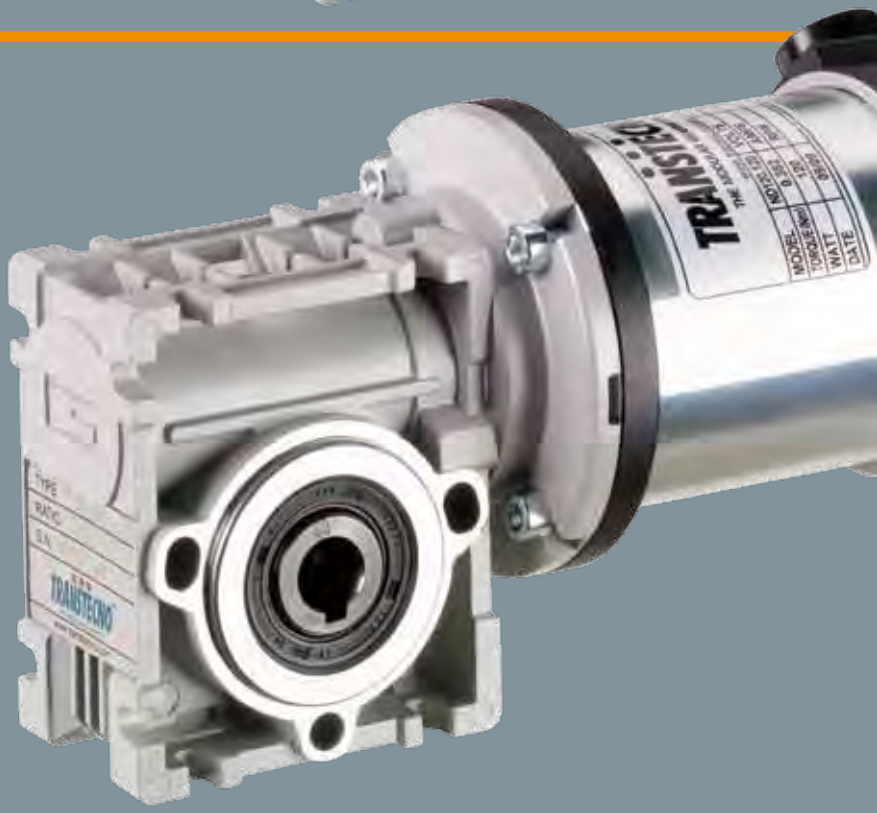
TRANSTECNO™

THE MODULAR GEARMOTOR

DC

TRANSTECNO • GENUINE • PRODUCTS •



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Caratteristiche tecniche

I magneti in Neodimio (NdFeB) fanno parte dei magneti a terre rare e sono attualmente i magneti più potenti in produzione.
Dotati di alta forza coercitiva (resistenza alla smagnetizzazione) ed alto valore di saturazione magnetica, sono in grado di immagazzinare moltissima energia magnetica. Pertanto, i motori CC dotati di magneti in Neodimio forniscono alti valori di coppia pur in dimensioni ridotte, grazie all'alta densità di flusso del campo magnetico.

Le caratteristiche principali dei motori a terre rare della serie ND sono:

- Campo magnetico generato da magneti permanenti in Neodimio (NdFeB)
- Costruzione tubolare senza ventilazione
- Disponibili in una grandezza diametro 65
- Alimentazione a bassa tensione 12 o 24Vcc
- Potenza 160W S2
- Elevate coppie di spunto
- Maggiori coppie e potenze rispetto ai corrispettivi motori a magneti permanenti
- Predisposizione encoder

Technical features

Neodymium magnet (NdFeB) is a type of rare-earth magnet and is currently the strongest type of permanent magnets.
Due to high coercivity resistance to being demagnetized) and high saturation magnetization, they have potential for storing large amounts of magnetic energy. Therefore permanent Neodymium magnets DC motors can provide high torque in compact size due to the high density flux of magnet field.

The main feature of ND rare earth permanent magnet motors are:

- *Magnetic field generated by Neodymium (NdFeB) permanent magnets*
- *Tubular construction without fan*
- *Available in one size diameter 65*
- *Low voltage power supply 12 or 24Vcc*
- *Power ratings available 160W S2*
- *High starting torque*
- *Higher torque and higher power than standard permanent magnet D.C. motors.*
- *Suitable for encoder assembly*

Classe di isolamento termico

Gli avvolgimenti del rotore sono soggetti a surriscaldamento, come pure altre parti del motore. Il grado di isolamento indica la massima temperatura ammissibile oltre la quale l'isolante della matassa e l'isolante di tutte le parti soggette ad elevato riscaldamento perde le caratteristiche di buon isolante, con pericolo di danneggiamento del motore.

Thermal insulation class

The windings of the rotor can overheat just like other parts of the motor too. The degree of insulation indicates the maximum allowable temperature above which the insulation of the windings, as well as that of all the parts which heat up to a high temperature, loses its insulating properties and the motor therefore risks being damaged.

Servizio

Rappresenta la relazione tra il tempo di lavoro ed il tempo di riposo del motore. Servizio continuo (S1) = funzionamento continuo del motore a pieno carico.

Servizio intermittente (S2, S3, etc...) = periodi alternati di lavoro e di riposo tali da raffreddare il motore. Dato un motore, la potenza espressa per servizio continuo è inferiore a quella per servizio intermittente.

Duty cycle

This represents the relationship between the time the motor operates and the time it remains stationary. Continuous operation (S1) = the motor operates non-stop under full load.

Intermittent operation (S2, S3, etc.) = alternating periods of work and rest so that the motor can cool down. The output power for continuous operation is lower than that for intermittent operation.

Fattore di forma

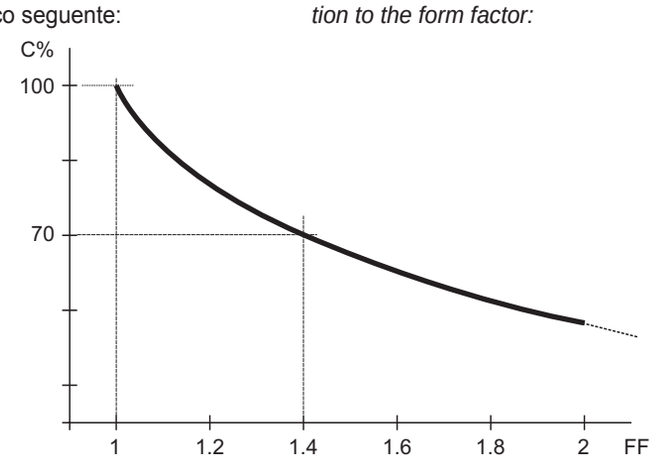
Indica quanta componente spuria alternata è presente nella alimentazione CC del motore. Più alto è il fattore ed inferiore è l'efficienza del motore. Alimentatori ad SCR = F.F 1.40. Alimentazione pura da batteria = FF 1 Alimentazione da transistori (modulazione PWM) = FF 1.05.

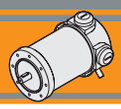
Qualitativamente l' andamento della coppia (percentuale) rispetto al fattore di forma è indicato nel grafico seguente:

Form factor

Indicates how much spurious alternating current is present in the D.C. motor power supply. The higher the factor, the lower the motor's efficiency. SCR power supplies = F.F 1.40. Battery supply = FF 1 Transistor supply (PWM modulation) = FF 1.05.

The graph below indicates the torque trend (percentage) in relation to the form factor:





Grado di protezione IP

IP enclosures protection indexes

Indica il grado di isolamento meccanico del corpo motore.

1ª cifra: protezione alla penetrazione di corpi solidi.

2ª cifra: protezione contro la penetrazione d'acqua.

Indicates the degree of mechanical insulation of the motor body.

1st figure: indicating level of protection against the penetration of solid bodies.

2nd figure: indicating degree to which the motor is waterproof.

0	Non protetto / *No protection*	**0**	Non protetto / *No protection*
1	Protetto da corpi solidi superiori a Ø 50 mm. *Protected against solid matters (over Ø 50 mm)*	**1**	Protetto contro la caduta verticale di gocce d'acqua. *Protected against drops of water falling vertically*
2	Protetto da corpi solidi superiori a Ø 12 mm. *Protected against solid matters (over Ø 12 mm)*	**2**	Protetto contro la caduta verticale di gocce d'acqua con inclinazione max di 15° *Protected against drops of water falling up to 15°*
3	Protetto da corpi solidi superiori a Ø 2.5 mm. *Protected against solid matters (over Ø 2.5 mm)*	**3**	Protetto contro la pioggia. *Rain proof fixture*
4	Protetto da corpi solidi superiori a Ø 1 mm. *Protected against solid matters (over Ø 1 mm)*	**4**	Protetto contro gli spruzzi. *Splash proof fixture*
5	Protetto contro la polvere *Dust proof*	**5**	Protetto contro getti d'acqua *Water jet proof*
6	Totalmente protetto contro la polvere *Fully dust proof*	**6**	Protetto dalle ondate *Wave proof*
7	N.A.	**7**	Protetto contro immersione *Watertight immersion fixture.*
8	N.A.	**8**	Protetto contro immersione/sommersione prolungata *Watertight immersion fixture for a long time.*

Classe di isolamento termico

Insulation class

Classe / *Class*	Δ t °C Temp. ambiente: 40°C *Ambient temperature: 40°C*
A	65°C
B	90°C
F	115°C
H	140°C

Tipi di servizio IEC

IEC duty cycle ratings

S1	**Servizio continuo.** Funzionamento a carico costante per una durata sufficiente al raggiungimento dell'equilibrio termico.	***Continuous duty.*** *The motor works at a constant load for enough time to reach temperature equilibrium*
S2	**Servizio di durata limitata.** Funzionamento a carico costante per una durata inferiore a quella necessaria al raggiungimento dell' equilibrio termico, seguito da un periodo di riposo tale da riportare il motore alla temperatura ambiente.	***Short time duty****. The motor works at a constant load, but not long enough to reach temperature equilibrium, and the rest periods are long enough for the motor to reach ambient temperature.*
S3	**Servizio periodico intermittente.** Sequenze di cicli identici di marcia e di riposo a carico costante, senza raggiungimento dell'equilibrio termico. La corrente di spunto ha effetti trascurabili sul surriscaldamento del motore.	***Intermittent periodic duty.*** *Sequential, identical run and rest cycles with constant load. Temperature equilibrium is never reached. Starting current has little effect on temperature rise.*
S4	**Servizio periodico intermittente con avviamento.** Sequenza di cicli di funzionamento identici di avviamento, marcia e riposo a carico costante, senza raggiungimento dell'equilibrio termico. La corrente di spunto ha effetti sul riscaldamento del motore.	***Intermittent periodic duty with starting.*** *Sequential identical start, run and rest cycles with constant load. Temperature equilibrium is not reached, but starting current affects temperature rise.*
S5	**Servizio periodico intermittente con frenatura elettrica.** Sequenza di cicli di funzionamento identici di avviamento, marcia a carico costante, frenatura elettrica e riposo, senza raggiungimento dell'equilibrio termico.	***Intermittent periodic duty with electric braking.*** *Sequential, identical cycles of starting, running at constant load, electric braking and rest. Temperature equilibrium is not reached.*
S6	**Servizio periodico ininterrotto con carico intermittente.** Sequenza di cicli di lavoro identici con carico costante e senza carico. Non ci sono periodi di riposo.	***Continuous operation with intermittent load.*** *Sequential, identical cycles of running with constant load and running with no load. No rest periods.*
S7	**Servizio periodico ininterrotto con frenatura elettrica.** Sequenza di cicli di funzionamento identici di avviamento, marcia a carico costante e frenatura elettrica, senza periodi di riposo.	***Continuous operation with electric braking.*** *Sequential, identical cycles of starting, running at constant load and electric braking. No rest periods.*
S8	**Servizio periodico ininterrotto con variazioni di carico e di velocità.** Sequenza di cicli identici di avviamento, marcia a carico costante e velocità definita, seguiti da marcia a carico costante differente e velocità differente dalla precedente. Non ci sono periodi di riposo.	***Continuous operation with periodic changes in load and speed.*** *Sequential, identical, duty cycles of start, run at constant load and given speed, then run at other constant loads and speeds. No rest periods.*

ND120.120 - ND120.240

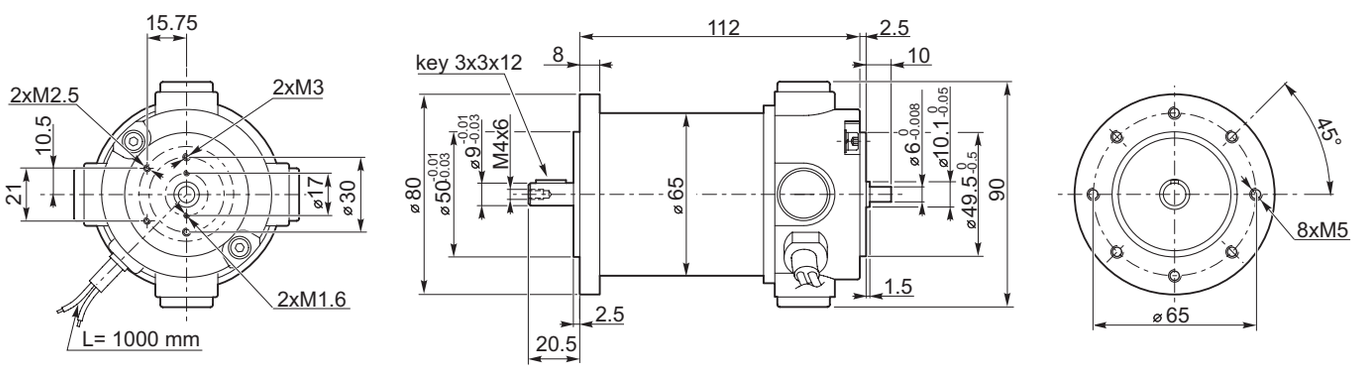
Caratteristiche / *Features*

Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 65 mm
Potenza	160 W S2 (120 W S1)
Magneti	4 magneti in terre rare
Supporti	Cuscinetti a sfera
Fori di montaggio	8
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 4 di composto grafite-rame
Cavo di alimentazione	Lunghezza: 1000 mm

Construction	*Tubular, without fan*
Size	*Ø 65 mm*
Power	*160 W S2 (120 W S1)*
Magnets	*4 rare earth magnets*
Bearings	*Ball bearings*
Mounting holes	*8*
Power supply	*Low voltage, 12 or 24 Vdc*
Brushes	*4 brushes made of graphite/copper composite*
Electric cable	*Lenght: 1000 mm*

Tipo *Type*	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
ND120.120	**S1**	120	12	13.9	F	1	0.38	3000	44	1.6
	S2 30'	160		19			0.51			
ND120.240	**S1**	120	24	6.9			0.38			
	S2 30'	160		9.0			0.51			

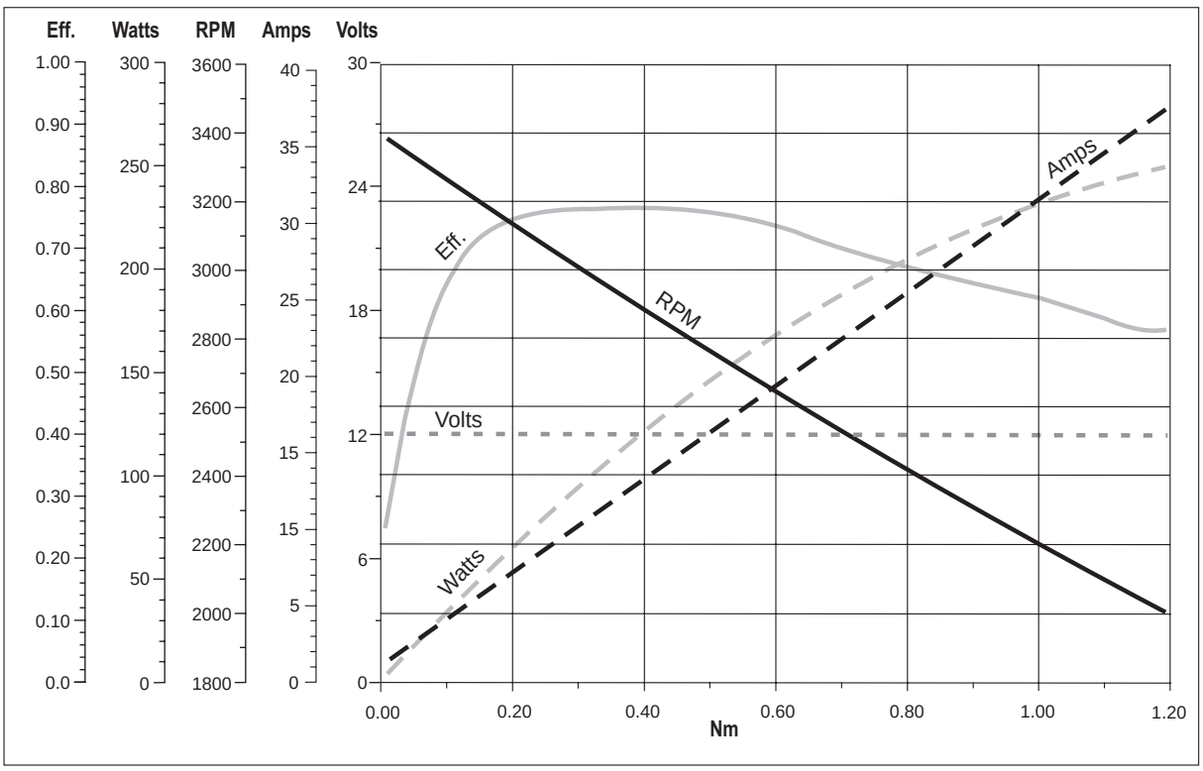
Dimensioni / *Dimensions*



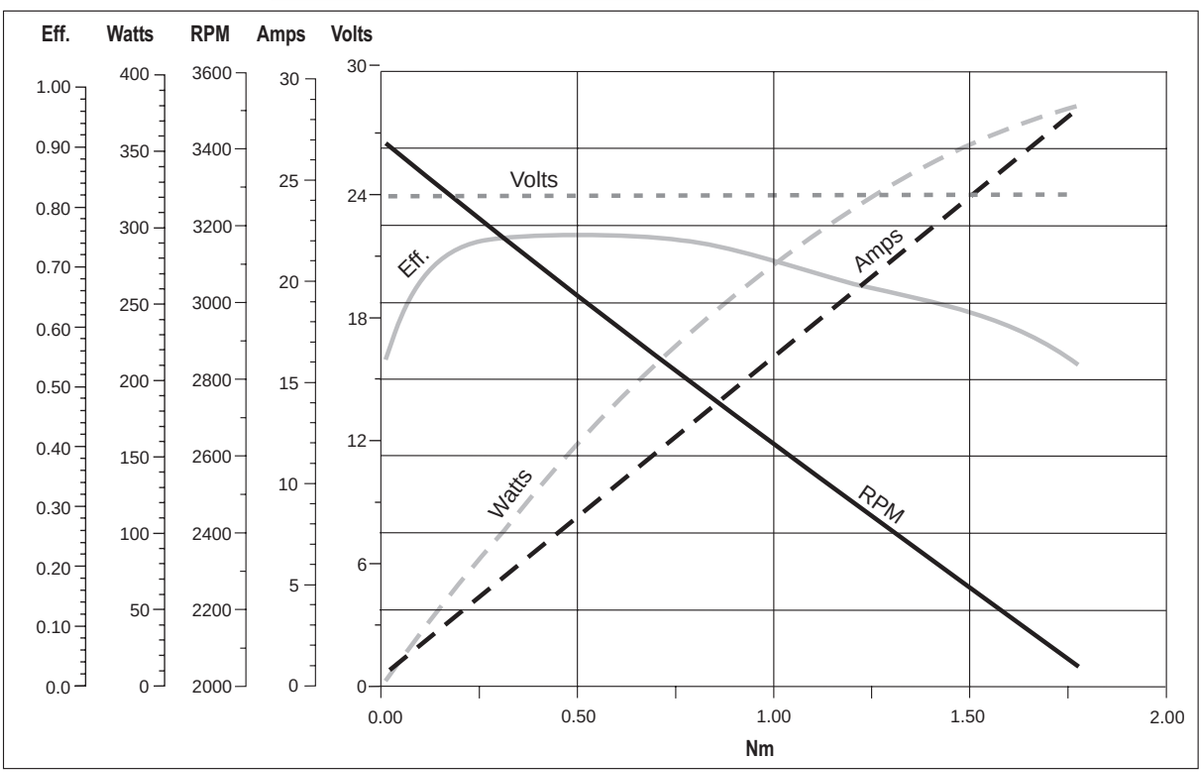
ND120.120 - ND120.240

Prestazioni *Performances*

ND120.120



ND120.240

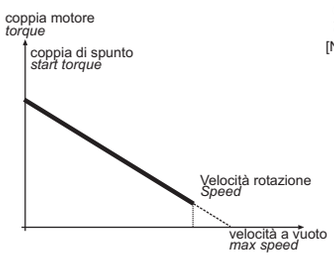


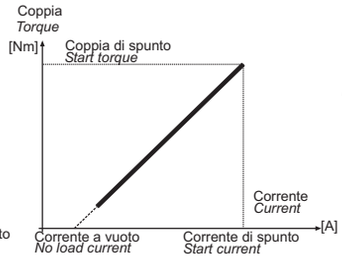
Legenda / Glossario dei grafici

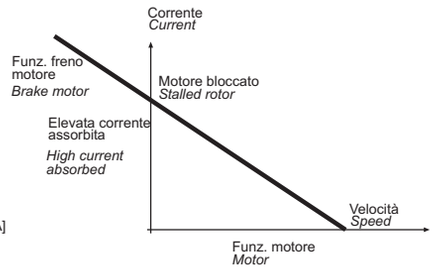
Key / Diagram Glossary

Dato un motore in C.C, la velocità di rotazione è funzione lineare della coppia; così pure la corrente assorbita è una funzione lineare della coppia.

With a D.C. motor, the rotational speed is a linear function of the torque. In the same way, the absorbed current is also a linear function of the torque.





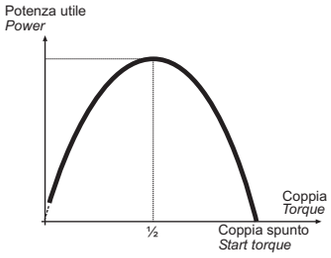


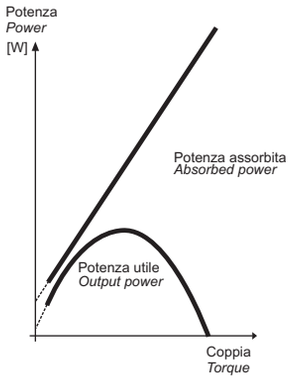
La potenza utile (potenza all'albero) si ricava dalla formula:

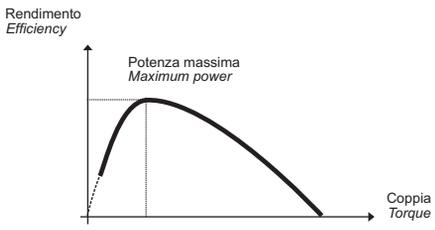
$$Pn\ [W] = Mn \cdot S = \frac{2\pi}{60} \cdot n_1 \cdot Mn$$

The output power is calculated using the formula:

$$Pn\ [W] = Mn \cdot S = \frac{2\pi}{60} \cdot n_1 \cdot Mn$$







Poiché la tensione di alimentazione è costante mentre la corrente è linearmente crescente al crescere della coppia l'andamento della potenza assorbita è una retta crescente. Dal rapporto tra la potenza meccanica e la potenza assorbita si ottiene il grafico dell'efficienza.

Since the supply voltage is constant, whereas the current increases in a linear manner as the torque increases, the absorbed power trend is a straight line going up. Efficiency is shown from the ratio between the output power and the absorbed power.

Formule utili

Useful formulas

$$\eta = \frac{Pn}{Pa}$$

$$Pa = V \cdot I$$

$$Pn = V \cdot I \cdot \eta$$

$$Pn = Mn \cdot Sv$$

$$Sv = \frac{n_1}{9.55}$$

[HP] · 746 = [W].
Esempio 2 HP = circa 1500 W.

$$\eta = \frac{Pn}{Pa}$$

$$Pa = V \cdot I$$

$$Pn = V \cdot I \cdot \eta$$

$$Pn = Mn \cdot Sv$$

$$Sv = \frac{n_1}{9.55}$$

[HP] · 746 = [W].
Example 2 HP = approx. 1500 W.

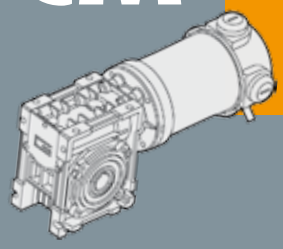
S	—	Servizio	*Duty*
Pn	[W]	Potenza in uscita	*Rated power*
Pa	[W]	Potenza assorbita	*Absorbed power*
Mn	[Nm]	Coppia nominale	*Rated torque*
V	[V]	Tensione	*Voltage*
I	[A]	Corrente assorbita	*Absorbed current*
n_1	[min^{-1}]	Numero giri motore	*Motor speed*
Sv	[rad/s]	Velocità angolare	*Angular speed*
IC	—	Classe d'isolamento termico	*Thermal insulation class*
FF	—	Fattore di forma	*Form factor*
IP	—	Classe di protezione	*Protection class*
η	—	Rendimento	*Efficiency*
Kg	—	Peso	*Weight*

TRANSTECNO™

THE MODULAR GEARMOTOR

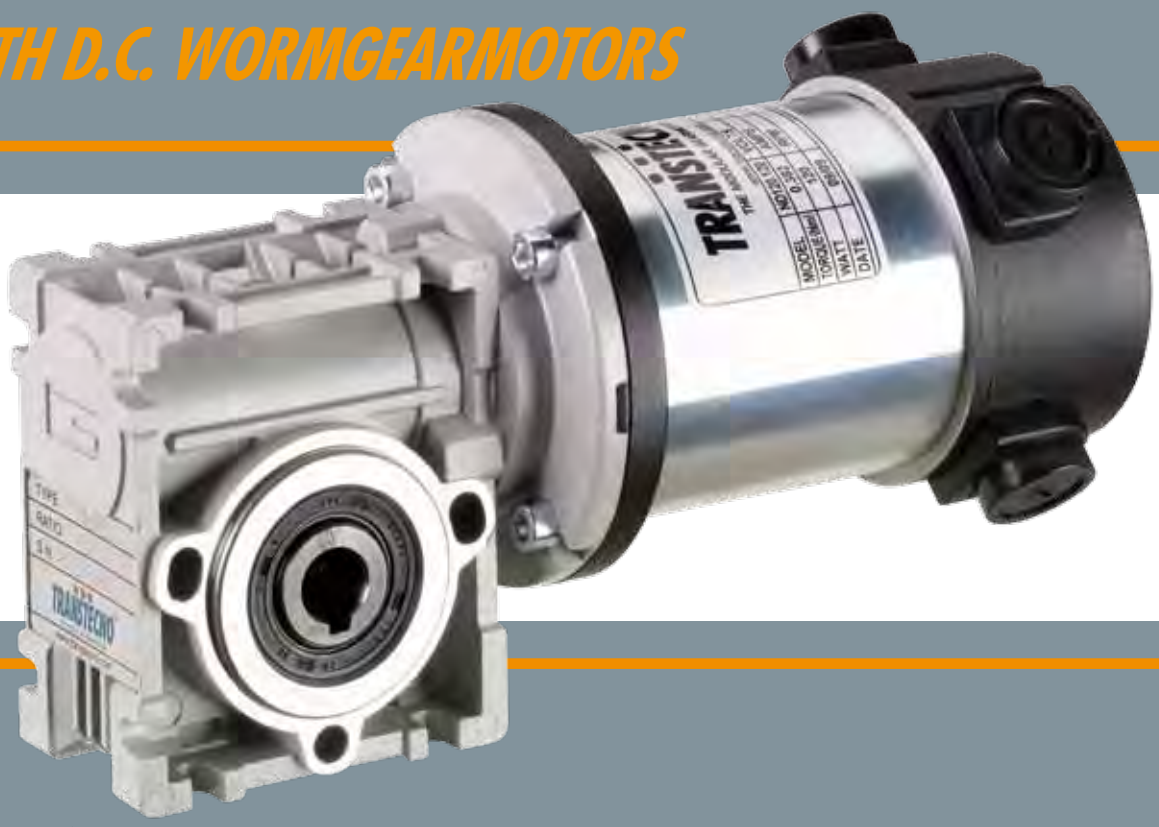
NDCM

NDCM



MOTORIDUTTORI C.C. A VITE SENZA FINE

RARE EARTH D.C. WORMGEARMOTORS



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Caratteristiche tecniche

Le caratteristiche principali dei motoriduttori a corrente continua della serie NDCM sono:

- Alimentazione in bassa tensione 12/24 Vcc
- Possibilità di montaggio encoder
- Potenza motore disponibile 160 W S2
- Magneti in terre rare
- Carcasse dei riduttori a vite senza fine in pressofusione di alluminio
- Lubrificazione permanente con olio sintetico

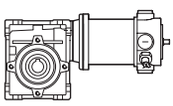
Technical features

The main features of NDCM D.C. gearmotors range are:

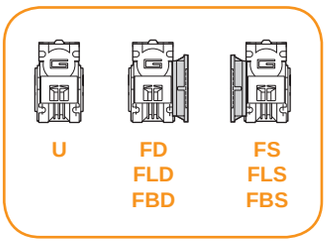
- Low voltage power supply 12/24 Vdc
- Suitable for encoder assembly
- Motor power rating available 160 W S2
- Rare earth magnets
- Die-cast aluminum housing on wormgearboxes
- Permanent synthetic oil long-life lubrication

Designazione / *Designation*

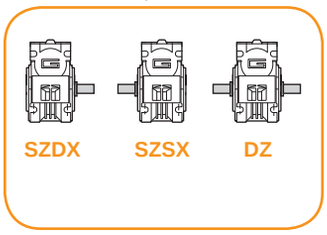
MOTORIDUTTORE / *GEARMOTOR*

NDCM	120/030	U	10	SZDX	BRSX	90	240	VS
Tipo *Type*	Grandezza *Size*	Versione Riduttore *Gearbox Version*	Rapporto *Ratio*	Albero di uscita *Output shaft*	Braccio di reazione *Torque arm*	Angolo *Angle*	Versione Motore *Motor Version*	Opzioni *Options*
NDCM 	**120/026** **120/030** **120/040**	**U** **FD** **FS** **FLD** **FLS** **FBD** **FBS**	Vedere tabella *See tables*	**SZDX** **SZSX** **DZ**	**BRDX** **BRSX**	**0°** **90°** **180°** **270°**	**120 — 240**	**VS**

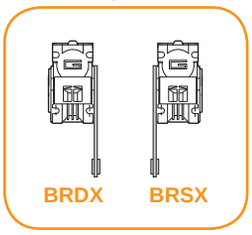
Versione Riduttore
Gearbox Version



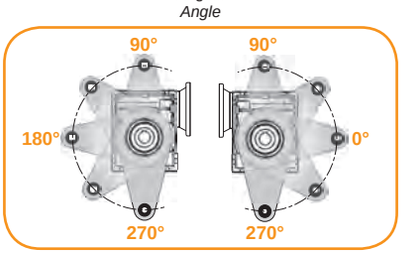
Albero di uscita
Output shaft



Braccio di reazione
Torque arm



Angolo
Angle



Simbologia / *Symbols*

n_1	[min^{-1}]	Velocità in ingresso / *Input speed*
n_2	[min^{-1}]	Velocità in uscita / *Output speed*
i		Rapporto di riduzione / *Ratio*
P_1	[kW]	Potenza in entrata / *Input power*
M_2	[Nm]	Coppia in uscita in funzione di P_1 / *Output torque referred to P_1*
sf		Fattore di servizio / *Service factor*

Rd	%	Rendimento dinamico / *Dynamic efficiency*
A_2	N]	Carico assiale ammissibile in uscita / *Permitted output axial load*
Rs	%	Rendimento statico / *Static efficiency*
R_2	[N]	Carico radiale ammissibile in uscita / *Permitted output radial load*
Z		Numero di principi della vite / *Worm starts*
β		Angolo d'elica / *Helix angle*

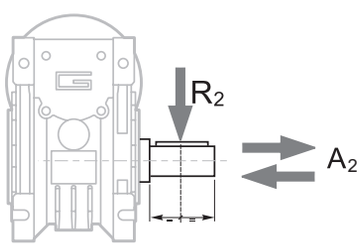
Lubrificazione — *Lubrication*

I riduttori a vite senza fine della serie CM sono lubrificati a vite con olio sintetico di viscosità 320 e possono essere installati in qualunque posizione di montaggio.

Permanent synthetic oil long-life lubrication allow to use CM wormgearbox range in all mounting position.

	Quantità di olio (litri) / ***Oil quantity*** *(liters)*	
	Per tutte le posizioni di montaggio / *For all mounting positions*	
CM026	0.02	Lubrificazione a vita / *Life lubricated*
CM030	0.04	
CM040	0.08	

Carichi radiali — *Radial loads*

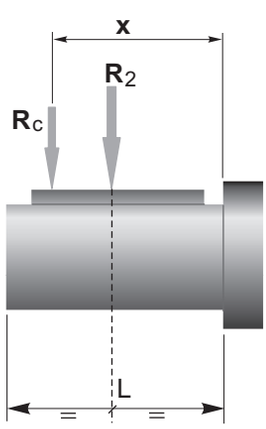


$A_2 = R_2 \times 0.2$

n_2 [min^{-1}]	R_2 [N]		
	CM026	**CM030**	**CM040**
187	400	674	1264
140	490	743	1392
93	580	851	1596
70	610	936	1754
56	610	1008	1890
47	610	1069	2004
35	610	1179	2210
28	610	1270	2381
23	610	1356	2542
18	610	1471	2759
14	610	1600	3000

Quando il carico radiale risultante non è applicato sulla mezzeria dell'albero occorre calcolare quello effettivo con la seguente formula:

When the resulting radial load is not applied on the centre line of the shaft it is necessary to calculate the effective load with the following formula:



$$R_c = \frac{R_2 \cdot a}{(b+x)} \leq R_{2MAX}$$

$$R \leq R_c$$

a, b = valori riportati nella tabella
a, b = values given in the table

	CM		
	026	**030**	**040**
a	56	65	84
b	43	50	64
R_{2MAX}	610	1600	3000

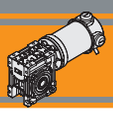
Dati di dentatura — *Toothing data*

	Dati della coppia vite-corona *Worm wheel data*	Rapporto / *Ratio*											
		5	**7.5**	**10**	**15**	**20**	**25**	**30**	**40**	**50**	**60**	**80**	**100**
CM026	Z	6	4	3	2	2		1	1	1	1		
	β	34° 35'	24° 41'	19° 1'	12° 57'	10° 30'		6° 33'	5° 17'	4° 26'	3°49'		
CM030	Z	6	4	3	2	2	2	1	1	1	1	1	1
	β	27° 4'	24° 28'	18° 50'	12° 49'	10° 23'	8° 43'	6° 29'	5° 14'	4° 23'	3° 46'	2° 57'	2° 25'
CM040	Z	6	4	3	2	2	2	1	1	1	1	1	1
	β	34° 19'	24° 28'	18° 50'	12° 49'	10° 23'	8° 43'	6° 29'	5° 14'	4° 23'	3°46'	2° 57'	2° 25'

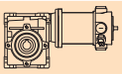
Rendimento — *Efficiency*

	n_1 [min^{-1}]	Rendimento *Efficiency*	Rapporto / *Ratio*											
			5	**7.5**	**10**	**15**	**20**	**25**	**30**	**40**	**50**	**60**	**80**	**100**
CM026	2800	Rd	89	87	85	83	80		73	68	64	60		
	1400		87	84	83	78	74		66	61	57	53		
	900		84	83	80	75	71		61	57	52	48		
		Rs	72	71	68	61	56		46	41	36	34		
CM030	2800	Rd	89	88	86	84	81	78	74	70	65	62	57	52
	1400		86	85	84	79	75	72	67	62	58	55	48	43
	900		84	83	81	75	71	68	62	58	53	49	43	39
		Rs	72	67	63	55	50	43	39	35	31	27	23	21
CM040	2800	Rd	90	89	87	84	83	80	77	73	69	66	60	56
	1400		88	86	84	81	78	74	70	65	60	58	52	46
	900		86	84	82	77	74	70	66	60	57	53	46	41
		Rs	74	71	67	60	55	51	45	40	36	32	28	24

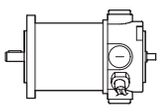
Rendimento teorico del riduttore dopo il rodaggio
Theoretical efficiency of the gearbox after the first running period

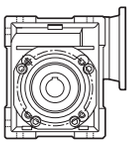


Dati tecnici per servizio S2 — *Technical data for S2 duty*

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
160						
(3000 min^{-1})	**600**	2.3	4.4	5	**120/026**	120/240
	400	3.3	3.3	7.5		
	300	4.3	2.5	10		
	200	6.3	1.7	15		
	150	8.1	1.3	20		
	100	11	1.1	30		
	75	14	0.8	40		
	60	14	0.7	50		
	50	13	0.7	60		
	600	2.3	5.7	5	**120/030**	120/240
	400	3.4	4.5	7.5		
	300	4.4	3.7	10		
	200	6.4	2.5	15		
	150	8.3	1.7	20		
	120	9.9	1.5	25		
	100	11	1.6	30		
	75	14	1.1	40		
	60	17	0.9	50		
	50	19	0.7	60		
	38	17	0.7	80		
	30	16	0.7	100		
	150	8.5	3.7	20	**120/040**	120/240
	120	10	2.7	25		
	100	12	3.2	30		
	75	15	2.3	40		
	60	18	1.8	50		
	50	20	1.4	60		
	38	24	1.1	80		
	30	29	0.8	100		

Motori applicabili — *IEC Motor adapters*



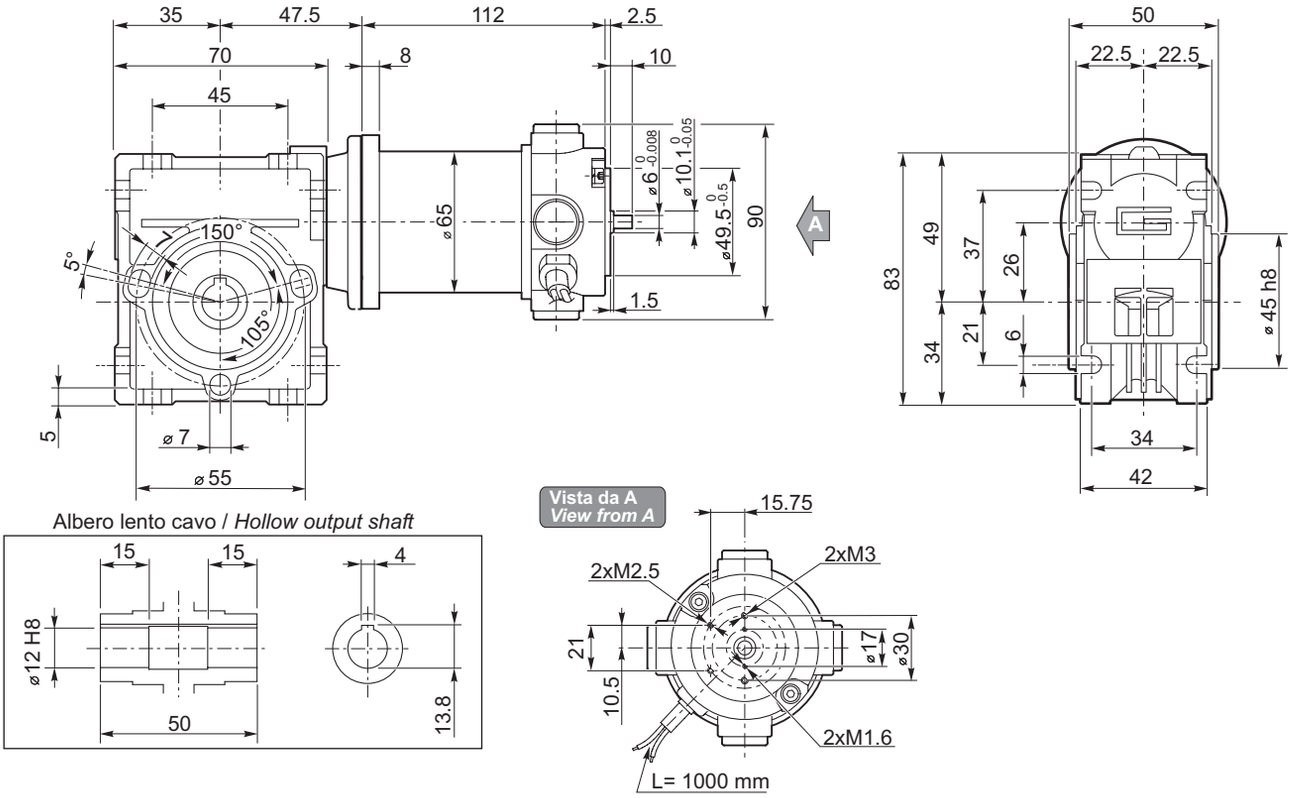


		ND
		120.120 **120.240**
CM	**026**	5-60
	030	5-100
	040	5-100

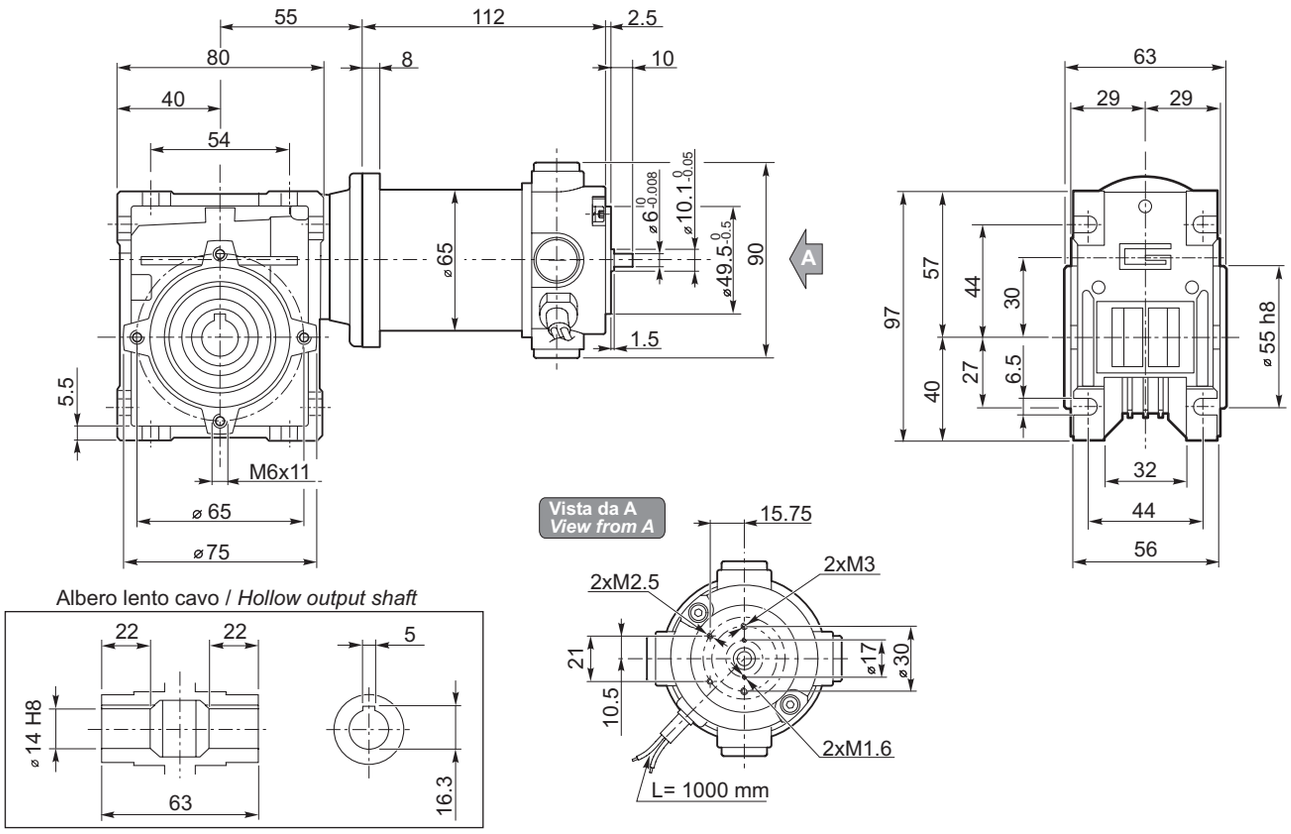
5-60 — Rapporti di riduzione i
Ratio i

Dimensioni ***Dimensions***

NDCM120/026 U

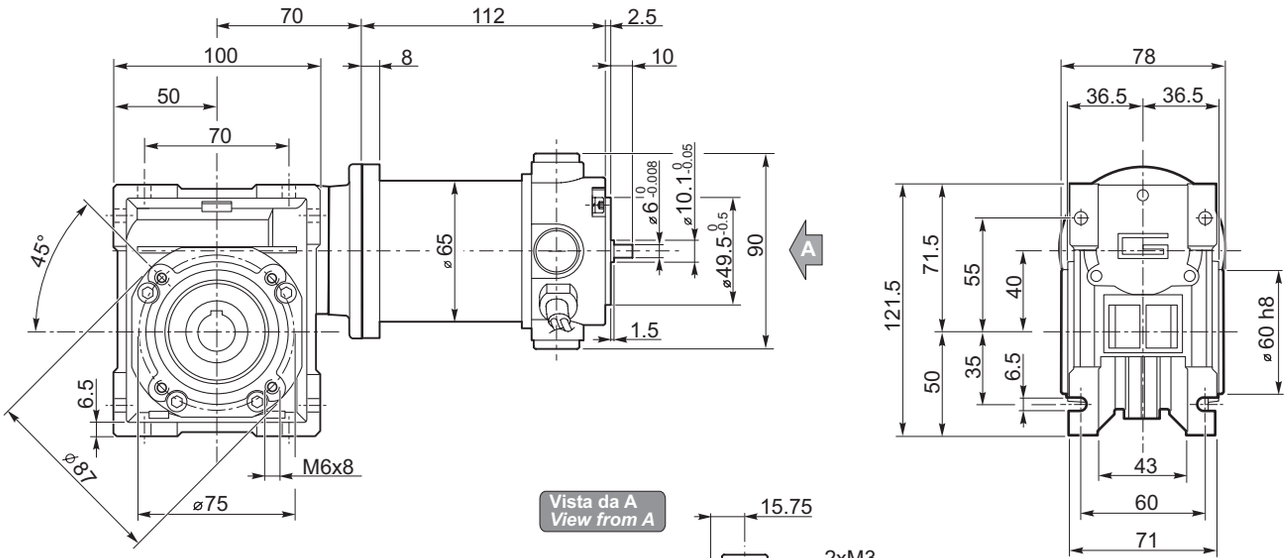


NDCM120/030 U

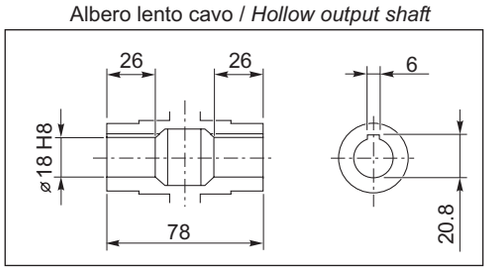


Dimensioni — *Dimensions*

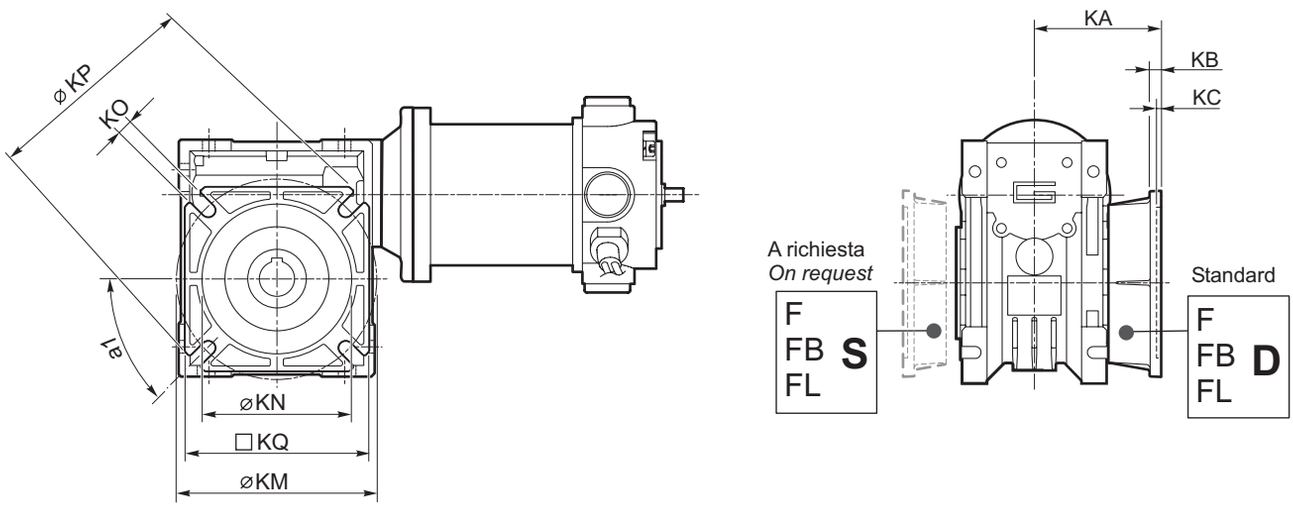
NDCM120/040 U



Albero lento cavo / *Hollow output shaft*



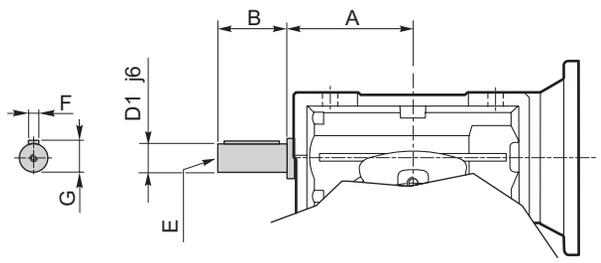
NDCM.../... F... Flange uscita / *Output flanges*



CM		CM..F								CM..FB								CM..FL							
	a1	KA	KB	KC	KM	KN H8	KO	KP	KQ	KA	KB	KC	KM	KN H8	KO	KP	KQ	KA	KB	KC	KM	KN H8	KO	KP	KQ
026	45°	45	6	4.5	55-69	40	6.5(n.4)	75	70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
030	45°	54.5	6	4	68	50	6.5(n.4)	80	70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
040	45°	67	7.5	4.5	80-95	60	9(n.4)	110	95	80	8.5	5	115-125	95	9.5(n.4)	140	112	97	7.5	4.5	80-95	60	10(n.4)	110	95

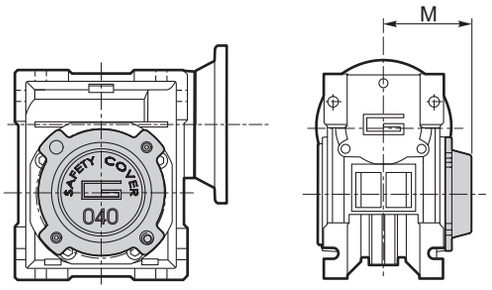
Opzioni — *Options*

VS - Vite sporgente / *Extended input shaft*



	A	B	D_1 j6	E	F	G
CM 030	45	20	9	M4	3	10.2
CM 040	53	23	11	M5	4	12.5

SC - *Safety cover*



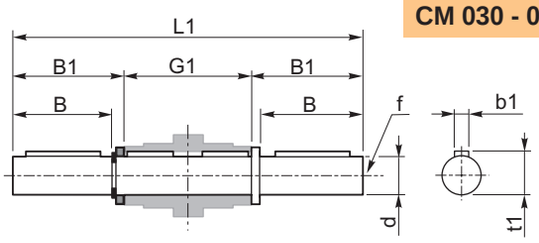
	M
CM 030	47
CM 040	54.5

Accessori — *Accessories*

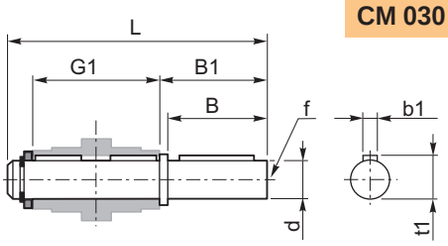
Albero lento — *Output shaft*

CM 030 - 040

DZ

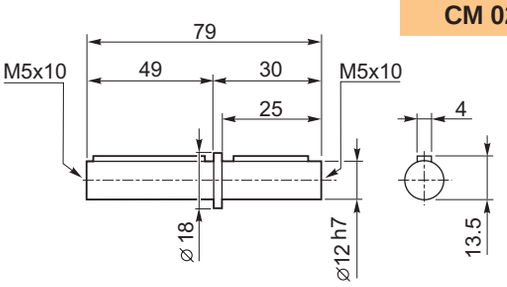


SZ



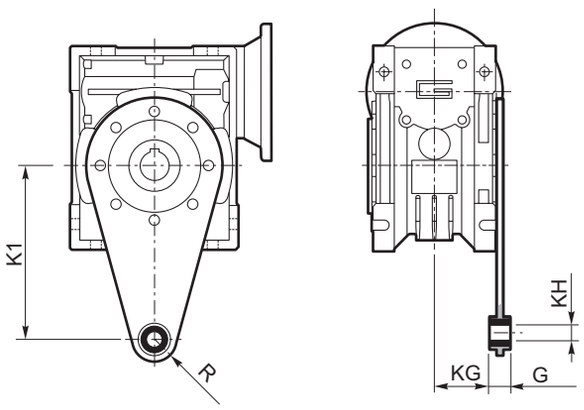
	d h7	B	B1	G1	L	L1	f	b1	t1
CM 030	14	30	32.5	63	102	128	M6	5	16
CM 040	18	40	43	78	128	164	M6	6	20.5

CM 026



Braccio di reazione — *Torque arm*

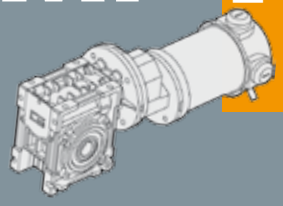
	K1	G	KG	KH	R
CM 030	85	14	23	8	15
CM 040	100	14	31	10	18



TRANSTECNO™
THE MODULAR GEARMOTOR

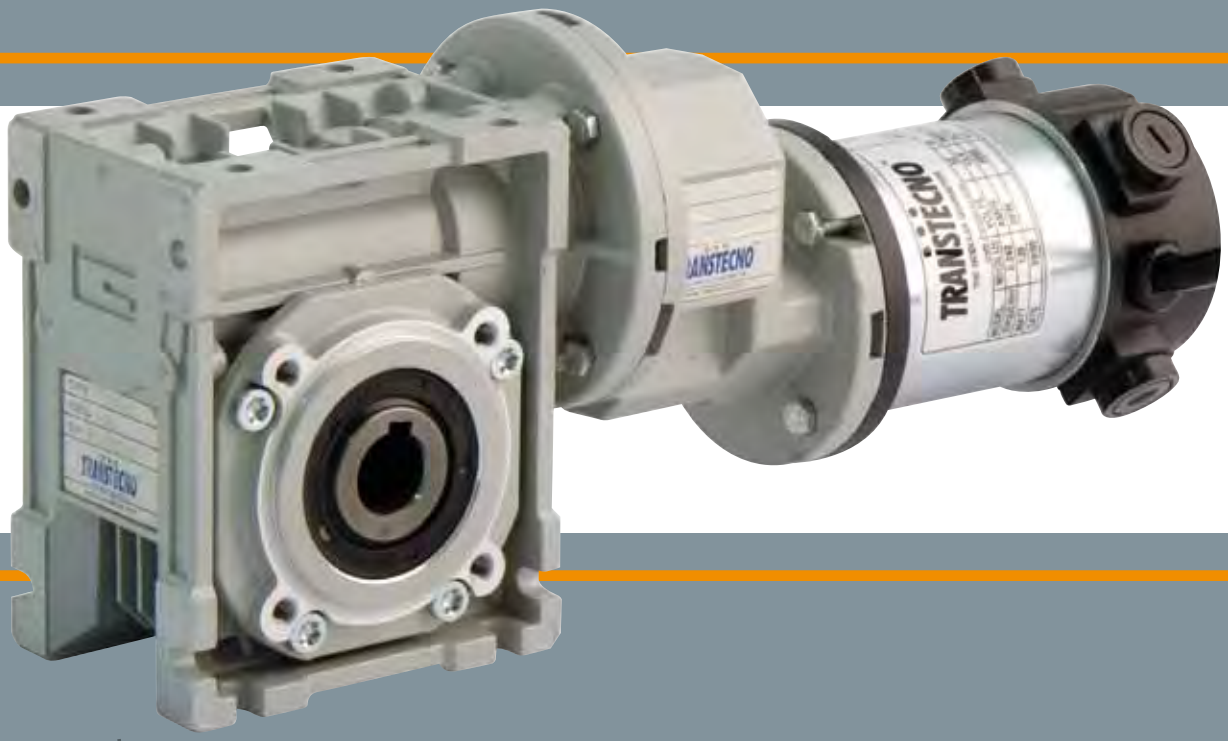
NDCMP

NDCMP



MOTORIDUTTORI C.C. CON PRECOPPIA

RARE EARTH D.C. PRE-STAGE GEARMOTORS



TRANSTECNO • GENUINE • PRODUCTS

ENERGY SAVING

Indice	*Index*	Pag. *Page*

Caratteristiche tecniche

Le caratteristiche principali dei motoriduttori a corrente continua della serie NDCMP sono:

- Alimentazione in bassa tensione 12/24 Vcc
- Possibilità di montaggio encoder
- Potenza motore disponibile 160W S2
- Magneti in terre rare
- Sia le carcasse dei riduttori a vite senza fine che delle precoppie sono in pressofusione di alluminio
- Lubrificazione permanente con olio sintetico.

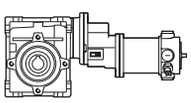
Technical features

The main features of NDCMP D.C. *gearmotors range are:*

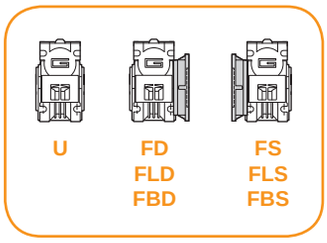
- *Low voltage power supply 12/24 Vdc*
- *Suitable for encoder assembly*
- *Motor power rating available 160W S2*
- *Rare earth magnets*
- *Die-cast aluminum housing on pre-stage and wormgearboxes*
- *Permanent synthetic oil long-life lubrication.*

Designazione

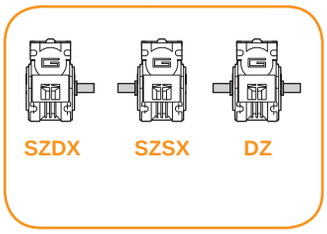
Designation

MOTORIDUTTORE / *GEARMOTOR*								
NDCMP	**120/056/030**	**U**	**90**	**SZDX**	**BRSX**	**90**	**240**	**VS**
Tipo *Type*	Grandezza *Size*	Versione Riduttore *Gearbox Version*	Rapporto *Ratio*	Albero di uscita *Output shaft*	Braccio di reazione *Torque arm*	Angolo *Angle*	Versione Motore *Motor Version*	Opzioni *Options*
NDCMP 	**120/056/030** **120/056/040**	**U** **FD** **FS** **FLD** **FLS** **FBD** **FBS**	Vedere tabella *See tables*	**SZDX** **SZSX** **DZ**	**BRDX** **BRSX**	**0°** **90°** **180°** **270°**	**120 — 240**	**VS**

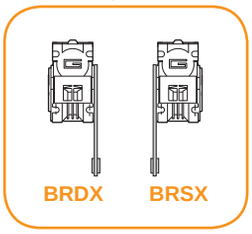
Versione Riduttore
Gearbox Version



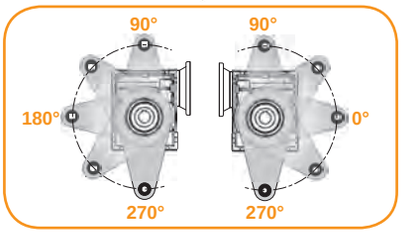
Albero di uscita
Output shaft



Braccio di reazione
Torque arm



Angolo
Angle



Simbologia — *Symbols*

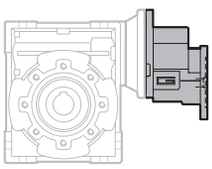
n_1	[min^{-1}]	Velocità in ingresso / *Input speed*
n_2	[min^{-1}]	Velocità in uscita / *Output speed*
i		Rapporto di riduzione / *Ratio*
P_1	[kW]	Potenza in entrata / *Input power*

M_2	[Nm]	Coppia in uscita in funzione di P_1 / *Output torque referred to P_1*
sf		Fattore di servizio / *Service factor*
R_2	[N]	Carico radiale ammissibile in uscita / *Permitted output radial load*
A_2	N]	Carico assiale ammissibile in uscita / *Permitted output axial load*

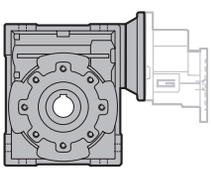
Lubrificazione — *Lubrication*

I riduttori a vite senza fine con precoppia della serie CMP sono lubrificati a vita con olio sintetico di viscosità 320 e possono essere installati in qualunque posizione di montaggio.

Permanent synthetic oil long-life lubrication allow to use CMP range in all mounting position.



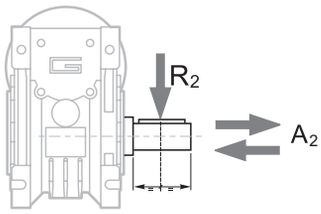
CMP
056/030 **056**/040
Lubrificazione a vita *Life lubricated*



NDCMP	**Quantità di olio** (litri) / ***Oil quantity*** *(liters)* **Tutte le posizioni di montaggio / *For all mounting position***	
056/030	0.04	Lubrificazione a vita *Life lubricated*
056/040	0.08	

Carichi radiali

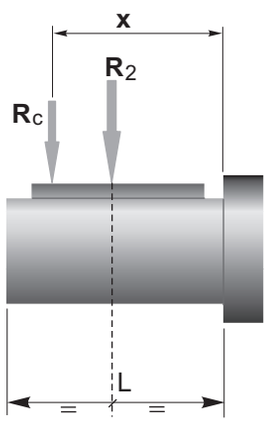
Radial loads



n_2 [min^{-1}]	R_2 [N]	
	CM030	CM040
35	1179	2210
28	1270	2381
23	1356	2542
18	1471	2759
14	1600	3000

Quando il carico radiale risultante non è applicato sulla mezzeria dell'albero occorre calcolare quello effettivo con la seguente formula:

When the resulting radial load is not applied on the centre line of the shaft it is necessary to calculate the effective load with the following formula:



$$R_c = \frac{R_2 \cdot a}{(b+x)} \leq R_{2MAX}$$

$$R \leq R_c$$

a, b = valori riportati nella tabella
a, b = values given in the table

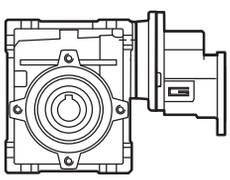
	CMP	
	030	040
a	65	84
b	50	64
R_{2MAX}	1600	3000

Dati tecnici per servizio S2 — *Technical data for S2 duty*

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
160						
(3000 min^{-1})	**50**	21	1.0	60	**120/056/030**	120/240
	40	25	0.9	75		
	33	28	1.0	90		
	25	35	0.7	120		
	50	22	2.0	60	**120/056/040**	120/240
	40	26	1.7	75		
	33	30	1.9	90		
	25	36	1.3	120		
	20	43	1.1	150		
	17	48	0.9	180		
	13	55	0.7	240		
	10	51	0.7	300		

NDCMP

Motori applicabili — *IEC Motor adapters*

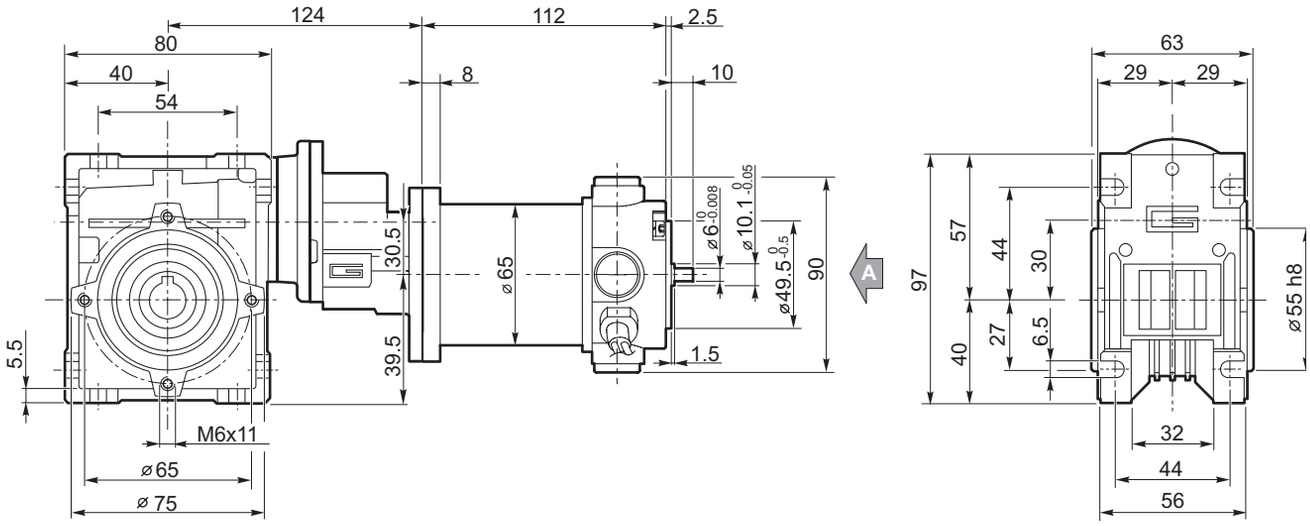


		ND
		120.120 **120.240**
CMP	**056/030**	120
	056/040	300

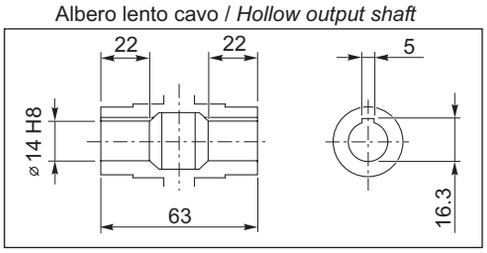
120	Rapporto di riduzione massimo i_{max} *Maximum ratio i_{max}*

Dimensioni *Dimensions*

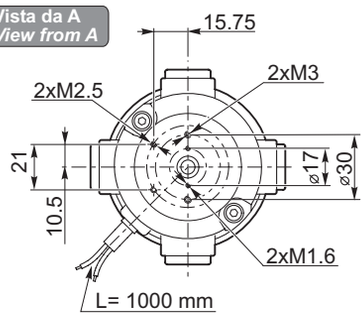
NDCMP120/056/030 U

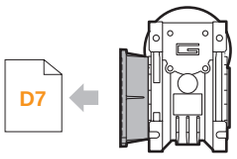


Albero lento cavo / *Hollow output shaft*



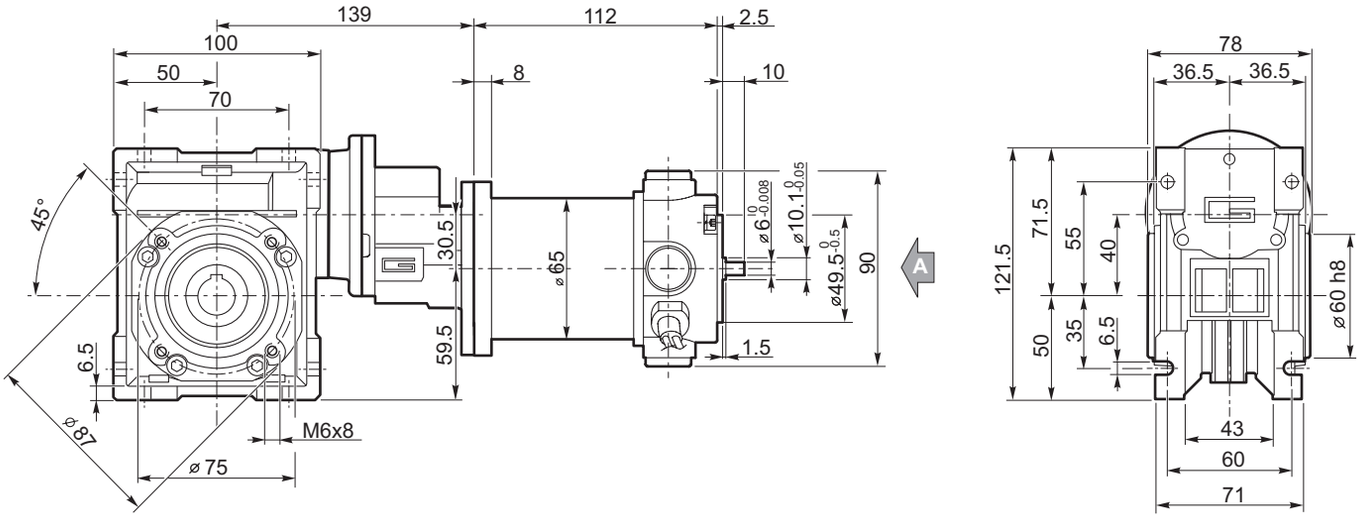
Vista da A
View from A



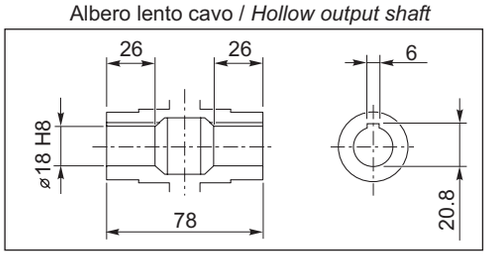


NDCMP120/056/030 F

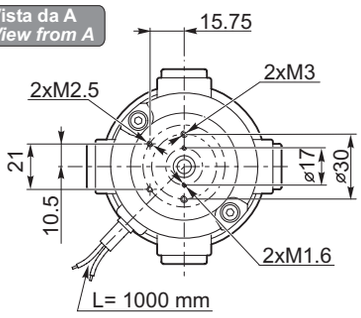
NDCMP120/056/040 U

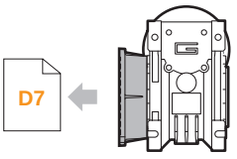


Albero lento cavo / *Hollow output shaft*



Vista da A
View from A

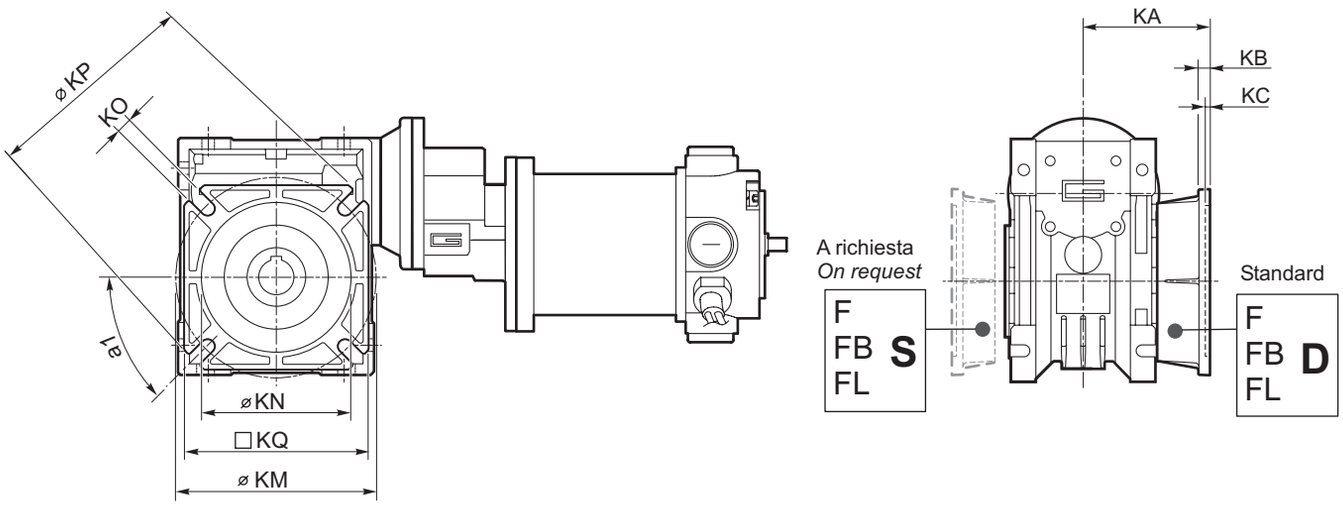




NDCMP120/056/040 F
NDCMP120/056/040 FB
NDCMP120/056/040 FL

Dimensioni — *Dimensions*

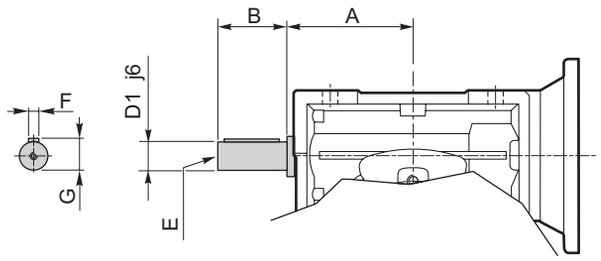
NDCMP.../... F... Flange uscita / *Output flanges*



CMP		CMP..F								CMP..FB								CMP..FL							
	a1	KA	KB	KC	KM	KN H8	KO	KP	KQ	KA	KB	KC	KM	KN H8	KO	KP	KQ	KA	KB	KC	KM	KN H8	KO	KP	KQ
056/030	45°	54.5	6	4	68	50	6.5(n.4)	80	70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
056/040	45°	67	7.5	4.5	80-95	60	9(n.4)	110	95	80	8.5	5	115-125	95	9.5(n.4)	140	112	97	7.5	4.5	80-95	60	10(n.4)	110	95

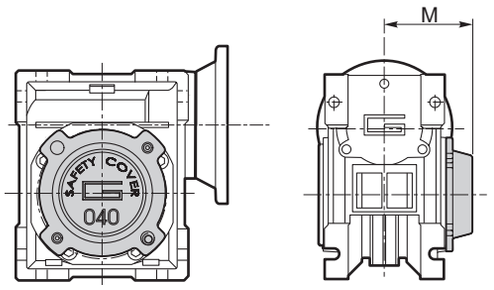
Opzioni — *Options*

VS - Vite sporgente / *Extended input shaft*



CMP	A	B	D_1 j6	E	F	G
056/030	45	20	9	M4	3	10.2
056/040	53	23	11	M5	4	12.5

SC - *Safety cover*

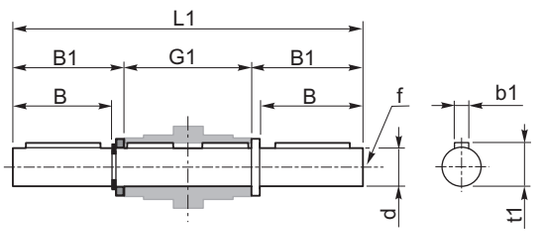


	M
CM 030	47
CM 040	54.5

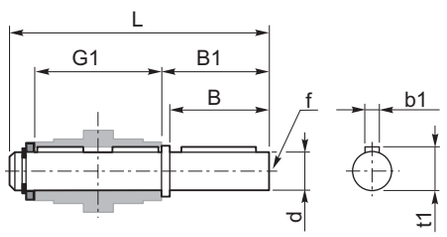
Accessori — *Accessories*

Albero lento semplice e doppio — *Single and double output shaft*

DZ



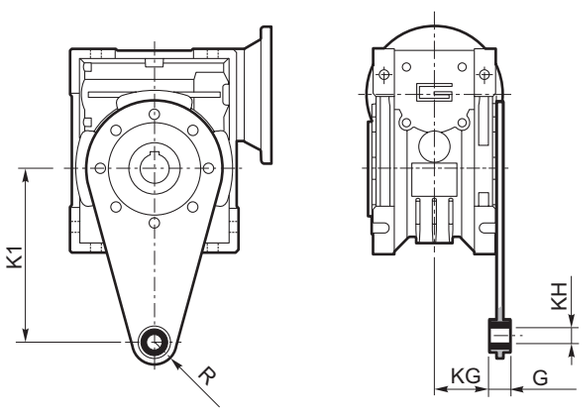
SZ



CMP	d h6	B	B1	G1	L	L1	f	b1	t1
056/030	14	30	32.5	63	102	128	M6	5	16
056/040	18	40	43	78	128	164	M6	6	20.5

Braccio di reazione — *Torque arm*

CMP	K1	G	KG	KH	R
056/030	85	14	23	8	15
056/040	100	14	31	10	18

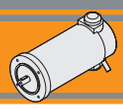


TRANSTECNO™
THE MODULAR GEARMOTOR

EC

MOTORI ELETTRICI C.C. A MAGNETI PERMANENTI
PERMANENT MAGNETS D.C. ELECTRIC MOTORS

TRANSTECNO • GENUINE • PRODUCTS •



Caratteristiche tecniche

Le caratteristiche principali dei motori della serie EC sono:

- Campo magnetico generato da magneti permanenti
- Costruzione tubolare, senza ventilazione
- Disponibili in 5 grandezze: diametro 42, 52, 65, 81, 110 mm
- Alimentazione a bassa tensione, 12 o 24 Vcc
- Potenze disponibili da 30 a 800 W S2
- Elevate coppie di spunto
- Elevate coppie e potenze in dimensioni compatte

Technical features

The main features of EC motor range are:

- *Magnetic field generated by permanent magnets*
- *Tubular construction, without fan*
- *Available in 5 sizes: diameter 42, 52, 65, 81, 110 mm*
- *Low voltage power supply, 12 or 24 Vdc*
- *Power ratings available from 30 to 800 W S2*
- *High starting torque*
- *High torque and output power with compact package*

Classe di isolamento termico

Gli avvolgimenti del rotore sono soggetti a surriscaldamento, come pure altre parti del motore. Il grado di isolamento indica la massima temperatura ammissibile oltre la quale l'isolante della matassa e l'isolante di tutte le parti soggette ad elevato riscaldamento perde le caratteristiche di buon isolante, con pericolo di danneggiamento del motore.

Thermal insulation class

The windings of the rotor can overheat just like other parts of the motor too. The degree of insulation indicates the maximum allowable temperature above which the insulation of the windings, as well as that of all the parts which heat up to a high temperature, loses its insulating properties and the motor therefore risks being damaged.

Servizio

Rappresenta la relazione tra il tempo di lavoro ed il tempo di riposo del motore. Servizio continuo (S1) = funzionamento continuo del motore a pieno carico.

Servizio intermittente (S2, S3, etc...) = periodi alternati di lavoro e di riposo tali da raffreddare il motore. Dato un motore, la potenza espressa per servizio continuo è inferiore a quella per servizio intermittente.

Duty cycle

This represents the relationship between the time the motor operates and the time it remains stationary. Continuous operation (S1) = the motor operates non-stop under full load.

Intermittent operation (S2, S3, etc.) = alternating periods of work and rest so that the motor can cool down. The output power for continuous operation is lower than that for intermittent operation.

Fattore di forma

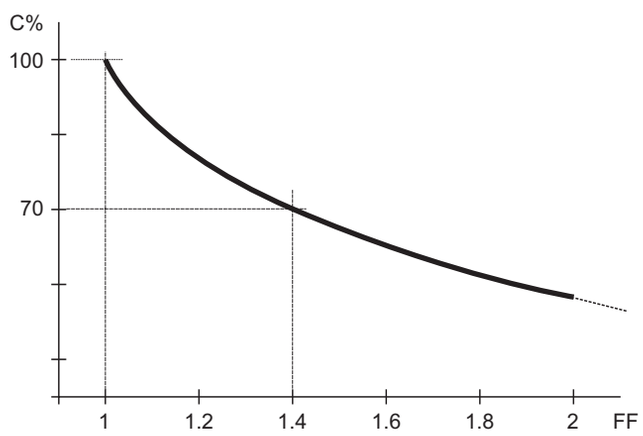
Indica quanta componente spuria alternata è presente nella alimentazione CC del motore. Più alto è il fattore ed inferiore è l'efficienza del motore. Alimentatori ad SCR = F.F 1.40. Alimentazione pura da batteria = FF 1. Alimentazione da transistori (modulazione PWM) = FF 1.05.

Qualitativamente l' andamento della coppia (percentuale) rispetto al fattore di forma è indicato nel grafico seguente:

Form factor

Indicates how much spurious alternating current is present in the D.C. motor power supply. The higher the factor, the lower the motor's efficiency. SCR power supplies = F.F 1.40. Battery supply = FF 1 Transistor supply (PWM modulation) = FF 1.05.

The graph below indicates the torque trend (percentage) in relation to the form factor.



Grado di protezione IP

IP enclosures protection indexes

Indica il grado di isolamento meccanico del corpo motore.

1ª cifra protezione alla penetrazione di corpi solidi.

2ª cifra protezione contro la penetrazione d'acqua.

Indicates the degree of mechanical insulation of the motor body.

1st figure indicating level of protection against the penetration of solid bodies.

2nd figure: indicating degree to which the motor is waterproof.

0	Non protetto / *No protection*	**0**	Non protetto / *No protection*
1	Protetto da corpi solidi superiori a Ø 50 mm. *Protected against solid matters (over Ø 50 mm)*	**1**	Protetto contro la caduta verticale di gocce d'acqua. *Protected against drops of water falling vertically*
2	Protetto da corpi solidi superiori a Ø 12 mm. *Protected against solid matters (over Ø 12 mm)*	**2**	Protetto contro la caduta verticale di gocce d'acqua con inclinazione max di 15° *Protected against drops of water falling up to 15°*
3	Protetto da corpi solidi superiori a Ø 2,5 mm. *Protected against solid matters (over Ø 2,5 mm)*	**3**	Protetto contro la pioggia. *Rain proof fixture*
4	Protetto da corpi solidi superiori a Ø1 mm. *Protected against solid matters (over Ø1 mm)*	**4**	Protetto contro gli spruzzi. *Splash proof fixture*
5	Protetto contro la polvere *Dust proof*	**5**	Protetto contro getti d'acqua *Water jet proof*
6	Totalmente protetto contro la polvere *Fully dust proof*	**6**	Protetto dalle ondate *Wave proof*
7	N.A.	**7**	Protetto contro immersione *Watertight immersion fixture.*
8	N.A.	**8**	Protetto contro immersione/sommersione prolungata *Watertight immersion fixture for a long time.*

Classe di isolamento termico

Insulation class

Classe / *Class*	Δ t °C Temp. ambiente: 40°C *Ambient temperature: 40°C*
A	65°C
B	90°C
F	115°C
H	140°C

Tipi di servizio IEC

IEC duty cycle ratings

S1	**Servizio continuo.** Funzionamento a carico costante per una durata sufficiente al raggiungimento dell' equilibrio termico.	***Continuous duty.*** *The motor works at a constant load for enough time to reach temperature equilibrium*
S2	**Servizio di durata limitata.** Funzionamento a carico costante per una durata inferiore a quella necessaria al raggiungimento dell' equilibrio termico, seguito da un periodo di riposo tale da riportare il motore alla temperatura ambiente.	***Short time duty****. The motor works at a constant load, but not long enough to reach temperature equilibrium, and the rest periods are long enough for the motor to reach ambient temperature.*
S3	**Servizio periodico intermittente.** Sequenze di cicli identici di marcia e di riposo a carico costante, senza raggiungimento dell' equilibrio termico. La corrente di spunto ha effetti trascurabili sul surriscaldamento del motore.	***Intermittent periodic duty.*** *Sequential, identical run and rest cycles with constant load. Temperature equilibrium is never reached. Starting current has little effect on temperature rise.*
S4	**Servizio periodico intermittente con avviamento.** Sequenza di cicli di funzionamento identici di avviamento, marcia e riposo a carico costante, senza raggiungimento dell'equilibrio termico. La corrente di spunto ha effetti sul riscaldamento del motore.	***Intermittent periodic duty with starting.*** *Sequential identical start, run and rest cycles with constant load. Temperature equilibrium is not reached, but starting current affects temperature rise.*
S5	**Servizio periodico intermittente con frenatura elettrica.** Sequenza di cicli di funzionamento identici di avviamento, marcia a carico costante, frenatura elettrica e riposo, senza raggiungimento dell'equilibrio termico.	***Intermittent periodic duty with electric braking.*** *Sequential, identical cycles of starting, running at constant load, electric braking and rest. Temperature equilibrium is not reached.*
S6	**Servizio periodico ininterrotto con carico intermittente.** Sequenza di cicli di lavoro identici con carico costante e senza carico. Non ci sono periodi di riposo.	***Continuous operation with intermittent load.*** *Sequential, identical cycles of running with constant load and running with no load. No rest periods.*
S7	**Servizio periodico ininterrotto con frenatura elettrica.** Sequenza di cicli di funzionamento identici di avviamento, marcia a carico costante e frenatura elettrica, senza periodi di riposo.	***Continuous operation with electric braking.*** *Sequential, identical cycles of starting, running at constant load and electric braking. No rest periods.*
S8	**Servizio periodico ininterrotto con variazioni di carico e di velocità.** Sequenza di cicli identici di avviamento, marcia a carico costante e velocità definita, seguiti da marcia a carico costante differente e velocità differente dalla precedente. Non ci sono periodi di riposo.	***Continuous operation with periodic changes in load and speed.*** *Sequential, identical, duty cycles of start, run at constant load and given speed, then run at other constant loads and speeds. No rest periods.*

EC020.120 - EC020.24E

Caratteristiche / *Features*

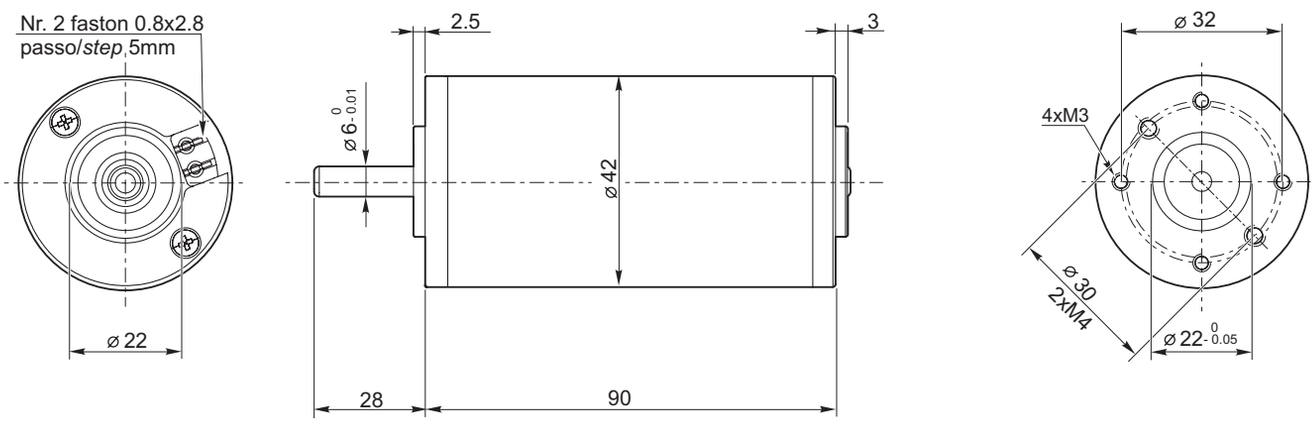
Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 42 mm
Potenza	30 W S2 (20 W S1)
Magneti	2
Supporti	Cuscinetti a sfera
Fori di montaggio	4
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 2 di composto grafite-rame
Cavo di alimentazione	Connettori faston (0.8 x 2.8 mm)
Opzioni	Filtro EMC
	Encoder magnetico max. 2 imp/giro, 2 canali Max.

Construction	*Tubular, without fan*
Size	*Ø 42 mm*
Power	*30 W S2 (20 W S1)*
Magnets	*2*
Bearings	*Ball bearing*
Mounting holes	*4*
Power supply	*Low voltage, 12 or 24 Vdc*
Brushes	*2 brushes made of graphite/copper composite*
Electric cable	*Faston terminals (0.8 x 2.8 mm)*
Options	*EMC filter*
	Magnetic encoder max 2 ppr, Max. 2 channels

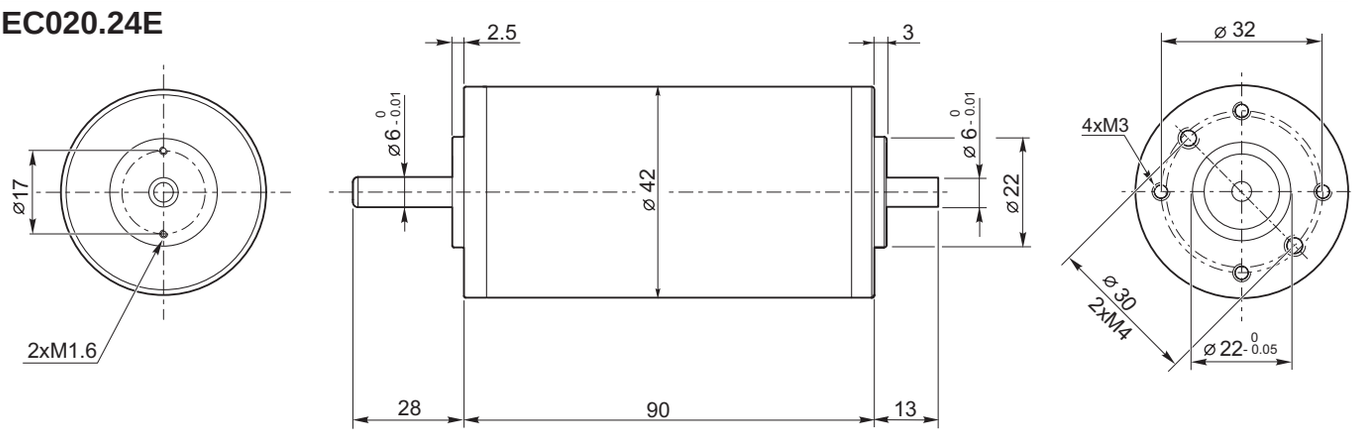
Tipo Type	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC020.120	**S1**	20	12	3.2	B	1	0.06	2850	20	0.4
	S2 6'	30		4.0			0.08			
EC020.24E	**S1**	20	24	1.5			0.06			
	S2 6'	30		2.0			0.08			

Dimensioni / *Dimensions*

EC020.120



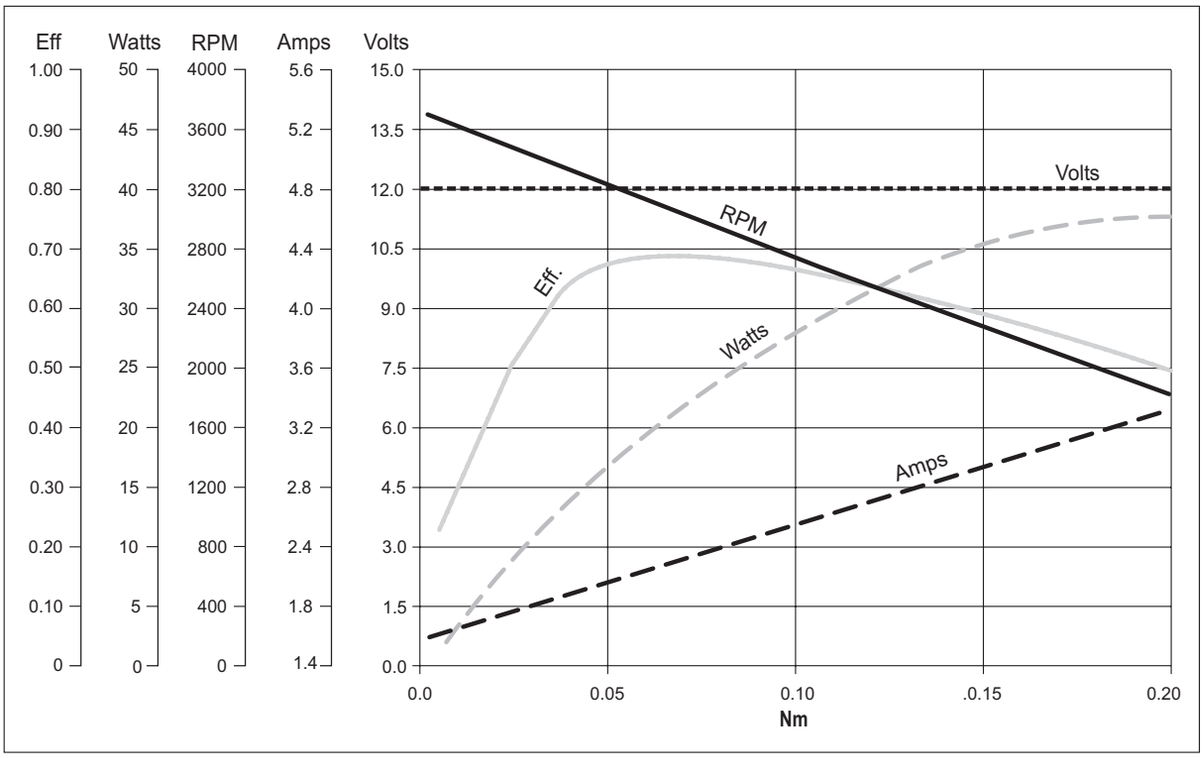
EC020.24E



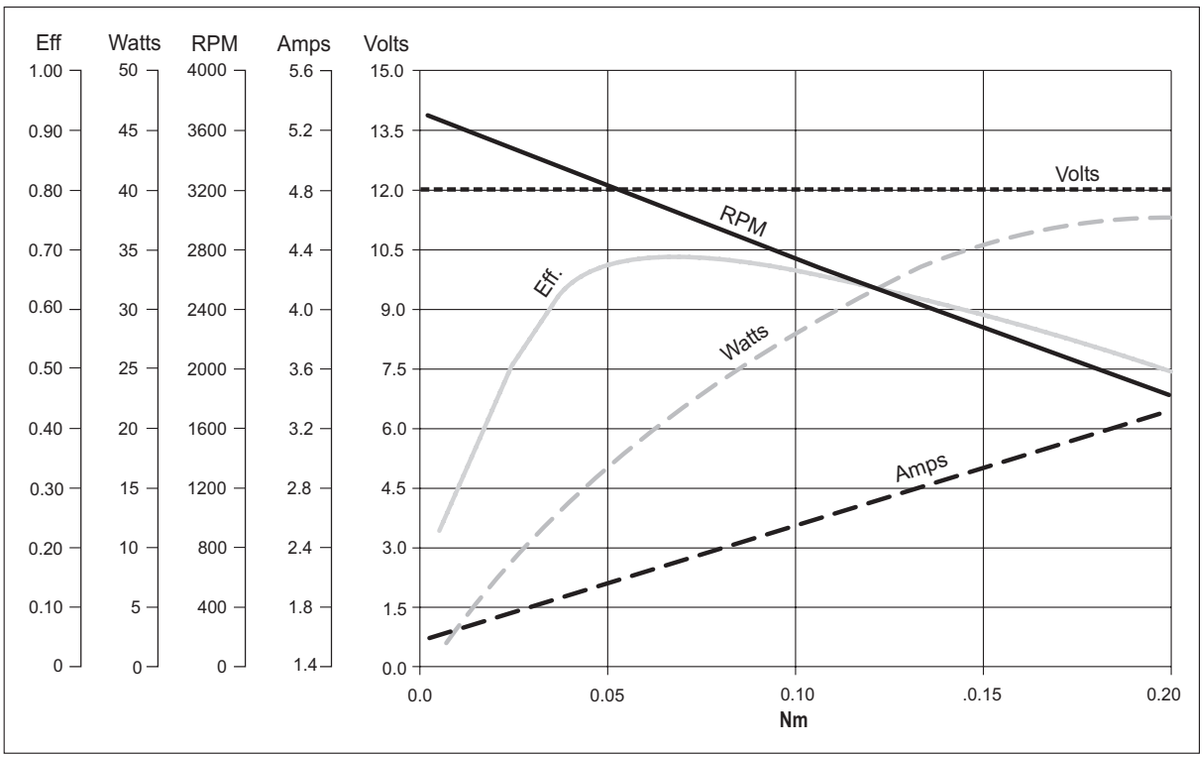
EC020.120 - EC020.24E

Prestazioni ***Performances***

EC020.120



EC020.24E



EC035.120 - EC035.240

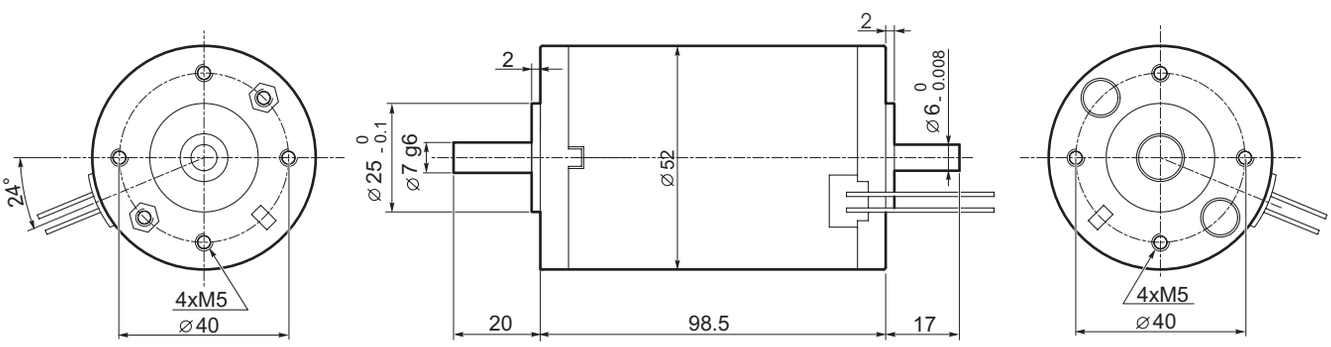
Caratteristiche / *Features*

Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 51.5 mm
Potenza	55 W S2 (35 W S1)
Magneti	2
Supporti	Cuscinetti a sfera
Fori di montaggio	4
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 2 interne di composto grafite-rame
Cavo di alimentazione	Lunghezza: 200 mm
Opzioni	Encoder magnetico max. 1 imp/giro, max.2 canali

Construction	*Tubular, without fan*
Size	*Ø 51.5 mm*
Power	*55 W S2 (35 W S1)*
Magnets	*2*
Bearings	*Ball bearings*
Mounting holes	*4*
Power supply	*Low voltage, 12 or 24 Vdc*
Brushes	*2 inside brushes made of graphite/copper composite*
Electric cable	*Lenght: 200 mm*
Options	*Magnetic encoder max 1 ppr, Max. 2 channels*

Tipo Type	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC035.120	**S1**	35	12	5.2	F	1	0.11	3000	44	0.8
	S2 9'	55		8.0			0.18			
EC035.240	**S1**	35	24	2.6	F	1	0.11		44	0.8
	S2 9'	55		4.0			0.18			

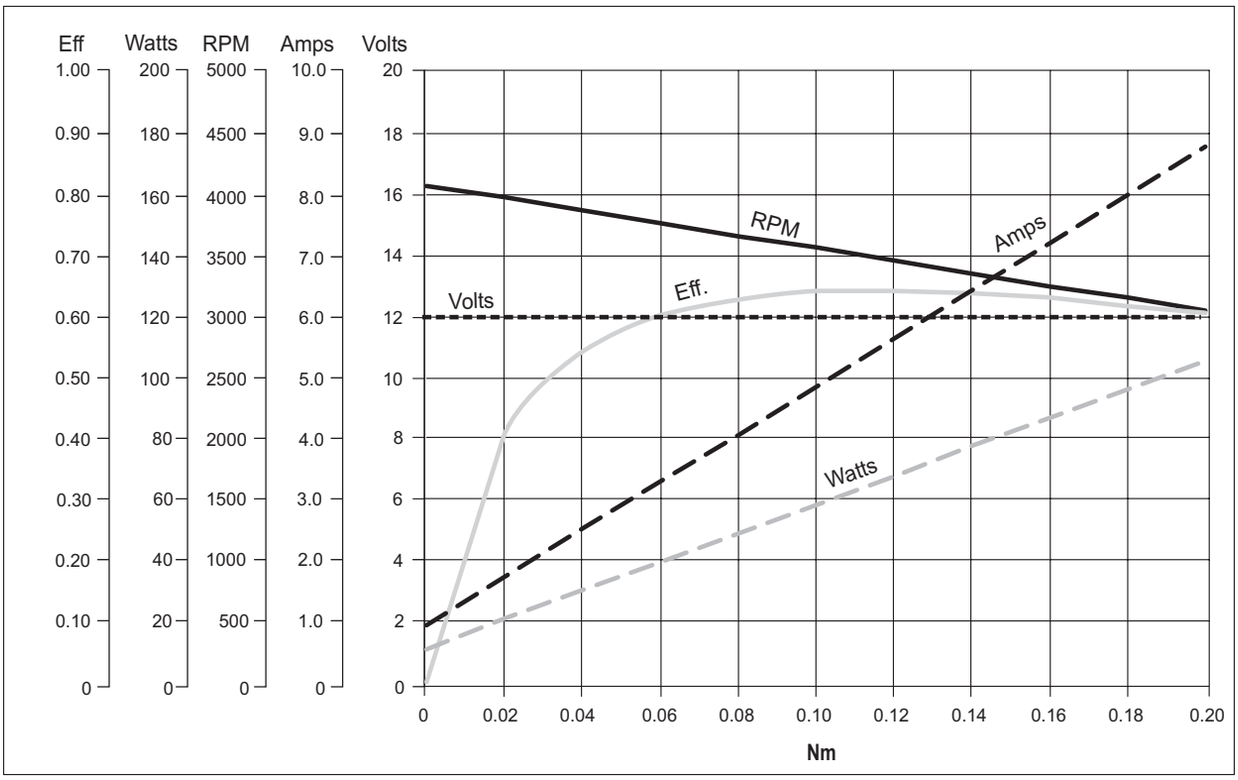
Dimensioni / *Dimensions*



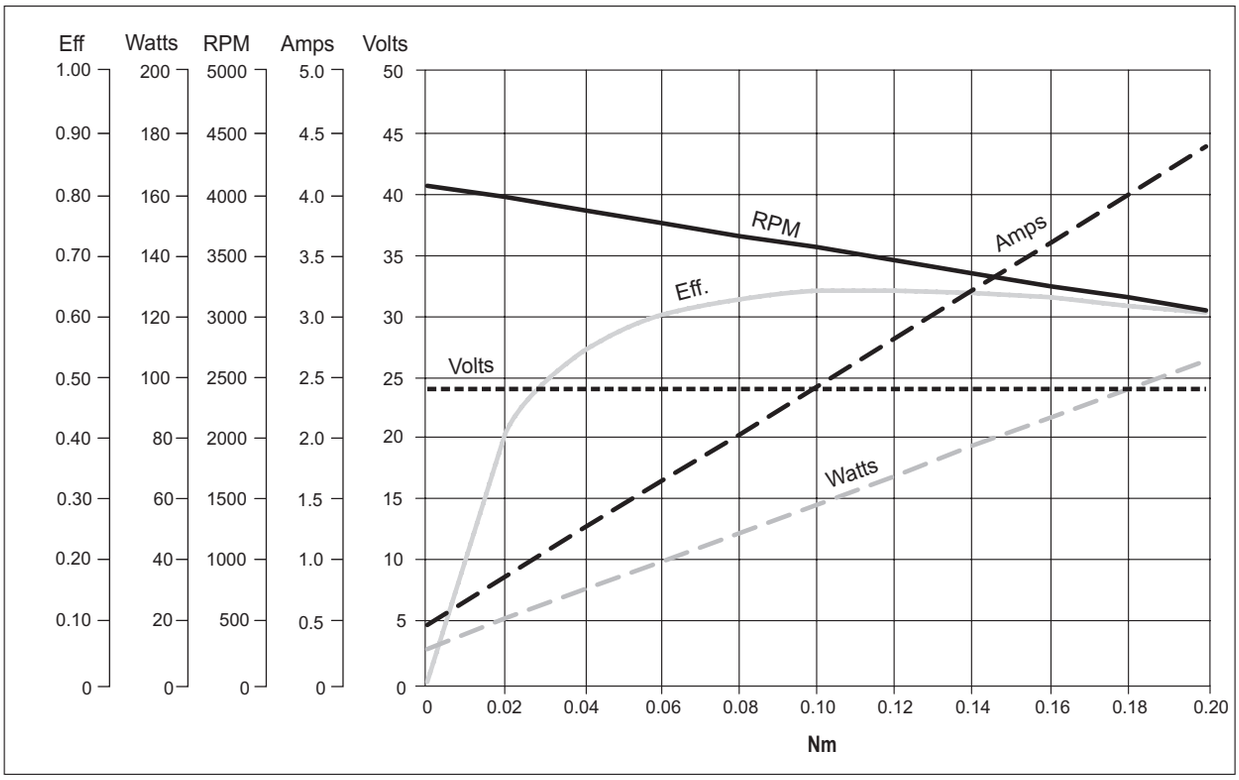
EC035.120 - EC035.240

Prestazioni ***Performances***

EC035.120



EC035.240



EC050.120 - EC050.240

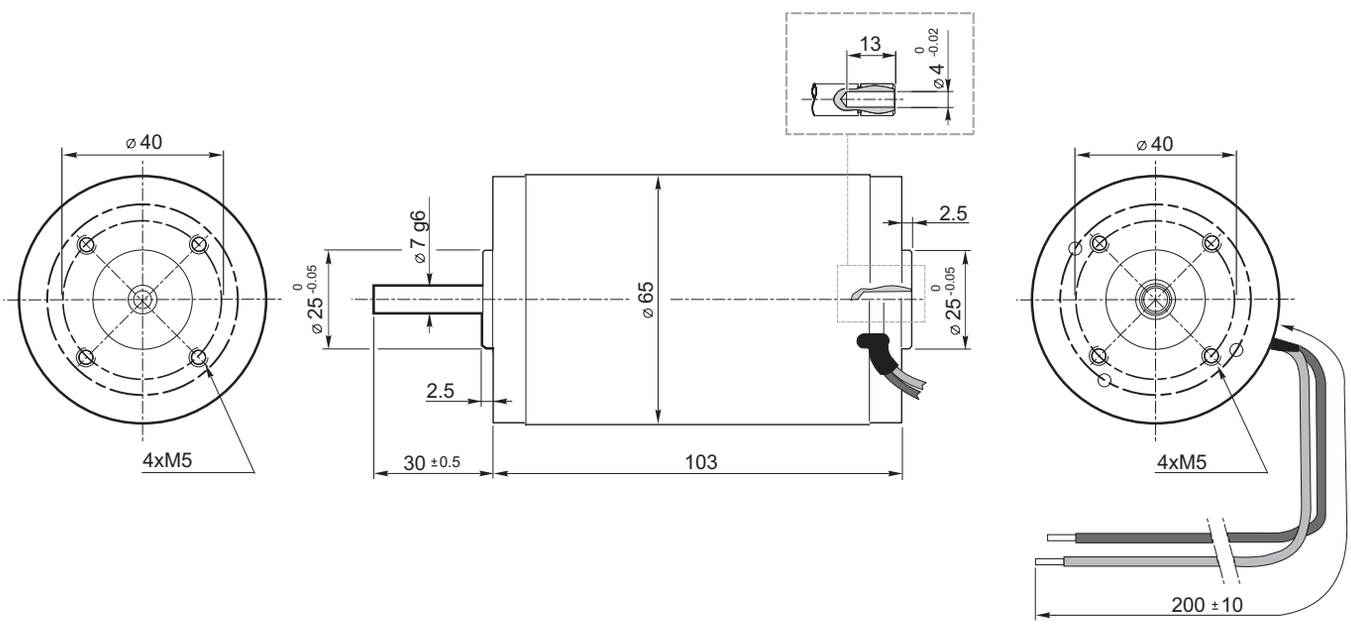
Caratteristiche / *Features*

Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 63 mm
Potenza	70 W S2 (50 W S1)
Magneti	2
Supporti	Cuscinetti a sfera
Fori di montaggio	4
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 2 interne di composto grafite-rame
Cavo di alimentazione	Lunghezza: 200 mm

Construction	*Tubular, without fan*
Size	*Ø 63 mm*
Power	*70 W S2 (50 W S1)*
Magnets	*2*
Bearings	*Ball bearings*
Mounting holes	*4*
Power supply	*Low voltage, 12 or 24 Vdc*
Brushes	*2 inside brushes made of graphite/copper composite*
Electric cable	*Lenght: 200 mm*

Tipo Type	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC050.120	**S1**	50	12	6.8	F	1	0.16	3000	44	1.2
	S2 15'	70		9.4			0.22			
EC050.240	**S1**	50	24	3.4			0.16			
	S2 15'	70		4.7			0.22			

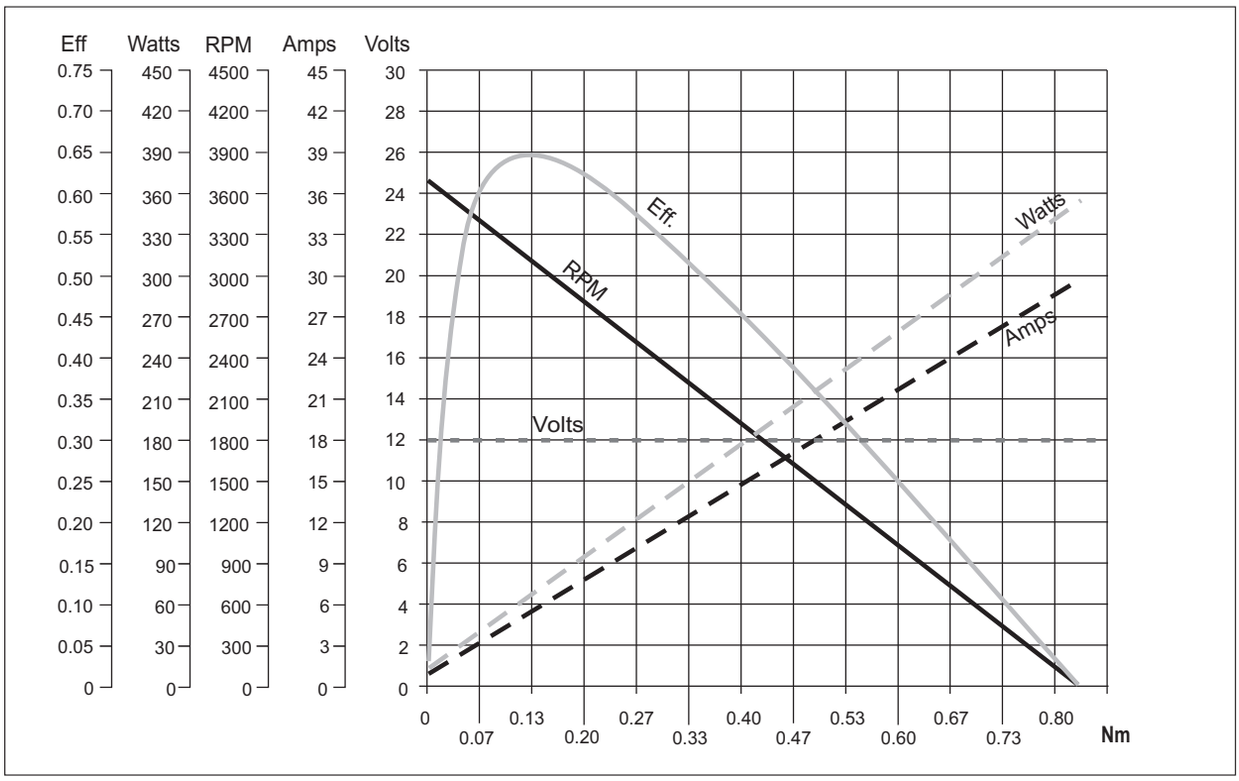
Dimensioni / *Dimensions*



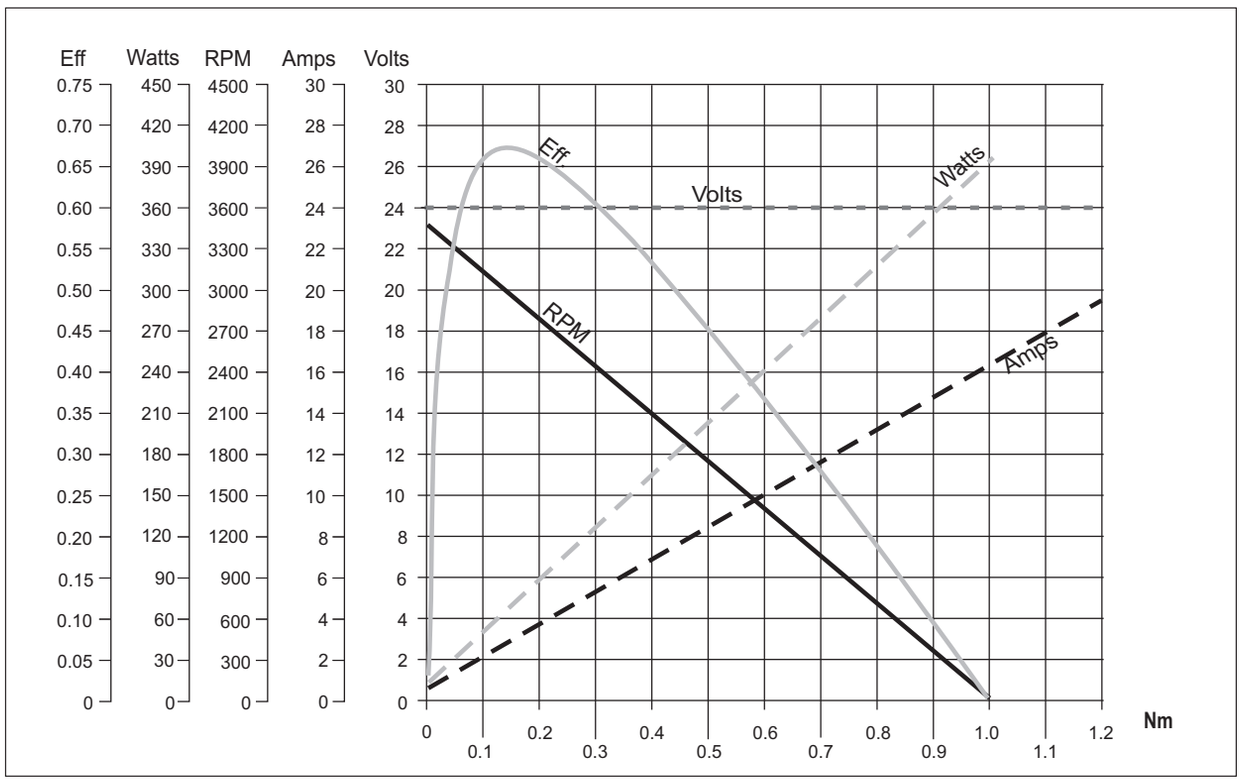
EC050.120 - EC050.240

Prestazioni ***Performances***

EC050.120



EC050.240



EC070.120 - EC070.240

Caratteristiche / *Features*

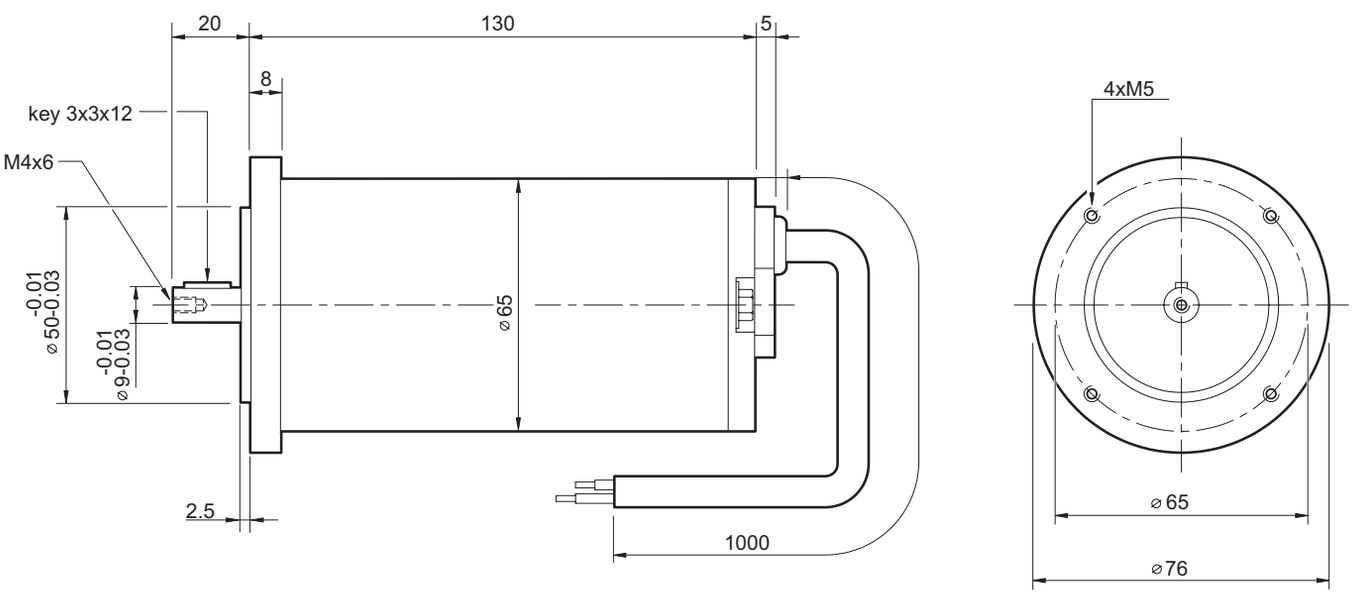
Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 65 mm
Potenza	100 W S2
Magneti	2
Supporti	Cuscinetti a sfera
Fori di montaggio	4
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 2 interne di composto grafite-rame
Cavo di alimentazione	Lunghezza: 1000 mm

Construction	*Tubular, without fan*
Size	*Ø 65 mm*
Power	*100 W S2*
Magnets	*2*
Bearings	*Ball bearings*
Mounting holes	*4*
Power supply	*Low voltage, 12 or 24 Vdc*
Brushes	*2 inside brushes made of graphite/copper composite*
Electric cable	*Lenght: 1000 mm*

Tipo Type	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC070.120	**S2 20'**	100	12	11.8	F	1	0.31	3000	44	1.7
EC070.240	**S2 20'**	100	24	5.9			0.31			

Nota: Per servizio continuativo contattare il Servizio Tecnico.
Note: For continous duty please contact our Technical Service.

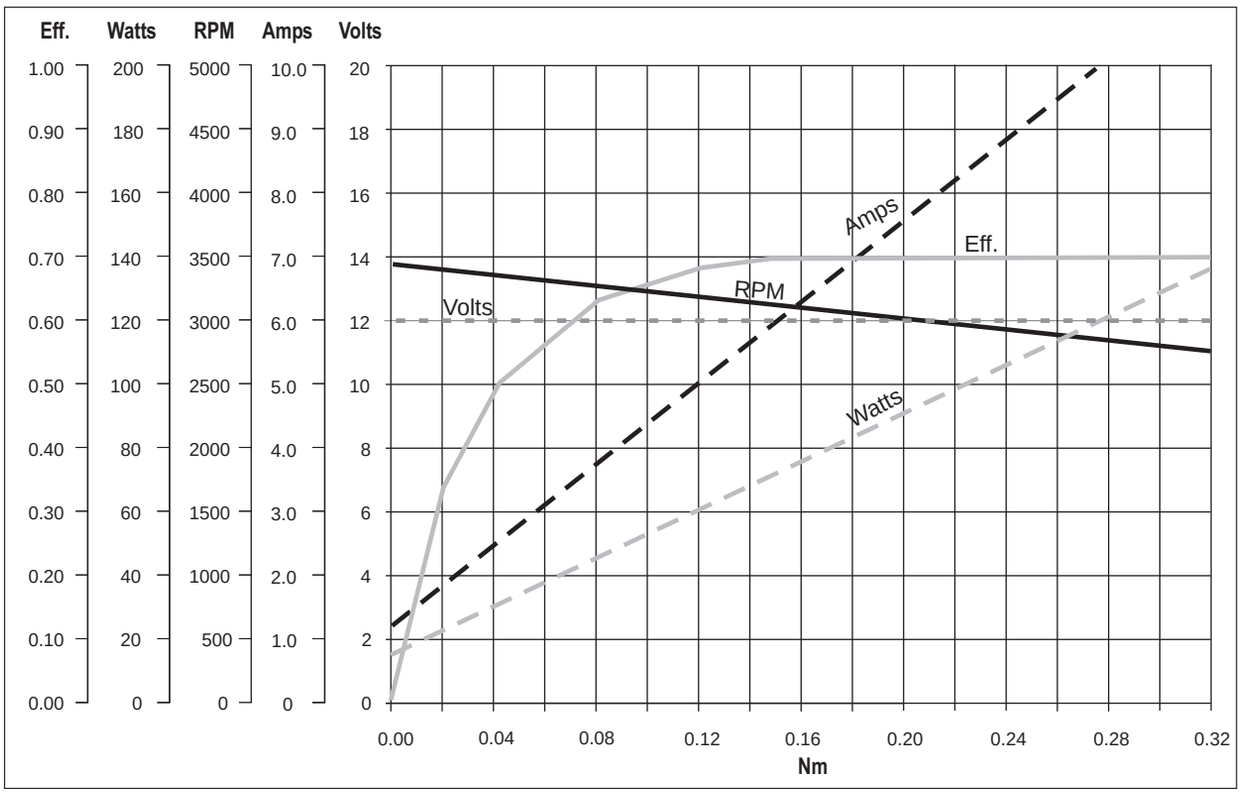
Dimensioni / *Dimensions*



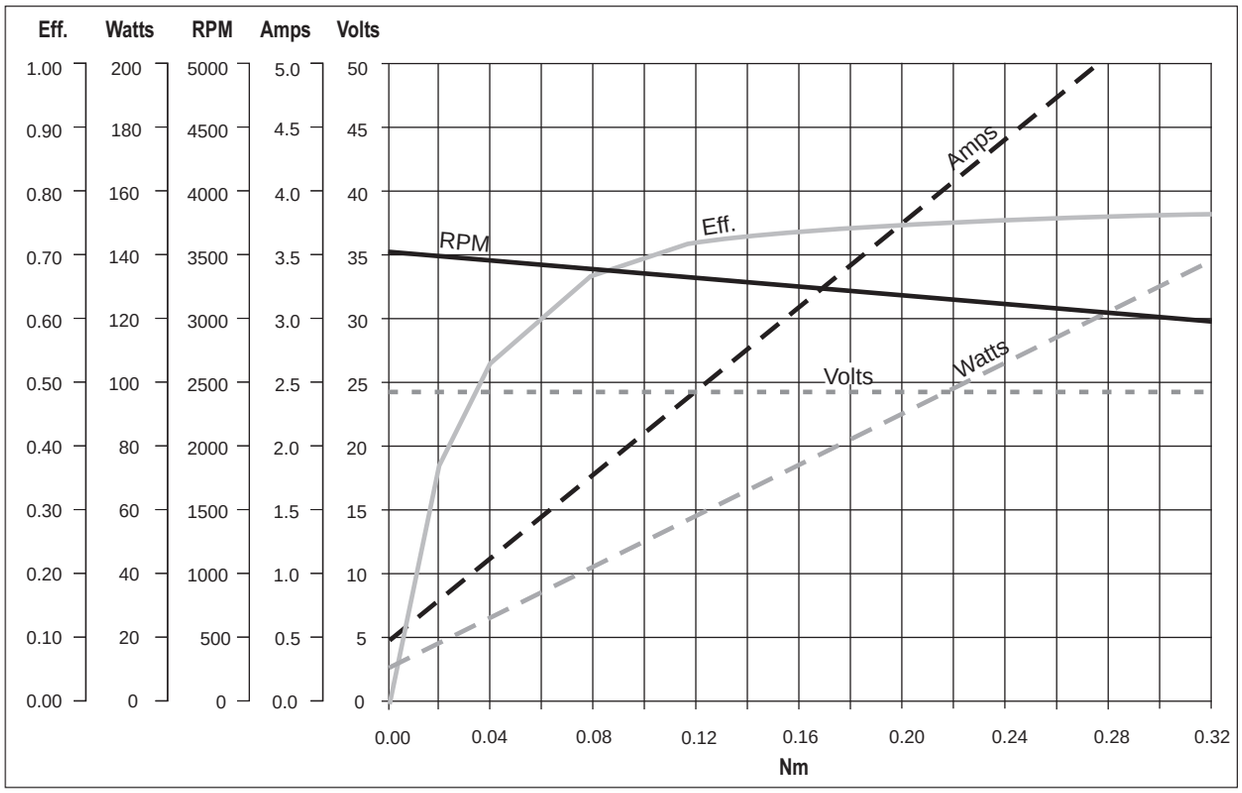
EC070.120 - EC070.240

Prestazioni *Performances*

EC070.120



EC070.240



EC100.120 - EC100.240 - EC100.24E

Caratteristiche / *Features*

Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 80 mm
Potenza	140 W S2 (100 W S1)
Magneti	2
Supporti	Cuscinetti a sfera
Fori di montaggio	4
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 2 di composto grafite-rame
Dimensione spazzole	LxPxH = 17.1 x 6.5 x 16.7 mm
Cavo di alimentazione	Lunghezza: 1000 mm
Bisporgenza	Standard solo EC100.24E

Construction	*Tubular, without fan*
Size	*Ø 80 mm*
Power	*140 W S2 (100 W S1)*
Magnets	*2*
Bearings	*Ball bearings*
Mounting holes	*4*
Power supply	*Low voltage, 12 or 24 Vdc*
Brushes	*2 inside brushes made of graphite/copper composite*
Brushes size	*LxWxH = 17.1 x 6.5 x 16.7 mm*
Electric cable	*Lenght: 1000 mm*
Rear shaft	*Standard only EC100.24E*

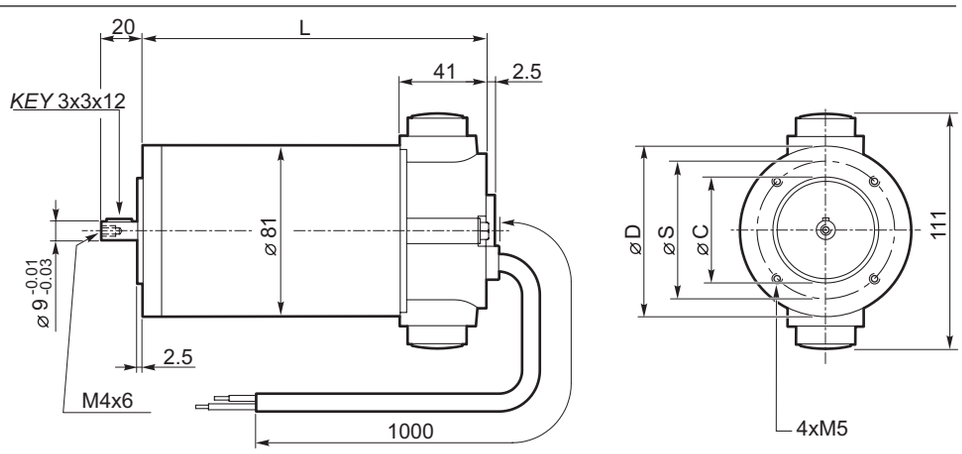
Tipo Type	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC100.120	**S1**	100	12	12	F	1	0.31	3000	44	2.7
	S2 25'	140		16.8			0.43			
EC100.240	**S1**	100	24	6			0.31			
	S2 25'	140		8.4			0.43			
EC100.24E	**S1**	100		6			0.31			
	S2 25'	140		8.4			0.43			

Dimensioni / *Dimensions*

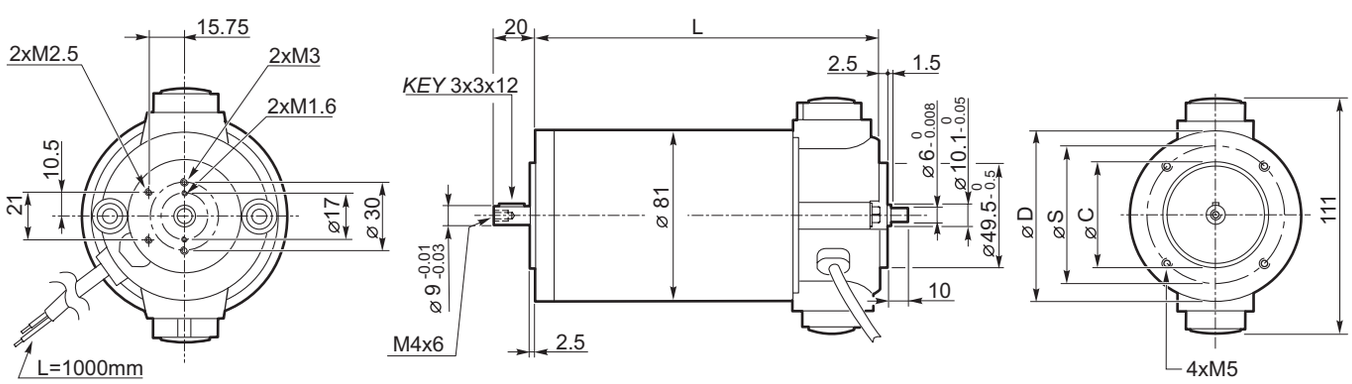
EC100.120
EC100.240

56 B14	
L	153
D	80
S	65
C (-0.03 / -0.01)	50
63B14*	
L	155
D	90
S	75
C (-0.03 / -0.01)	60

* Usare boccola 9/11
** Use sleeve 9/11*



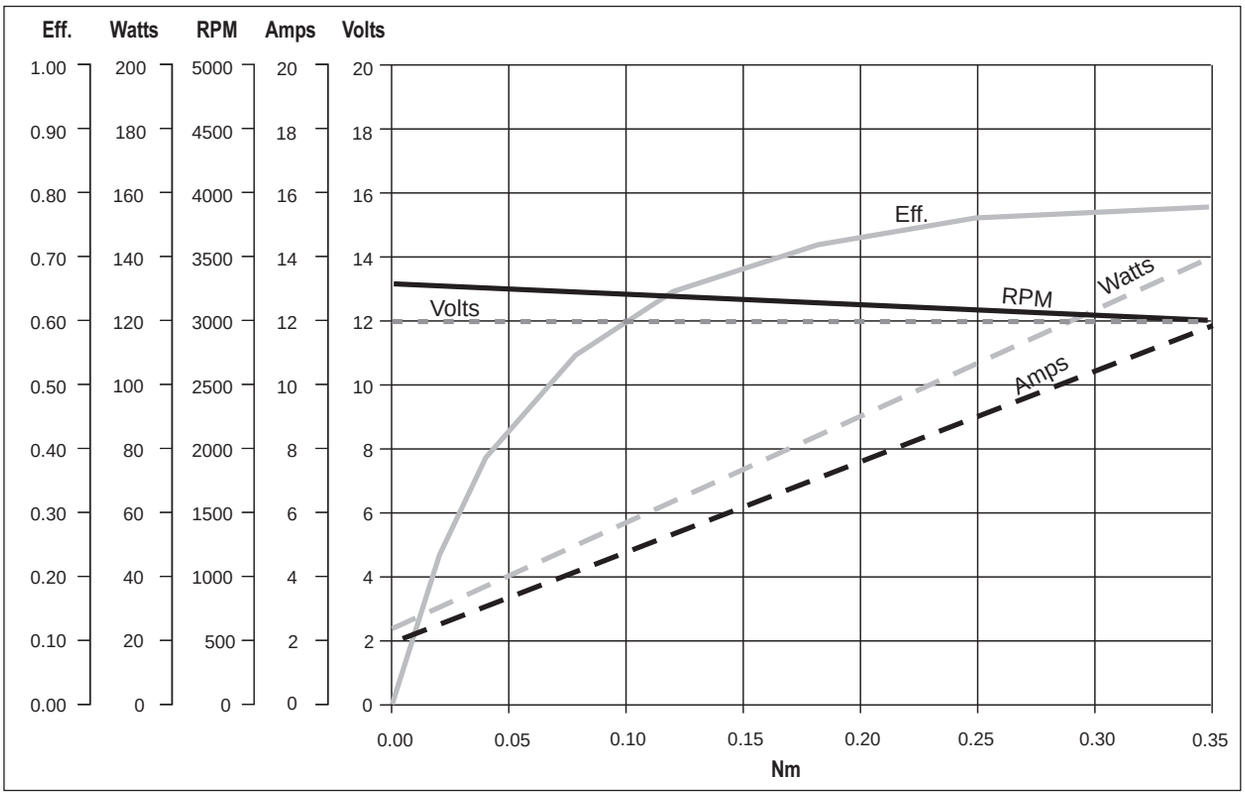
EC100.24E



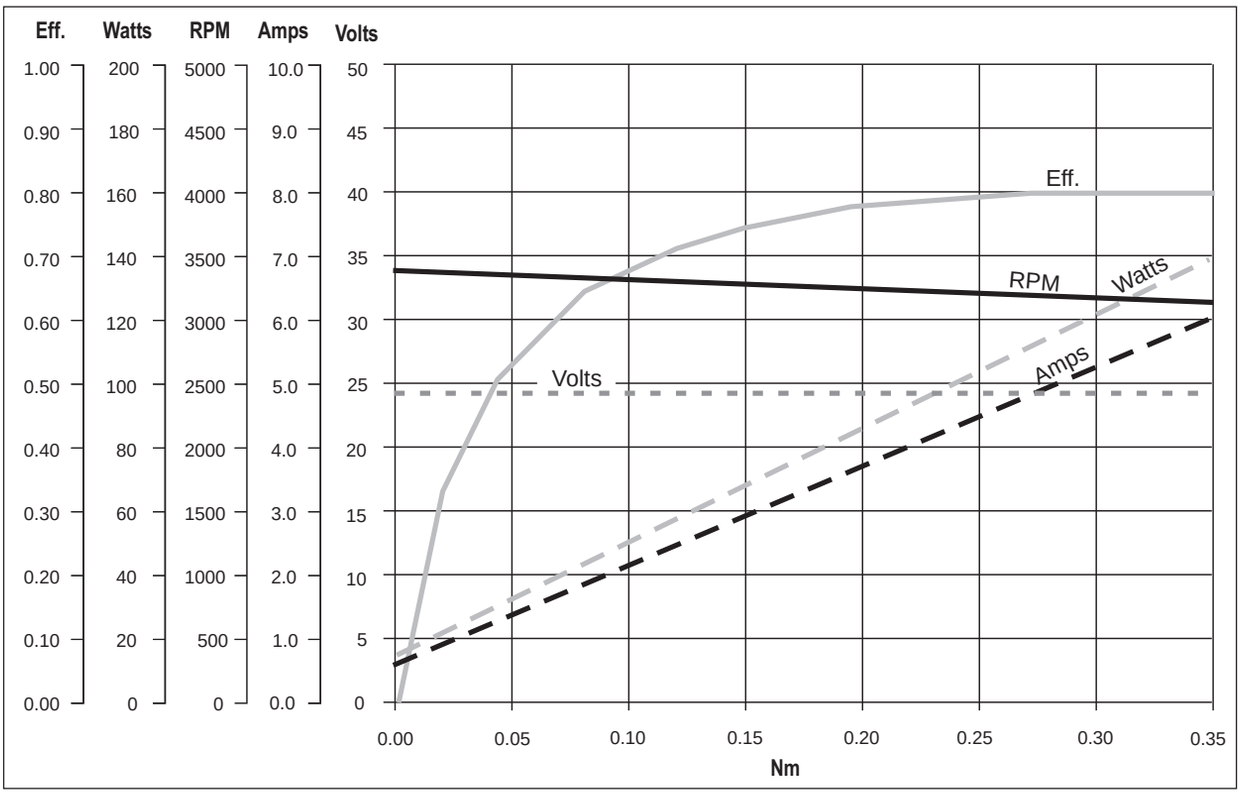
EC100.120 - EC100.240 - EC100.24E

Prestazioni ***Performances***

EC100.120



EC100.240 - EC100.24E



EC180.120 - EC180.240 - EC180.24E

Caratteristiche / *Features*

Costruzione	Tubolare, senza ventilazione	*Construction*	*Tubular, without fan*
Grandezza	Ø 80 mm	*Size*	*Ø 80 mm*
Potenza	250 W S2 (180 W S1)	*Power*	*250 W S2 (180 W S1)*
Magneti	2	*Magnets*	*2*
Supporti	Cuscinetti a sfera	*Bearings*	*Ball bearings*
Fori di montaggio	4	*Mounting holes*	*4*
Alimentazione	Bassa tensione, 12 o 24 Vcc	*Power supply*	*Low voltage, 12 or 24 Vdc*
Spazzole	N° 2 di composto grafite-rame	*Brushes*	*2 inside brushes made of graphite/copper composite*
Dimensione spazzole	LxPxH = 17.1 x 6.5 x 16.7 mm	*Brushes size*	*LxPxH = 17.1 x 6.5 x 16.7 mm*
Cavo di alimentazione	Lunghezza:1000 mm	*Electric cable*	*Lenght: 1000 mm*
Bisporgenza	Standard solo EC180.24E	*Rear shaft*	*Standard only EC180.24E*

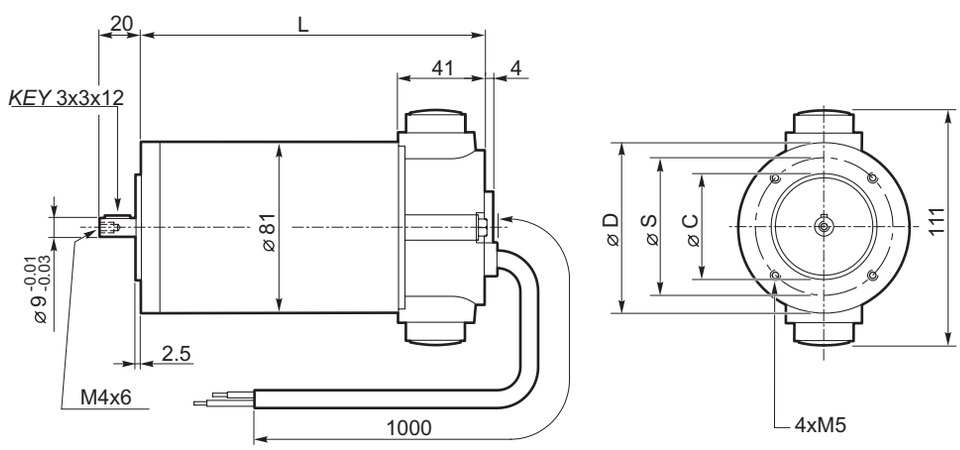
Tipo Type	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC180.120	**S1**	180	12	21.5	F	1	0.57	3000	IP44	3.4
	S2 25'	250		30			0.8			
EC180.240	**S1**	180	24	10.8			0.57			
	S2 25'	250		15			0.8			
EC180.24E	**S1**	180		10.8			0.57			
	S2 25'	250		15			0.8			

Dimensioni / *Dimensions*

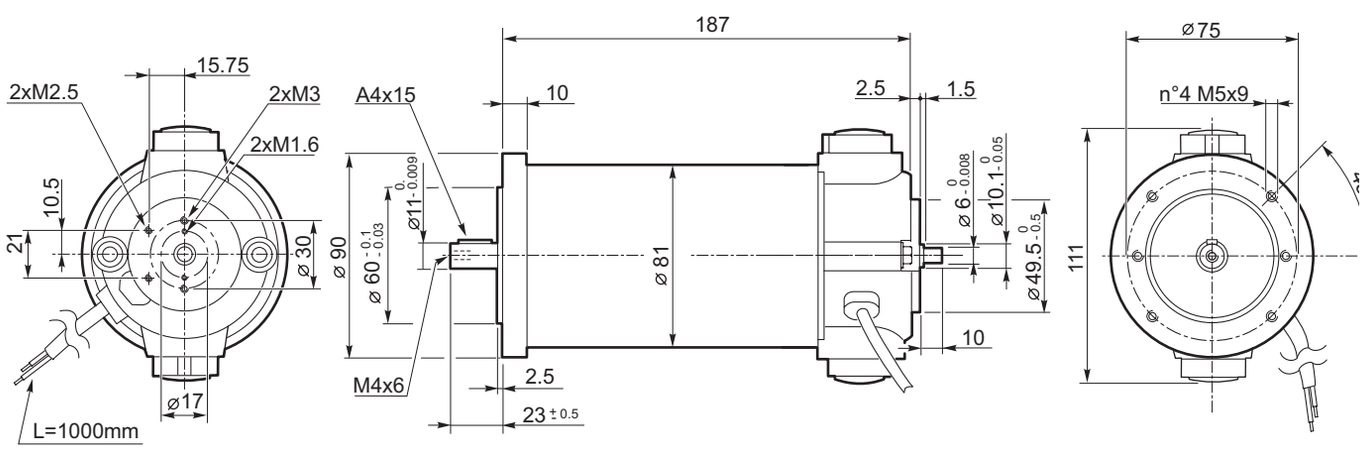
EC180.120
EC180.240

56 B14	
L	185
D	80
S	65
C (-0.03 / -0.01)	50
63B14*	
L	187
D	90
S	75
C (-0.03 / -0.01)	60

* Usare boccola 9/11
** Use sleeve 9/11*



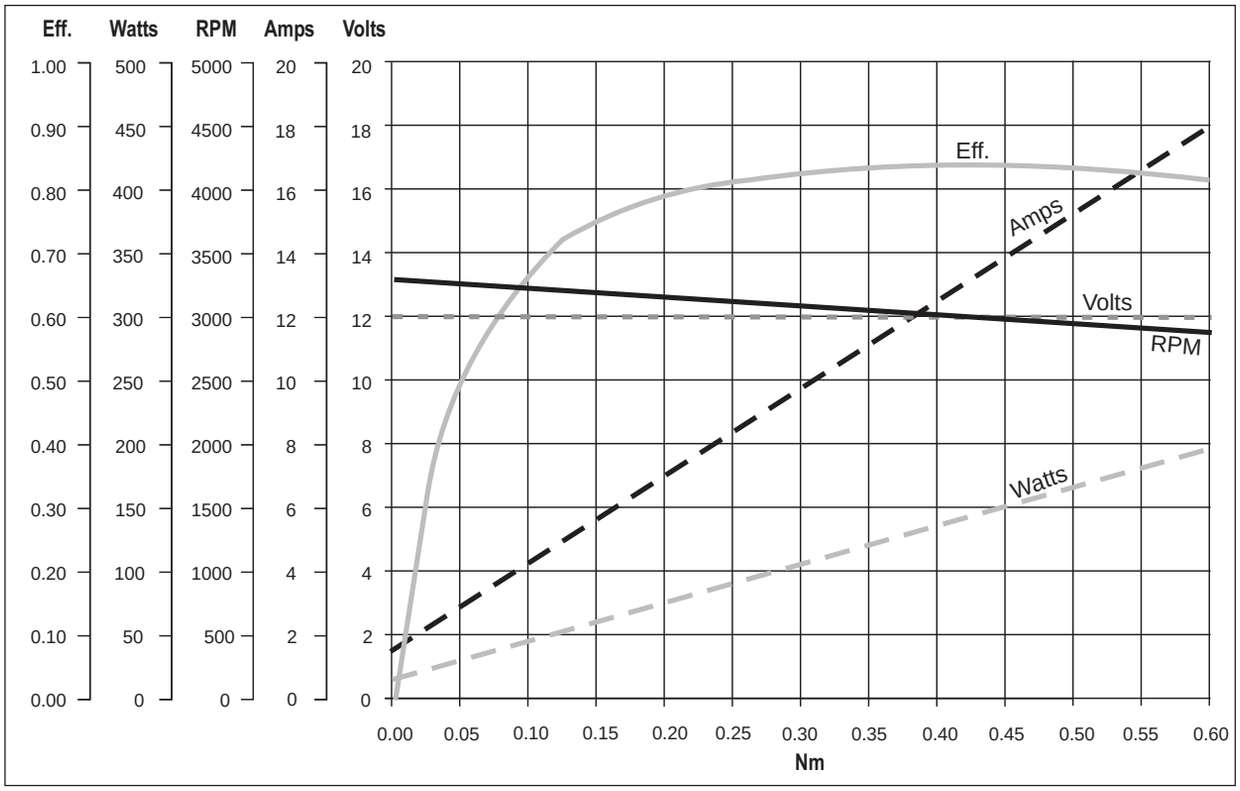
EC180.24E



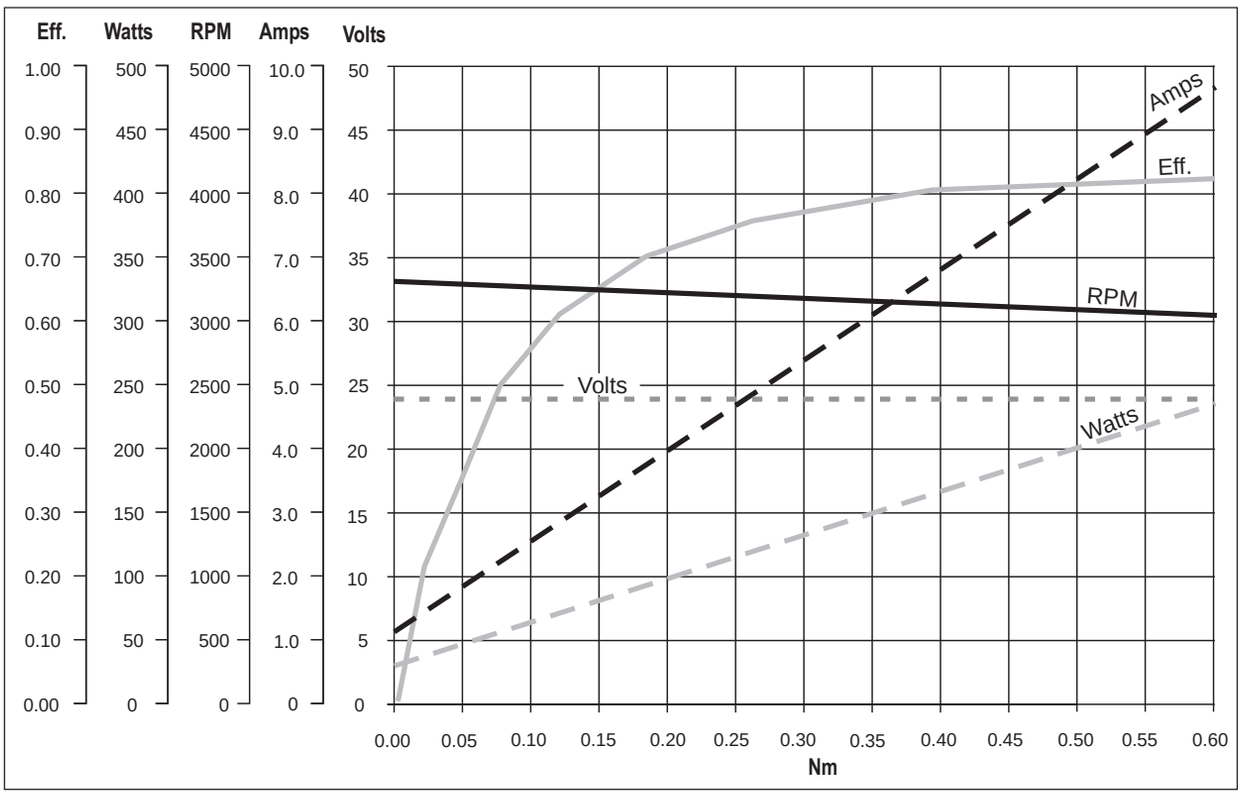
EC180.120 - EC180.240 - EC180.24E

Prestazioni *Performances*

EC180.120



EC180.240 - EC180.24E



EC350.120 - EC350.240

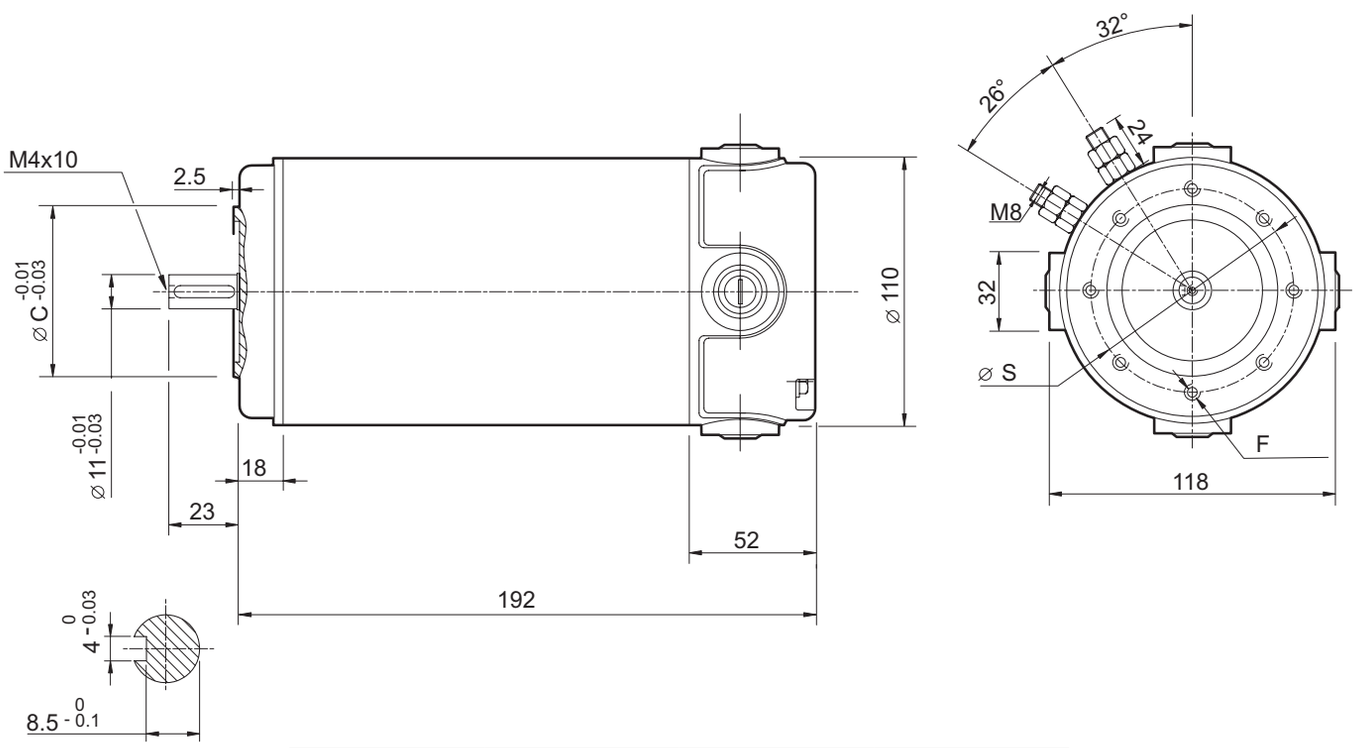
Caratteristiche / *Features*

Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 110 mm
Potenza	500 W S2 (350 W S1)
Magneti	4
Supporti	Cuscinetti a sfera
Fori di montaggio	8
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 4 di composto grafite-rame
Dimensione spazzole	LxPxH = 18.9 x 9.5 x 16.7 mm
Terminali	2 con dadi di fissaggio

Construction	*Tubular, without fan*
Size	*Ø 110 mm*
Power	*500 W S2 (350 W S1)*
Magnets	*4*
Bearings	*Ball bearings*
Mounting holes	*8*
Power supply	*Low voltage, 12 or 24 Vdc*
Brushes	*4 brushes made of graphite/copper composite*
Brushes size	*LxPxH = 18.9 x 9.5 x 16.7 mm*
Leads terminals	*2, with double nut*

Tipo Type	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC350.120	**S1**	350	12	42	F	1	1.12	3000	44	5.1
	S2 30'	500		58.8			1.57			
EC350.240	**S1**	350	24	21			1.12			5.3
	S2 30'	500		29.4			1.57			

Dimensioni / *Dimensions*



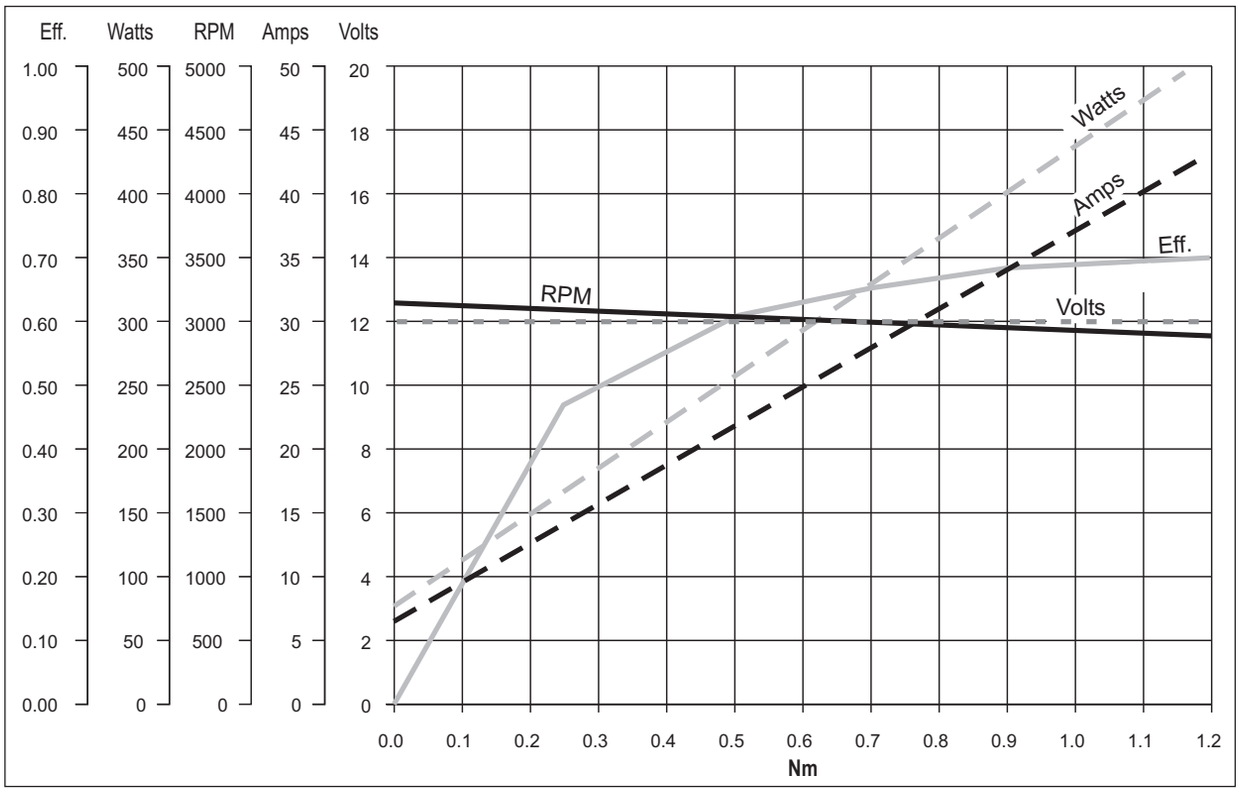
63 B14		71 B14*	
S	75	**S**	85
C (-0.03 / -0.01)	60	**C** (-0.03 / -0.01)	70
F	8 - M5	**F**	8 - M6

* Usare boccola 11/14
** Use sleeve 11/14*

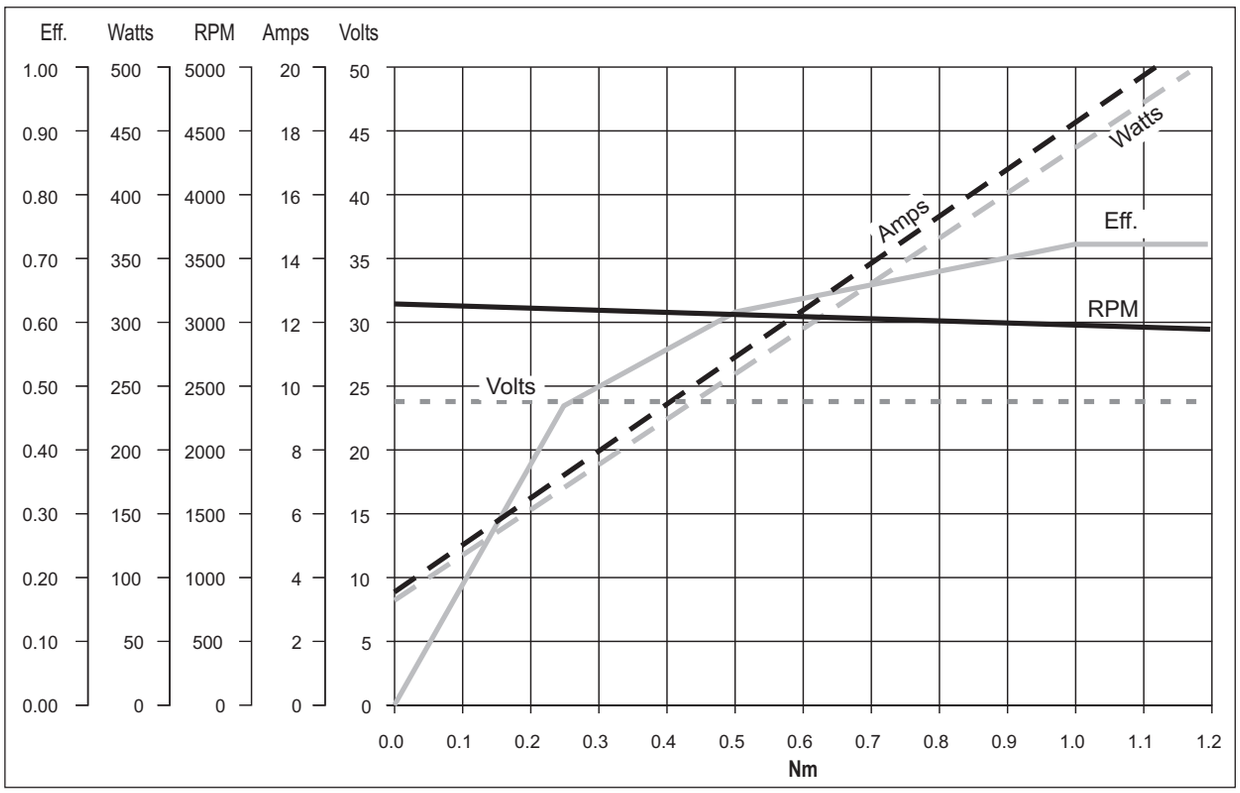
EC350.120 - EC350.240

Prestazioni ***Performances***

EC350.120



EC350.240



EC600.120 - EC600.240

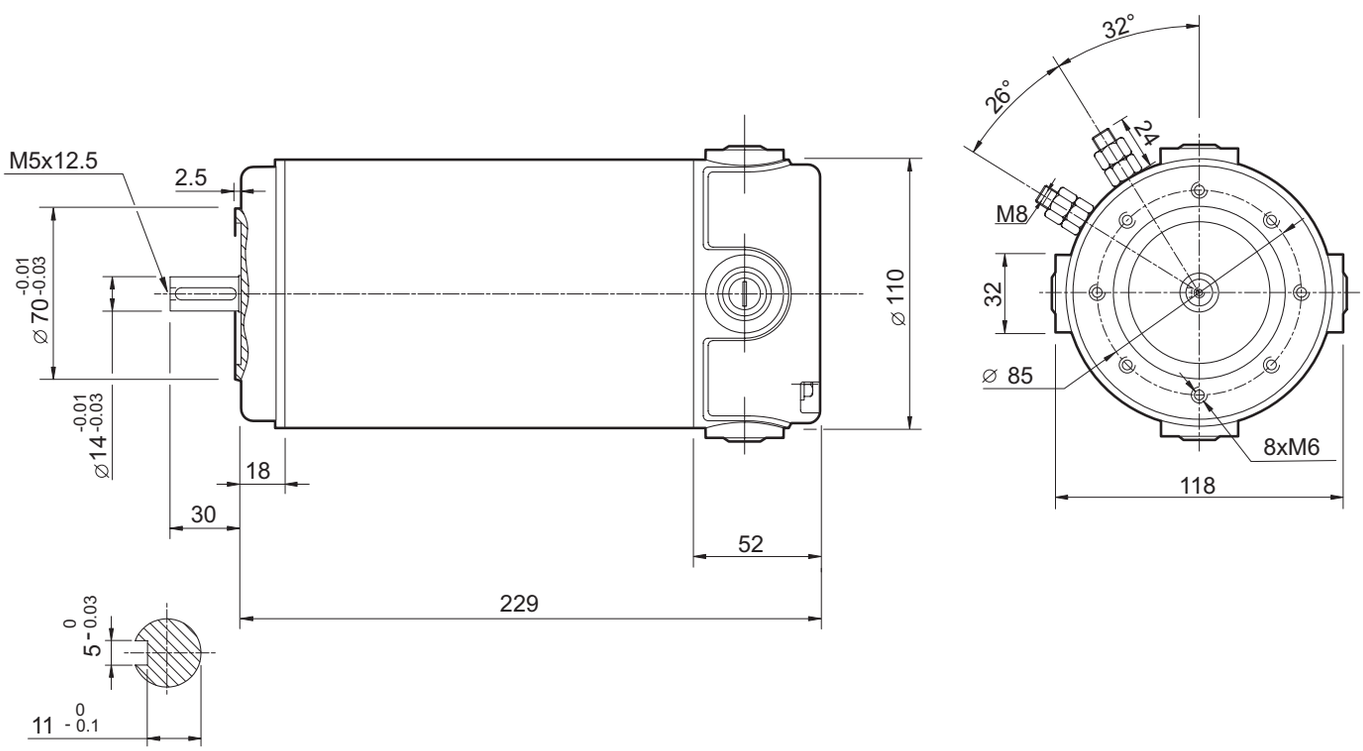
Caratteristiche / *Features*

Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 110 mm
Potenza	800 W S2 (600 W S1)
Magneti	4
Supporti	Cuscinetti a sfera
Fori di montaggio	8
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 4 di composto grafite-rame
Dimensione spazzole	LxPxH = 18.9 x 9.5 x 16.7 mm
Terminali	2 con doppio dado di fissaggio

Construction	*Tubular, without fan*
Size	*Ø 110 mm*
Power	*800 W S2 (600 W S1)*
Magnets	*4*
Bearings	*Ball bearings*
Mounting holes	*8*
Power supply	*Low voltage, 12 or 24 Vdc*
Brushes	*4 brushes made of graphite/copper composite*
Brushes size	*LxPxH = 18.9 x 9.5 x 16.7 mm*
Leads terminals	*2, with double nut*

Tipo Type	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC600.120	**S1**	600	12	71	F	1	1.91	3000	44	6.6
	S2 30'	800		94.4			2.54			
EC600.240	**S1**	600	24	35.5			1.91			7.1
	S2 30'	800		47.2			2.54			

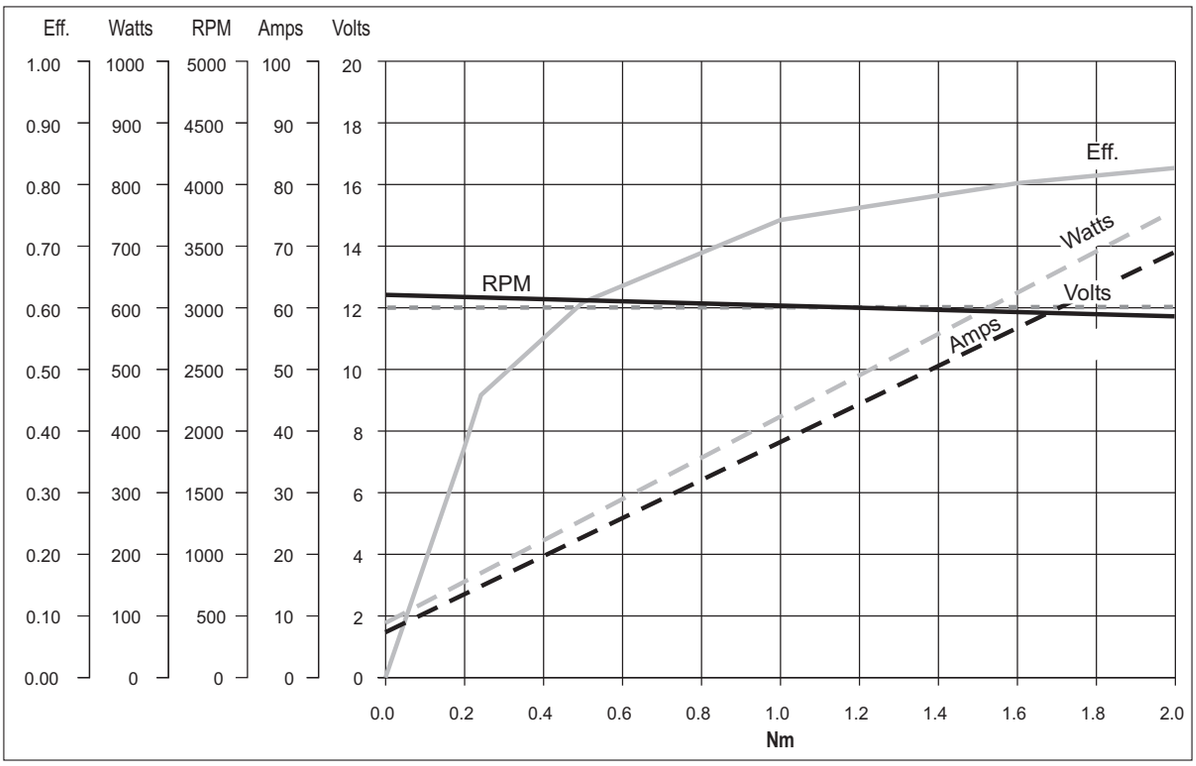
Dimensioni / *Dimensions*



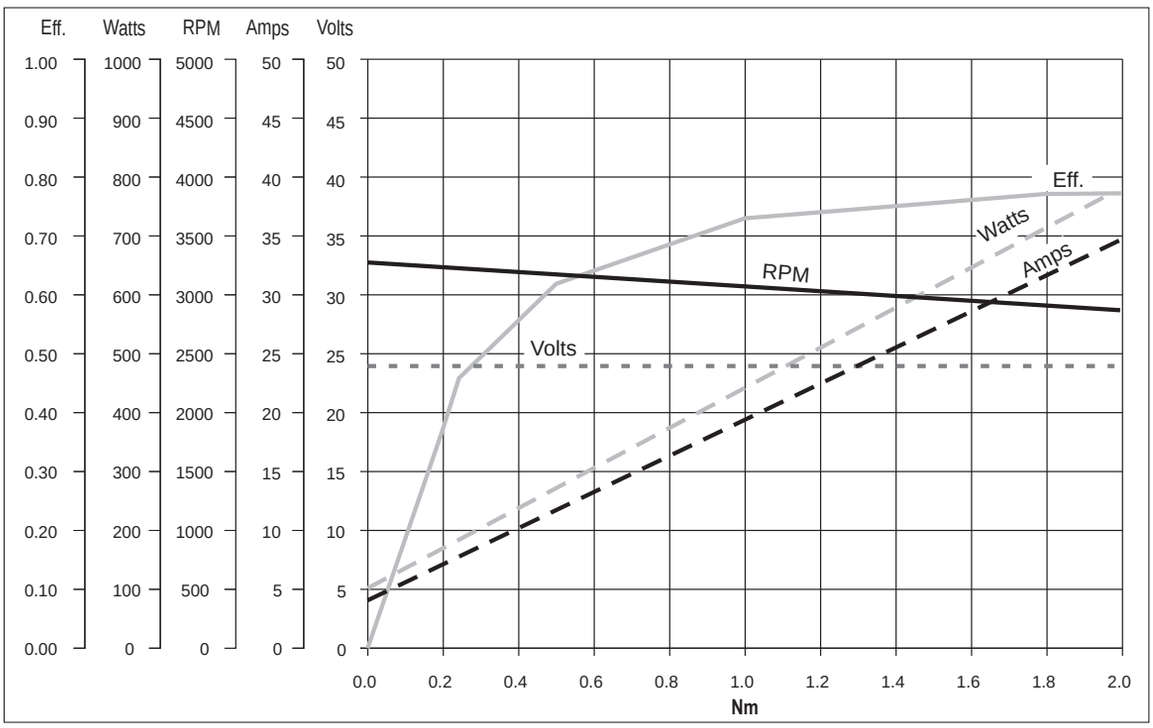
EC600.120 - EC600.240

Prestazioni ***Performances***

EC600.120



EC600.240

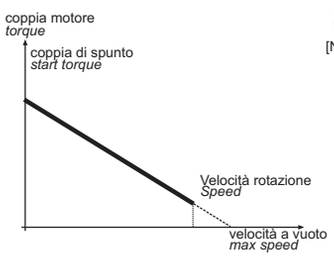


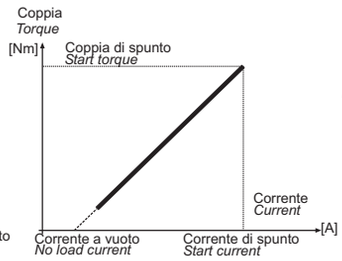
Legenda / Glossario dei grafici

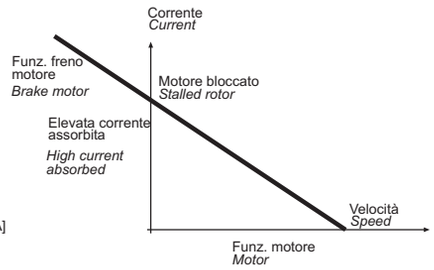
Key / Diagram Glossary

Dato un motore in C.C, la velocità di rotazione è funzione lineare della coppia; così pure la corrente assorbita è una funzione lineare della coppia.

With a D.C. motor, the rotational speed is a linear function of the torque. In the same way, the absorbed current is also a linear function of the torque.





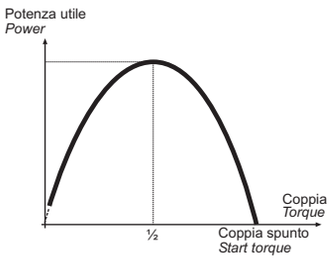


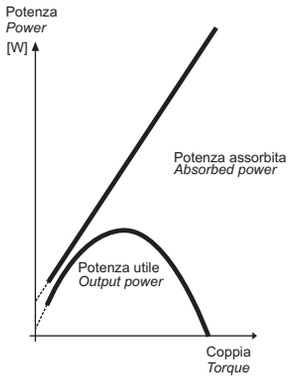
La potenza utile (potenza all' albero) si ricava dalla formula:

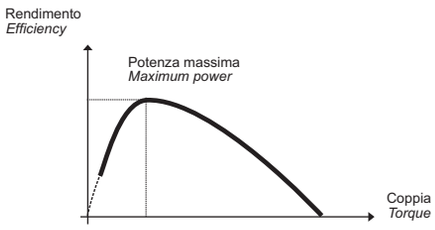
$$Pn\ [W] = Mn \cdot S = \frac{2\pi}{60} \cdot n_1 \cdot Mn$$

The output power is calculated using the formula:

$$Pn\ [W] = Mn \cdot S = \frac{2\pi}{60} \cdot n_1 \cdot Mn$$







Poiché la tensione di alimentazione è costante mentre la corrente è linearmente crescente al crescere della coppia l' andamento della potenza assorbita è un retta crescente. Dal rapporto tra la potenza meccanica e la potenza assorbita si ottiene il grafico dell'efficienza.

Since the supply voltage is constant, whereas the current increases in a linear manner as the torque increases, the absorbed power trend is a straight line going up. Efficiency is shown from the ratio between the output power and the absorbed power.

Formule utili

Useful formulas

$$\eta = \frac{Pn}{Pa}$$

$$Pa = V \cdot I$$

$$Pn = V \cdot I \cdot \eta$$

$$Pn = Mn \cdot Sv$$

$$Sv = \frac{n_1}{9.55}$$

[HP] · 746 = [W].
Esempio 2 HP = circa 1500 W.

$$\eta = \frac{Pn}{Pa}$$

$$Pa = V \cdot I$$

$$Pn = V \cdot I \cdot \eta$$

$$Pn = Mn \cdot Sv$$

$$Sv = \frac{n_1}{9.55}$$

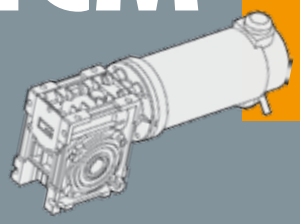
[HP] · 746 = [W].
Example 2 HP = approx. 1500 W.

S	—	Servizio	*Duty*
Pn	[W]	Potenza in uscita	*Rated power*
Pa	[W]	Potenza assorbita	*Absorbed power*
Mn	[Nm]	Coppia nominale	*Rated torque*
V	[V]	Tensione	*Voltage*
I	[A]	Corrente assorbita	*Absorbed current*
n1	[min-1]	Numero giri motore	*Motor speed*
Sv	[rad/s]	Velocità angolare	*Angular speed*
IC	—	Classe d'isolamento termico	*Thermal insulation class*
FF	—	Fattore di forma	*Form factor*
IP	—	Classe di protezione	*protection class*
η	—	Rendimento	*Efficiency*
Kg	—	Peso	*Weight*

TRANSTECNO™

THE MODULAR GEARMOTOR

ECM



MOTORIDUTTORI C.C. A VITE SENZA FINE

PERMANENT MAGNETS D.C. WORMGEARMOTORS

TRANSTECNO • GENUINE • PRODUCTS

Indice	*Index*	Pag. *Page*

Caratteristiche tecniche / *Technical features*

Le caratteristiche principali dei motoriduttori a corrente continua della serie ECM sono:

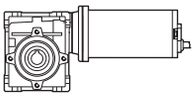
- Alimentazione in bassa tensione 12/24 Vcc
- Possibilità di montaggio encoder
- Potenza motore disponibili da 30 a 800W S2
- Magneti in ferrite
- Carcasse dei riduttori in pressofusione di alluminio
- Lubrificazione permanente con olio sintetico.

The main features of ECM D.C. gearmotors range are:

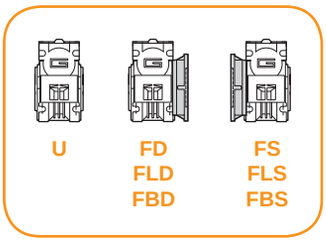
- *Low voltage power supply 12/24 Vdc*
- *Suitable for encoder assembly*
- *Motor power ratings available from 30 to 800W S2*
- *Ferrite magnets*
- *Die-cast aluminum housing*
- *Permanent synthetic oil long-life lubrication.*

Designazione / *Designation*

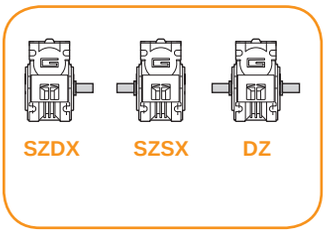
MOTORIDUTTORE / *GEARMOTOR*

ECM	070/026					U	10	SZDX	BRSX	90	240	VS
Tipo *Type*	Grandezza *Size*					Versione Riduttore *Gearbox Version*	Rapporto *Ratio*	Albero di uscita *Output shaft*	Braccio di reazione *Torque arm*	Angolo *Angle*	Versione Motore *Motor Version*	Opzioni *Options*
ECM 	070/026 070/030	100/026 100/030 100/040	180/026 180/030 180/040 180/050	350/030 350/040 350/050	600/040 600/050 600/063	U FD FS FLD FLS FBD FBS	Vedere tabella *See tables*	SZDX SZSX DZ	BRDX BRSX	0° 90° 180° 270°	120 240 24E	VS

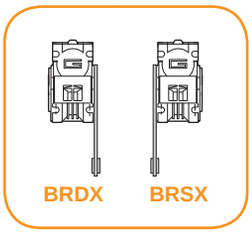
Versione Riduttore
Gearbox Version



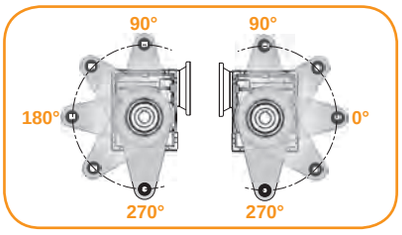
Albero di uscita
Output shaft



Braccio di reazione
Torque arm



Angolo
Angle



Simbologia / *Symbols*

n_1	[min^{-1}]	Velocità in ingresso / *Input speed*
n_2	[min^{-1}]	Velocità in uscita / *Output speed*
i		Rapporto di riduzione / *Ratio*
P_1	[kW]	Potenza in entrata / *Input power*
M_2	[Nm]	Coppia in uscita in funzione di P_1 / *Output torque referred to P_1*
sf		Fattore di servizio / *Service factor*

Rd	%	Rendimento dinamico / *Dynamic efficiency*
A_2	N]	Carico assiale ammissibile in uscita / *Permitted output axial load*
Rs	%	Rendimento statico / *Static efficiency*
R_2	[N]	Carico radiale ammissibile in uscita / *Permitted output radial load*
Z		Numero di principi della vite / *Worm starts*
β		Angolo d'elica / *Helix angle*

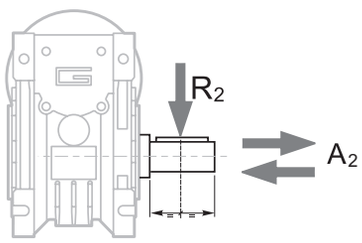
Lubrificazione — *Lubrication*

I riduttori a vite senza fine della serie CM sono lubrificati a vita con olio sintetico di viscosità 320 e possono essere installati in qualunque posizione di montaggio.

Permanent synthetic oil long-life lubrication allow to use CM wormgearbox range in all mounting position.

	Quantità di olio (litri) / ***Oil quantity*** *(liters)*						
	B3	**B8**	**B6**	**B7**	**V5**	**V6**	
CM026	0.02						Lubrificazione a vita *Life lubricated*
CM030	0.04						
CM040	0.08						
CM050	0.15						
CM063	0.30						

Carichi radiali — *Radial loads*

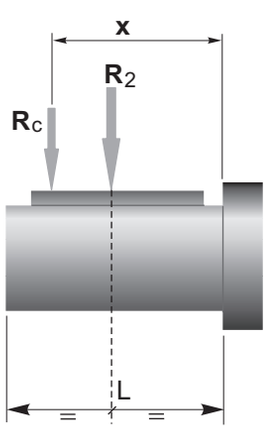


$A_2 = R_2 \times 0.2$

n_2 [min^{-1}]	R_2 [N]				
	CM026	**CM030**	**CM040**	**CM050**	**CM063**
187	400	674	1264	1770	2445
140	490	743	1392	1949	2692
93	580	851	1596	2234	3085
70	610	936	1754	2456	3392
56	610	1008	1890	2646	3654
47	610	1069	2004	2805	3874
35	610	1179	2210	3095	4273
28	610	1270	2381	3334	4603
23	610	1356	2542	3559	4915
18	610	1471	2759	3862	5334
14	610	1600	3000	4200	5800

Quando il carico radiale risultante non è applicato sulla mezzeria dell'albero occorre calcolare quello effettivo con la seguente formula:

When the resulting radial load is not applied on the centre line of the shaft it is necessary to calculate the effective load with the following formula:



$$R_c = \frac{R_2 \cdot a}{(b+x)} \leq R_{2MAX}$$

$$R \leq R_c$$

a, b = valori riportati nella tabella
a, b = values given in the table

	CM				
	026	**030**	**040**	**050**	**063**
a	56	65	84	101	120
b	43	50	64	76	95
R_{2MAX}	610	1600	3000	4200	5800

Dati di dentatura — *Toothing data*

	Dati della coppia vite-corona Worm wheel data	Rapporto / *Ratio*											
		5	**7.5**	**10**	**15**	**20**	**25**	**30**	**40**	**50**	**60**	**80**	**100**
CM026	Z	6	4	3	2	2		1	1	1	1		
	β	34° 35'	24° 41'	19° 1'	12° 57 '	10° 30'		6° 33'	5° 17'	4° 26'	3°49'		
CM030	Z	6	4	3	2	2	2	1	1	1	1	1	1
	β	27° 4'	24° 28'	18° 50'	12° 49'	10° 23'	8° 43'	6° 29'	5° 14'	4° 23'	3° 46'	2° 57'	2° 25'
CM040	Z	6	4	3	2	2	2	1	1	1	1	1	1
	β	34° 19'	24° 28'	18° 50'	12° 49'	10° 23'	8° 43'	6° 29'	5° 14'	4° 23'	3°46'	2° 57'	2° 25'
CM050	Z		4	3	2	2	2	1	1	1	1	1	1
	β		23° 54'	18° 23'	12° 29'	10° 6'	8° 28'	6° 19'	5° 5'	4° 15'	3° 39'	2°51'	2° 20'
CM063	Z		4	3	2	2	2	1	1	1	1	1	1
	β		24° 31'	18° 53'	12° 50'	10° 24'	8° 44'	6° 30'	5° 14'	4° 23'	3° 47'	2° 57'	2° 25'

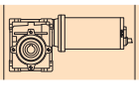
Rendimento — *Efficiency*

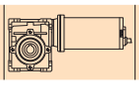
	n_1 [min^{-1}]	Rendimento Efficiency	Rapporto / *Ratio*											
			5	**7.5**	**10**	**15**	**20**	**25**	**30**	**40**	**50**	**60**	**80**	**100**
CM026	2800	Rd	89	87	85	83	80		73	68	64	60		
	1400		87	84	83	78	74		66	61	57	53		
	900		84	83	80	75	71		61	57	52	48		
		Rs	72	71	68	61	56		46	41	36	34		
CM030	2800	Rd	89	88	86	84	81	78	74	70	65	62	57	52
	1400		86	85	84	79	75	72	67	62	58	55	48	43
	900		84	83	81	75	71	68	62	58	53	49	43	39
		Rs	72	67	63	55	50	43	39	35	31	27	23	21
CM040	2800	Rd	90	89	87	84	83	80	77	73	69	66	60	56
	1400		88	86	84	81	78	74	70	65	60	58	52	46
	900		86	84	82	77	74	70	66	60	57	53	46	41
		Rs	74	71	67	60	55	51	45	40	36	32	28	24
CM050	2800	Rd		90	88	86	84	82	78	74	71	68	62	58
	1400			87	85	82	79	76	72	67	63	60	54	49
	900			85	84	79	75	72	68	62	59	55	48	43
		Rs		70	66	59	55	51	44	39	35	32	27	23
CM063	2800	Rd		90	88	86	84	83	79	76	73	70	65	60
	1400			88	86	84	81	78	75	70	66	63	57	52
	900			86	84	81	78	75	70	65	61	58	52	47
		Rs		71	67	60	55	51	45	40	36	33	28	24

Rendimento teorico del riduttore dopo il rodaggio
Theoretical efficiency of the gearbox after the first running period

Dati tecnici per servizio S2

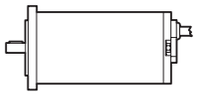
Technical data for S2 duty

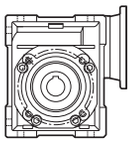
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
100						
(3000 min^{-1})	**600**	1.4	7.1	5	**ECM070/026**	120/240
	400	2.1	5.3	7.5		
	300	2.7	4.1	10		
	200	4.0	2.8	15		
	150	5.1	2.2	20		
	100	7.0	1.7	30		
	75	8.7	1.3	40		
	60	10	1.0	50		
	50	11	0.8	60		
	600	1.4	9.2	5	**ECM070/030**	120/240
	400	2.1	7.1	7.5		
	300	2.7	5.8	10		
	200	4.0	4.0	15		
	150	5.2	2.7	20		
	120	6.2	2.4	25		
	100	7.1	2.5	30		
	75	8.9	1.8	40		
	60	10	1.4	50		
	50	12	1.2	60		
	38	15	0.8	80		
	30	17	0.7	100		
140						
(3000 min^{-1})	**600**	2.0	5.0	5	**ECM100/026**	120/240/24E
	400	2.9	3.8	7.5		
	300	3.8	2.9	10		
	200	5.5	2.0	15		
	150	7.1	1.5	20		
	100	10	1.2	30		
	75	12	0.9	40		
	60	14	0.7	50		
	50	13	0.7	60		
	200	5.6	2.8	15	**ECM100/030**	120/240/24E
	150	7.2	1.9	20		
	120	8.7	1.7	25		
	100	10	1.8	30		
	75	12	1.3	40		
	60	14	1.0	50		
	50	17	0.8	60		
	38	20	0.6	80		
	30	16	0.7	100		
	100	10	3.7	30	**ECM100/040**	120/240/24E
	75	13	2.6	40		
	60	15	2.1	50		
	50	18	1.6	60		
	38	21	1.3	80		
	30	25	1.0	100		
250						
(3000 min^{-1})	**600**	3.5	2.8	5	**ECM180/026**	120/240
	400	5.2	2.1	7.5		
	300	6.8	1.6	10		
	200	10	1.1	15		
	150	13	0.9	20		
	100	17	0.7	30		
	75	16	0.7	40		
	60	14	0.7	50		
	50	13	0.7	60		
	600	3.5	3.7	5	**ECM180/030**	120/240/24E
	400	5.3	2.9	7.5		
	300	6.8	2.3	10		
	200	10	1.6	15		
	150	13	1.1	20		
	120	16	1.0	25		
	100	18	1.0	30		
	75	22	0.7	40		
	60	21	0.7	50		
	50	20	0.7	60		
	38	17	0.7	80		
	30	16	0.7	100		
	200	10	3.5	15	**ECM180/040**	120/240/24E
	150	13	2.3	20		
	120	16	1.8	25		

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
250						
(3000 min^{-1})	**100**	18	2.1	30	**ECM180/040**	120/240/24E
	75	23	1.5	40		
	60	27	1.2	50		
	50	32	0.9	60		
	38	38	0.7	80		
	30	34	0.7	100		
	75	24	2.5	40	**ECM180/050**	120/240/24E
	60	28	2.0	50		
	50	32	1.6	60		
	38	39	1.2	80		
	30	46	0.9	100		
500						
(3000 min^{-1})	**600**	7.1	1.8	5	**ECM350/030**	120/240
	400	11	1.4	7.5		
	300	14	1.2	10		
	200	20	0.8	15		
	150	20	0.7	20		
	120	21	0.7	25		
	100	26	0.7	30		
	75	23	0.7	40		
	60	21	0.7	50		
	600	7.2	4.0	5	**ECM350/040**	120/240
	400	11	2.9	7.5		
	300	14	2.4	10		
	200	20	1.7	15		
	150	26	1.2	20		
	120	32	0.9	25		
	100	37	1.0	30		
	75	46	0.7	40		
	60	46	0.7	50		
	50	41	0.7	60		
	38	39	0.7	80		
	30	34	0.7	100		
	200	21	3.0	15	**ECM350/050**	120/240
	150	27	2.1	20		
	120	33	1.6	25		
	100	37	1.8	30		
	75	47	1.3	40		
	60	57	1.0	50		
	50	65	0.8	60		
	38	66	0.7	80		
	30	61	0.7	100		
800						
(3000 min^{-1})	**600**	11	2.5	5	**ECM600/040**	120/240
	400	17	1.8	7.5		
	300	22	1.5	10		
	200	32	1.1	15		
	150	42	0.7	20		
	120	40	0.7	25		
	100	54	0.7	30		
	75	49	0.7	40		
	400	17	3.3	7.5	**ECM600/050**	120/240
	300	22	2.7	10		
	200	33	1.9	15		
	150	43	1.3	20		
	120	52	1.0	25		
	100	60	1.1	30		
	75	75	0.8	40		
	60	81	0.7	50		
	50	74	0.7	60		
	38	66	0.7	80		
	200	33	3.5	15	**ECM600/063**	120/240
	150	43	2.4	20		
	120	53	1.8	25		
	100	60	2.1	30		
	75	77	1.4	40		
	60	93	1.1	50		
	50	107	0.9	60		
	38	132	0.7	80		
	30	114	0.7	100		

Motori applicabili

IEC Motor adapters



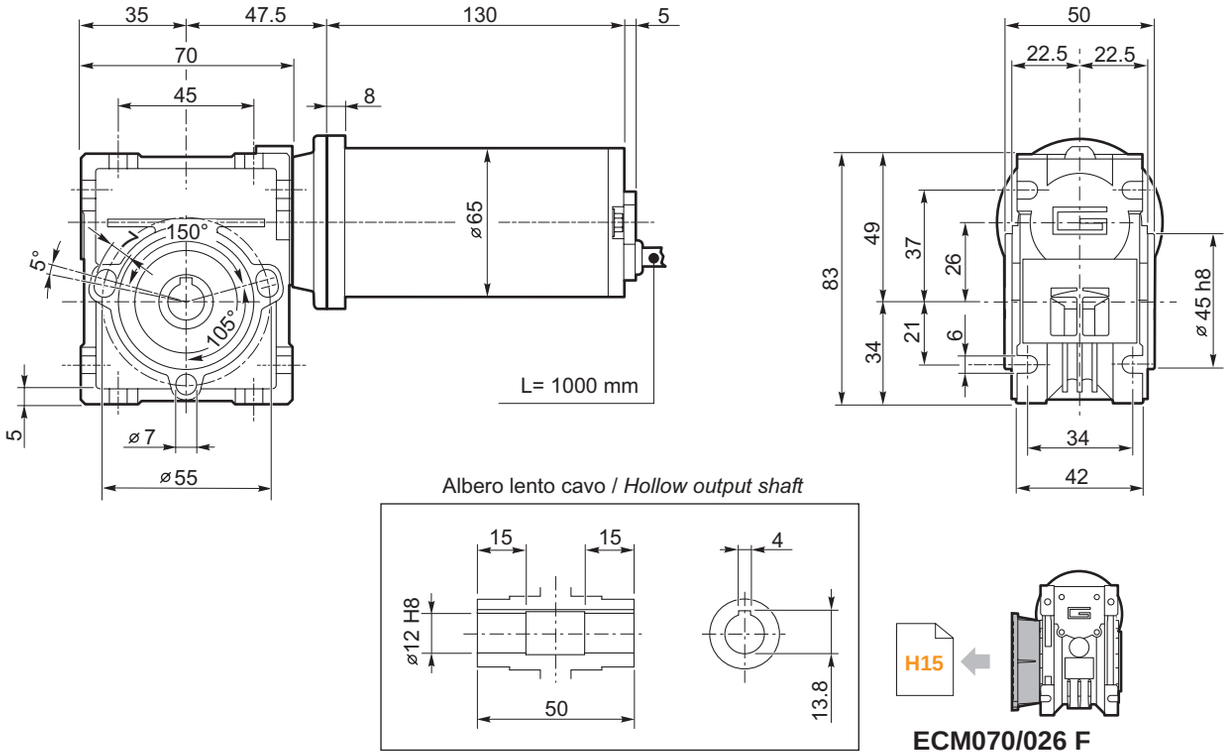


		EC						
		070.120 070.240	100.120 100.240	100.24E	180.120 180.240	180.24E	350.120 350.240	600.120 600.240
CM	026	5-60	5-60		5-60			
	030	5-100	5-100		5-100	5-50	5-50	
	040		5-100		5-100	5-100	5-100	5-40
	050				40-100	7.5-100	7.5-100	7.5-80
	063							7.5-100

5-100 Rapporti di riduzione i
Ratio i

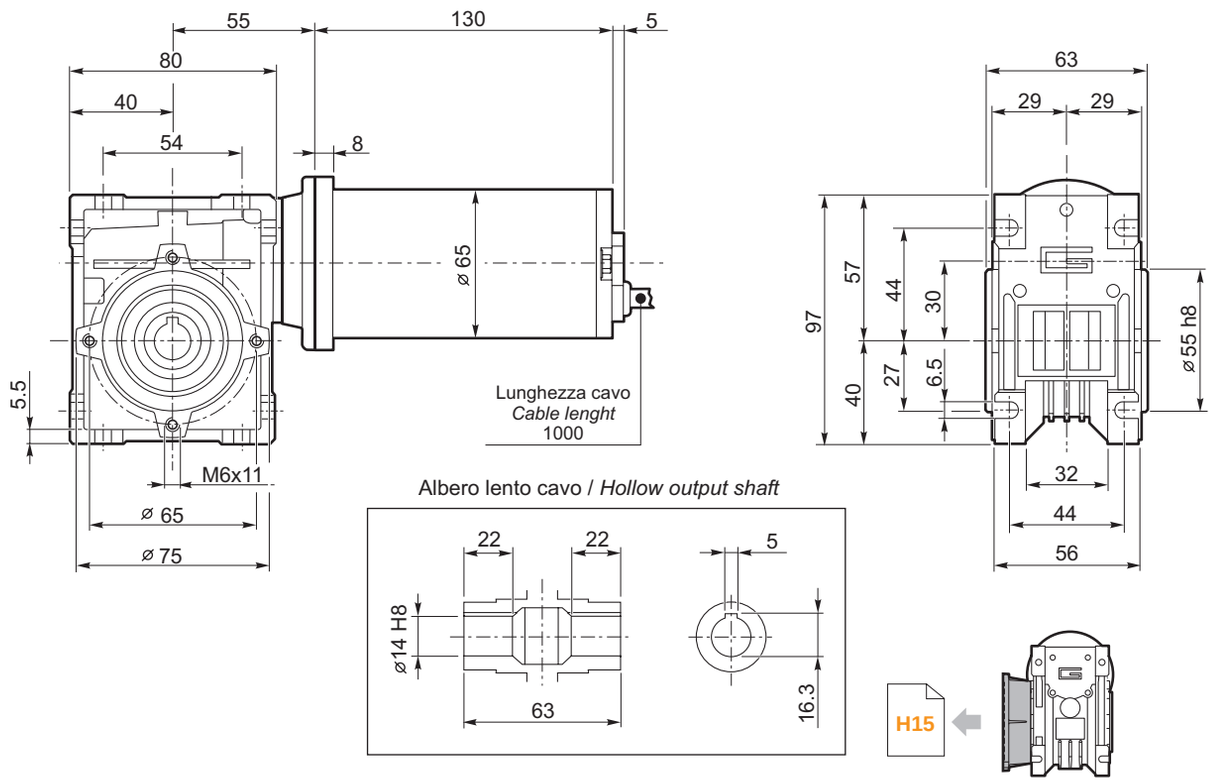
Dimensioni *Dimensions*

ECM070/026 U



ECM070/026 F

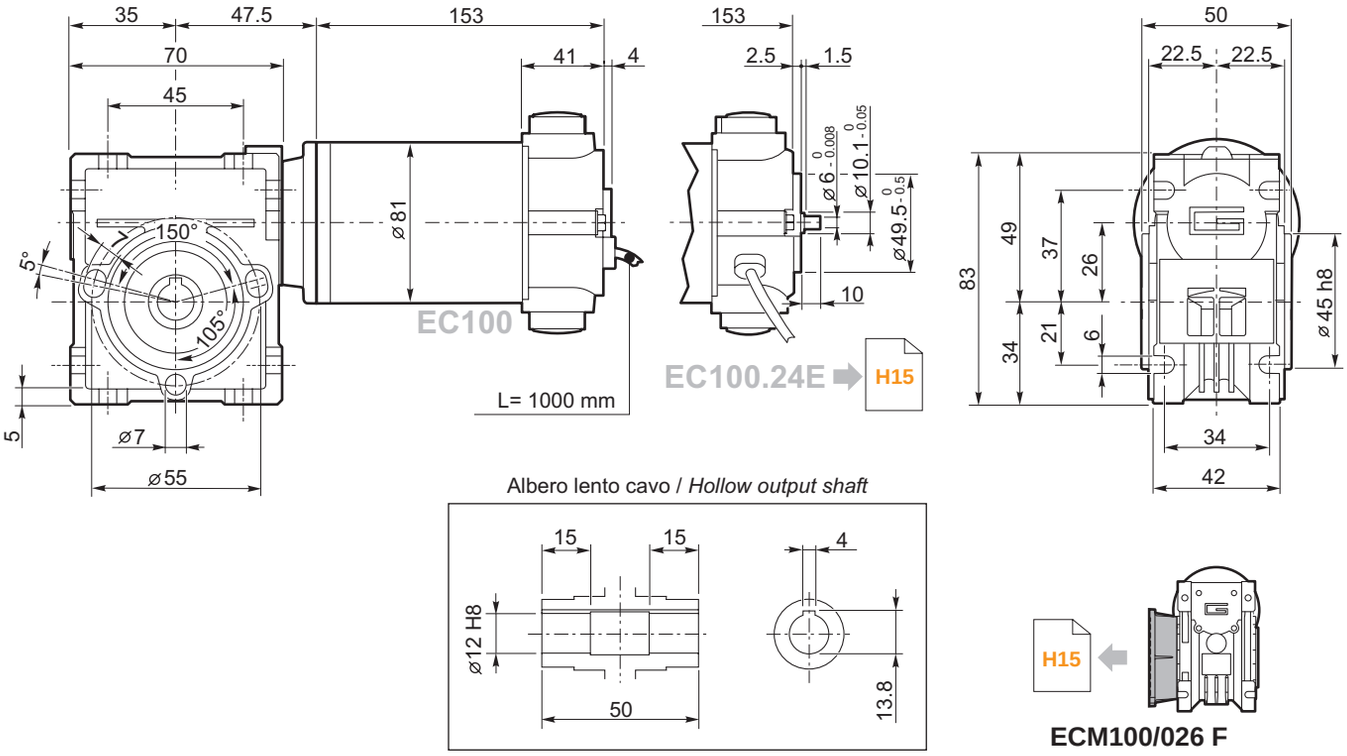
ECM070/030 U



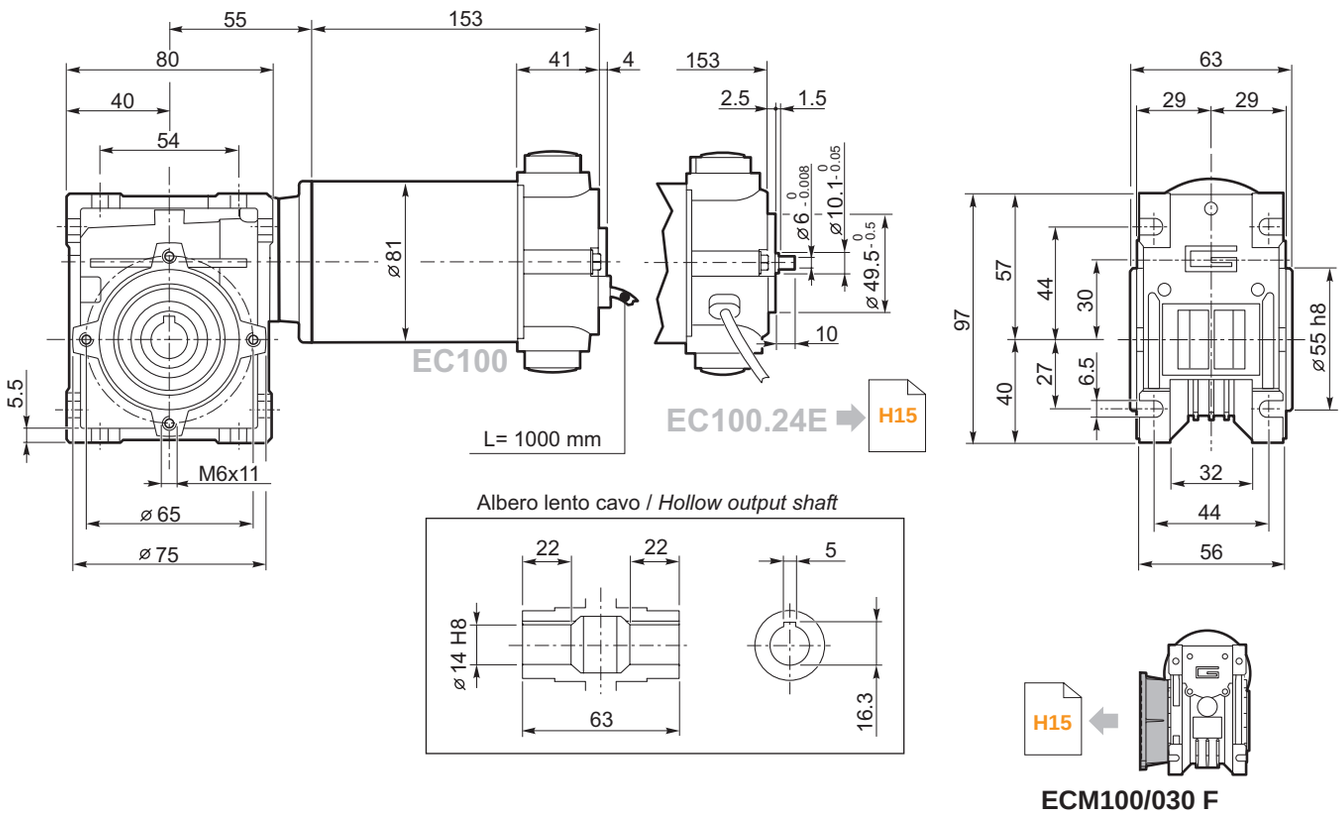
ECM070/030 F

Dimensioni *Dimensions*

ECM100/026 U

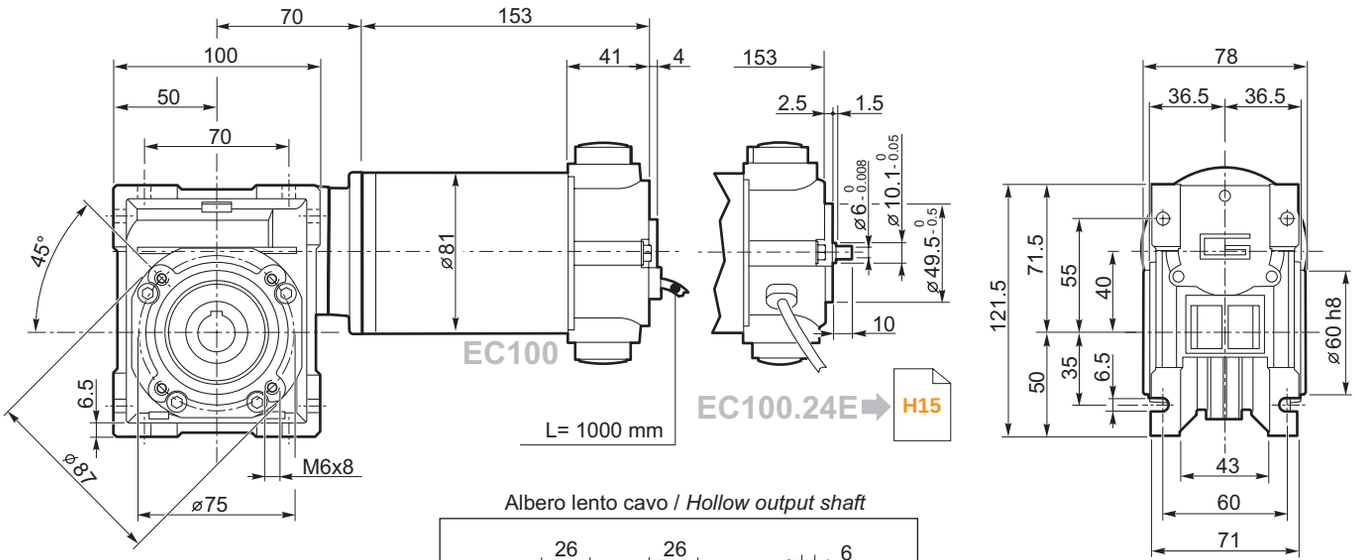


ECM100/030 U

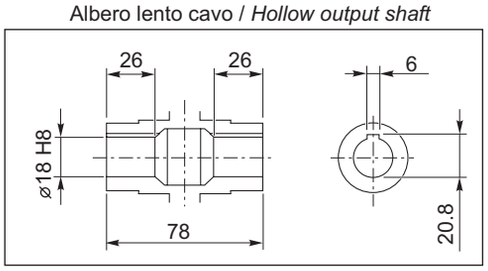


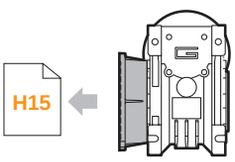
Dimensioni *Dimensions*

ECM100/040 U



Albero lento cavo / *Hollow output shaft*

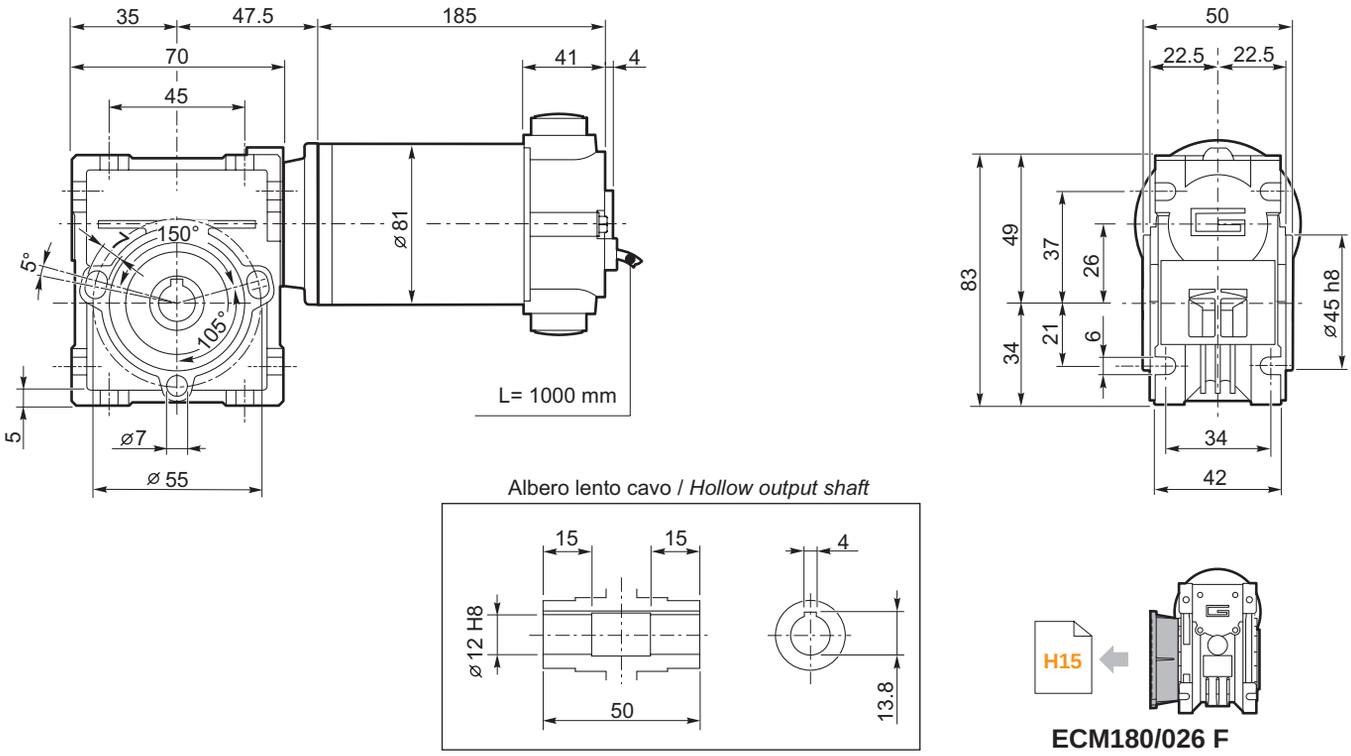




ECM100/040 F
ECM100/040 FL
ECM100/040 FB

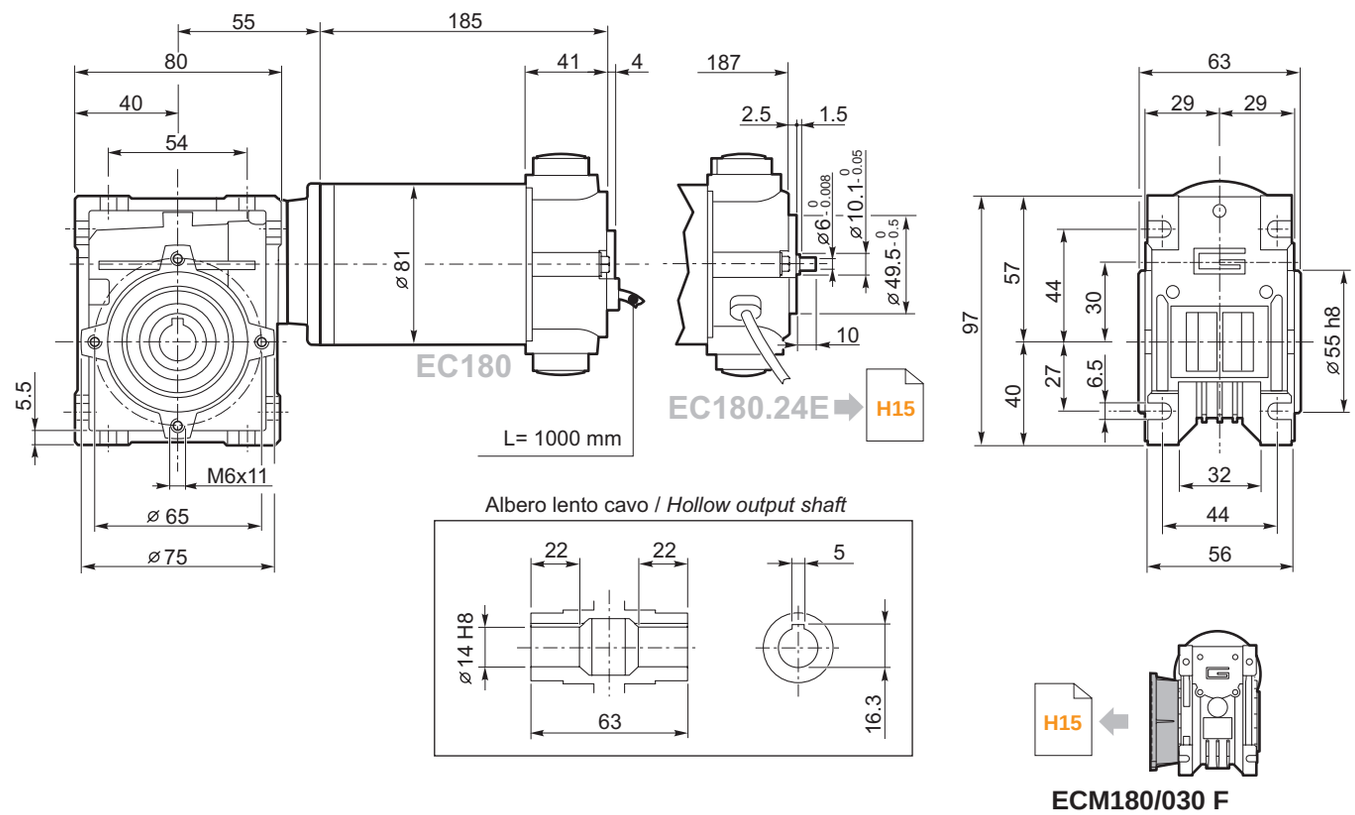
Dimensioni *Dimensions*

ECM180/026 U



ECM180/026 F

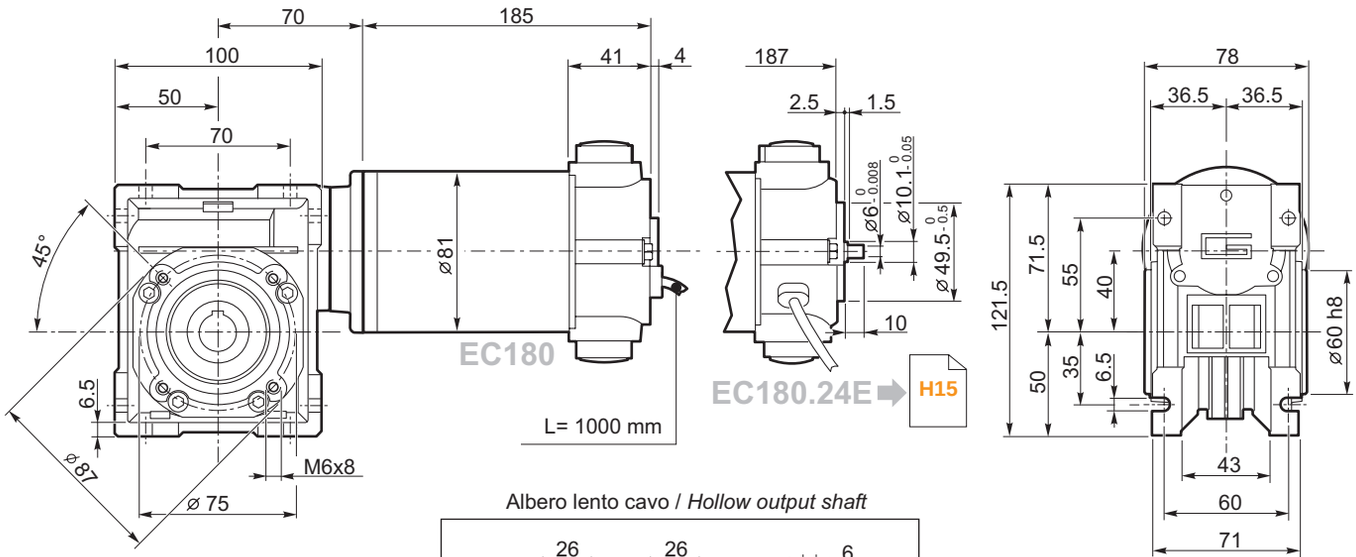
ECM180/030 U



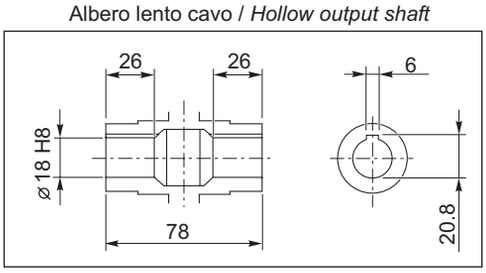
ECM180/030 F

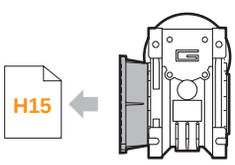
Dimensioni *Dimensions*

ECM180/040 U



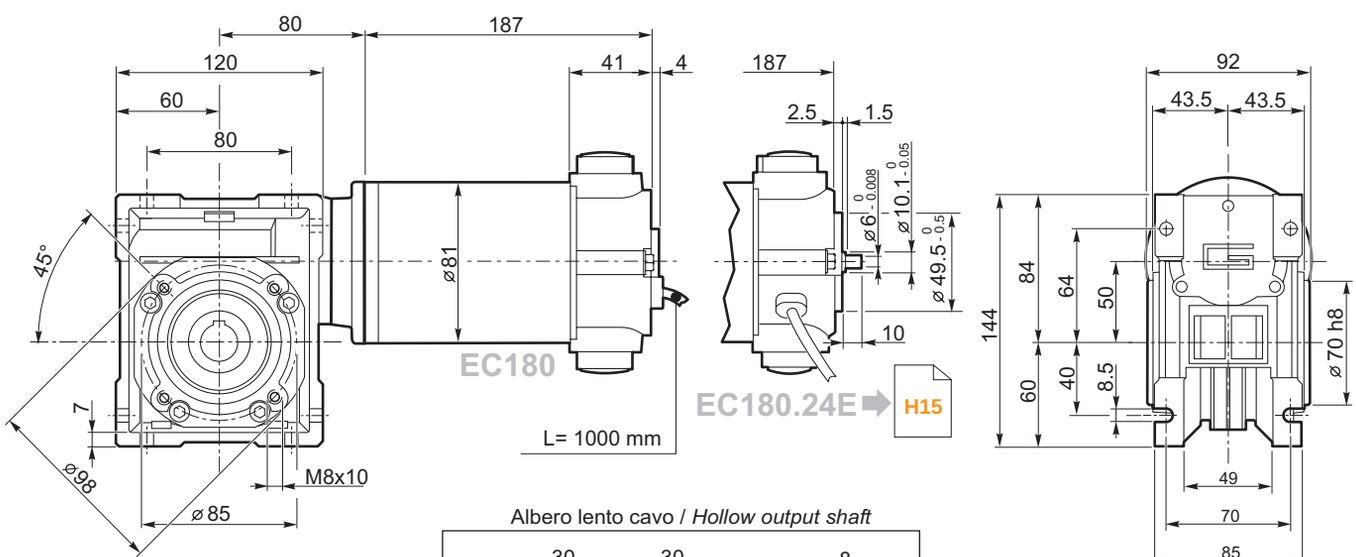
Albero lento cavo / *Hollow output shaft*



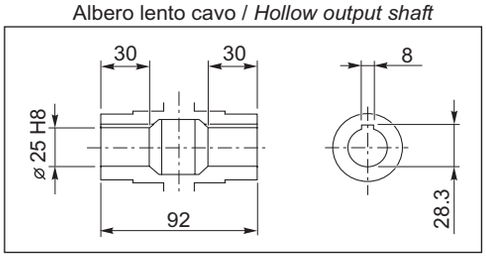


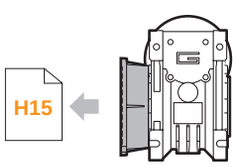
ECM180/040 F
ECM180/040 FL
ECM180/040 FB

ECM180/050 U



Albero lento cavo / *Hollow output shaft*

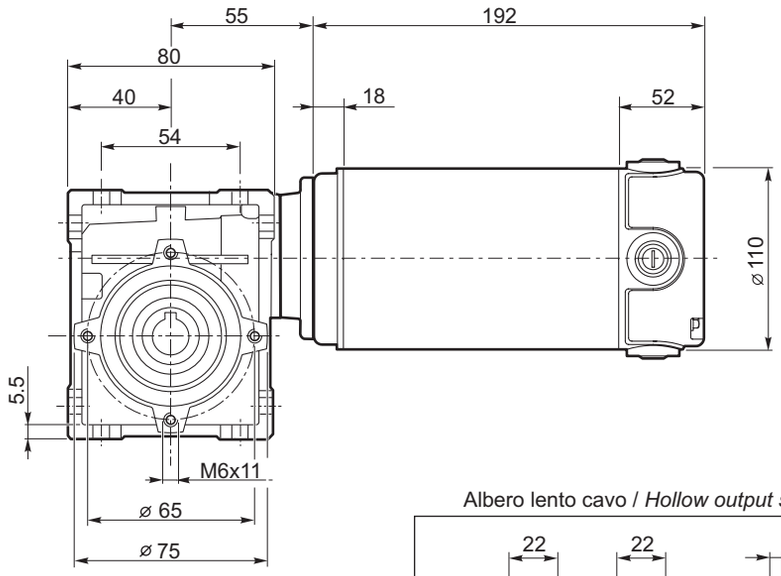


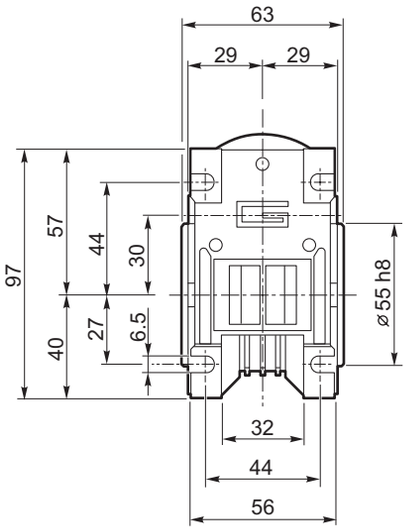


ECM180/050 F
ECM180/050 FL
ECM180/050 FB

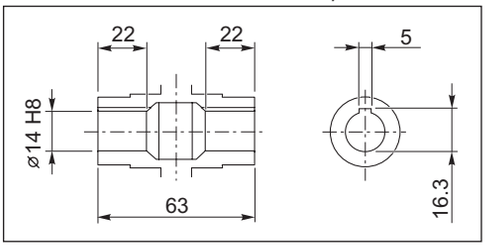
Dimensioni ***Dimensions***

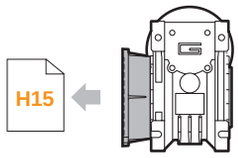
ECM350/030 U





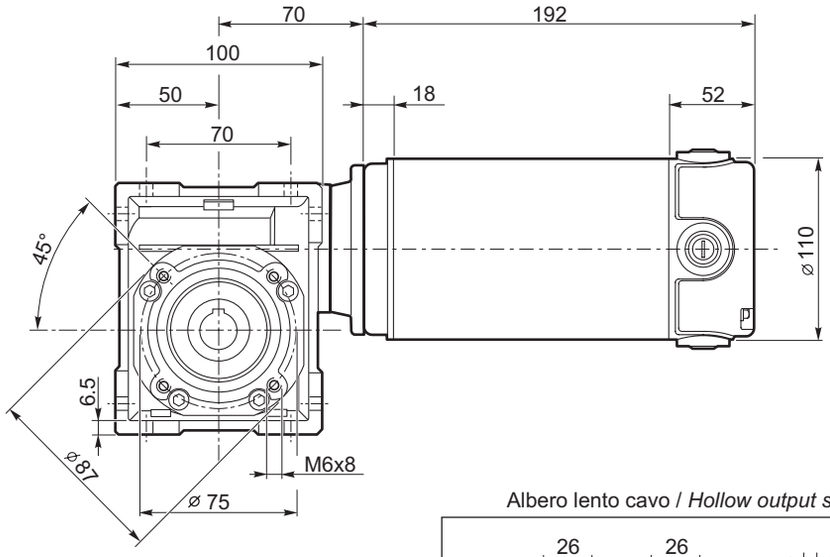
Albero lento cavo / *Hollow output shaft*

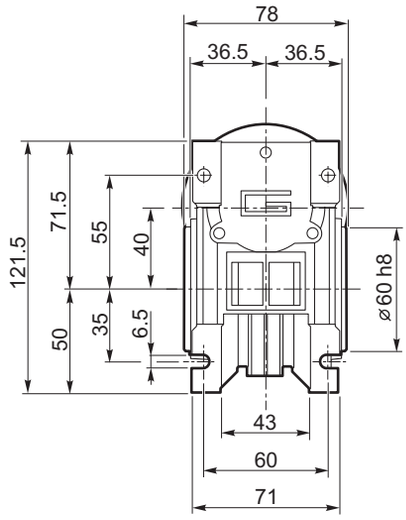




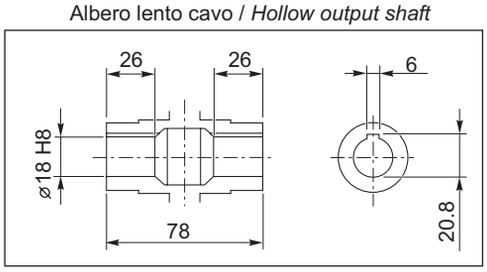
ECM350/030 F

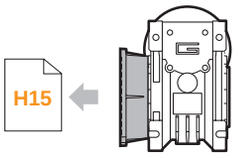
ECM350/040 U



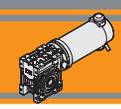


Albero lento cavo / *Hollow output shaft*



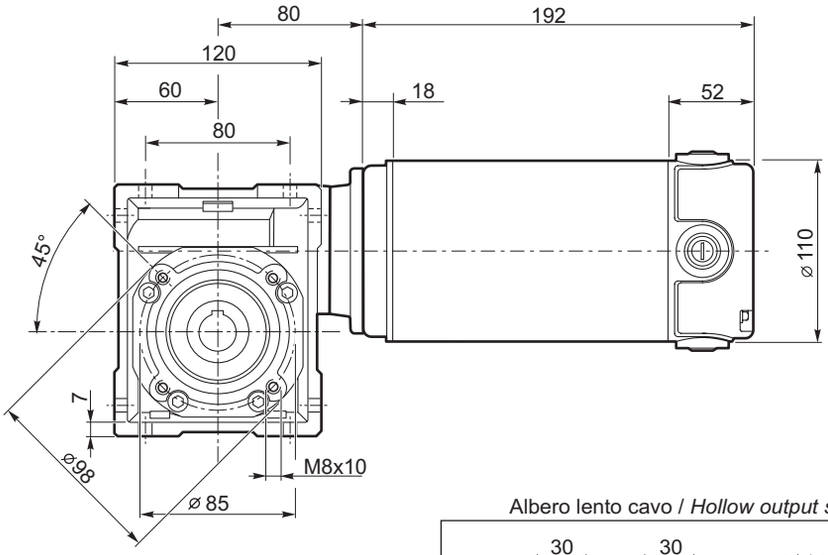


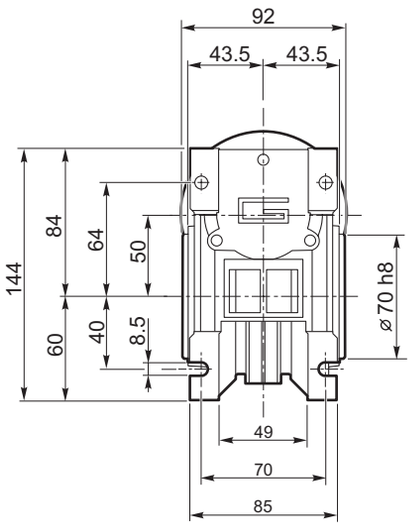
ECM350/040 F
ECM350/040 FL
ECM350/040 FB



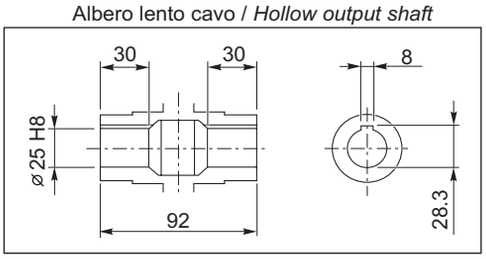
Dimensioni *Dimensions*

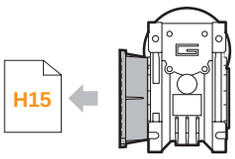
ECM350/050 U





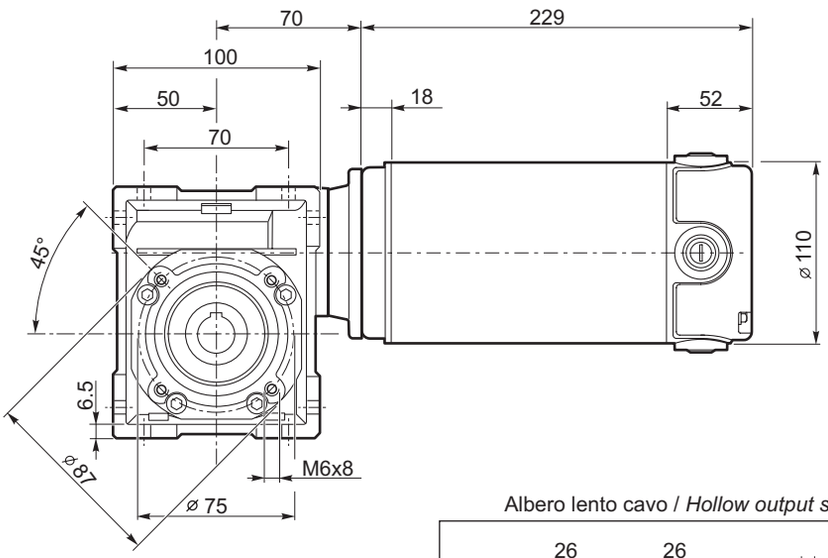
Albero lento cavo / *Hollow output shaft*

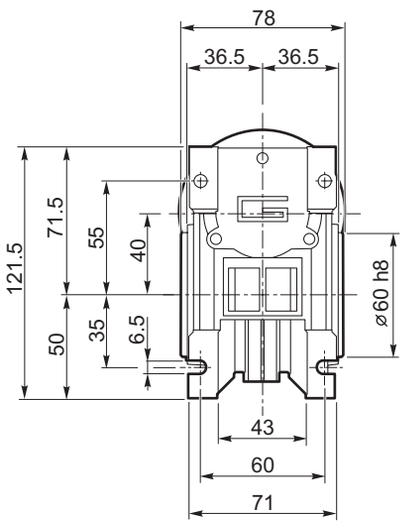




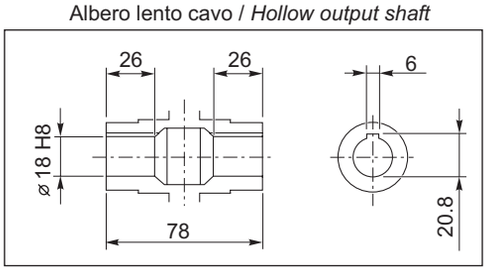
ECM350/050 F
ECM350/050 FL
ECM350/050 FB

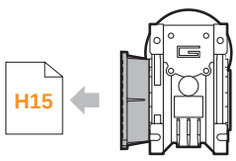
ECM600/040 U





Albero lento cavo / *Hollow output shaft*

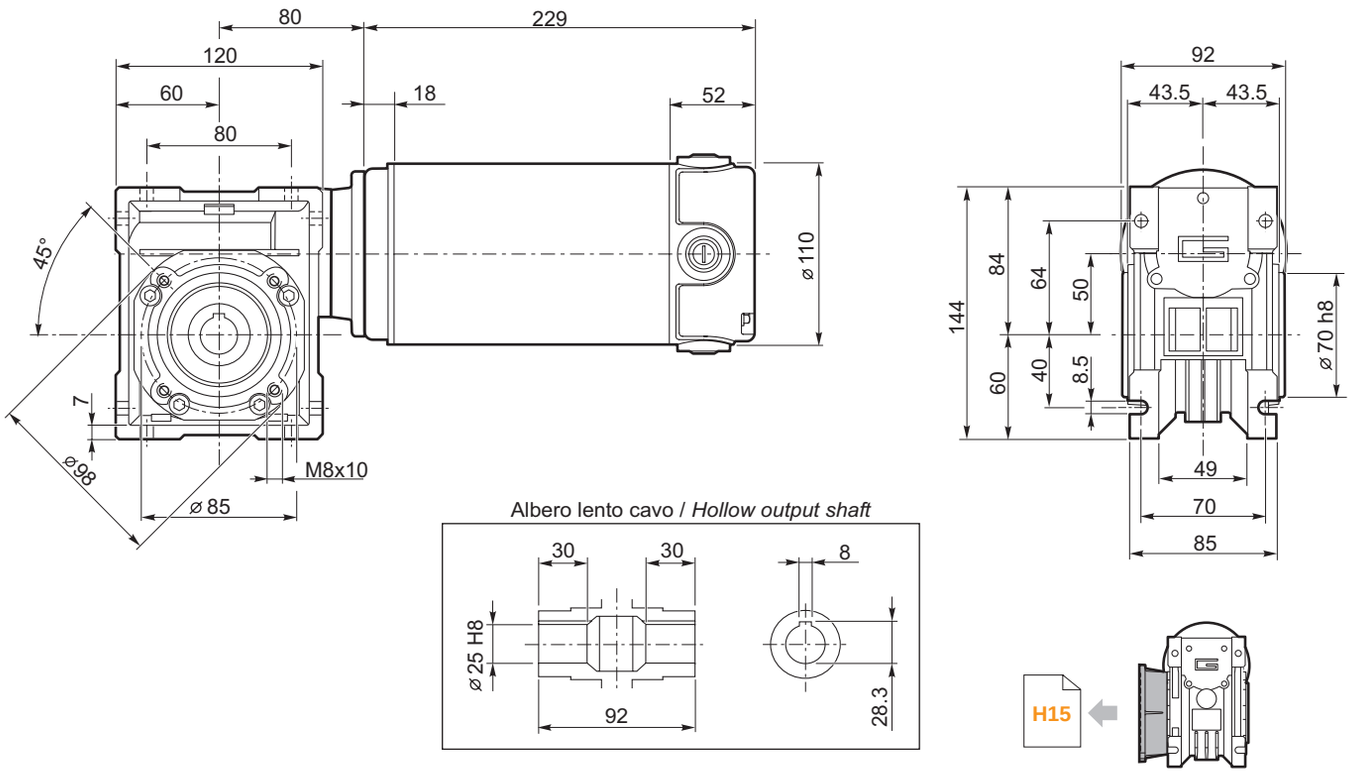




ECM600/040 F
ECM600/040 FL
ECM600/040 FB

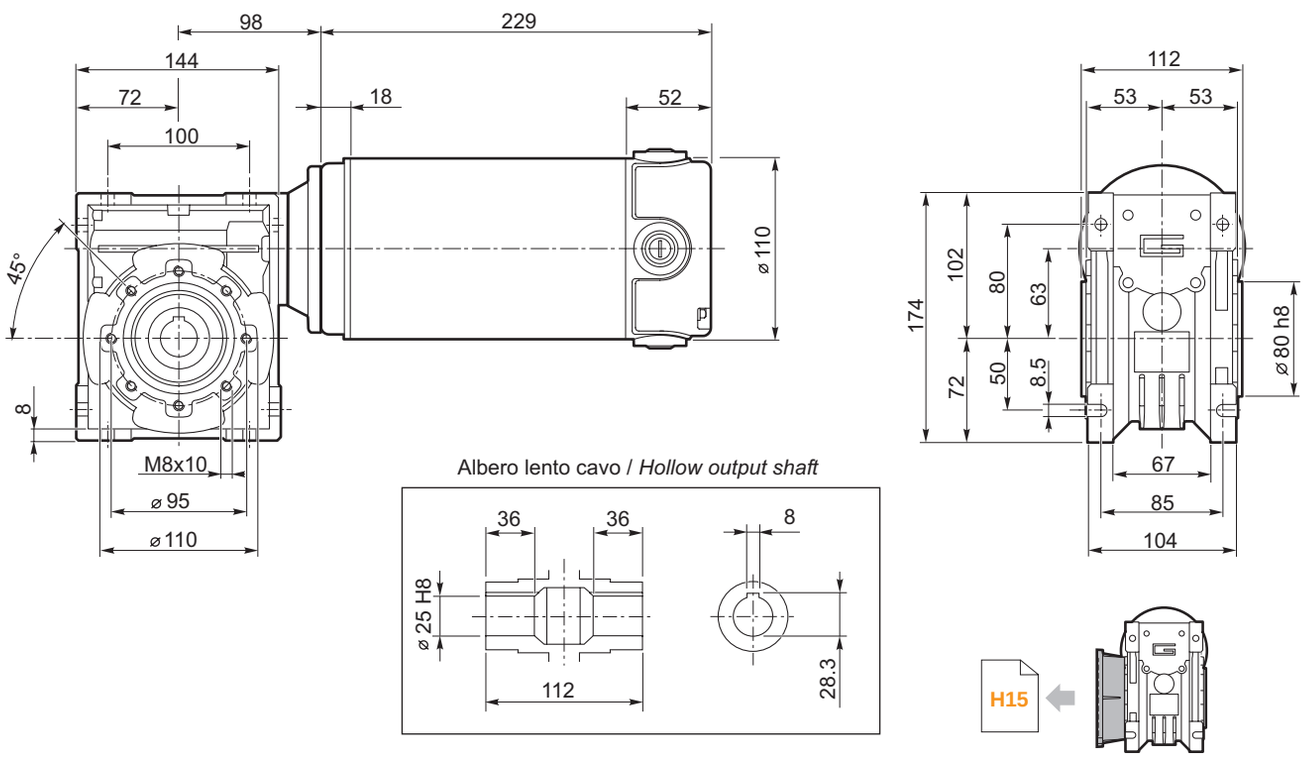
Dimensioni *Dimensions*

ECM600/050 U



ECM600/050 F
ECM600/050 FL
ECM600/050 FB

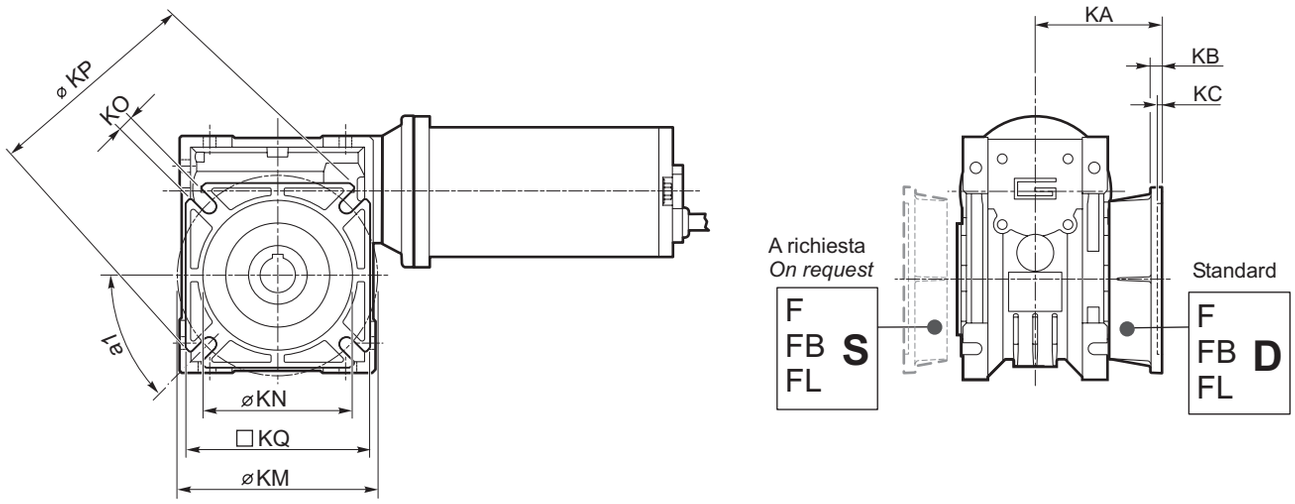
ECM600/063 U



ECM600/063 F
ECM600/063 FL
ECM600/063 FB

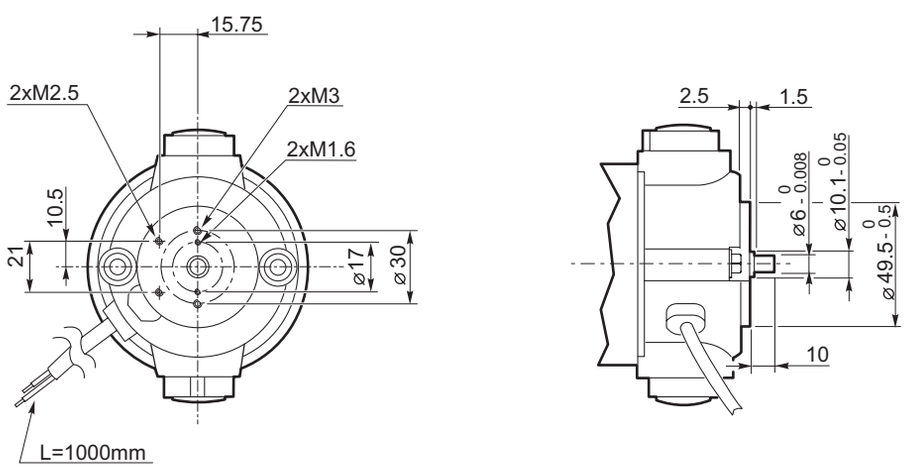
Dimensioni — *Dimensions*

ECM.../... F... Flange uscita / *Output flanges*



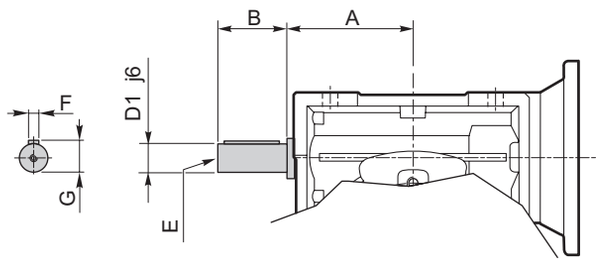
CM		CM..F								CM..FB								CM..FL							
	a1	KA	KB	KC	KM	KN H8	KO	KP	KQ	KA	KB	KC	KM	KN H8	KO	KP	KQ	KA	KB	KC	KM	KN H8	KO	KP	KQ
026	45°	45	6	4.5	55-69	40	6.5(n.4)	75	70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
030	45°	54.5	6	4	68	50	6.5(n.4)	80	70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
040	45°	67	7.5	4	80-95	60	9(n.4)	110	95	80	8.5	5	115-125	95	9.5(n.4)	140	112	97	7.5	4.5	80-95	60	10(n.4)	110	95
050	45°	90	9	5	90-110	70	11(n.4)	125	110	89	9	5	130-145	110	9.5(n.4)	160	132	120	9	5	90-110	70	11(n.4)	125	110
063	45°	82	10	6	150-160	115	11(n.4)	180	142	98	10	5	165-180	130	11(n.4)	200	160	112	10	6	150-160	115	11(n.4)	180	142

EC100.24E
EC180.24E



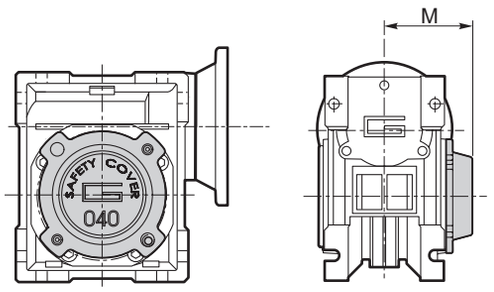
Opzioni — *Options*

VS - Vite sporgente / *Extended input shaft*



	A	B	D_1 j6	E	F	G
CM 030	45	20	9	M4	3	10.2
CM 040	53	23	11	M5	4	12.5
CM 050	64	30	14	M6	5	16
CM 063	75	40	19	M6	6	21.5

SC - *Safety cover*



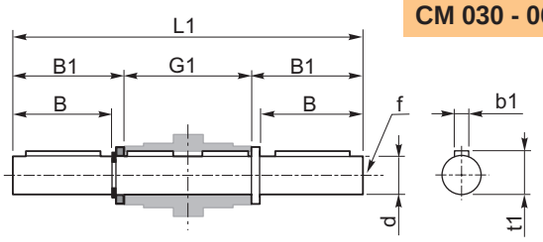
	M
CM 030	47
CM 040	54.5
CM 050	62.5
CM 063	73

Accessori — *Accessories*

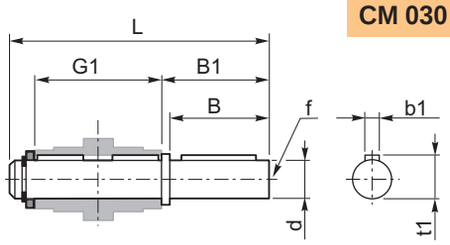
Albero lento — *Output shaft*

CM 030 - 063

DZ

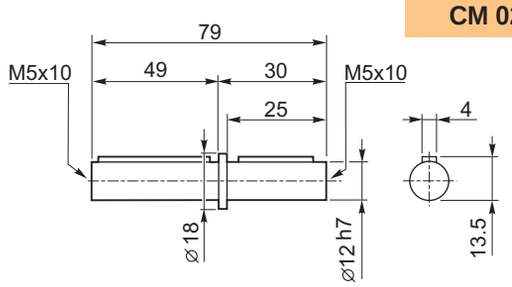


SZ



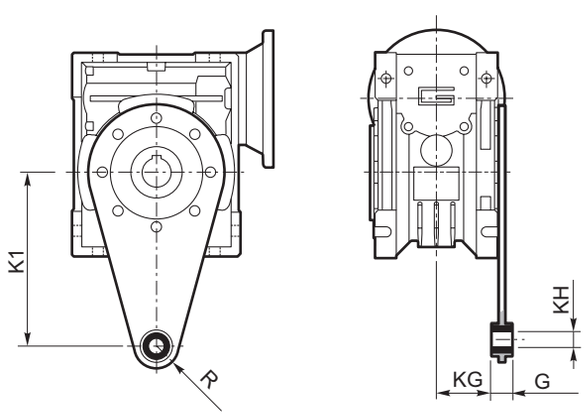
	d h7	B	B1	G1	L	L1	f	b1	t1
CM 030	14	30	32.5	63	102	128	M6	5	16
CM 040	18	40	43	78	128	164	M6	6	20.5
CM 050	25	50	53.5	92	153	199	M10	8	28
CM 063	25	50	53.5	112	173	219	M10	8	28

CM 026



Braccio di reazione — *Torque arm*

	K1	G	KG	KH	R
CM 030	85	14	23	8	15
CM 040	100	14	31	10	18
CM 050	100	14	38	10	18
CM 063	150	14	47.5	10	18



TRANSTECNO™
THE MODULAR GEARMOTOR

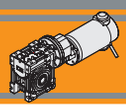
ECMP

ECMP

MOTORIDUTTORI C.C. CON PRECOPPIA

PERMANENT MAGNETS D.C. PRE-STAGE GEARMOTORS

TRANSTECNO • GENUINE • PRODUCTS



ENERGY SAVING

Caratteristiche tecniche

Technical features

Le caratteristiche principali dei motoriduttori a corrente continua della serie ECMP sono:

- Alimentazione in bassa tensione 12/24 Vcc
- Possibilità di montaggio encoder
- Potenze motore disponibili da 30 a 800W S2
- Magneti in ferrite
- Sia le carcasse dei riduttori a vite senza fine che delle precoppie sono in pressofusione di alluminio
- Lubrificazione permanente con olio sintetico

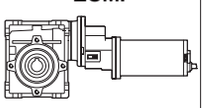
The main features of ECMP D.C. gearmotors range are:

- *Low voltage power supply 12/24 Vdc*
- *Suitable for encoder assembly*
- *Motor power ratings available from 30 up to 800W S2*
- *Ferrite magnets*
- *Die-cast aluminum housing on pre-stage and wormgearboxes*
- *Permanent synthetic oil long-life lubrication.*

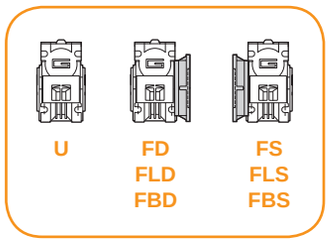
Designazione

Designation

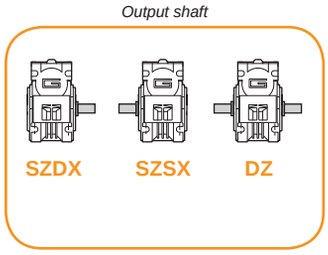
MOTORIDUTTORE / *GEARMOTOR*

ECMP	070/056/030					U	90	SZDX	BRSX	90	240	VS
Tipo *Type*	Grandezza *Size*					Versione Riduttore *Gearbox Version*	Rapporto *Ratio*	Albero di uscita *Output shaft*	Braccio di reazione *Torque arm*	Angolo *Angle*	Versione Motore *Motor Version*	Opzioni *Options*
ECMP 	**070/056/030** **070/056/040** **350/063/050**	**100/056/030** **100/056/040** **100/063/050**	**180/056/030** **180/056/040** **180/063/040** **180/063/050** **180/063/063**	**350/063/063** **350/071/050**	**600/071/050** **600/071/063** **600/071/075**	**U** **FD** **FS** **FLD** **FLS** **FBD** **FBS**	Vedere tabella *See tables*	**SZDX** **SZSX** **DZ**	**BRDX** **BRSX**	**0°** **90°** **180°** **270°**	**120** **240** **24E**	**VS**

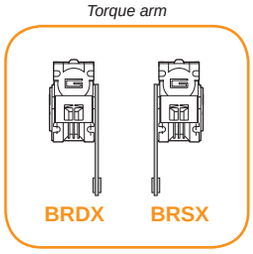
Versione Riduttore
Gearbox Version



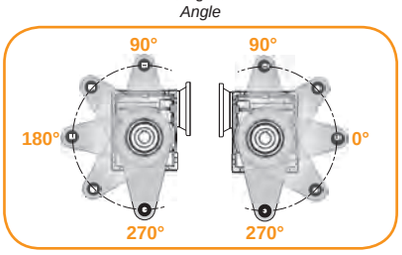
Albero di uscita
Output shaft

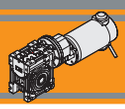


Braccio di reazione
Torque arm



Angolo
Angle





Simbologia — *Symbols*

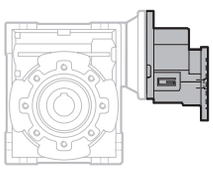
n_1	[min^{-1}]	Velocità in ingresso / *Input speed*
n_2	[min^{-1}]	Velocità in uscita / *Output speed*
i		Rapporto di riduzione / *Ratio*
P_1	[kW]	Potenza in entrata / *Input power*

M_2	[Nm]	Coppia in uscita in funzione di P_1 / *Output torque referred to P_1*
sf		Fattore di servizio / *Service factor*
R_2	[N]	Carico radiale ammissibile in uscita / *Permitted output radial load*
A_2	N]	Carico assiale ammissibile in uscita / *Permitted output axial load*

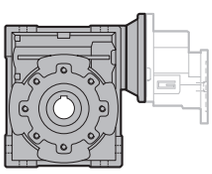
Lubrificazione — *Lubrication*

I riduttori a vite senza fine con precoppia della serie CMP sono lubrificati a vita con olio sintetico di viscosità 320 e possono essere installati in qualunque posizione di montaggio.

Permanent synthetic oil long - life lubrication allow to use CMP range in all mounting positions.



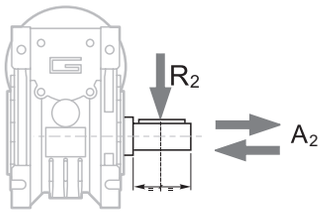
CMP		
056/030 **056**/040	**063**/040 **063**/050 **063**/063	**071**/050 **071**/063 **071**/075
Lubrificazione a vita - *Life lubricated*		



CMP	**Quantità di olio** (litri) / ***Oil quantity*** *(liters)* Per tutte le posizioni di montaggio / *For all mounting positions*	
056/030	0.04	Lubrificazione a vita *Life lubricated*
056/040 - 063/040	0.08	
063/050 - 071/050	0.15	
063/063 - 071/063	0.30	
071/075	0.55	

Carichi radiali

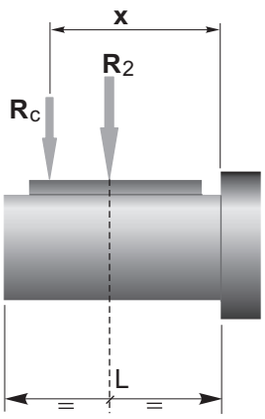
Radial loads



n_2 [min^{-1}]	R_2 [N]				
	CM030	CM040	CM050	CM063	CM075
35	1179	2210	3095	4273	4937
28	1270	2381	3334	4603	5318
23	1356	2542	3559	4915	5678
18	1471	2759	3862	5334	6162
14	1600	3000	4200	5800	6700

Quando il carico radiale risultante non è applicato sulla mezzeria dell'albero occorre calcolare quello effettivo con la seguente formula:

When the resulting radial load is not applied on the centre line of the shaft it is necessary to calculate the effective load with the following formula:

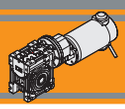


$$R_c = \frac{R_2 \cdot a}{(b+x)} \leq R_{2MAX}$$

$$R \leq R_c$$

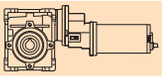
a, b = valori riportati nella tabella
a, b = values given in the table

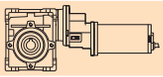
	CM				
	030	040	050	063	075
a	65	84	101	120	131
b	50	64	76	95	101
R_{2MAX}	1600	3000	4200	5800	6700



Dati tecnici per servizio S2

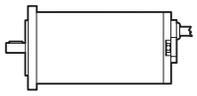
Technical data for S2 duty

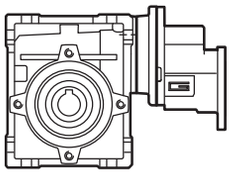
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
100						
(3000 min^{-1})	**50**	13	1.7	60	**ECMP070/056/030**	120/240
	40	16	1.4	75		
	33	17	1.6	90		
	25	22	1.1	120		
	20	25	0.9	150		
	50	14	3.2	60	**ECMP070/056/040**	120/240
	40	16	2.7	75		
	33	19	3.0	90		
	25	22	2.1	120		
	20	27	1.7	150		
	17	30	1.4	180		
	13	34	1.2	240		
	10	38	0.9	300		
140						
(3000 min^{-1})	**50**	19	1.2	60	**ECMP100/056/030**	120/240/24E
	40	22	1.0	75		
	33	24	1.1	90		
	25	30	0.8	120		
	20	31	0.7	150		
	50	19	2.3	60	**ECMP100/056/040**	120/240/24E
	40	23	1.9	75		
	33	26	2.2	90		
	25	31	1.5	120		
	20	37	1.2	150		
	17	42	1.0	180		
	13	48	0.8	240		
	10	54	0.7	300		
	50	20	4.1	60	**ECMP100/056/040**	120/240/24E
	40	24	3.2	75		
	33	27	3.7	90		
	25	32	2.6	120		
	20	39	2.1	150		
	17	43	1.8	180		
	13	50	1.4	240		
250						
(3000 min^{-1})	**50**	33	0.7	60	**ECMP180/056/030**	120/240
	40	31	0.7	75		
	33	39	0.7	90		
	25	33	0.7	120		
	20	31	0.7	150		
	50	35	1.3	60	**ECMP180/056/040**	120/240
	40	41	1.1	75		
	33	46	1.2	90		
	25	56	0.9	120		
	20	67	0.7	150		
	17	61	0.7	180		
	13	57	0.7	240		
	10	51	0.7	300		
	50	35	2.3	60	**ECMP180/063/050**	120/240/24E
	40	42	1.8	75		
	33	48	2.1	90		
	25	58	1.5	120		
	20	69	1.2	150		
	17	77	1.0	180		
	13	90	0.8	240		
	50	37	4.2	60	**ECMP180/063/063**	120/240/24E
	40	44	3.1	75		
	33	49	3.8	90		
	25	61	2.6	120		
	20	71	2.1	150		
	17	81	1.7	180		
	13	97	1.3	240		
	10	110	1.1	300		

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
500						
(3000 min^{-1})	**50**	70	1.1	60	**ECMP350/063/050**	120/240
	40	84	0.9	75		
	33	95	1.0	90		
	25	116	0.7	120		
	20	116	0.7	150		
	17	109	0.7	180		
	13	99	0.7	240		
	50	73	2.1	60	**ECMP350/063/063**	120/240
	40	88	1.6	75		
	33	98	1.9	90		
	25	122	1.3	120		
	20	143	1.1	150		
	17	163	0.9	180		
	13	195	0.7	240		
	10	174	0.7	300		
	50	70	1.1	60	**ECMP350/071/050**	120/240
	40	84	0.9	75		
	33	95	1.0	90		
800						
(3000 min^{-1})	**50**	112	0.7	60	**ECMP600/071/050**	120/240
	40	107	0.7	75		
	33	141	0.7	90		
	50	117	1.3	60	**ECMP600/071/063**	120/240
	40	140	1.0	75		
	33	157	1.2	90		
	25	195	0.8	120		
	20	228	0.7	150		
	17	203	0.7	180		
	50	120	2.1	60	**ECMP600/071/075**	120/240
	40	144	1.6	75		
	33	164	1.9	90		
	25	204	1.3	120		
	20	240	1.0	150		
	17	274	0.9	180		
	13	299	0.7	240		
	10	277	0.7	300		

Motori applicabili

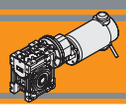
IEC Motor adapters





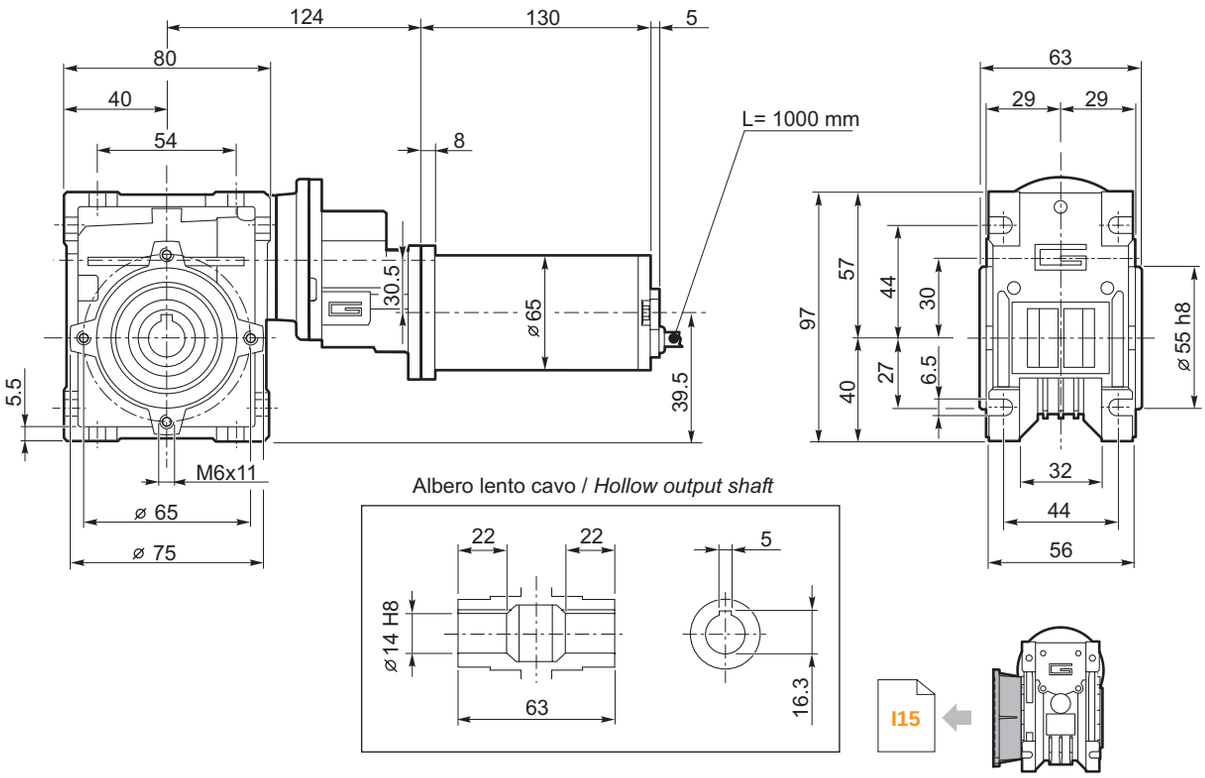
		EC					
		070.120 070.240	100.120 100.240 100.24E	180.120 180.240	180.24E	350.120 350.240	600.120 600.240
CMP	056/030	150	150	150			
	056/040	300	300	300			
	063/040		120	120	120		
	063/050		240	240	240	240	
	063/063			300	300	300	
	071/050					75	75
	071/063						180
	071/075						300

150	Rapporto di riduzione massimo i_{max} *Maximum ratio i_{max}*



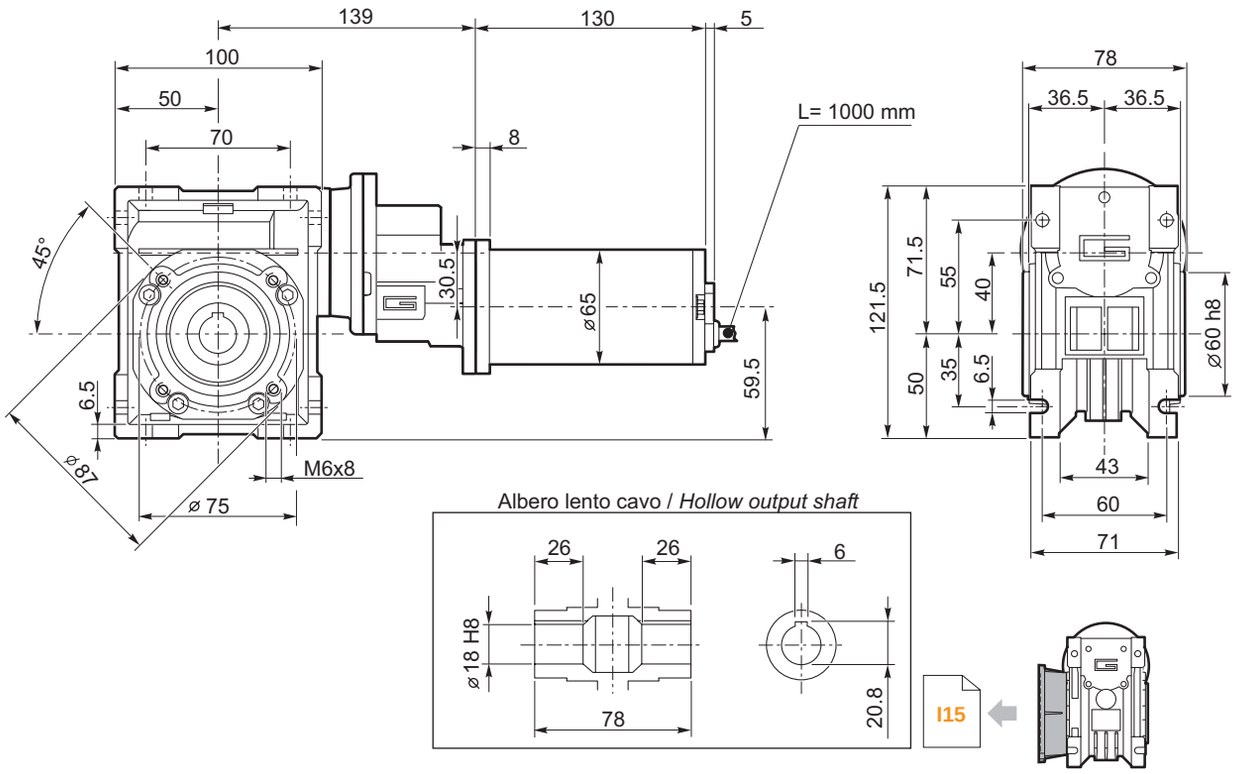
Dimensioni *Dimensions*

ECMP070/056/030 U



ECMP070/056/030 F

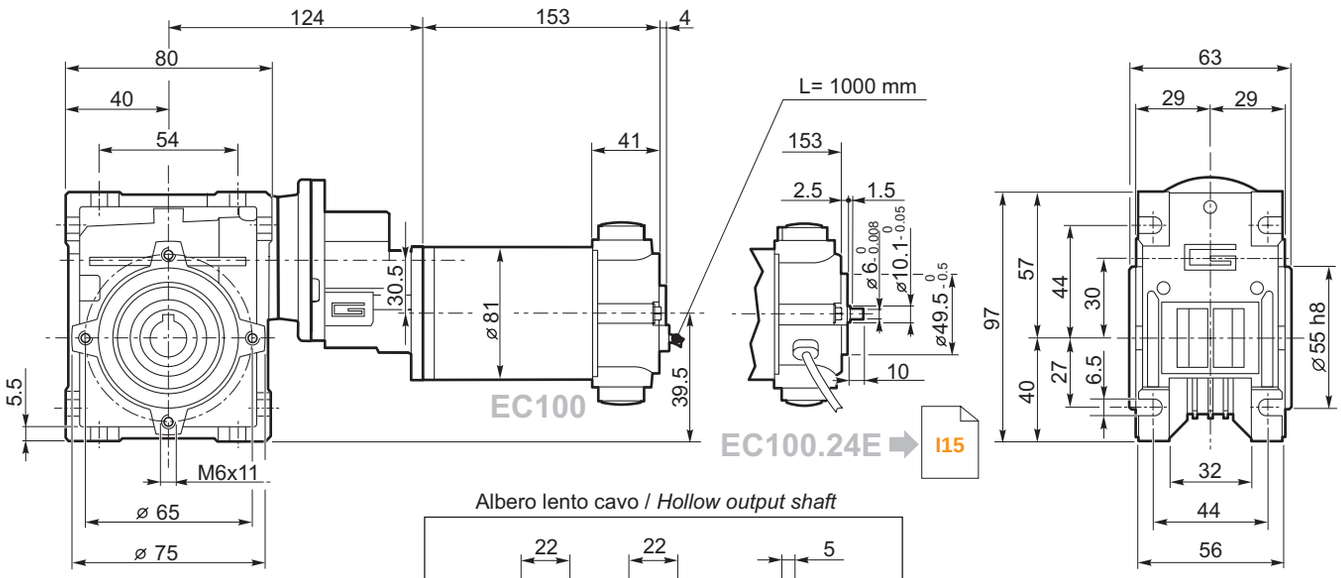
ECMP070/056/040 U



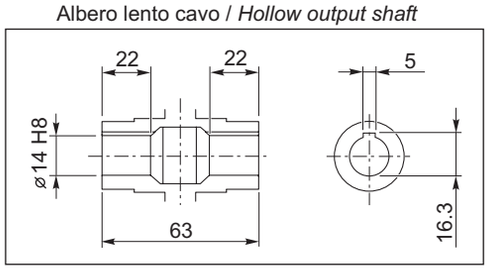
ECMP070/056/040 F
ECMP070/056/040 FL
ECMP070/056/040 FB

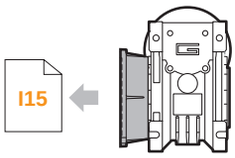
Dimensioni *Dimensions*

ECMP100/056/030 U



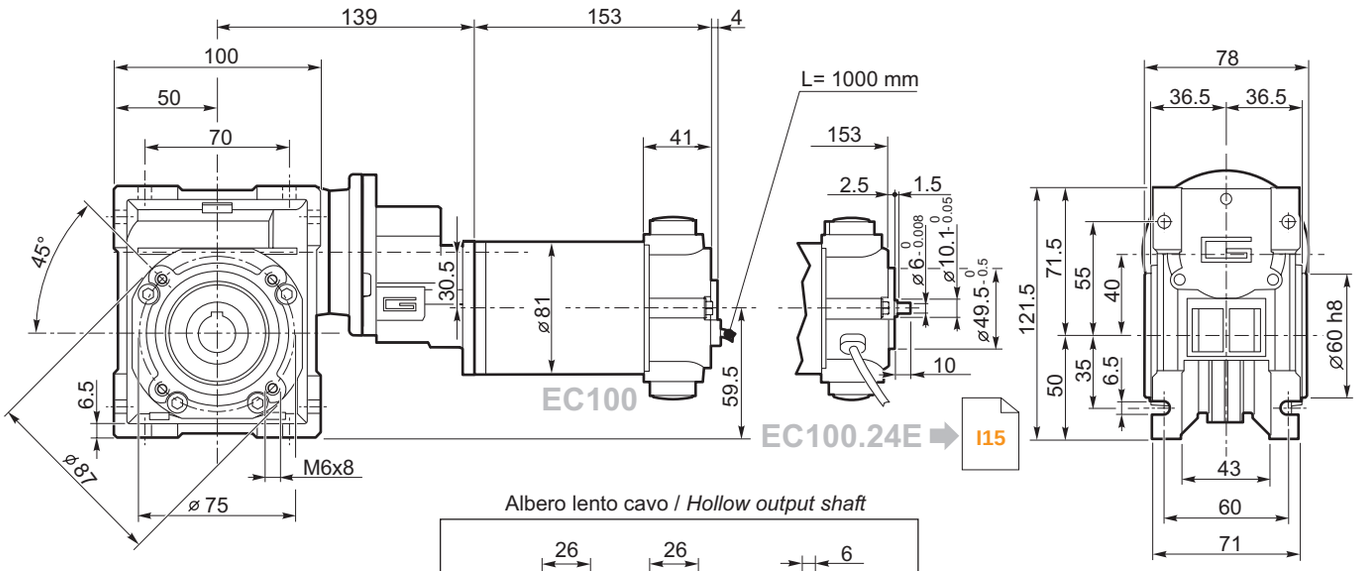
Albero lento cavo / *Hollow output shaft*



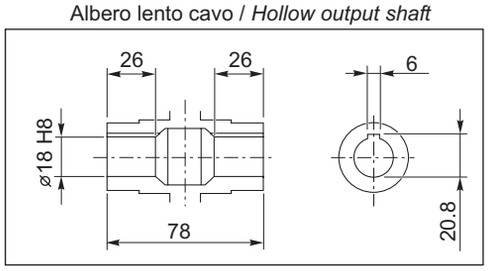


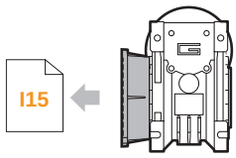
ECMP100/056/030 F

ECMP100/056/040 U



Albero lento cavo / *Hollow output shaft*

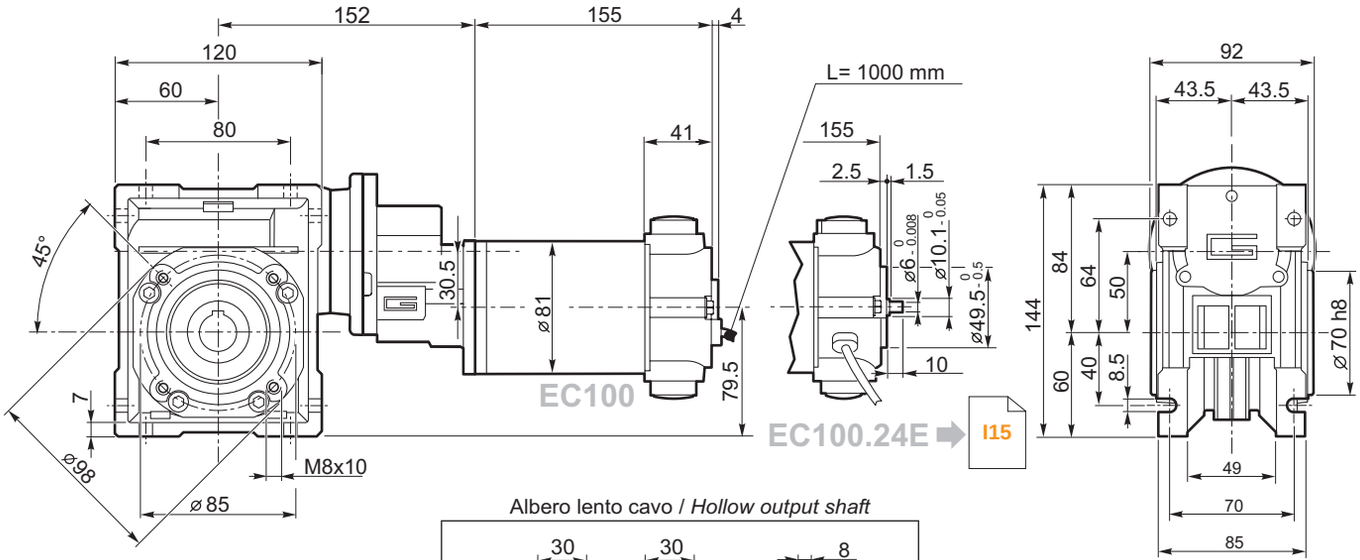




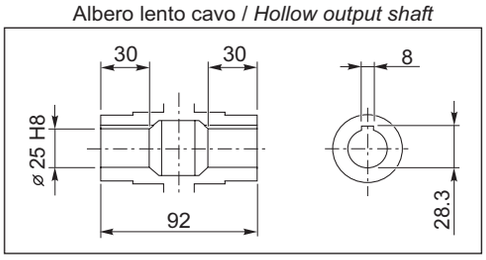
ECMP100/056/040 F
ECMP100/05/040 FL
ECMP100/05/040 FB

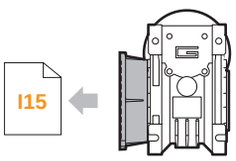
Dimensioni *Dimensions*

ECMP100/063/050 U



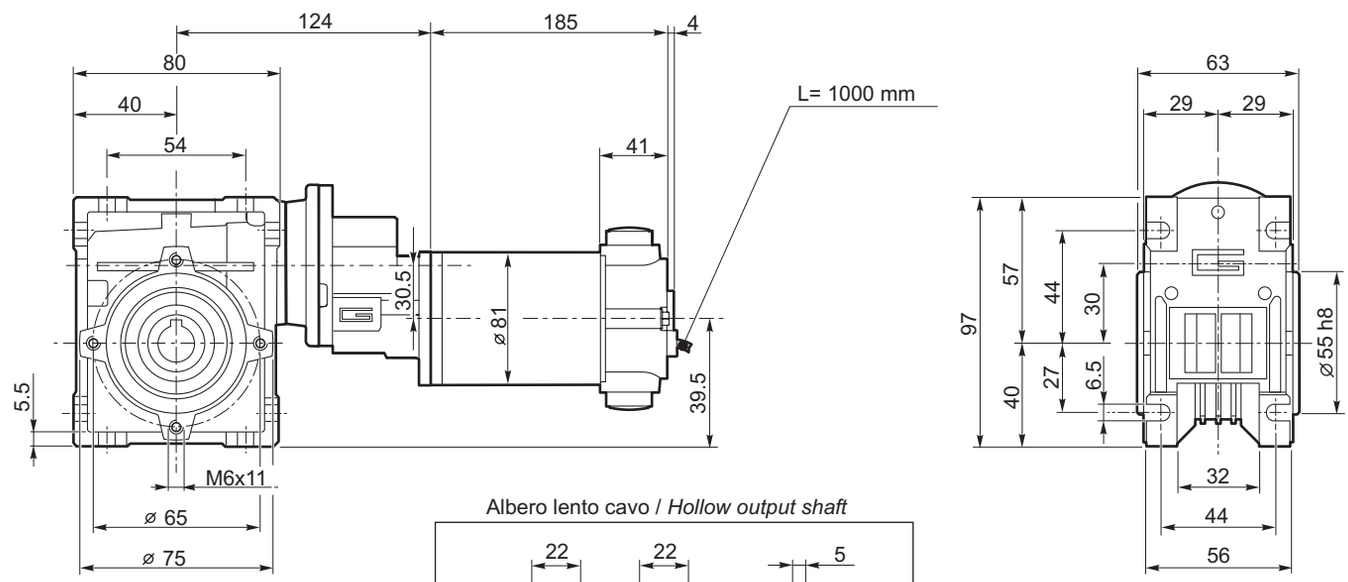
Albero lento cavo / *Hollow output shaft*



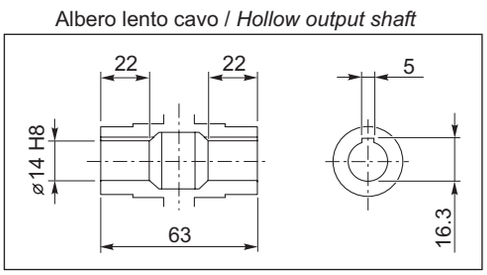


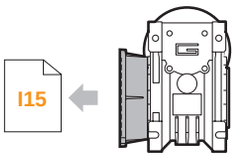
ECMP100/063/050 F
ECMP100/063/050 FL
ECMP100/063/050 FB

ECMP180/056/030 U



Albero lento cavo / *Hollow output shaft*

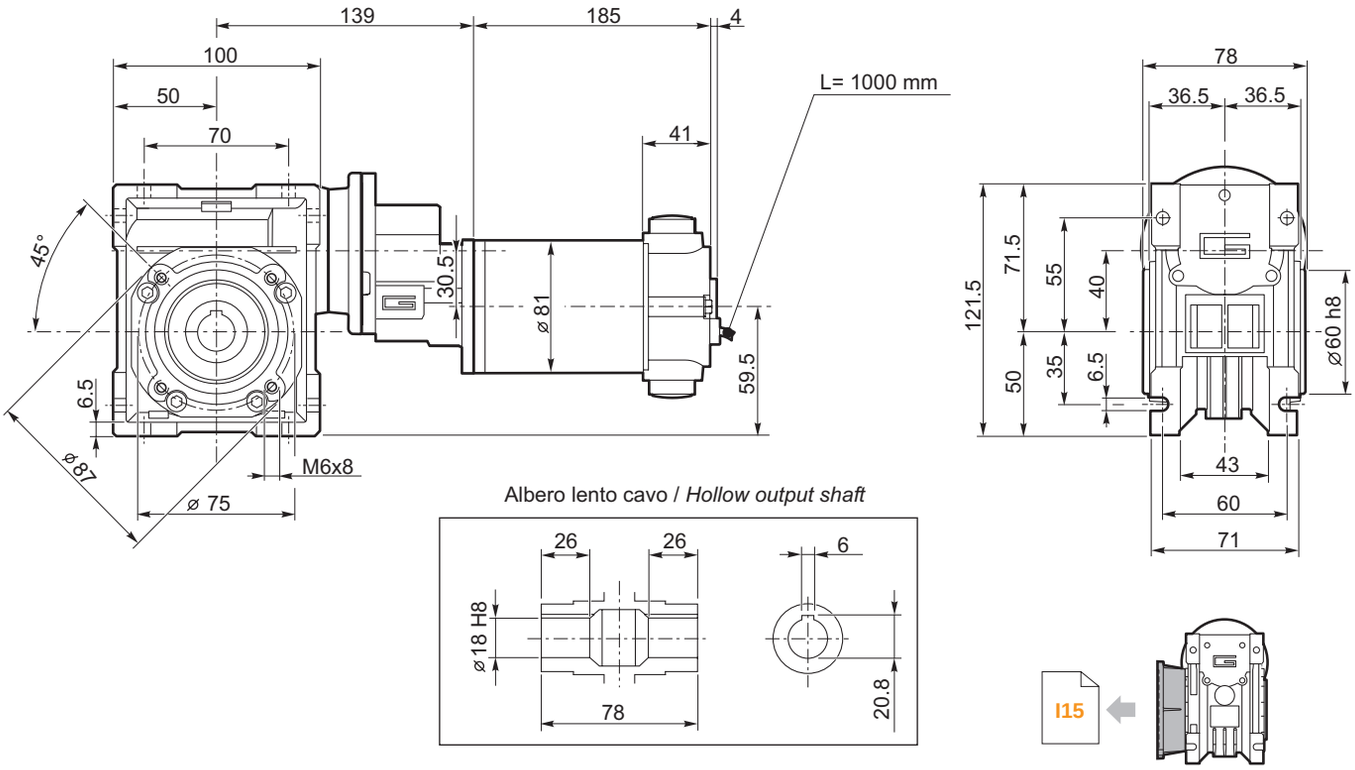




ECMP180/056/030 F

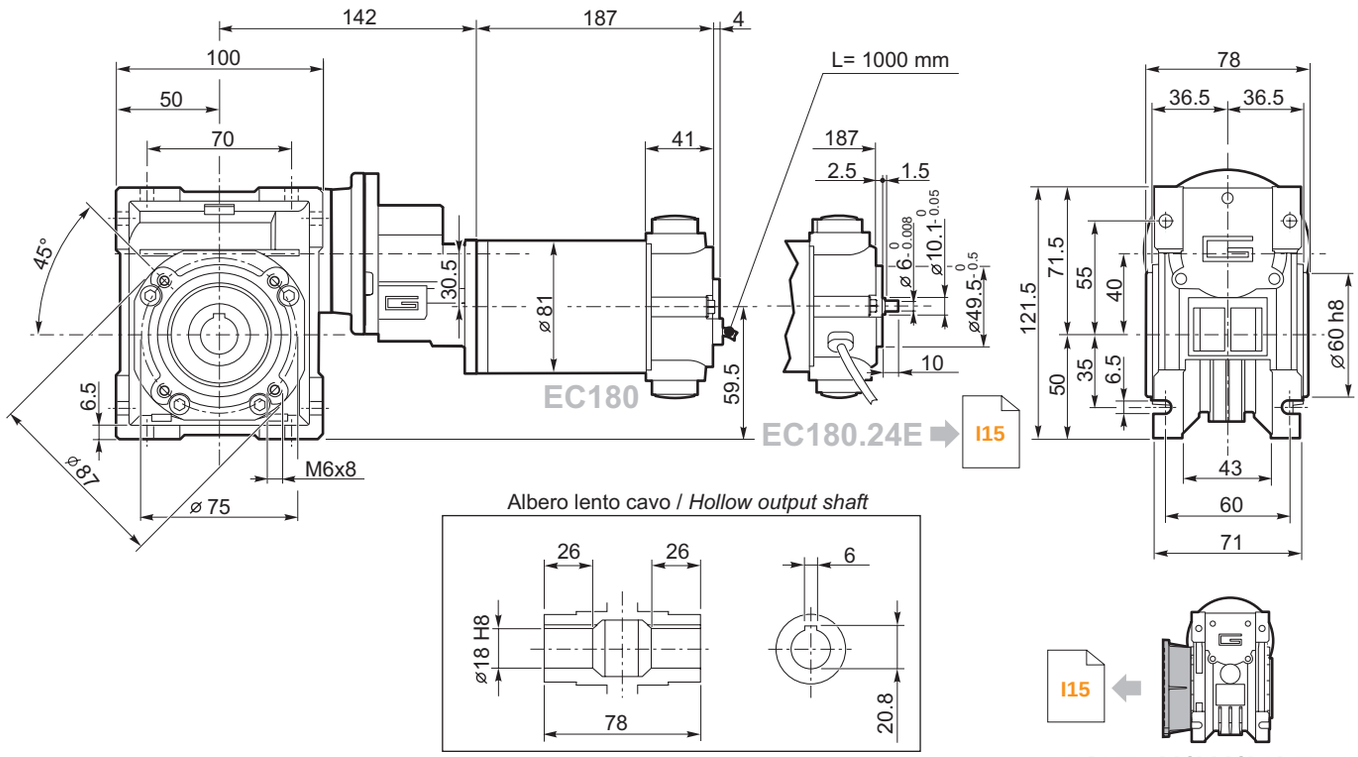
Dimensioni *Dimensions*

ECMP180/056/040 U



ECMP180/056/040 F
ECMP180/056/040 FL
ECMP180/056/040 FB

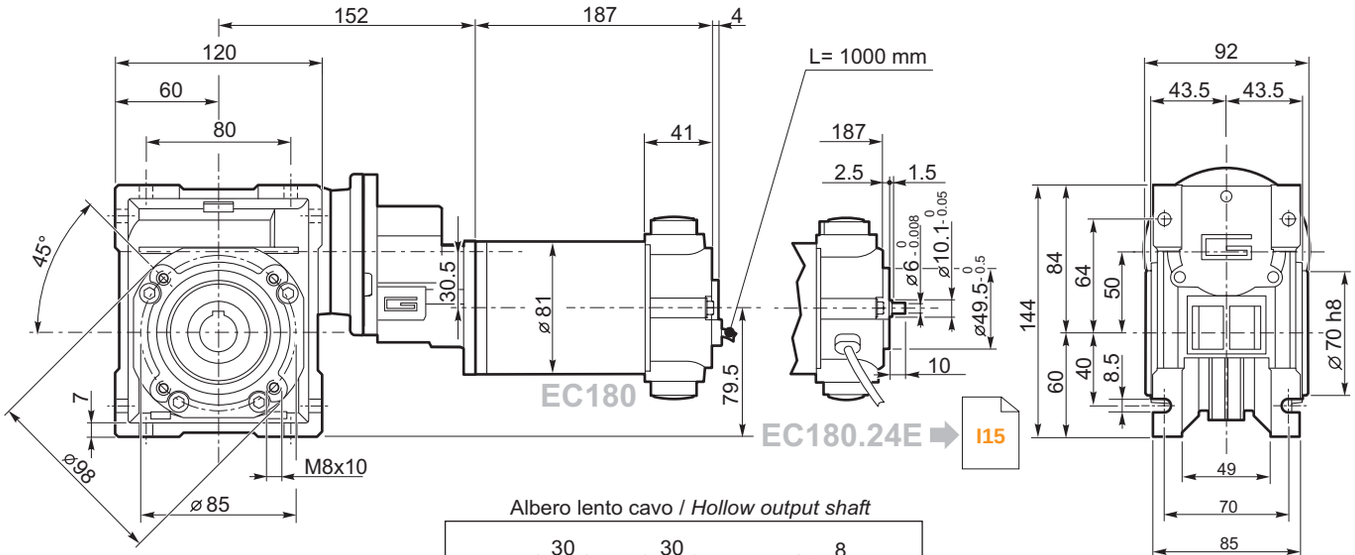
ECMP180/063/040 U



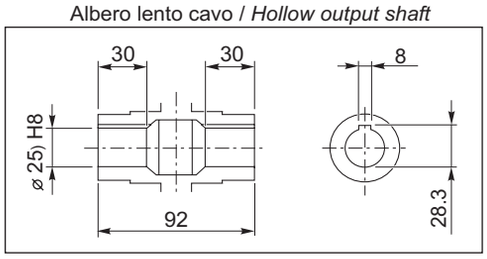
ECMP180/063/040 F
ECMP180/063/040 FL
ECMP180/063/040 FB

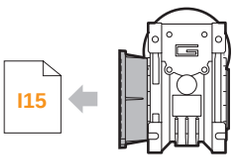
Dimensioni *Dimensions*

ECMP180/063/050 U



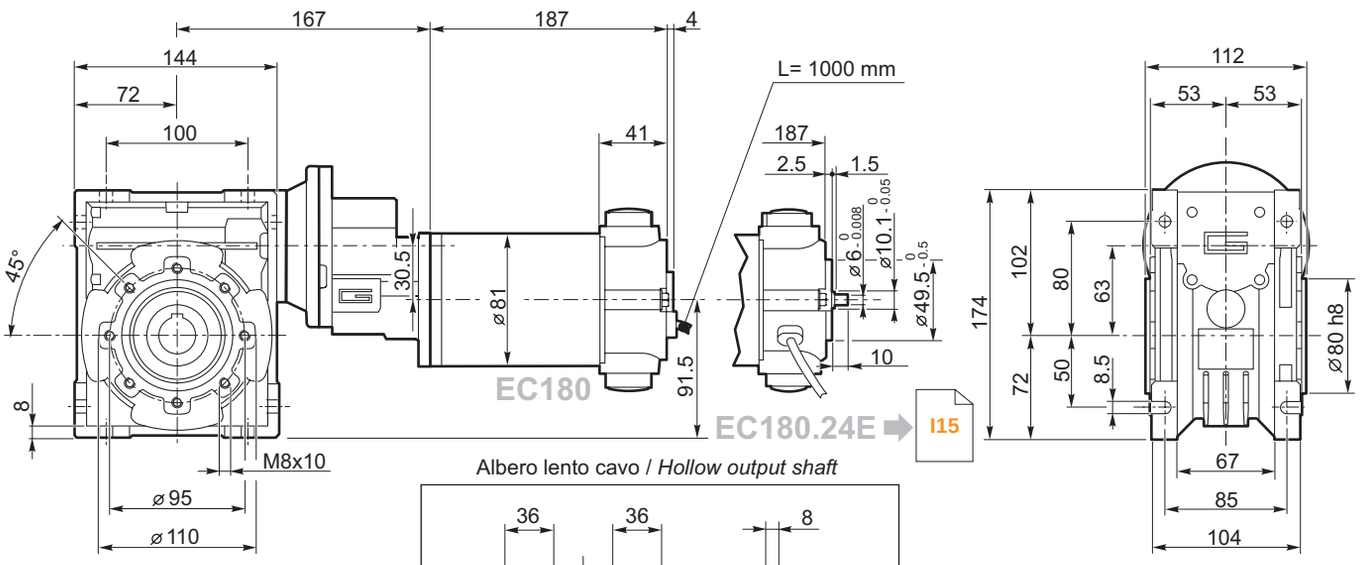
Albero lento cavo / *Hollow output shaft*



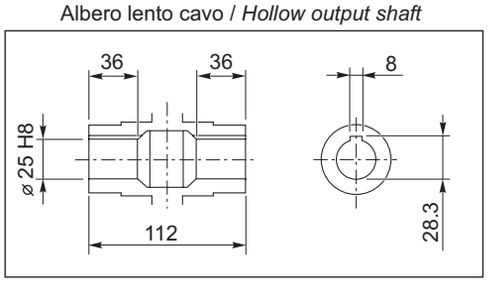


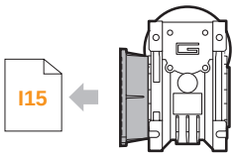
ECMP180/063/050 F
ECMP180/063/050 FL
ECMP180/063/050 FB

ECMP180/063/063 U



Albero lento cavo / *Hollow output shaft*

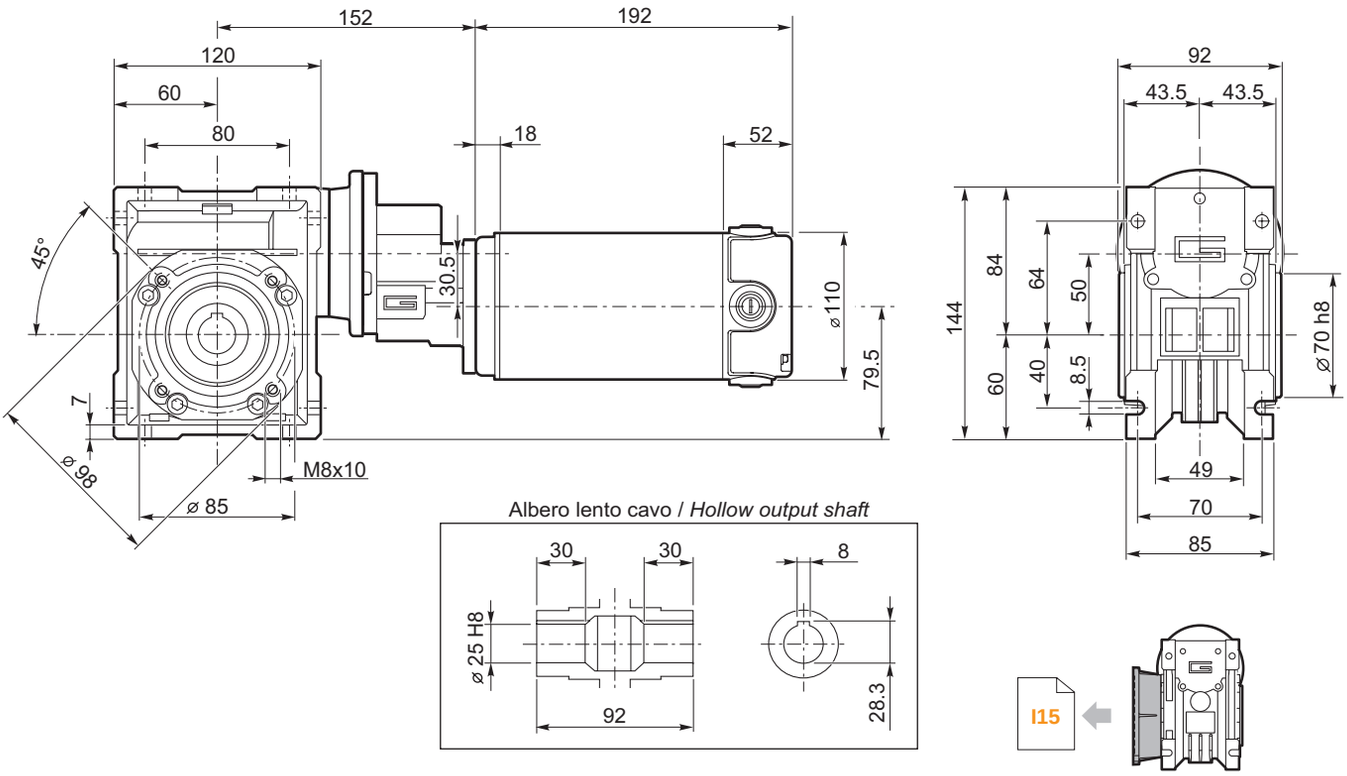




ECMP180/063/063 F
ECMP180/063/063 FL
ECMP180/063/063 FB

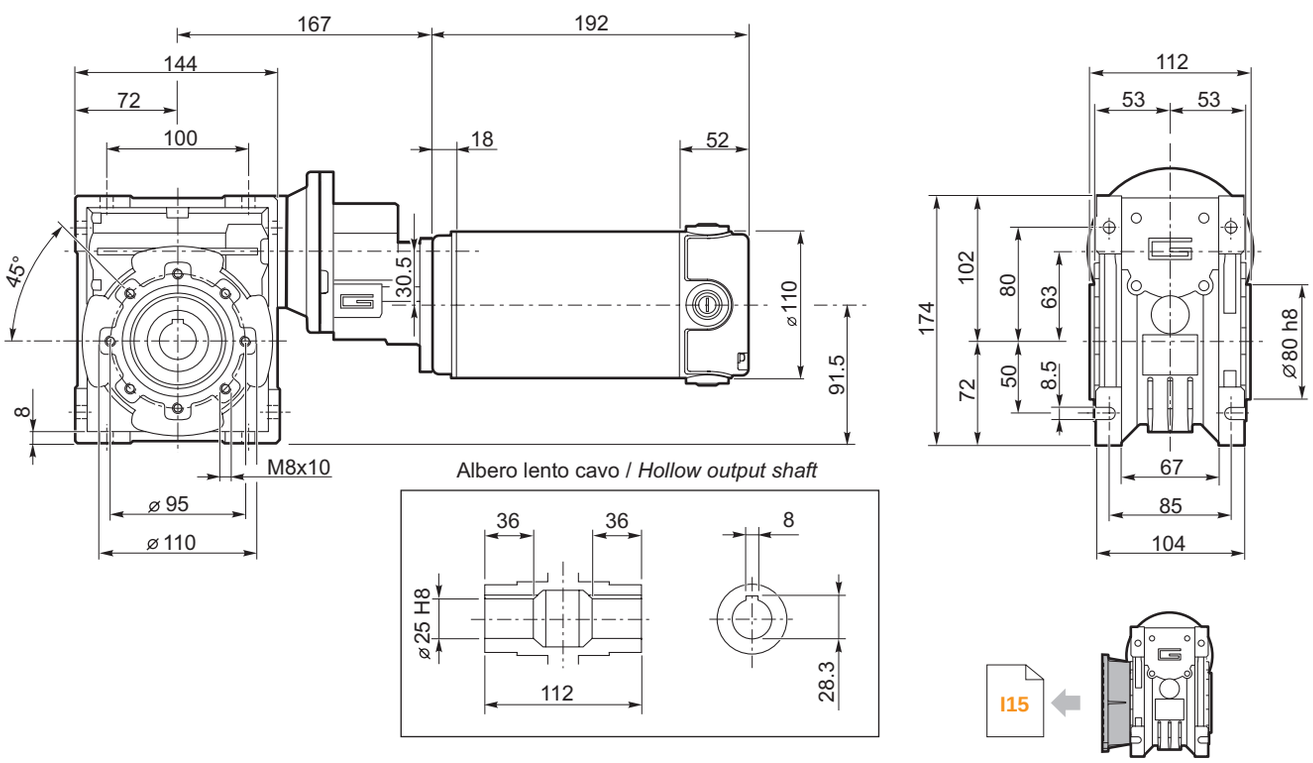
Dimensioni *Dimensions*

ECMP350/063/050 U

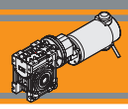


ECMP350/063/050 F
ECMP350/063/050 FL
ECMP350/063/050 FB

ECMP350/063/063 U

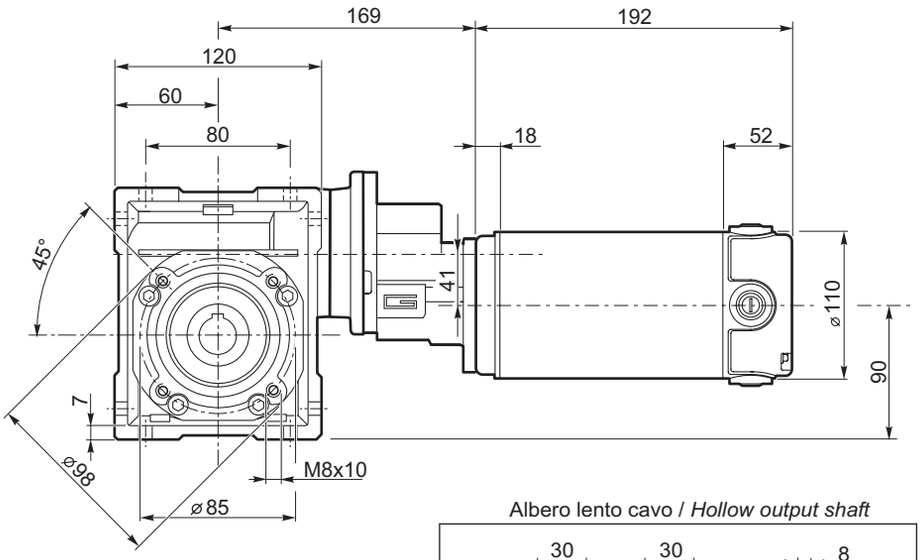


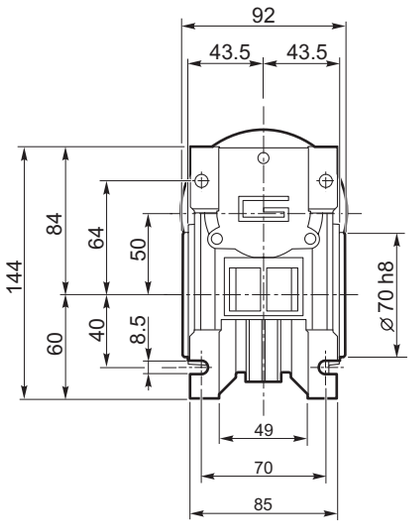
ECMP350/063/063 F
ECMP350/063/063 FL
ECMP350/063/063 FB



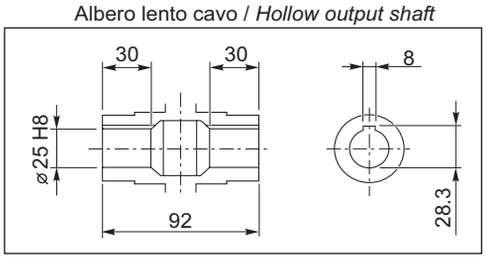
Dimensioni *Dimensions*

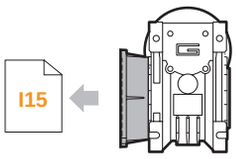
ECMP350/071/050 U





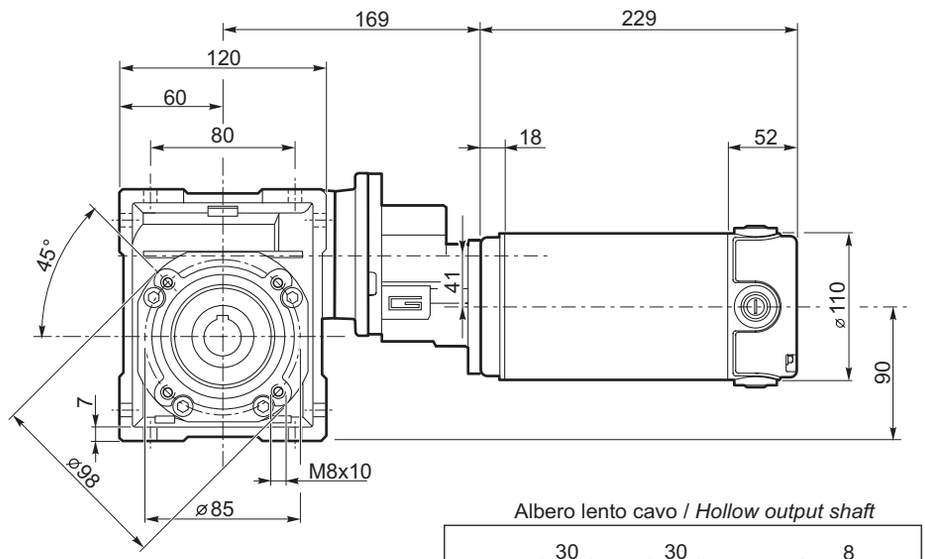
Albero lento cavo / *Hollow output shaft*

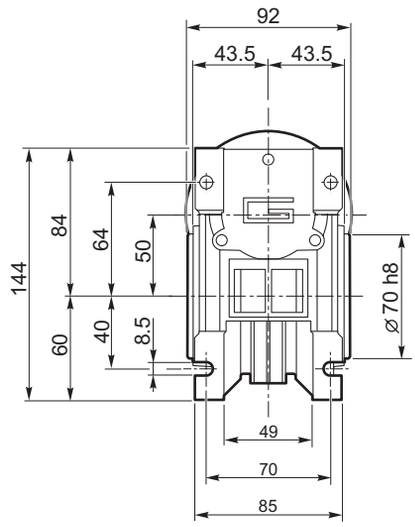




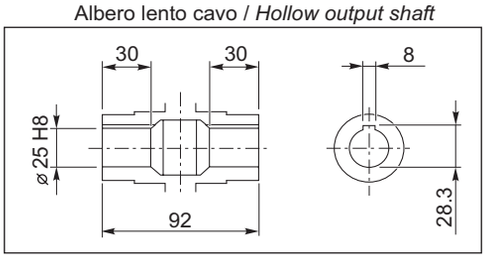
ECMP350/071/050 F
ECMP350/071/050 FL
ECMP350/071/050 FB

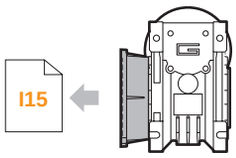
ECMP600/071/050 U





Albero lento cavo / *Hollow output shaft*

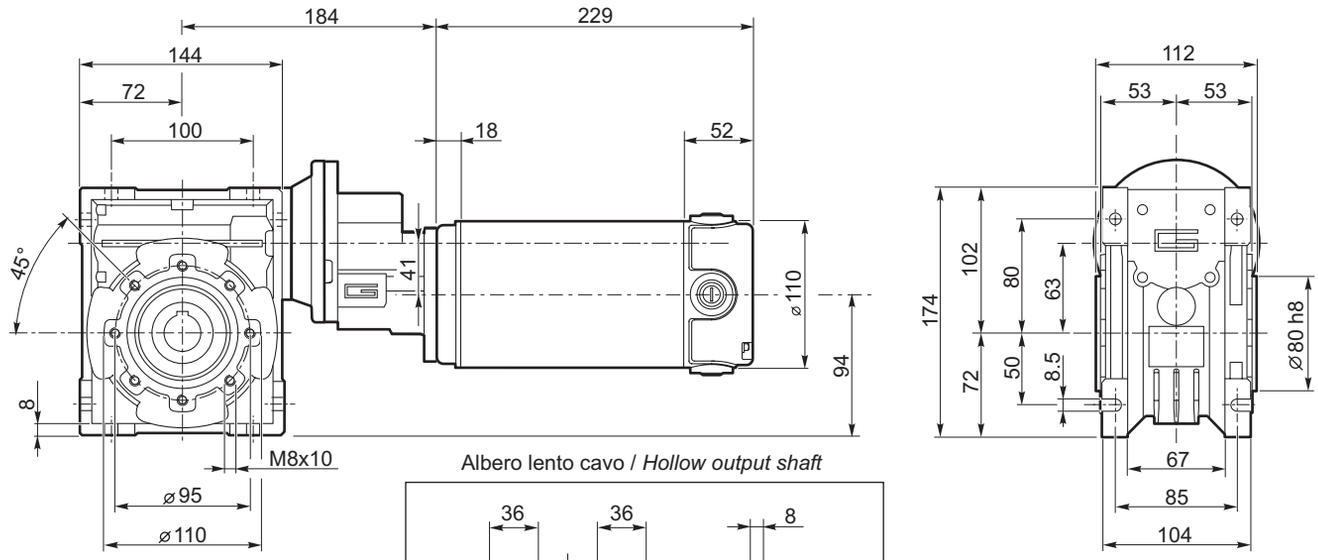




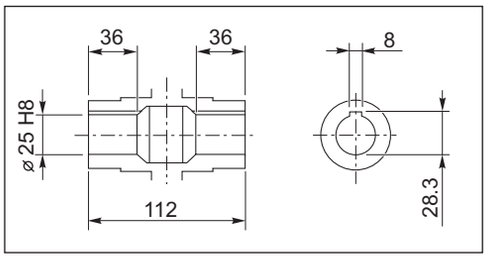
ECMP600/071/050 F
ECMP600/071/050 FL
ECMP600/071/050 FB

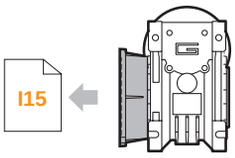
Dimensioni ***Dimensions***

ECMP600/071/063 U



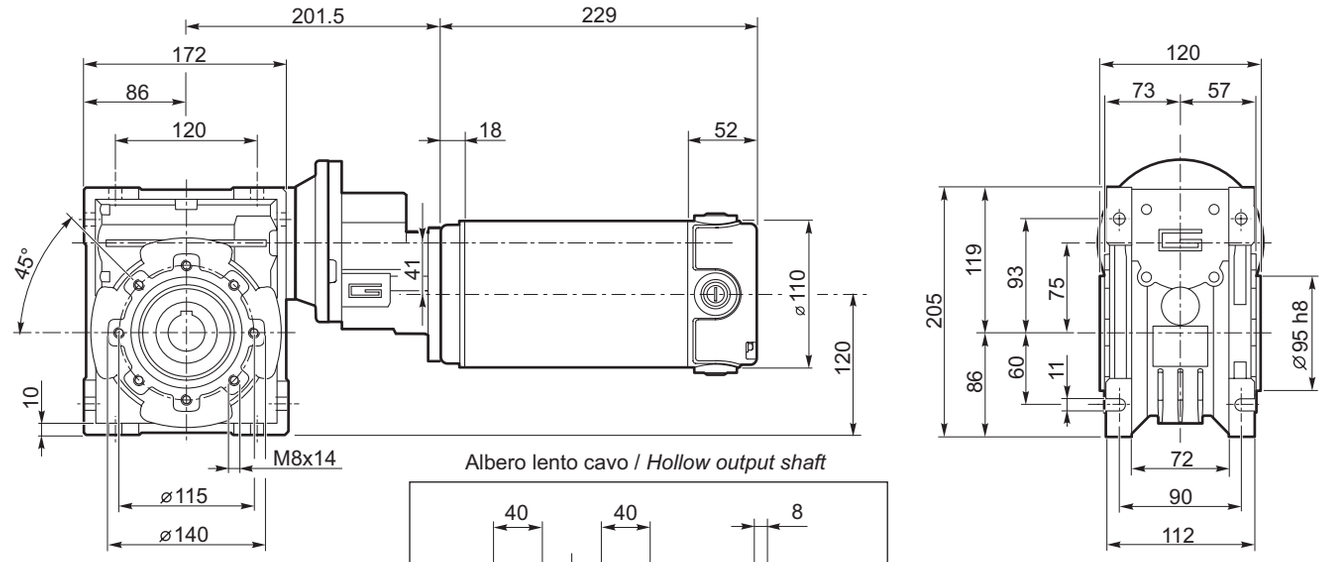
Albero lento cavo / *Hollow output shaft*



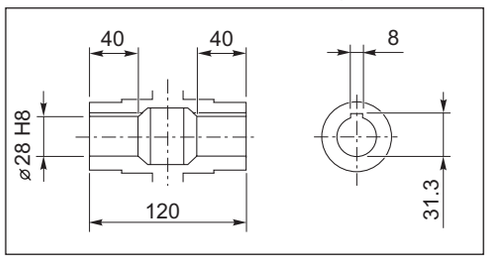


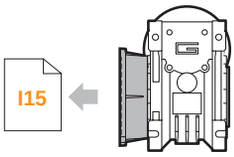
ECMP600/071/063 F
ECMP600/071/063 FL
ECMP600/071/063 FB

ECMP600/071/075 U

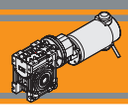


Albero lento cavo / *Hollow output shaft*



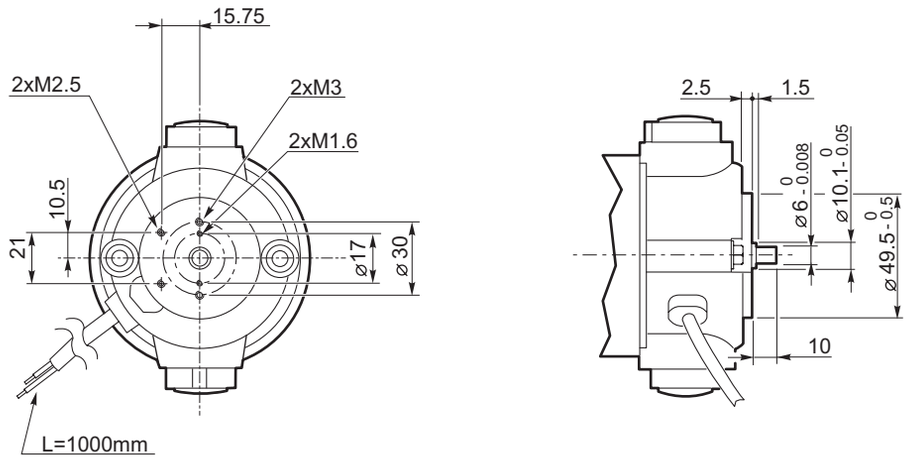


ECMP600/071/075 F

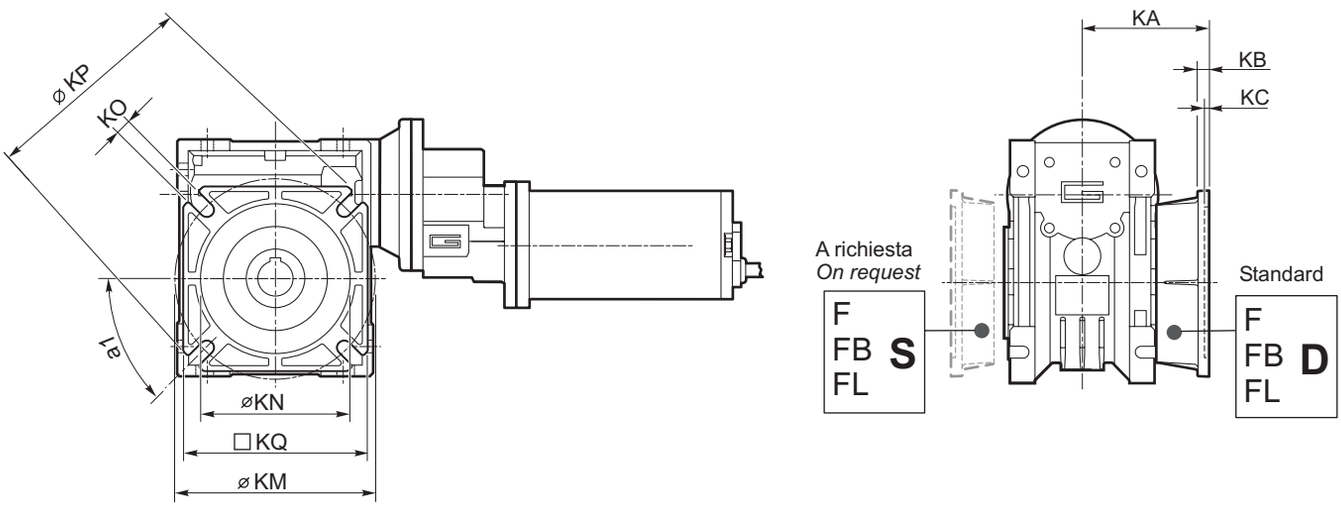


Dimensioni ***Dimensions***

EC100.24E
EC180.24E



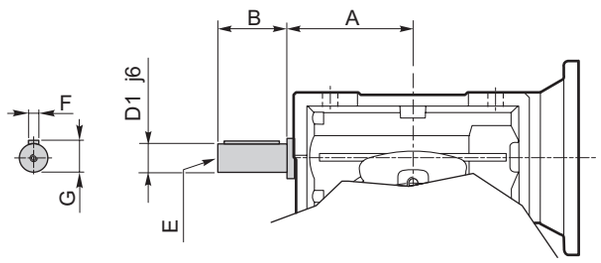
ECMP.../... F... Flange uscita / *Output flanges*



CMP		CMP..F								CMP..FB								CMP..FL							
	a1	KA	KB	KC	KM	KN H8	KO	KP	KQ	KA	KB	KC	KM	KN H8	KO	KP	KQ	KA	KB	KC	KM	KN H8	KO	KP	KQ
056/030	45°	54.5	6	4	68	50	6.5(n.4)	80	70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
056/040 063/040	45°	67	7.5	4	80-95	60	9(n.4)	110	95	80	8.5	5	115-125	95	9.5(n.4)	140	112	97	7.5	4.5	80-95	60	10(n.4)	110	95
063/050 071/050	45°	90	9	5	90-110	70	11(n.4)	125	110	89	9	5	130-145	110	9.5(n.4)	160	132	120	9	5	90-110	70	11(n.4)	125	110
063/063 071/063	45°	82	10	6	150-160	115	11(n.4)	180	142	98	10	5	165-180	130	11(n.4)	200	160	112	10	6	150-160	115	11(n.4)	180	142
071/075	45°	111	13	6	165-180	130	14(n.4)	200	170	—	—	—	—	—	—	—		—	—	—	—	—	—	—	—

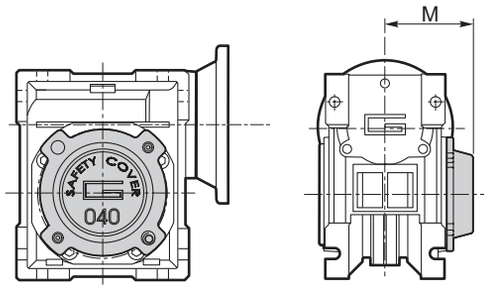
Opzioni — *Options*

VS - Vite sporgente / *Extended input shaft*



CMP	A	B	D_1 j6	E	F	G
056/030	45	20	9	M4	3	10.2
056/040 063/040	53	23	11	M5	4	12.5
063/050	64	30	14	M6	5	16
063/063 071/063 080/063	75	40	19	M6	6	21.5
071/075	90	50	24	M8	8	27

SC - *Safety cover*



	M
CM 030	47
CM 040	54.5
CM 050	62.5
CM 063	73
CM 075	79

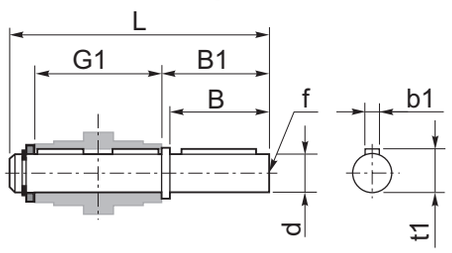
Accessori — *Accessories*

Albero lento semplice e doppio

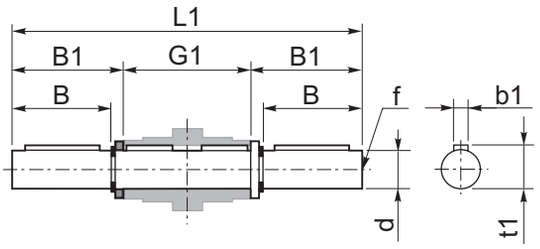
CMP	d h7	B	B1	G1	L	L1	f	b1	t1
056/030	14	30	32.5	63	102	128	M6	5	16
056/040 063/040	18	40	43	78	128	164	M6	6	20.5
063/050	25	50	53.5	92	153	199	M10	8	28
063/063 071/063 080/063	25	50	53.5	112	173	219	M10	8	28
071/075	28	60	63.5	120	192	247	M10	8	31

Single and double output shaft

SZ



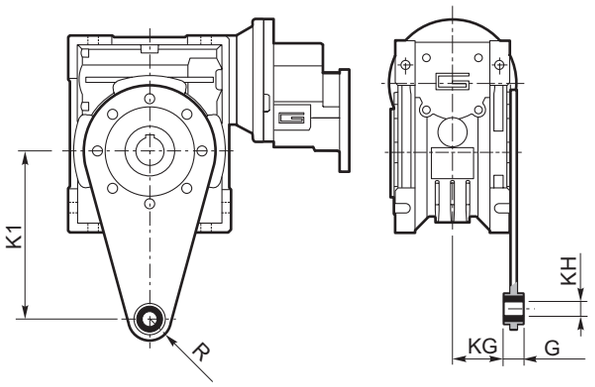
DZ



Braccio di reazione

CMP	K1	G	KG	KH	R
056/030	85	14	23	8	15
056/040 063/040	100	14	31	10	18
063/050	100	14	38	10	18
063/063 071/063 080/063	150	14	47.5	10	18
071/075	200	25	46.5	20	30

Torque arm



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D.C. MOTOR CONTROLS

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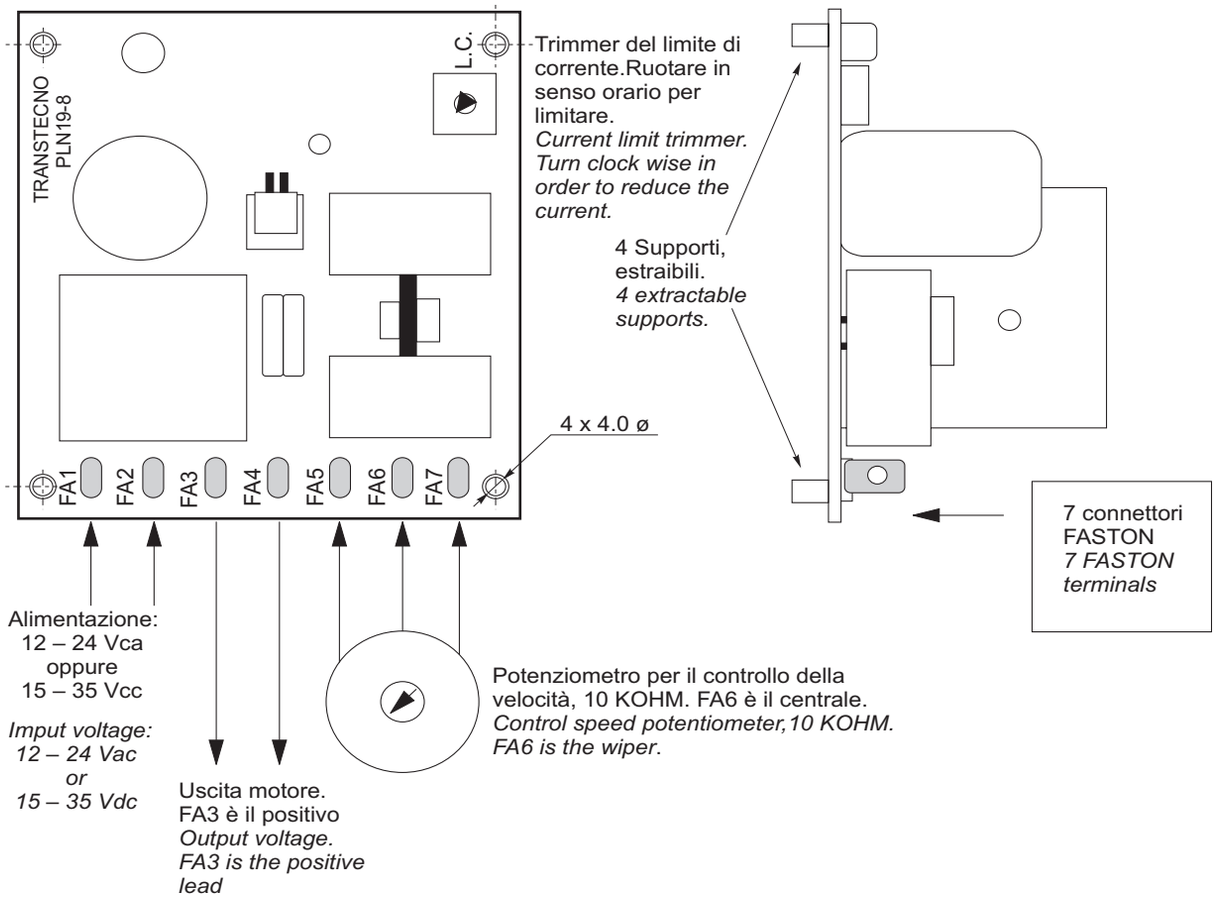
AZIONAMENTO UNIDIREZIONALE PWM PER LA REGOLAZIONE DI VELOCITA' DEI MOTORI A CORRENTE CONTINUA A BASSA TENSIONE

LOW VOLTAGE SINGLE DIRECTION PWM DC MOTORS CONTROL

SCHEMA DEI COLLEGAMENTI - MAIN CONNECTION DIAGRAM



Attenzione: se si scollega il potenziometro con la scheda alimentata, il motore ruota alla velocità nominale.

Warning: *if speed pot is disconnected when the board is powered, the motor runs at its maximum speed.*

Caratteristiche tecniche

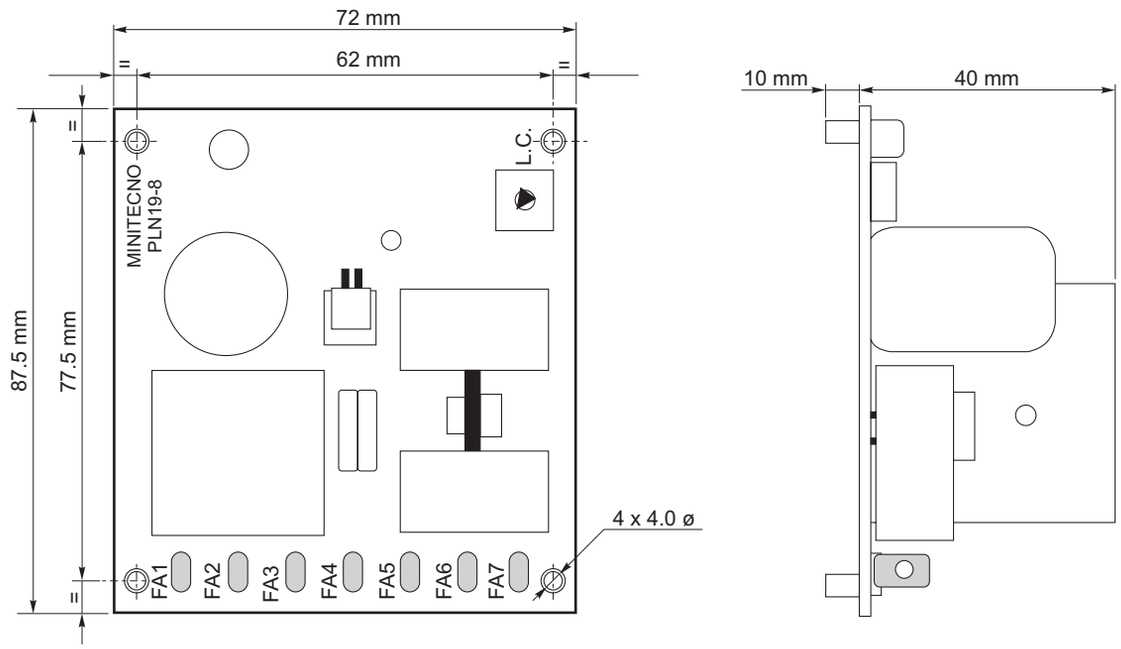
- Alimentazione ai terminali FA1 e FA2:
  12 - 24 Vca oppure 15 - 35 Vcc.
- Regolazione della velocità mediante potenziometro 10 KOHM.
- Trimmer di Limitazione della corrente, per adattare la scheda anche a motori di piccole potenze. Per limitare l' erogazione di corrente, ruotare in senso orario il trimmer.
- Uscita motore ai terminali FA3 e FA4, regolabile da 0 a Vcc MAX che è proporzionale alla tensione di ingresso. Con 35 Vcc di alimentazione, l'uscita MAX è circa 30 Vcc.
- Corrente di uscita (*): Massima corrente ammessa: 8 A in ambiente ventilato, servizio continuo.
- Peso: 0.120 Kg.

Technical features

- *Line voltage at terminals FA1 and FA2:*
  12 – 24 Vac or 15 – 35 Vdc.
- *The speed of the drive is to be controlled by potentiometer, 10 KOHM.*
- *Current Limit trimmer, in order to suit the board for small motors. In order to limit the current, turn clock wise the trimmer.*
- *Output voltage from terminals FA3 and FA4, from 0 up to Vdc MAX which is proportional to the input voltage. With 35 Vdc input voltage, the max output voltage is about 30 Vdc.*
- *Output current (*): Maximum output current allowed: 8 A in a ventilated environment, continuous duty.*
- *Weight: 0.120 Kg.*

Dimensioni

Dimensions



Opzioni

Options

1. Potenziometro 10 KΩ
2. Supporto per montaggio su guida DIN

1. *Speed potentiometer 10 KΩ*
2. *DIN mounting support*

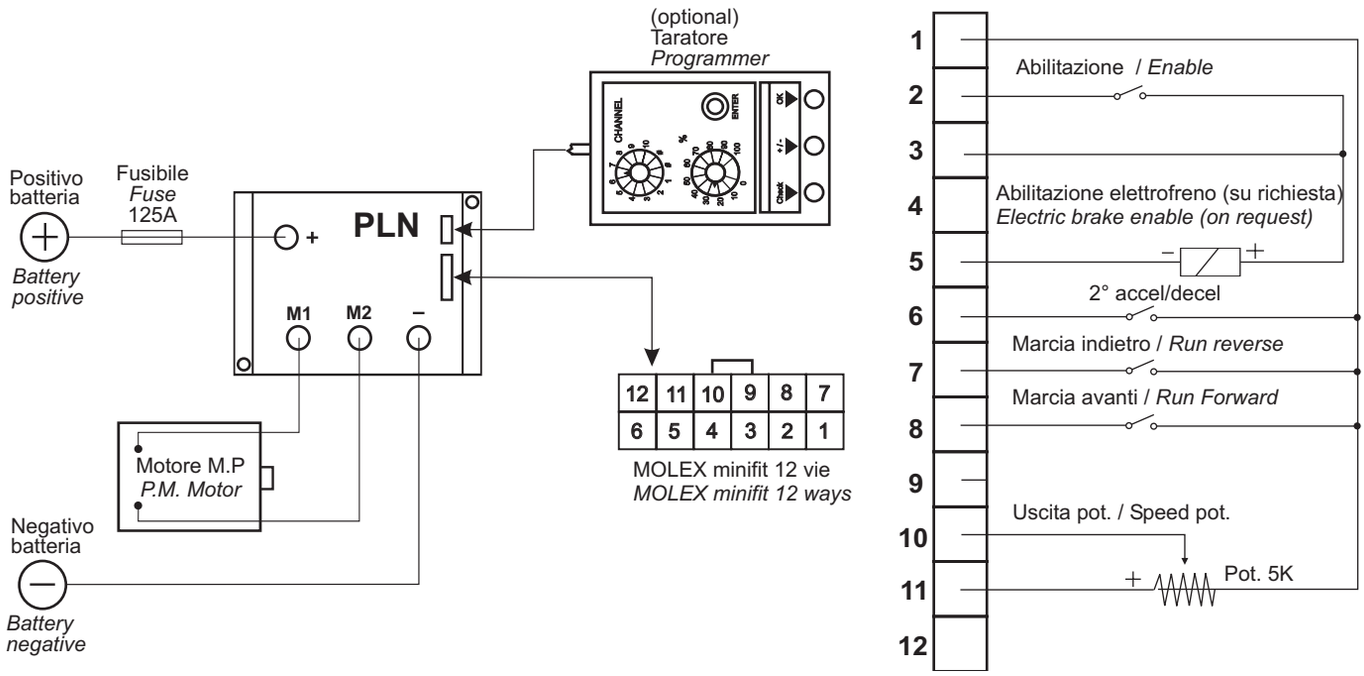
(*) il valore massimo di corrente motore deve essere utilizzato in **ambiente ventilato**. In ambienti non ventilati e per temperatura ambiente di 45 °C, ridurre la corrente motore massima a 4 A; servizio continuo.

(*) *the maximum output current value is available to be used **in a ventilated environment.** Derate the maximum output current down to 4 A if environment is not ventilated and its temperature is about 45 °C; continuous duty.*

AZIONAMENTO BIDIREZIONALE PWM PER LA REGOLAZIONE DI VELOCITA' DEI MOTORI A CORRENTE CONTINUA A BASSA TENSIONE

LOW VOLTAGE BIDIRECTIONAL PWM DC MOTORS CONTROL

SCHEMA DEI COLLEGAMENTI - MAIN CONNECTION DIAGRAM



Caratteristiche tecniche

- Scheda bidirezionale a transistor a ricircolo di corrente.
- Selezionabili i seguenti parametri (con programmatore opzionale):
  - rampa di accelerazione: 0.5 - 3 sec
  - rampa di decelerazione: 0.5 - 3 sec
  - limite massima velocità avanti
  - limite massima velocità indietro
  - seconda rampa di accelerazione
  - seconda rampa di decelerazione
- Temperatura di lavoro: -20°C / + 40°C (< 0°C suggerito resistore di riscaldamento)
- Diagnostica tramite LED rosso
- Frequenza di commutazione: 15kHz
- Robusto alloggiamento
- Velocità regolabile con potenziometro 5Kohm o con segnale 0-5 Vcc (0-10 Vcc a richiesta)

Technical features

- *Transistor bidirectional drive with regenerative current system.*
- *Following settings can be adjust by optional programming console:*
  - *acceleration ramp: 0.5 - 3 sec*
  - *deceleration ramp : 0.5 - 3 sec*
  - *max forward speed*
  - *max reverse speed*
  - *second acceleration ramp*
  - *second deleration ramp*
- *Room temperature: -20°C / + 40°C (< 0°C suggested heat resistor)*
- *RED LED: system diagnosis*
- *Switching frequency: 15kHz*
- *Rugged enclosure*
- *5 K Speed pot or 0-5 Vdc external signal for speed regulation (0-10 Vdc on request)*

Modello *Model number*	Tensione di alimentazione *DC input voltage* [Vdc]	Tensione di uscita *Motor voltage* (1) [Vdc]	Corrente di uscita nominale *DC load current* [A]	Corrente di picco motore *Maximum load current* [A]	Campo di alimentazione *Power supply range* [Vdc]
PLN1206	12	0 - 12	20	50 (1 min.)	10 ÷ 18
PLN1212	12	0 - 12	40	85 (1 min.)	10 ÷ 18
PLN2406	24	0 - 24	20	50 (1 min.)	16 ÷ 34
PLN2412	24	0 - 24	40	85 (1 min.)	16 ÷ 34

(1) Tensione di uscita: 36 Vcc a richiesta - *Motor voltage: 36 Vdc on request*

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Dimensioni / *Dimensions*

Modello *Model number*	Larghezza Width [mm]	Altezza Height [mm]	Profondità Depth [mm]	Peso weight [Kg]	Fori Fissaggio Fixing holes [mm]
PLN1206	160	105	60	0.60	83 x 140
PLN1212	180	120	60	0.85	104 x 164
PLN2406	160	105	60	0.60	83 x 140
PLN2412	180	120	60	0.85	104 x 164

Programmatore (opzionale) / *Programmer (optional)*

La scheda è predisposta per l'utilizzo di un programmatore portatile (opzionale) che consente di selezionare e modificare i principali parametri di funzionamento, nonché di effettuare la diagnostica della scheda.

1. Selezione parametro
2. Regolazione taratura
3. Pulsante di conferma
4. LED verde di alimentazione corretta
5. LED giallo, di allarme inversione polarità
6. LED rosso di allarme e diagnostica

Procedura di programmazione

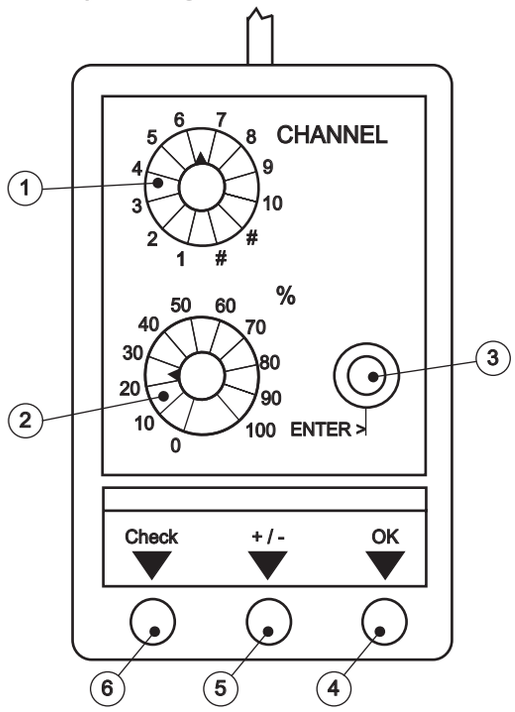
- Selezionare il parametro con selettore (1).
- Regolare il valore desiderato col taratore (2); il selettore varia in modo continuo e una scala graduata da 0 a 100% facilita l'operazione.
- Premere il pulsante di conferma per almeno 0.5 sec. Il LED rosso lampeggia ad indicare che il dato è stato acquisito.

Set up procedure

- *Select the parameter to be changed, with the parameter selector (1).*
- *Turn cursor (2) to select the parameter to be changed in continuous mode. A graduated scale that shows the value entered is provided on the console. The scale ranges from: 0% - 100%.*
- *Hold down key ENTER at least 0.5 seconds. When the microprocessor has acquired the set value, the red diagnostic LED flashes briefly.*

The hand-held set up - diagnostic console (optional) allows the drives to be easily adjusted for better performances and to be checked for alarm and system diagnosis.

1. *Parameter selector*
2. *Percentage setting*
3. *Enter*
4. *Green LED power on*
5. *Yellow LED system power supply polarity reversed.*
6. *Alarm and system diagnosis*



Lista parametri

1. Accelerazione 0.5 ÷ 3 sec. (valore di default: circa 1 sec.)
2. Decelerazione 0.5 ÷ 3 sec. (valore di default: circa 1 sec.)
3. Limite massima velocità avanti (valore di default: 100%)
4. Limite massima velocità indietro (valore di default: 100%)
5. N.A.
6. N.A.
7. Seconda accelerazione 0.5 ÷ 3 sec. (val. di default: circa 1 sec.)
8. Seconda decelerazione 0.5 ÷ 3 sec. (val. di default: circa 1 sec.)
9. N.A.

Nota: i valori di accelerazione e decelerazione sono da intendersi dalla minima alla massima tensione e viceversa.

Settings

1. *Acceleration 0.5 ÷ 3 sec. (default: about 1 sec.)*
2. *Deceleration 0.5 ÷ 3 sec. (default: about 1 sec.)*
3. *Max forward speed (default: 100%)*
4. *Max reverse speed (default: 100%)*
5. N.A.
6. N.A.
7. Second acceleration 0.5 ÷ 3 sec. (default: about 1 sec.)
8. Second deceleration 0.5 ÷ 3 sec. (default: about 1 sec.)
9. N.A.

Note: accel. and decel. time is to change from minimum to max speed and viceversa

Simbologia — *Symbols*

→	Monodirezionale	*Single direction*
↔	Bidirezionale	*Bidirectional*
▲	Disponibili rampe di acc e dec (selezionabili tramite taratore opzionale)	*Available acc. and decel. ramp (selection by optional programmer)*
═	In abbinamento con qs motore, la scheda può funzionare in servizio continuo	*Together with this motor, the drive can work in continuous duty*
⏚	In abbinamento con qs motore , la scheda può funzionare solo in servizio intermittente	*Together with this motor, the drive can work only in intermittent duty*
n.a.	Selezione non disponibile	*Not available selection*
*	Contattare il Servizio Tecnico	*Contact out Technical Service*

Motori applicabili — *Suitable motors*

Tipo *Type*	Alimentazione *Supply*	Dati *Data*	Motori applicabili *Suitable motors*	Servizio *Duty* S1	Servizio *Duty* S2
PLN19-8	9 -12 Vac 12 Vdc	→	**EC020.120**	═	═
			EC020.24E	═	═
			EC035.120	═	⏚
			EC035.240	═	═
			EC050.120	⏚	n.a.
			EC050.240	═	═
			EC070.240	═	⏚
			EC100.240	⏚	n.a.
			EC100.24E	⏚	n.a.
PLN1206	12 Vdc	↔ ▲	**EC020.120**	═	═
			EC035.120	═	═
			EC050.120	═	═
			EC070.120	═	═
			EC100.120	═	═
			EC180.120	═	⏚
			ND120.120	═	═
PLN2406	24 Vdc	↔ ▲	**EC020.24E**	═	═
			EC035.240	═	═
			EC050.240	═	═
			EC070.240	═	═
			EC100.240	═	═
			EC100.24E	═	═
			EC180.240	═	═
			EC180.24E	═	═
			EC350.240	═	⏚
			ND120.240	═	═
PLN1212	12 Vdc	↔ ▲	**EC180.120**	═	═
			EC350.120	═	⏚
			EC600.120	⏚	*
PLN2412	24 Vdc	↔ ▲	**EC350.240**	═	═
			EC600.240	═	⏚

* Contattare il Servizio Tecnico / *Contact our Technical Service*

Note

Note

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