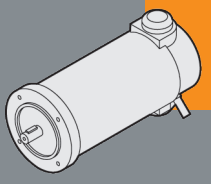
TRANSTECNO®
THE MODULAR GEARMOTOR

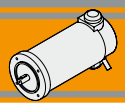
EC



MOTORI ELETTRICI C.C. A MAGNETI PERMANENTI

PERMANENT MAGNETS D.C. ELECTRIC MOTORS

TRANSTECNO · GENUINE · PRODUCTS



	Indice	*Index*	Pag. Page
	Caratteristiche tecniche	*Technical features*	I2
	Grado di protezione IP	*IP enclosures protection indexes*	I3
	Classe di isolamento termico	*Insulation class*	I3
	Servizio	*Duty cycle*	I3
	Fattore di forma	*Form factor*	I3
	Simbologia	*Symbols*	I3
EC020.120 EC020.24E	Caratteristiche	*Features*	I4
	Dimensioni	*Dimensions*	I4
	Prestazioni	*Performances*	I5
EC035.120 EC035.240	Caratteristiche	*Features*	I6
	Dimensioni	*Dimensions*	I6
	Prestazioni	*Performances*	I7
EC050.12E EC050.24E	Caratteristiche	*Features*	I8
	Dimensioni	*Dimensions*	I8
	Prestazioni	*Performances*	I9
EC070.120 EC070.240	Caratteristiche	*Features*	I10
	Dimensioni	*Dimensions*	I10
	Prestazioni	*Performances*	I11
EC100.120 EC100.240 EC100.24E	Caratteristiche	*Features*	I12
	Dimensioni	*Dimensions*	I12
	Prestazioni	*Performances*	I13
EC180.120 EC180.240 EC180.24E	Caratteristiche	*Features*	I14
	Dimensioni	*Dimensions*	I14
	Prestazioni	*Performances*	I15
EC250.120 EC250.240	Caratteristiche	*Features*	I16
	Dimensioni	*Dimensions*	I16
	Prestazioni	*Performances*	I17
EC350.120 EC350.120BR EC350.240 EC350.240BR	Caratteristiche	*Features*	I18
	Dimensioni	*Dimensions*	I18
	Prestazioni	*Performances*	I19
EC600.120 EC600.120BR EC600.240 EC600.240BR	Caratteristiche	*Features*	I20
	Dimensioni	*Dimensions*	I20
	Prestazioni	*Performances*	I21
	Legenda / Glossario dei grafici	*Key / Diagram Glossary*	I22
	Formule utili	*Useful formulas*	I22

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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

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.

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.

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:

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*

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.

Duty cycle

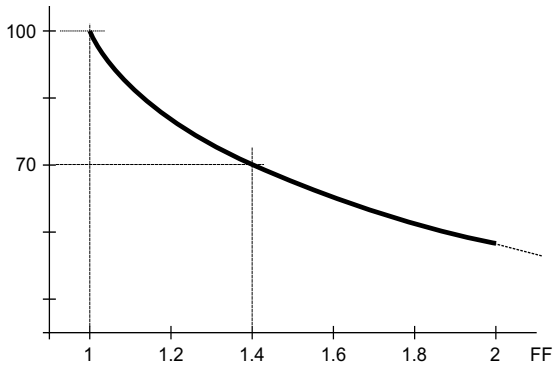
This represents the relationship between the time the motor operates and the time it remains stationary. Continuous operation (S1) = the motor operates non-stop under full load.

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.

Form factor

It 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.

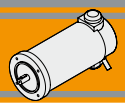
The graph below indicates the torque trend (percentage) in relation to the form factor.



Simbologia

Symbols

S	—	Servizio / *Duty*	**M_{Br}**	[Nm]	Coppia nominale del freno / *Brake motor torque*
Pn	[W]	Potenza in uscita / *Rated power*	**n_1 max**	[min^{-1}]	Velocità massima / *Max speed*
Pa	[W]	Potenza assorbita / *Absorbed power*	**T_r**	[ms]	Tempo di inserzione / *Engaging time*
Mn	[Nm]	Coppia nominale / *Rated torque*	**T_f**	[ms]	Tempo di disimpegno / *Disengaging time*
V	[V]	Tensione / *Voltage*	**IC**	—	Classe d'isolamento termico / *Thermal insulation class*
I	[A]	Corrente assorbita / *Absorbed current*	**FF**	—	Fattore di forma / *Form factor*
n1	[min-1]	Numero giri motore / *Motor speed*	**IP**	—	Classe di protezione / *Protection class*
Sv	[rad/s]	Velocità angolare / *Angular speed*	**η**	—	Rendimento / *Efficiency*
Pe	[W]	Potenza elettrica del freno / *Brake electric power*	**Kg**	—	Peso / *Weight*



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*

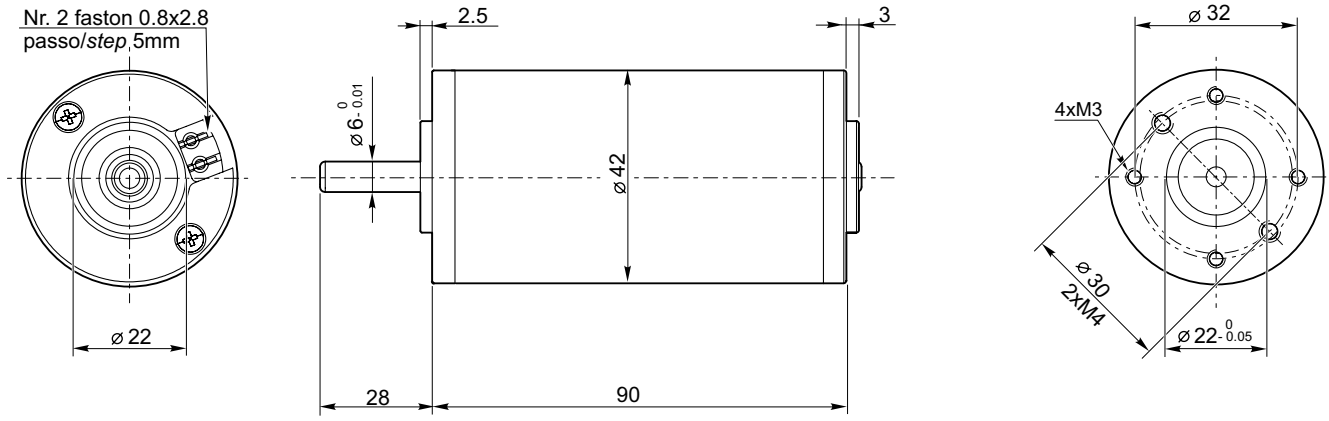
Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 42 mm
Potenza	30 W S2 (20 W S1)
Magneti	2
Supporti	Cuscinetti a sfera
Fori di montaggio	4
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 2 di composto grafite-rame
Cavo di alimentazione	Connettori faston (0.8 x 2.8 mm)
Opzioni	Filtro EMC
	Encoder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

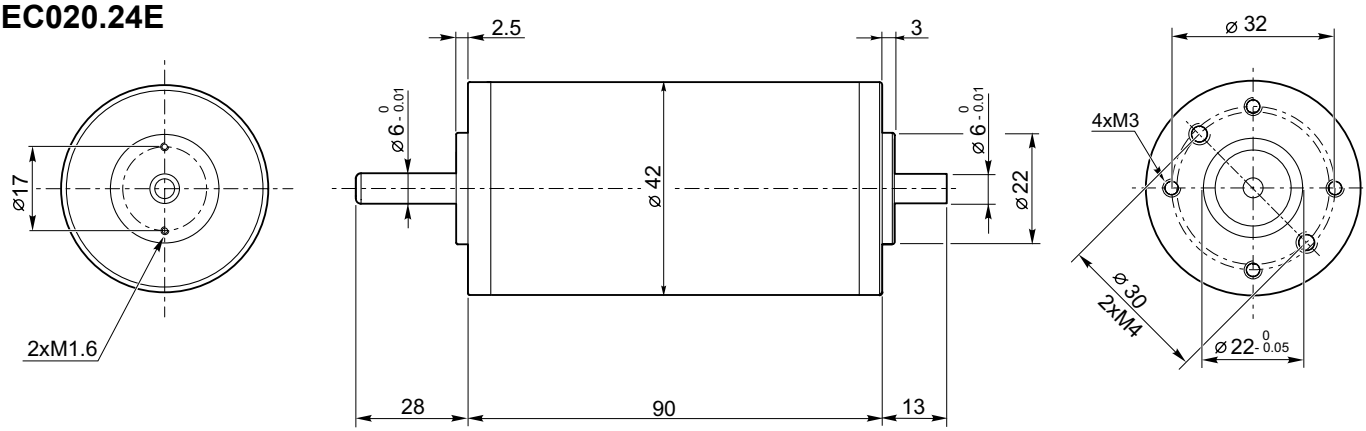
Tipo *Type*	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC020.120	**S1**	20	12	2.6	B	1	0.06	2850	20	0.4
	S2 6'	30		3.5			0.08			
EC020.24E	**S1**	20	24	1.4			0.06			
	S2 6'	30		1.9			0.08			

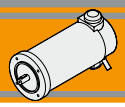
Dimensioni / *Dimensions*

EC020.120



EC020.24E

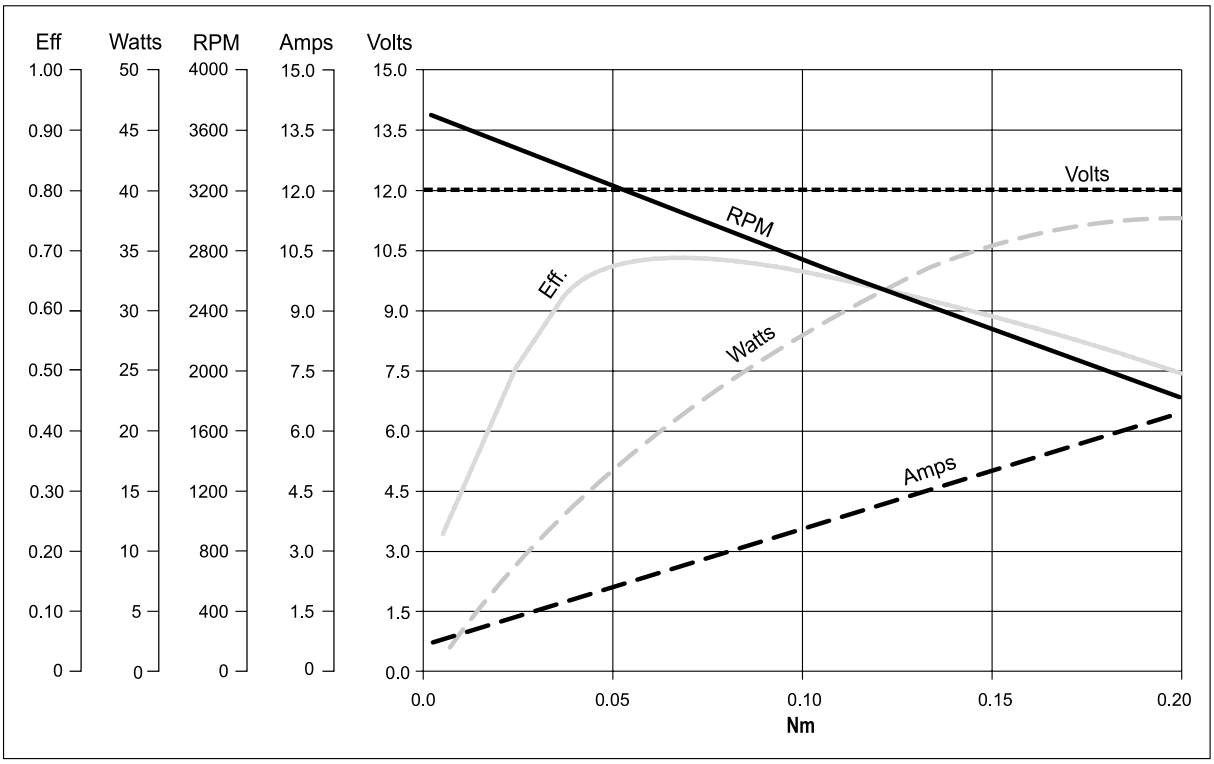




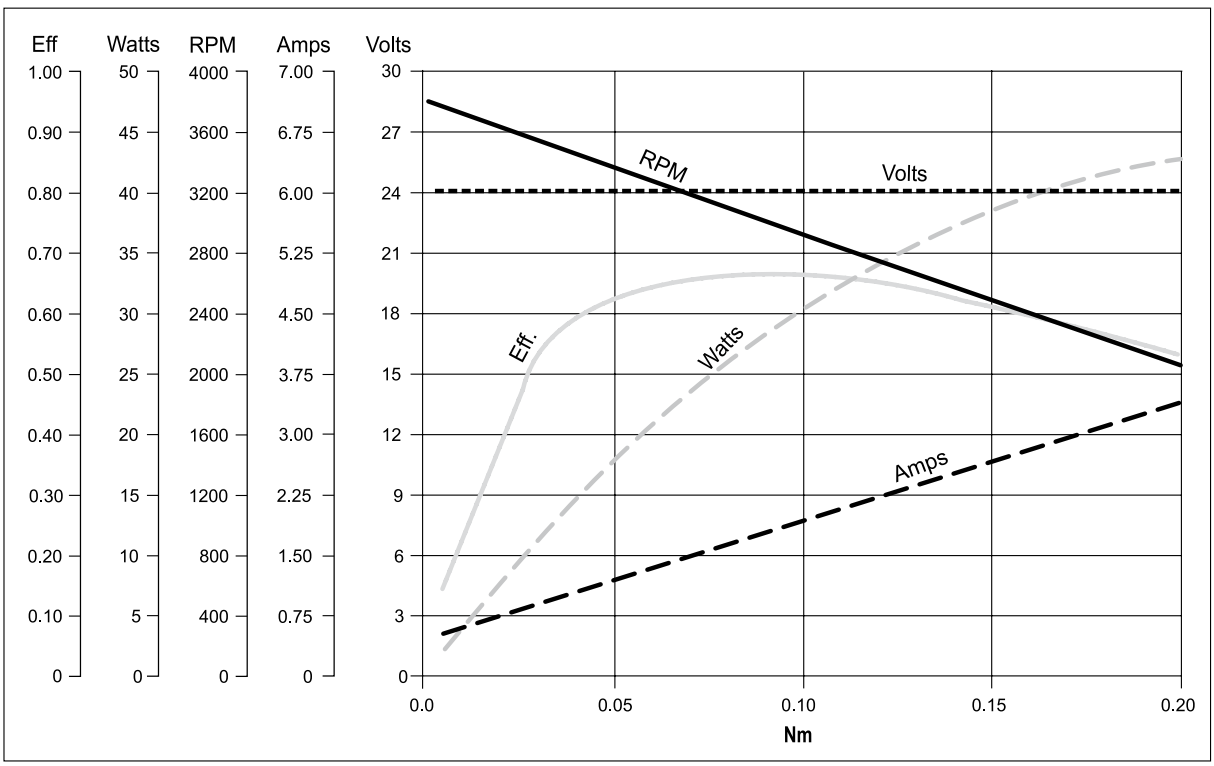
EC020.120 - EC020.24E

Prestazioni ***Performances***

EC020.120



EC020.24E



EC035.120 - EC035.240

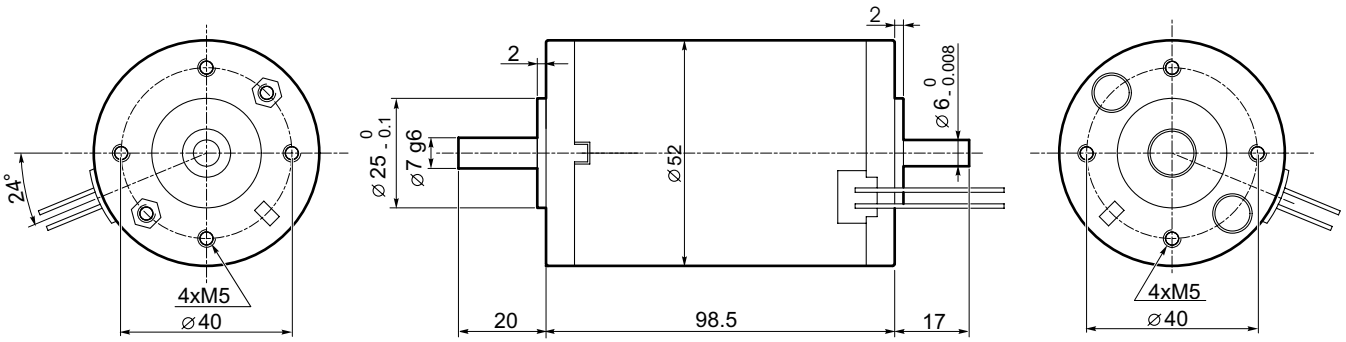
Caratteristiche / *Features*

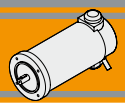
Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 52 mm
Potenza	55 W S2 (35 W S1)
Magneti	2
Supporti	Cuscinetti a sfera
Fori di montaggio	4
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 2 interne di composto grafite-rame
Cavo di alimentazione	Lunghezza: 200 mm
Opzioni	Encoder magnetico max. 1 imp/giro, max.2 canali

Construction	*Tubular, without fan*
Size	*Ø 52 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	*Length: 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*

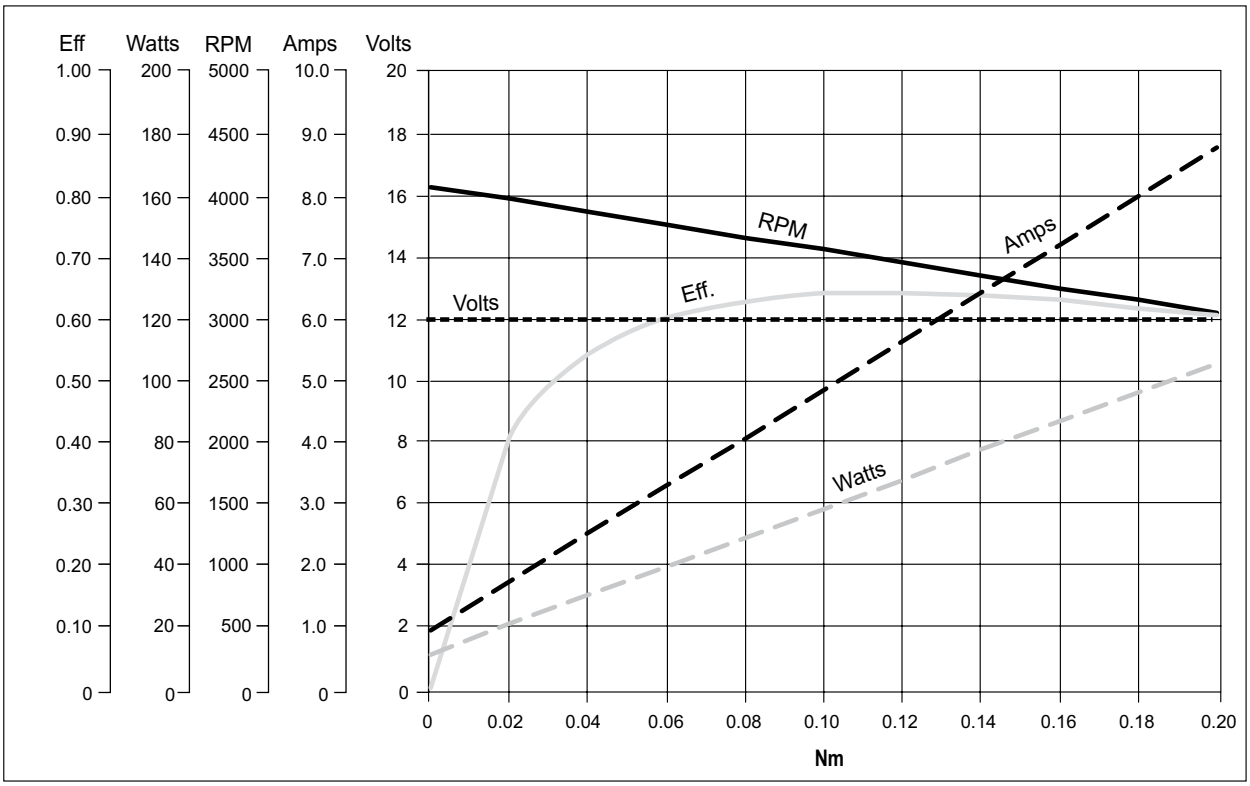




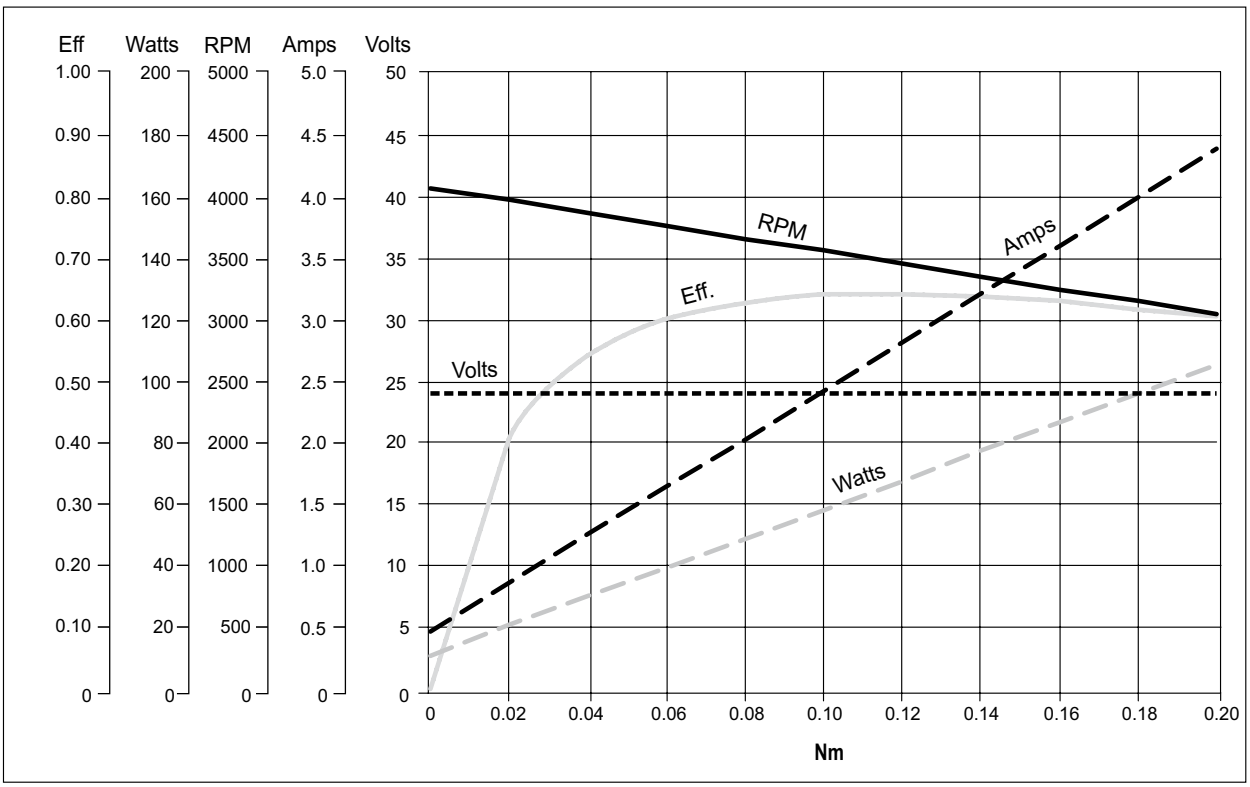
EC035.120 - EC035.240

Prestazioni ***Performances***

EC035.120



EC035.240



EC050.12E - EC050.24E

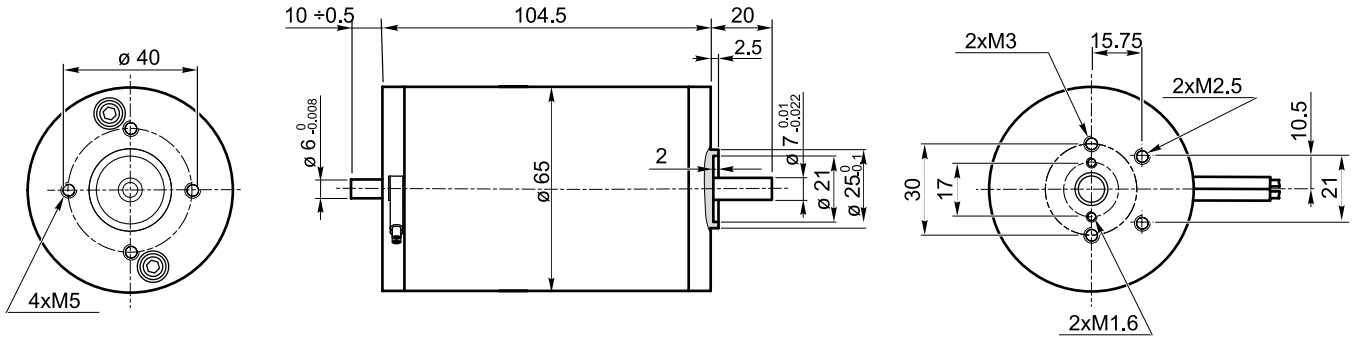
Caratteristiche / *Features*

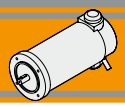
Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 65 mm
Potenza	70 W S2 (50 W S1)
Magneti	2
Supporti	Cuscinetti a sfera
Fori di montaggio	4
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 2 interne di composto grafite-rame
Cavo di alimentazione	Lunghezza: 200 mm
Bisporgenza	Standard

Construction	*Tubular, without fan*
Size	*Ø 65 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	*Length: 200 mm*
Rear Shaft	*Standard*

Tipo *Type*	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC050.12E	**S1**	50	12	6.5	F	1	0.16	3000	44	1.2
	S2 15'	70		9.0			0.22			
EC050.24E	**S1**	50	24	3.2			0.16			
	S2 15'	70		4.5			0.22			

Dimensioni / *Dimensions*

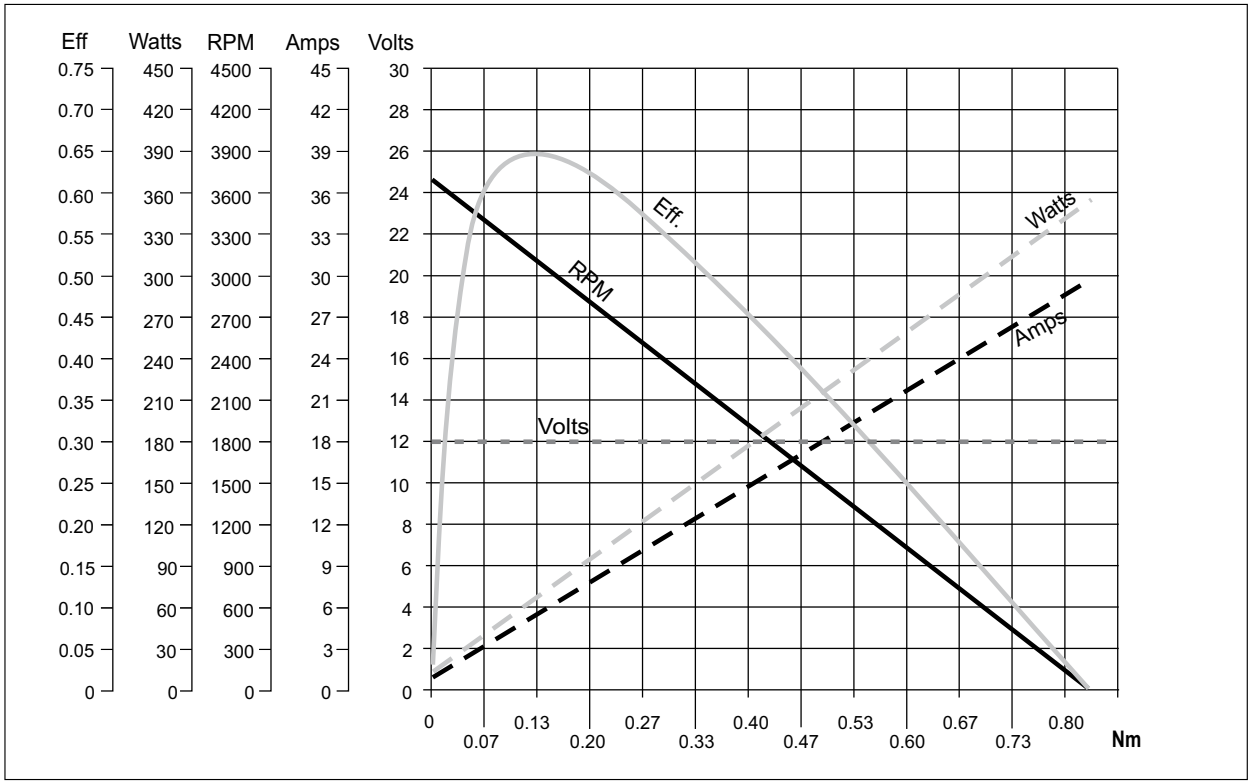




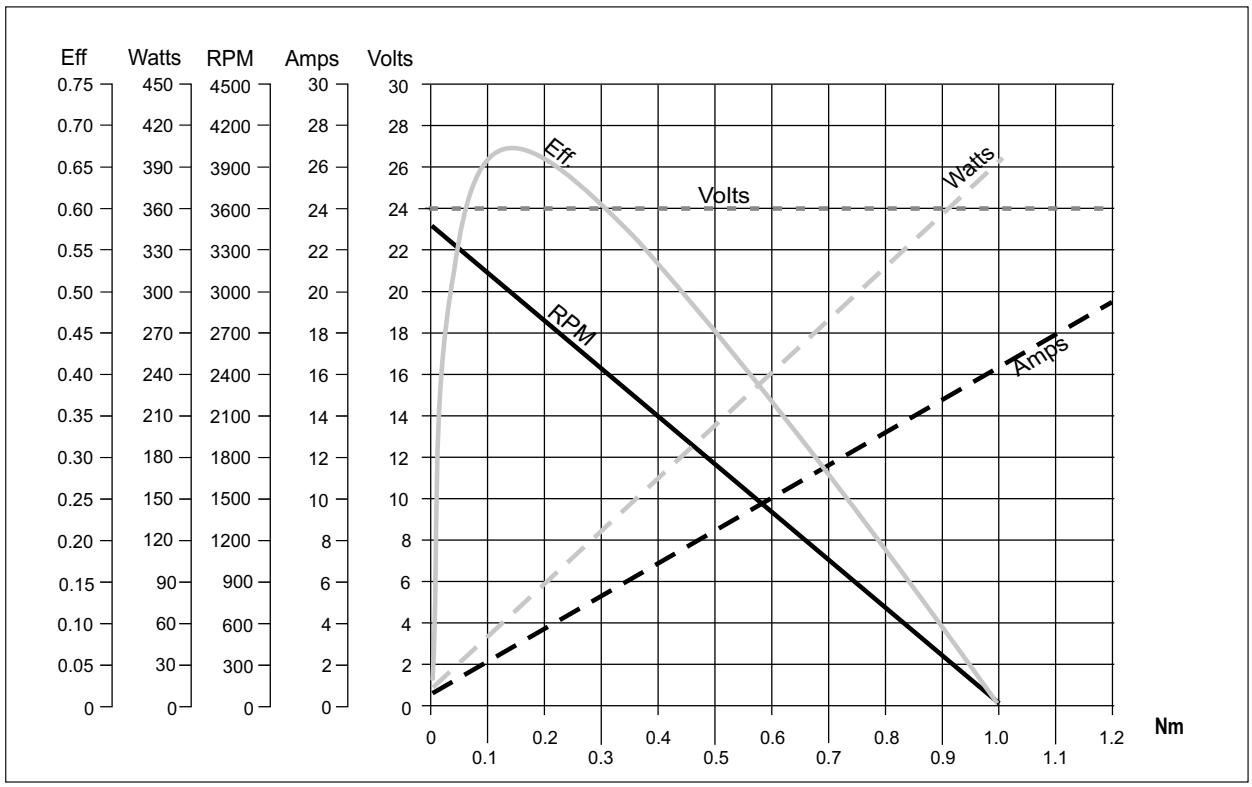
EC050.12E - EC050.24E

Prestazioni ***Performances***

EC050.12E



EC050.24E



EC070.120 - EC070.240

Caratteristiche

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

Features

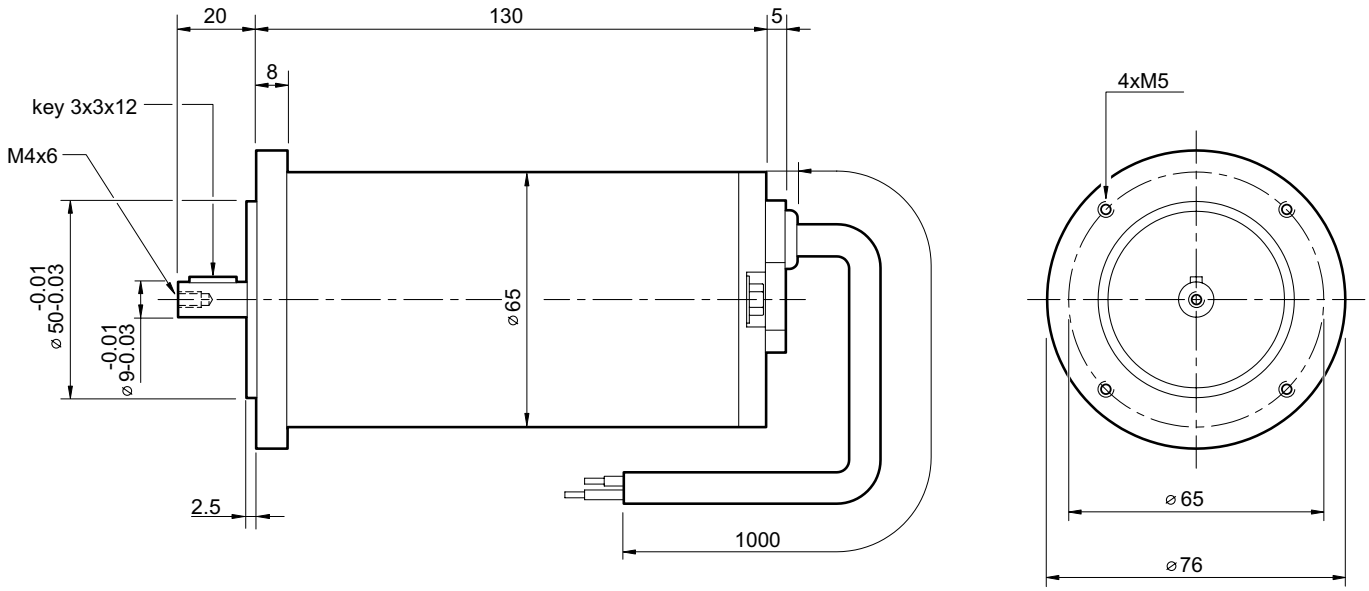
Construction	*Tubular, without fan*
Size	*Ø 65 mm*
Power	*100 W S2*
Magnets	*2*
Bearings	*Ball bearings*
Mounting holes	*4*
Power supply	*Low voltage, 12 or 24 Vdc*
Brushes	*2 inside brushes made of graphite/copper composite*
Electric cable	*Length: 1000 mm*

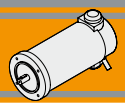
Tipo *Type*	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC070.120	**S2 20'**	100	12	11.8	F	1	0.31	3000	44	1.7
EC070.240	**S2 20'**	100	24	5.9			0.31			

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

Dimensioni

Dimensions

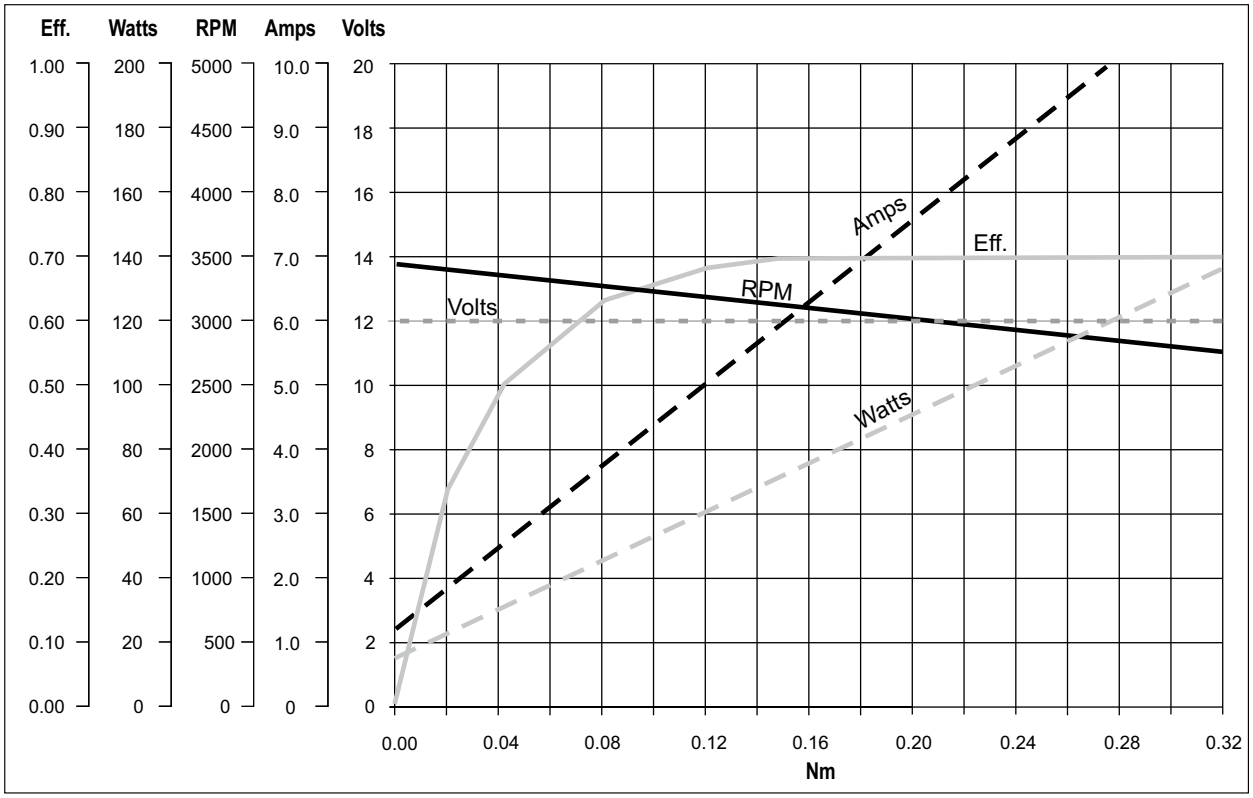




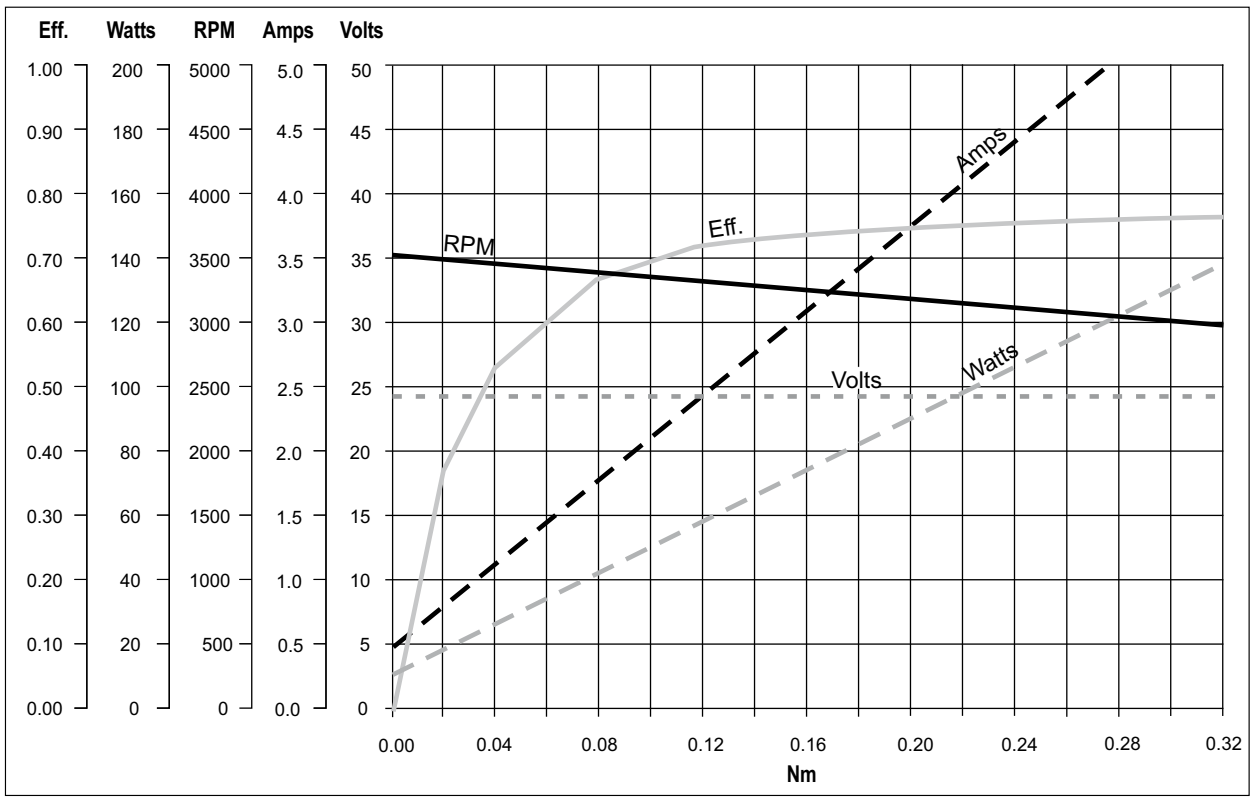
EC070.120 - EC070.240

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	*Length: 1000 mm*
Rear shaft	*Standard only EC100.24E*

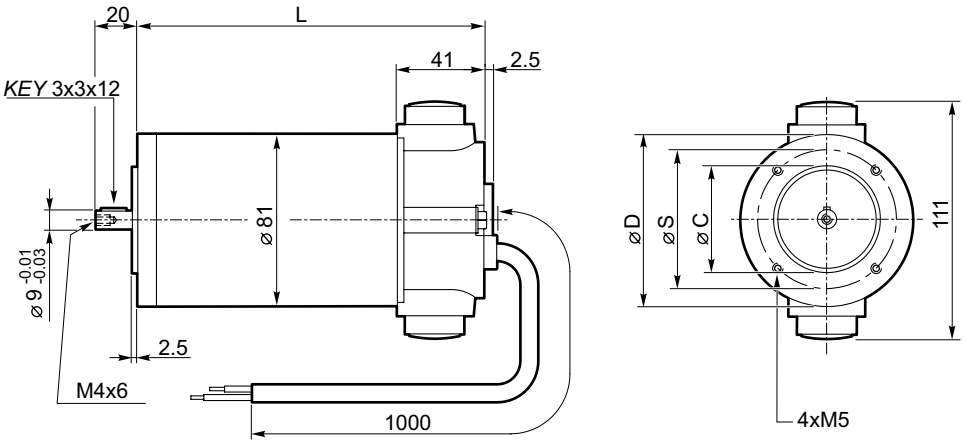
Tipo *Type*	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC100.120	**S1**	100	12	12	F	1	0.31	3000	44	2.7
	S2 25'	140		16.8			0.43			
EC100.240	**S1**	100	24	6			0.31			
	S2 25'	140		8.4			0.43			
EC100.24E	**S1**	100		6			0.31			
	S2 25'	140		8.4			0.43			

Dimensioni / *Dimensions*

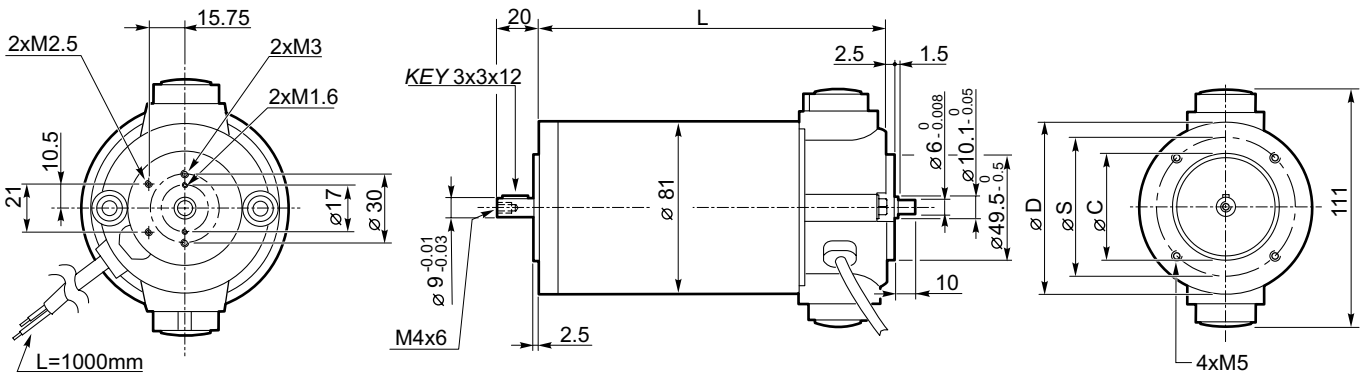
EC100.120
EC100.240

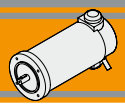
56 B14	
L	153
D	80
S	65
C (-0.03 / -0.01)	50
63B14*	
L	155
D	90
S	75
C (-0.03 / -0.01)	60

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



EC100.24E

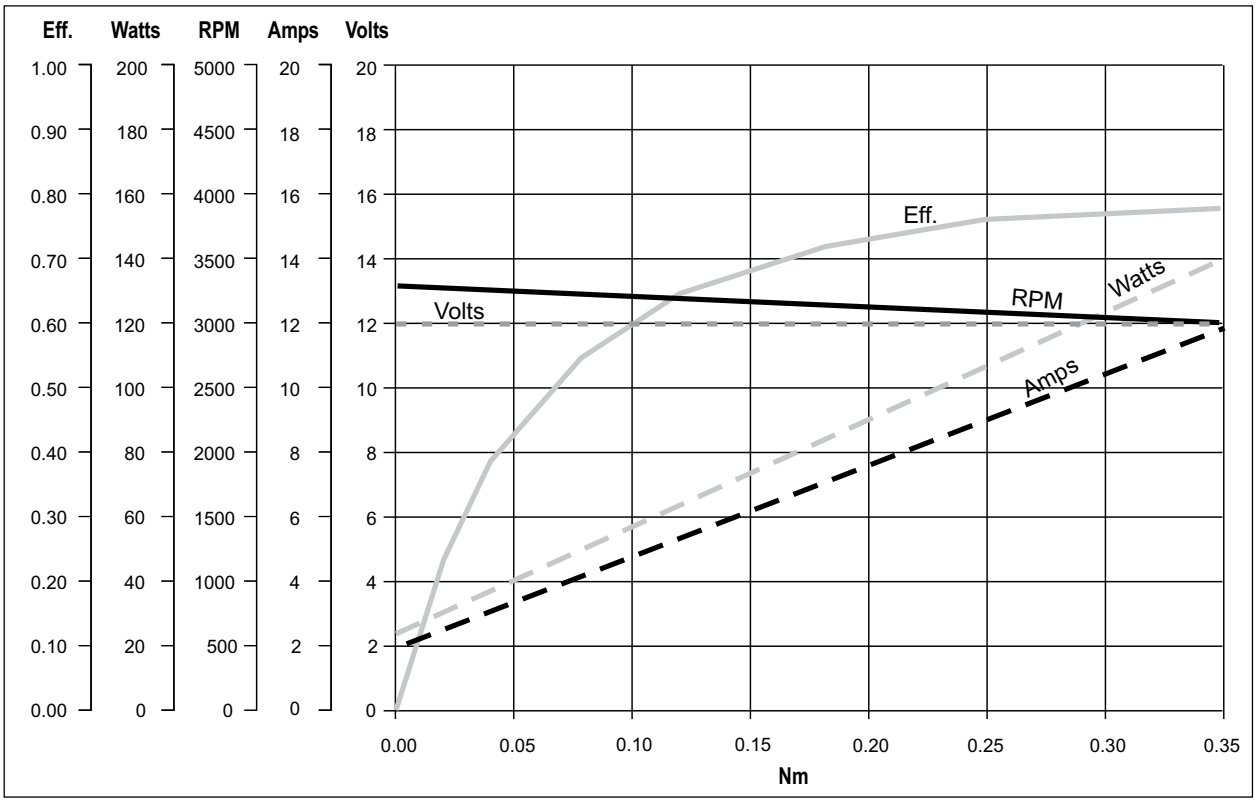




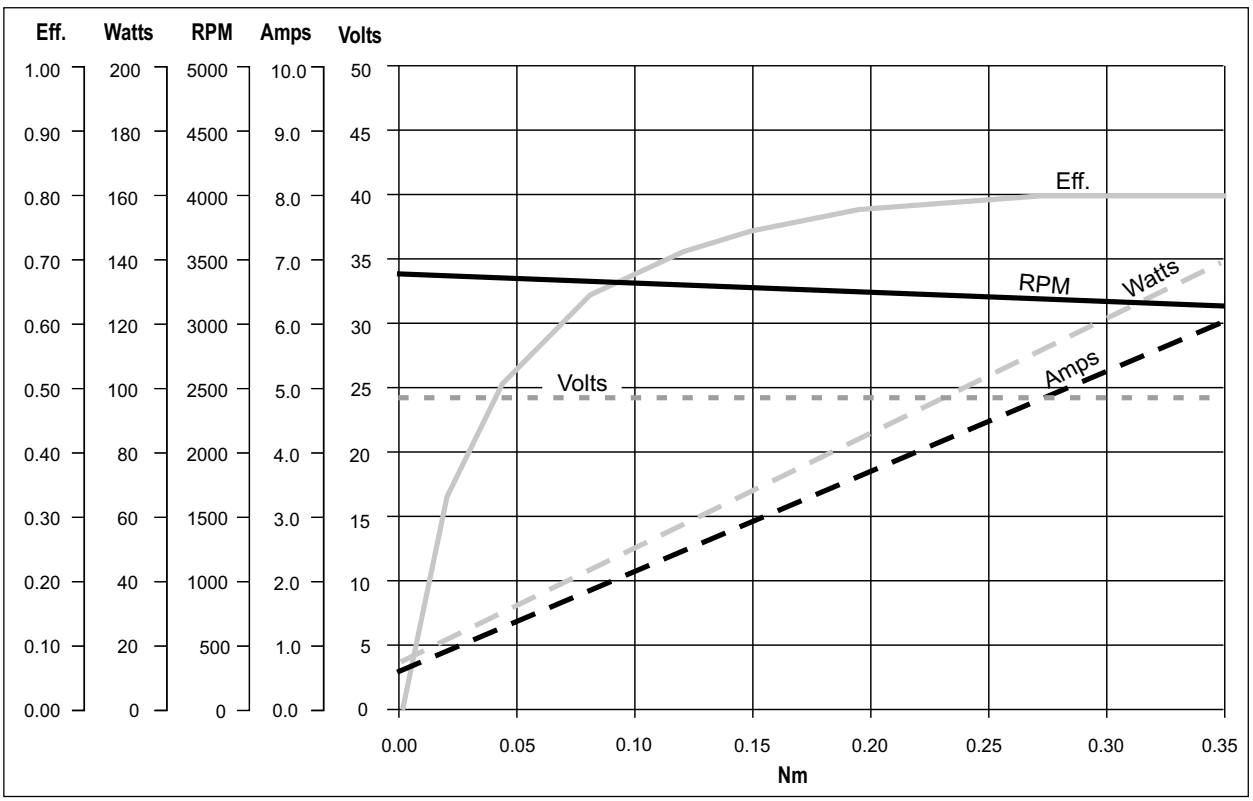
EC100.120 - EC100.240 - EC100.24E

Prestazioni ***Performances***

EC100.120



EC100.240 - EC100.24E



EC

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

Caratteristiche / *Features*

Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 80 mm
Potenza	250 W S2 (180 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 EC180.24E

Construction	*Tubular, without fan*
Size	*Ø 80 mm*
Power	*250 W S2 (180 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	*LxPxH = 17.1 x 6.5 x 16.7 mm*
Electric cable	*Length: 1000 mm*
Rear shaft	*Standard only EC180.24E*

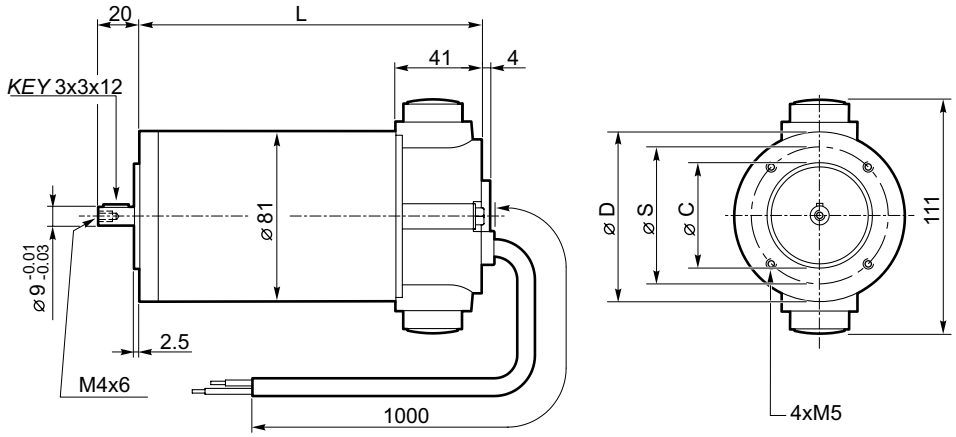
Tipo *Type*	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC180.120	**S1**	180	12	21.5	F	1	0.57	3000	IP44	3.4
	S2 25'	250		30			0.8			
EC180.240	**S1**	180	24	10.8			0.57			
	S2 25'	250		15			0.8			
EC180.24E	**S1**	180		10.8			0.57			
	S2 25'	250		15			0.8			

Dimensioni / *Dimensions*

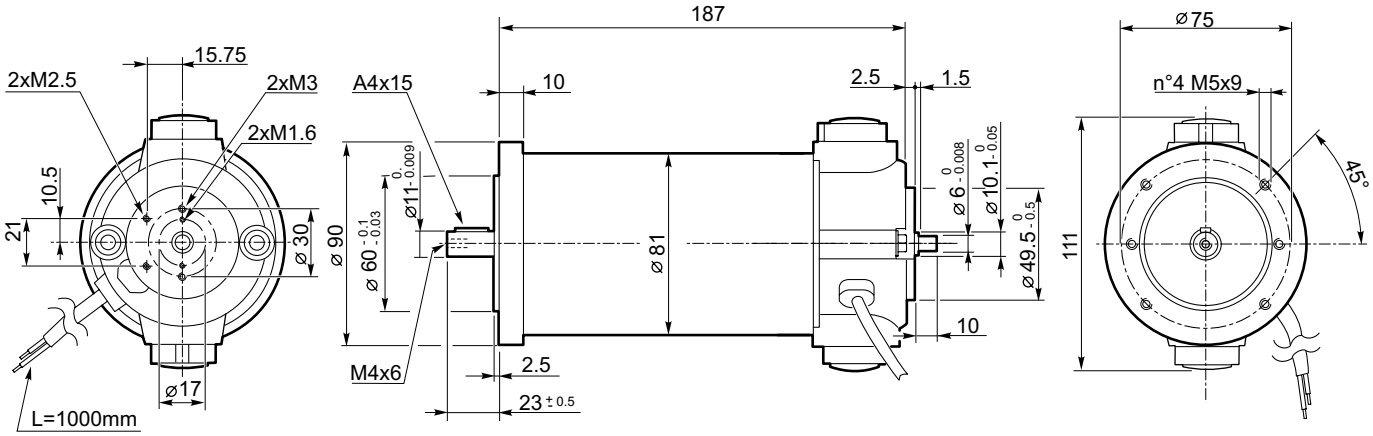
EC180.120
EC180.240

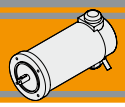
56 B14	
L	185
D	80
S	65
C (-0.03 / -0.01)	50
63B14*	
L	187
D	90
S	75
C (-0.03 / -0.01)	60

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



EC180.24E

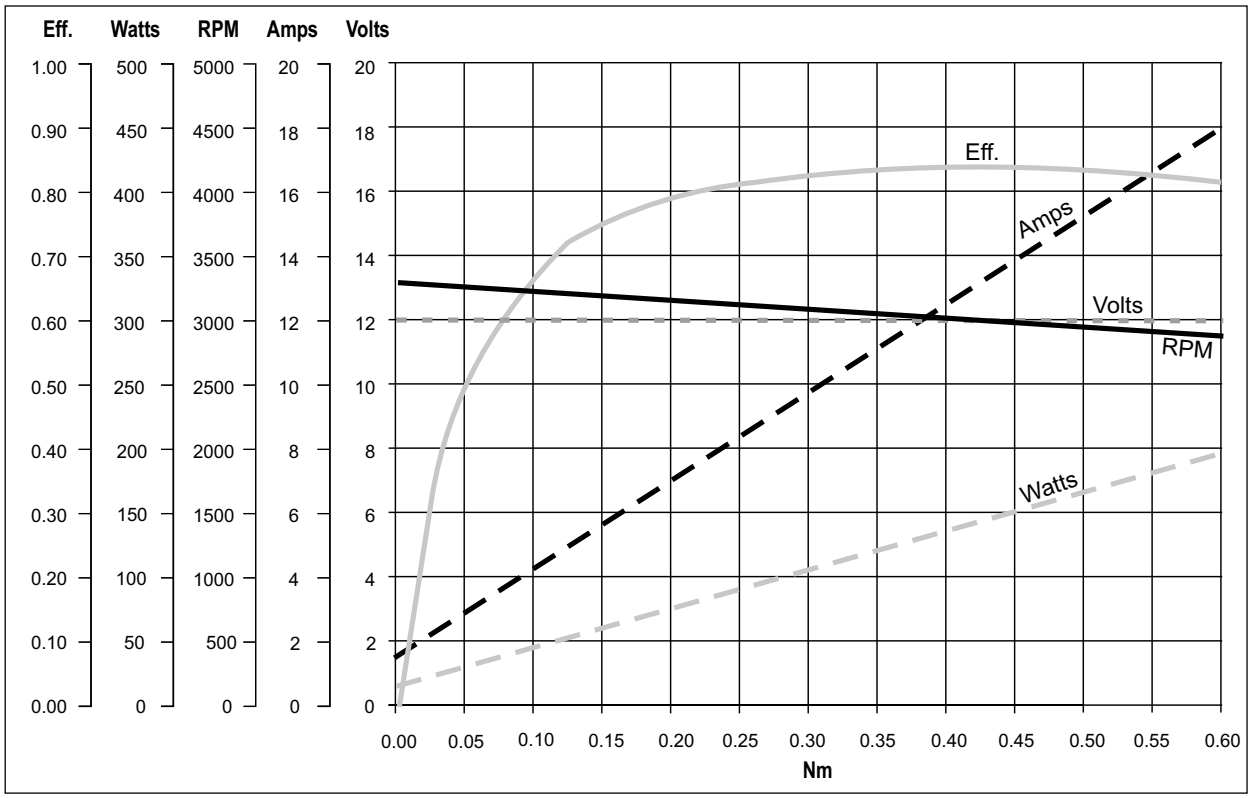




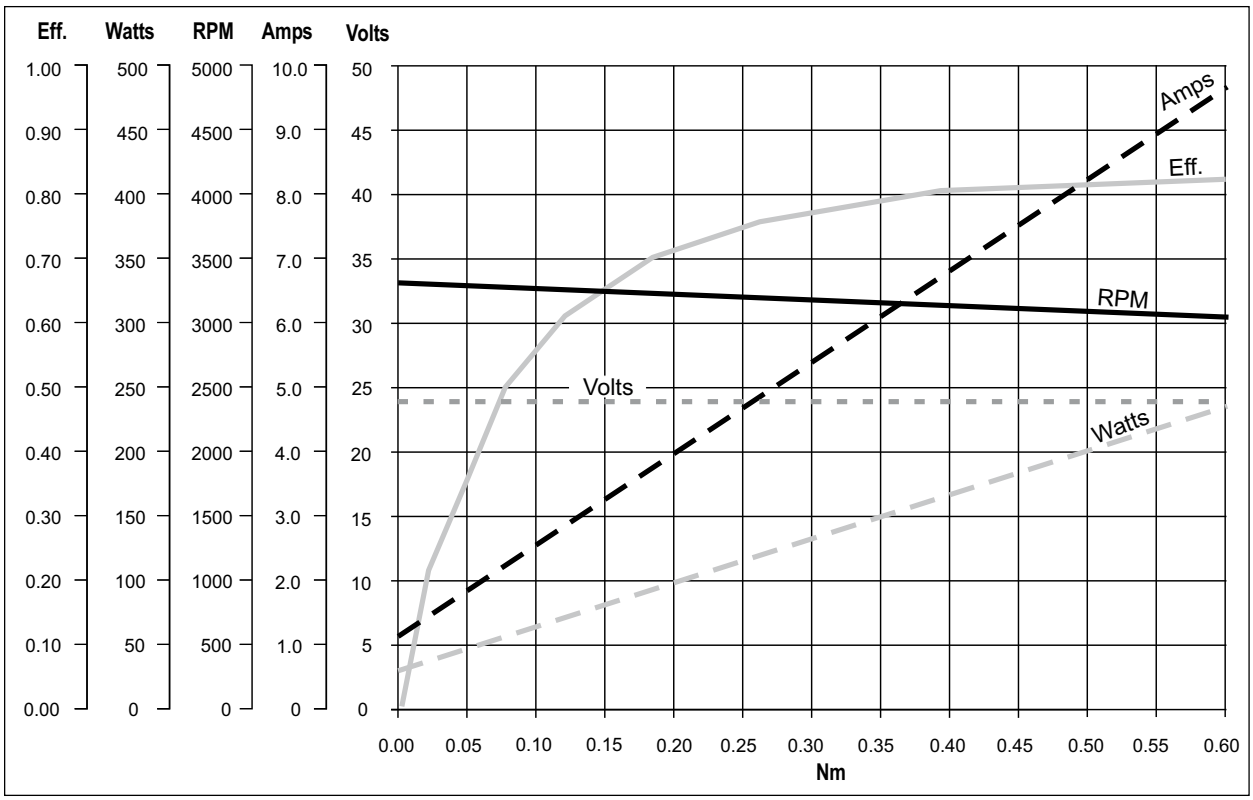
EC180.120 - EC180.240 - EC180.24E

Prestazioni ***Performances***

EC180.120



EC180.240 - EC180.24E



EC250.120 - EC250.240

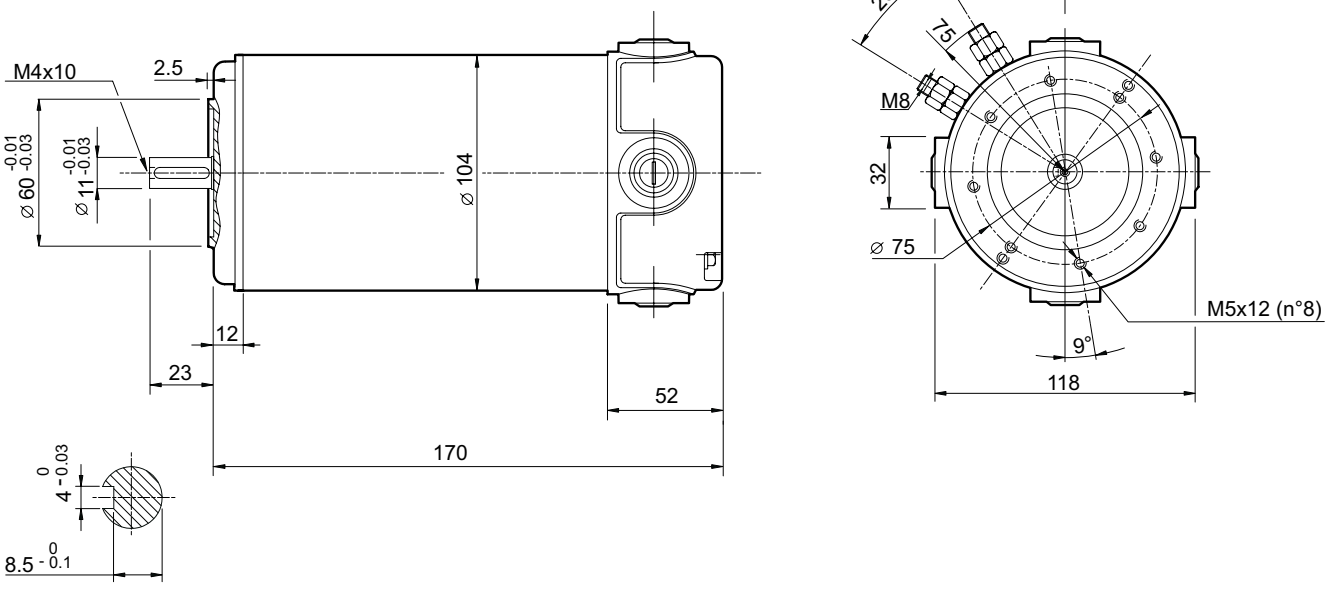
Caratteristiche / *Features*

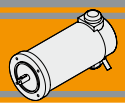
Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 104 mm
Potenza	350 W S2 (250 W S1)
Magneti	4
Supporti	Cuscinetti a sfera
Fori di montaggio	8
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 4 di composto grafite-rame
Dimensione spazzole	LxPxH = 18.9 x 9.5 x 16.7 mm
Terminali	2 con doppio dado di fissaggio

Construction	*Tubular, without fan*
Size	*Ø 104 mm*
Power	*350 W S2 (250 W S1)*
Magnets	*4*
Bearings	*Ball bearings*
Mounting holes	*8*
Power supply	*Low voltage, 12 or 24 Vdc*
Brushes	*4 inside 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
EC250.120	**S1**	250	12	30	F	1	0.8	3000	IP44	4.15
	S2 25'	350		38.5			1.12			
EC250.240	**S1**	250	24	15			0.8			
	S2 25'	350		20.5			1.12			

Dimensioni / *Dimensions*

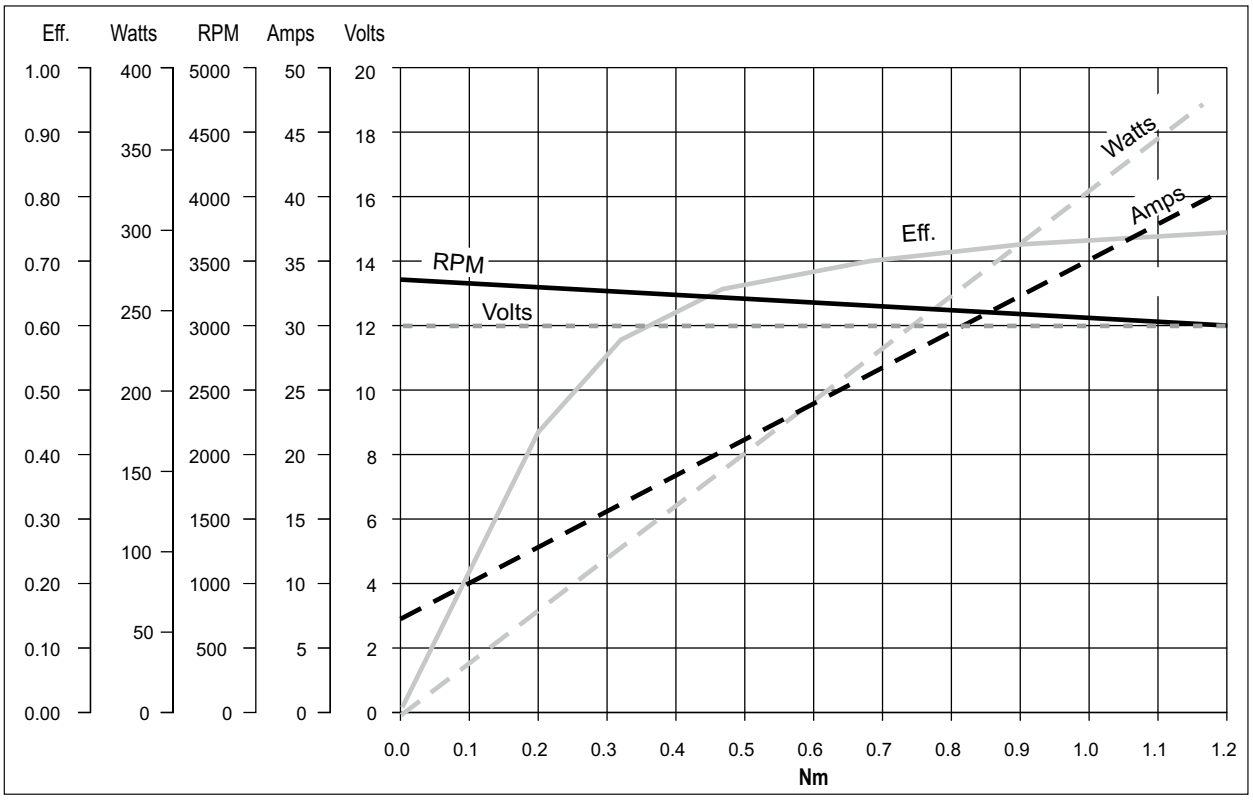




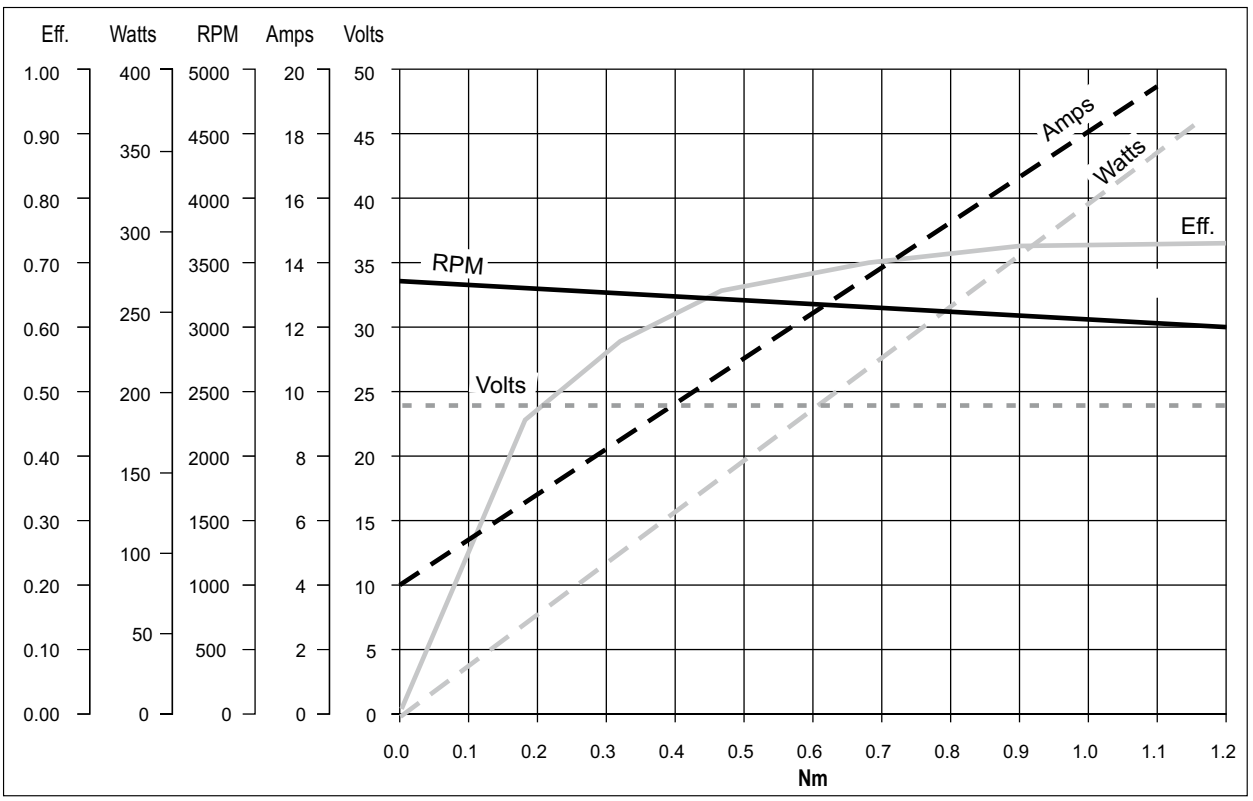
EC250.120 - EC250.240

Prestazioni ***Performances***

EC250.120



EC250.240



EC350.120 - EC350.120BR - EC350.240 - EC350.240BR

Caratteristiche / *Features*

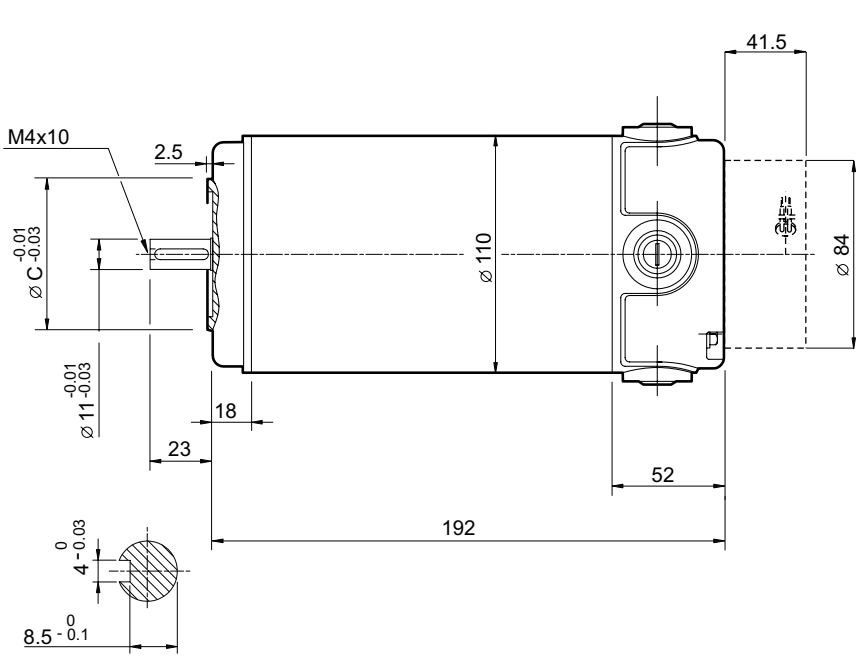
Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 110 mm
Potenza	500 W S2 (350 W S1)
Magneti	4
Supporti	Cuscinetti a sfera
Fori di montaggio	8
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 4 di composto grafite-rame
Dimensione spazzole	LxPxH = 18.9 x 9.5 x 16.7 mm
Terminali	2 con dadi di fissaggio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

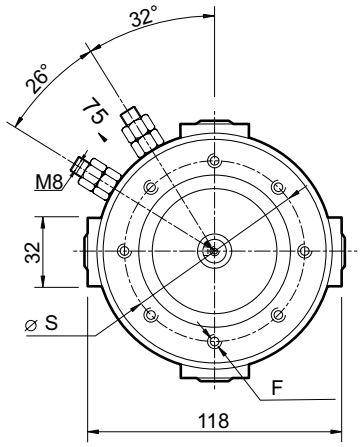
Construction	*Tubular, without fan*
Size	*Ø 110 mm*
Power	*500 W S2 (350 W S1)*
Magnets	*4*
Bearings	*Ball bearings*
Mounting holes	*8*
Power supply	*Low voltage, 12 or 24 Vdc*
Brushes	*4 brushes made of graphite/copper composite*
Brushes size	*LxPxH = 18.9 x 9.5 x 16.7 mm*
Leads terminals	*2, with double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

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
EC350.120BR	**S2 30'**	500		58.8			1.57			5.9
EC350.240	**S1**	350	24	21			1.12			5.3
EC350.240BR	**S2 30'**	500		29.4			1.57			6.1

Freno *Brake*	M_{Br} [Nm]	Pe [W]	V [V]	T_r [≤ ms]	T_f [≤ ms]	n_1 max [min^{-1}]
EC350.120BR	**5**	25	12	75	65	3000
EC350.240BR			24			

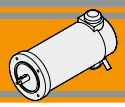
Dimensioni / *Dimensions*





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

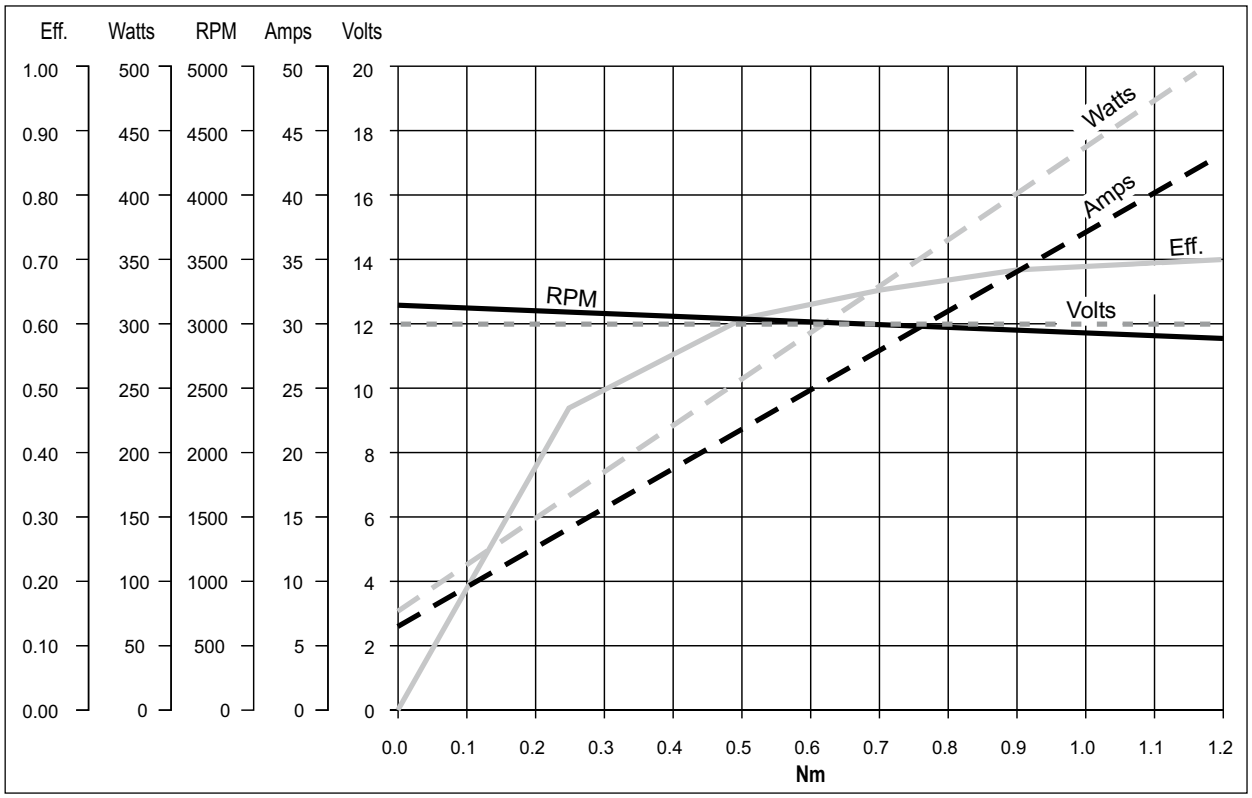
* Usare boccola 11/14
** Use sleeve 11/14*



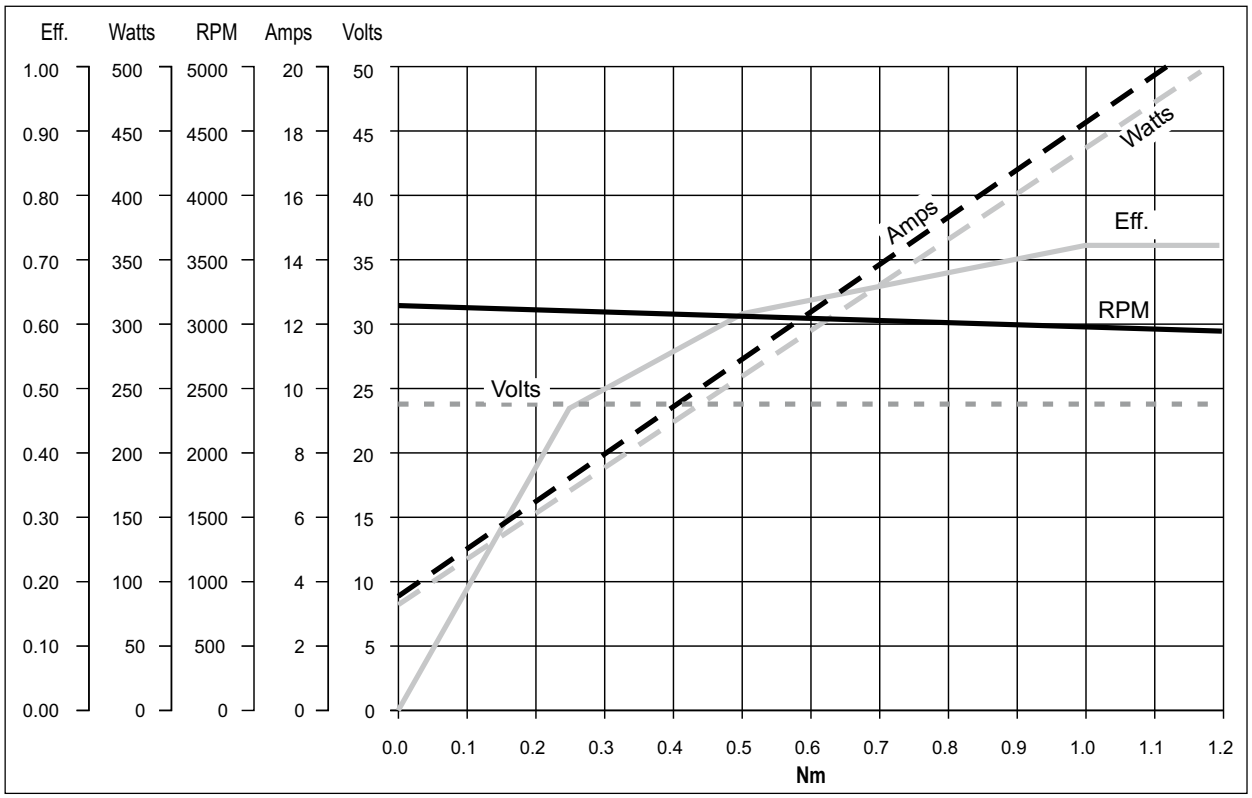
EC350.120 - EC350.120BR - EC350.240 - EC350.240BR

Prestazioni ***Performances***

EC350.120 - EC350.120BR



EC350.240 - EC350.240BR



EC600.120 - EC600.120BR - EC600.240 - EC600.240BR

Caratteristiche / *Features*

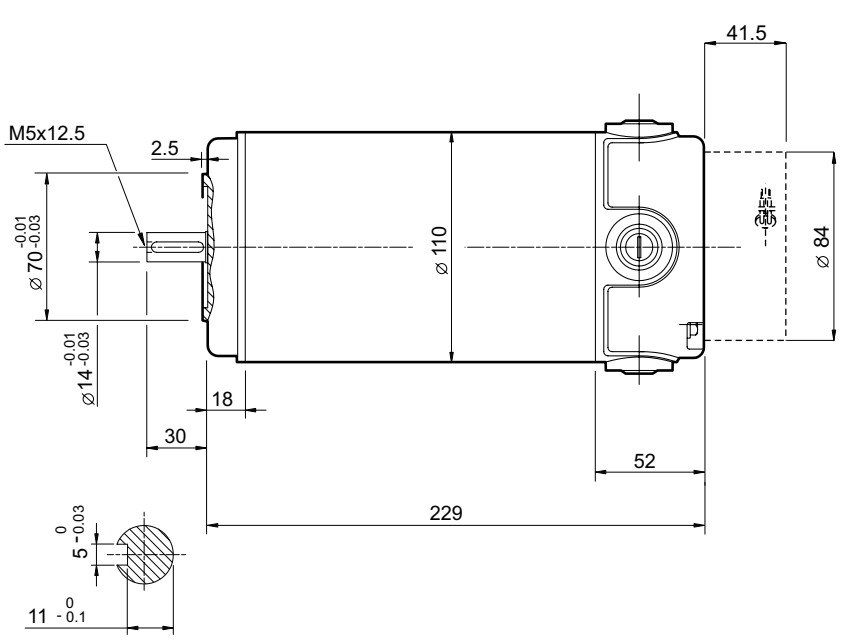
Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 110 mm
Potenza	800 W S2 (600 W S1)
Magneti	4
Supporti	Cuscinetti a sfera
Fori di montaggio	8
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 4 di composto grafite-rame
Dimensione spazzole	LxPxH = 18.9 x 9.5 x 16.7 mm
Terminali	2 con doppio dado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

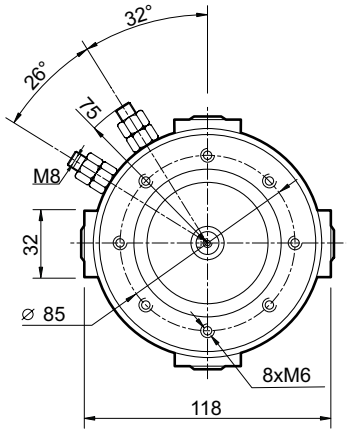
Construction	*Tubular, without fan*
Size	*Ø 110 mm*
Power	*800 W S2 (600 W S1)*
Magnets	*4*
Bearings	*Ball bearings*
Mounting holes	*8*
Power supply	*Low voltage, 12 or 24 Vdc*
Brushes	*4 brushes made of graphite/copper composite*
Brushes size	*LxPxH = 18.9 x 9.5 x 16.7 mm*
Leads terminals	*2, with double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

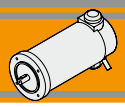
Tipo *Type*	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC600.120	**S1**	600	12	71	F	1	1.91	3000	44	6.6
EC600.120BR	**S2 30'**	800		94.4			2.54			7.4
EC600.240	**S1**	600	24	35.5			1.91			7.1
EC600.240BR	**S2 30'**	800		47.2			2.54			7.9

Freno *Brake*	M_{Br} [Nm]	Pe [W]	V [V]	T_r [≤ ms]	T_f [≤ ms]	n_1 max [min^{-1}]
EC600.120BR	**5**	25	12	75	65	3000
EC600.240BR			24			

Dimensioni / *Dimensions*



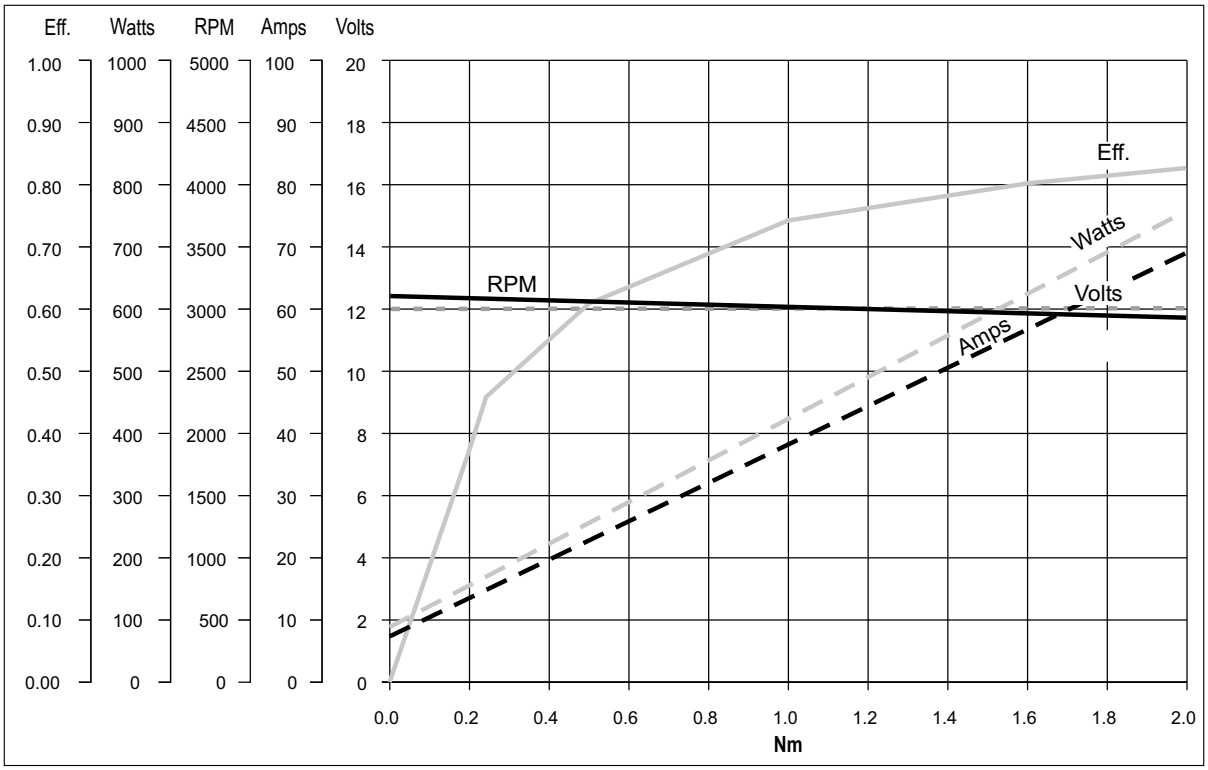




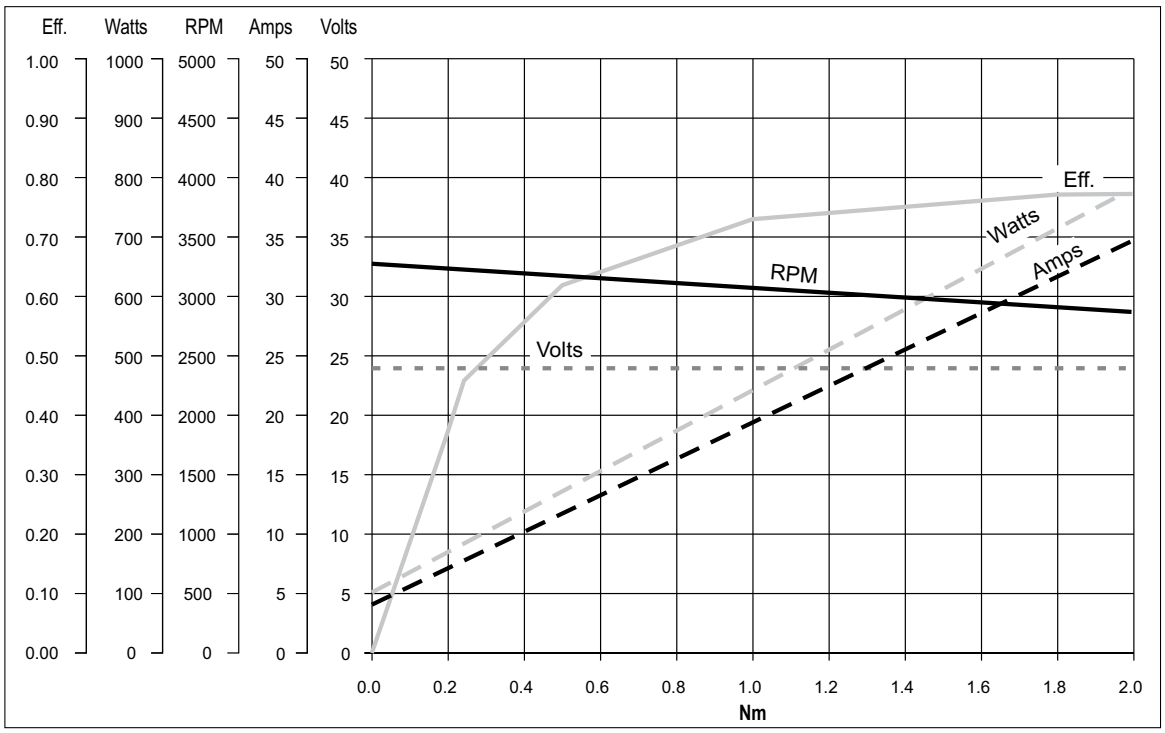
EC600.120 - EC600.120BR - EC600.240 - EC600.240BR

Prestazioni ***Performances***

EC600.120 - EC600.120BR



EC600.240 - EC600.240BR

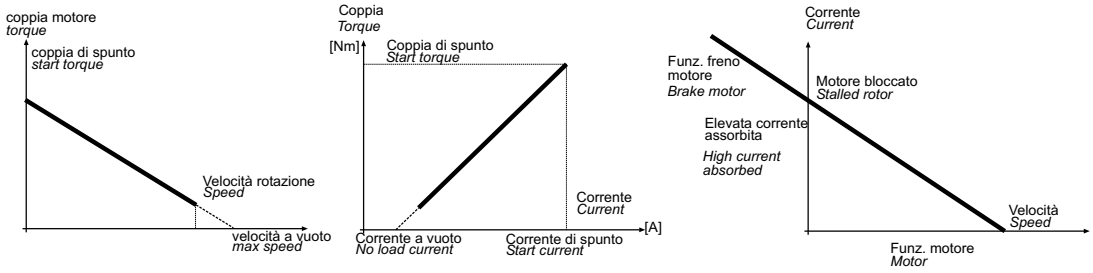


Legenda / Glossario dei grafici

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. Velocità e corrente variano in maniera sensibile al variare del carico.

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. Speed and current change a lot against applied torque.

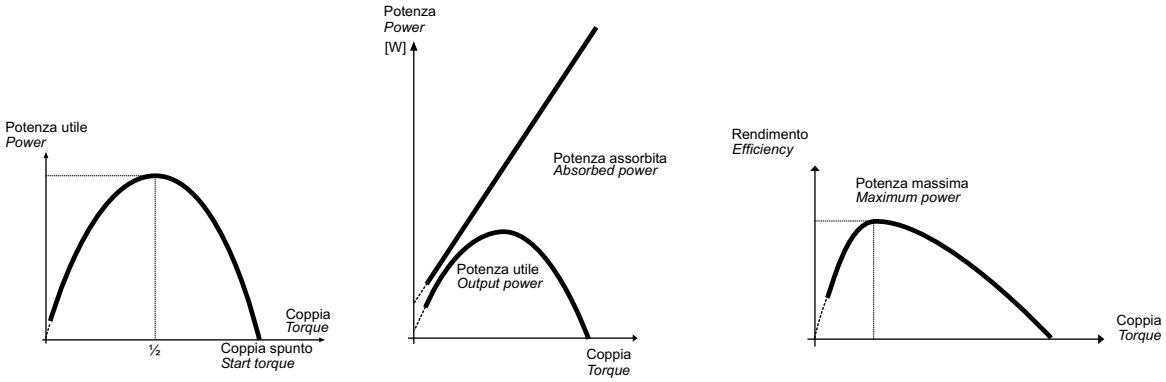


La potenza utile (potenza all' albero) si ricava dalla formula:

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

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.

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