TRANSTECNO®
the modular gearmotor

DC Alü

Каталог

Мотор-редукторы в алюминиевом корпусе, редукторы скорости, электродвигатели постоянного тока

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Единый адрес для всех регионов: ton@nt-rt.ru || www.transtecno.nt-rt.ru

Indice — Index

Generalità — *General information*

Per avere una migliore comprensione degli argomenti e dei dati esposti in questo catalogo proponiamo la simbologia utilizzata corredandola delle informazioni di base per giungere ad una corretta selezione dei motoriduttori e variatori.

Information in this manual is provided with symbols in order to understand the subject matter and data. These symbols are intended to aid the user in selecting the right gearmotors and variators.

Velocità entrata — n_1 [min^{-1}] — *Input speed*

Rappresenta la velocità riferita al tipo di motorizzazione prescelta ed è applicata in entrata al riduttore.

Per selezioni a velocità diverse da quelle riportate consultare il ns. Servizio Tecnico.

This is the input speed at the gearbox related to the type of drive unit selected.

When different speeds are required, contact our Technical Service.

Rapporto di riduzione — i — *Gear ratio*

È una grandezza adimensionale ed è in funzione del numero dei denti degli ingranaggi interni al riduttore.
Nei riduttori a vite senza fine si ottiene dividendo il numero di denti della corona per il numero dei filetti (Z) della vite senza fine.
Dai dati di catalogo si può ottenere con la relazione:

This value is strictly related to the size and number of teeth gears inside the gearbox.
This value is obtained in wormgearboxes by dividing the number of wheel teeth by the number of starts (Z) of the worm.
From the data given in the catalogue, the value can be calculated using the following formula:

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

Velocità in uscita — n_2 [min^{-1}] — *Output speed*

È la velocità risultante sull' asse di uscita del riduttore e viene ricavata dalla relazione precedente:

This is the gearbox output speed calculated using the formula given above:

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

Coppia richiesta — Mr_2 [Nm] — *Requested torque*

È la coppia richiesta dall'applicazione ed è indispensabile per la selezione di una motorizzazione.
Essa può essere comunicata dall'utente oppure calcolata in base ai dati di applicazione (se forniti).

This is the torque needed for the application and must be known when selecting a drive system. It can either be provided by the user or calculated according to the application data (if provided).

Coppia nominale — Mn_2 [Nm] — *Nominal torque*

Rappresenta la coppia in uscita trasmissibile dal riduttore in base alla velocità in entrata n_1 e al rapporto di riduzione i.
Essa è calcolata in base ad un servizio con carico continuo uniforme corrispondente ad un fattore di servizio uguale a 1.
Questo valore non è riportato nel presente catalogo ma può essere ricavato approssimativamente con la seguente relazione fra M_2 (coppia trasmessa) e sf (fattore di servizio):

This is the output torque that can be transmitted by the gearbox according to input speed n_1 and gear ratio i. It is calculated based on service with a continuous steady load corresponding to a service factor equal to 1. This value is not given in the catalogue but can be calculated approximately with the following formula between M_2 (output torque) and sf (service factor):

$$Mn_2 = M_2 \cdot sf$$

Coppia trasmessa — M_2 [Nm] — *Output torque*

È la coppia trasmessa in uscita al riduttore.
Dipende dalla potenza P_1 del motore installato, dal numero di giri in uscita n_2 e dal rendimento dinamico Rd e può essere calcolata con la relazione:

This is the gearbox's output torque. It is strictly related to power P_1 of the motor installed, output rpm n_2 and dynamic efficiency Rd. It can be calculated with the following formula:

$$M_2 = \frac{9550 \cdot P_1 \cdot Rd}{n_2}$$

oppure: *or:*

$$M_2 = \frac{9550 \cdot P_2}{n_2}$$

dove: *where:*

$$P_2 = P_1 \cdot Rd$$

Rendimento del riduttore a vite senza fine — Rd; Rs — *Worm gearbox efficiency*

I calcoli delle prestazioni sono stati effettuati in base al rendimento dinamico Rd dei riduttori (valore ottimale che si raggiunge nel funzionamento a regime dopo rodaggio).

Nei riduttori combinati, il rendimento complessivo è dato dal prodotto dei rendimenti dei due riduttori, considerando però che nel secondo riduttore il rendimento dovrà essere valutato in base alla ridotta velocità in entrata ottenuta dividendo n_1 per il rapporto i del primo riduttore.

È opportuno considerare che nei riduttori a vite senza fine si ha anche un valore di rendimento statico Rs, presente in fase di avviamento, che declassa sensibilmente la coppia risultante per cui influenza in modo determinante la scelta di motorizzazioni destinate ad applicazioni intermittenti (es. sollevamenti).

Il valore dei rendimenti dinamico e statico dei riduttori a vite senza fine sono riportati nella tabella a pag. N4.
Nei riduttori ad ingranaggi CMG e CMB il rendimento medio è del 94%.
Nei motovariatori il rendimento assume un valore di 0.85 alla velocità massima e decresce fino a 0.7 alla velocità minima.

Efficiency is calculated based on dynamic efficiency Rd of the gearboxes (optimal value reached when running at normal speed after the break in period).

In combination gearboxes, overall efficiency is obtained from the combined efficiency of the two gearboxes. However, keep in mind that efficiency of the second gearbox should be determined according to the reduced input speed obtained by dividing n_1 by ratio i of the first gearbox.

It is important to remember that wormgearboxes also have static efficiency value Rs present at start-up. This value notably reduces the resulting torque. As a result, it must be taken into consideration when selecting drive systems for intermittent operations (e.g. lifting) as it is a determinant factor.

Dynamic and static efficiency of wormgearboxes are given in the table on page N4 .
On helical gearboxes CMG and CMB the average efficency is 94%.
Efficiency is 0.85 at the highest speed decreasing to 0.7 at the lowest speed in motovariators.

Reversibilità e irreversibilità

Reversibility and irreversibility

La diretta conseguenza del rendimento (statico e dinamico) è la reversibilità del riduttore a vite senza fine che consiste nella possibilità di fare ruotare l'albero entrata tramite l'applicazione di una torsione più o meno accentuata sull'albero uscita.
L'impossibilità o la difficoltà ad effettuare l'azione sopra descritta, determina il grado di reversibilità (o irreversibilità) di un riduttore.

Questa caratteristica, molto significativa nei riduttori a vite senza fine, è influenzata da molteplici fattori quali angolo d'elica (quindi rapporto di trasmissione), lubrificazione, temperatura, finitura superficiale della vite senza fine, presenza di vibrazioni, ecc.

In applicazioni dove sono presenti delle traslazioni è necessario garantire una elevata reversibilità onde evitare che le inerzie delle masse in movimento possano determinare punte di carico inammissibili sugli organi di trasmissione.

In applicazioni dove è richiesto un non ritorno del carico (es. sollevamenti o nastri trasportatori inclinati) in assenza di un freno motore è necessario scegliere un riduttore caratterizzato da un elevato grado di irreversibilità.
Desideriamo comunque evidenziare che la garanzia assoluta di non ritorno è data esclusivamente dall'installazione di un motore autofrenante o di un altro dispositivo frenante esterno.

La tabella sottostante riporta a titolo puramente indicativo i vari gradi di reversibilità/irreversibilità nei riduttori a vite senza fine in funzione del rendimento dinamico Rd e statico Rs.

Reversibility of the wormgearbox is the direct consequence of efficiency (static and dynamic). This determines whether or not the input shaft can be rotated by applying a certain torque on the output shaft.
Whether or not this can be done and how difficult it actually is to do determine the degree of reversibility (or irreversibility) of a gearbox.
This feature, quite significant in wormgearboxes, is affected by numerous factors including the helix angle (therefore drive ratio), lubrication, temperature, surface finish of the worm, vibrations, etc...

In applications that include translations, high reversibility must be guaranteed to prevent inertia of the moving parts from creating unacceptable load peaks on the drive parts.

In applications that require non-return of the load (e.g. lifting or inclined conveyor belts) a gearbox with high irreversibility must be chosen when a motor-brake unit is not present.
However, we would like to point out that non-return can be totally assured only by installing a self-braking motor or other external braking device.

The table below is provided for reference purposes only. It contains the various degrees of reversibility/irreversibility of wormgearboxes in relation to dynamic Rd and static Rs efficiency.

Rd	Reversibilità e irreversibilità dinamica	*Dynamic reversibility and irreversibility*
> 0.6	Reversibilità dinamica	Dynamic reversibility
0.5 - 0.6	Reversibilità dinamica incerta	Uncertain dynamic reversibility
0.4 - 0.5	Buona irreversibilità dinamica	Good dynamic irreversibility
<0.4	Irreversibilità dinamica	Dynamic irreversibility
Rs	**Reversibilità e irreversibilità statica**	***Static reversibility and irreversibility***
> 0.55	Reversibilità statica	Static reversibility
0.5 - 0.55	Reversibilità statica incerta	Uncertain static reversibility
<0.5	Irreversibilità statica	Static irreversibility

Potenza in entrata

P_1 [kW]

Input power

È la potenza motore applicata in entrata al riduttore e riferita alla velocità n_1.
Può essere calcolata come segue:

This is the power applied by the motor at the gearbox input in reference to speed n_1.
It can be calculated with the following formula:

$$P_1 = \frac{M_2 \cdot n_2}{9550 \cdot Rd}$$

Fattore di servizio — sf — *Service factor*

È una grandezza adimensionale che indica il sovradimensionamento da applicare ad una determinata motorizzazione per garantire la resistenza agli urti e la durata richiesta.
Le tabelle di catalogo offrono una vasta scelta di motorizzazioni con fattori di servizio differenziati che possono soddisfare la maggior parte delle applicazioni più o meno gravose.
Per una corretta interpretazione dei valori del fattore di servizio sf riportati a fianco di ogni selezione proposta, riportiamo nelle tabelle seguenti i valori indicativi attribuiti alle classi di carico A, B, C e alla durata di funzionamento giornaliero h/d e al numero di avviamenti/ora.
Definendo la classe di carico a cui riferire l'applicazione, si ricercherà nella tabella il corrispondente valore di sf da utilizzare nella scelta della motorizzazione più idonea.

This value indicates how a certain drive system is to be over-sized in order to assure the requested service and stand up to shocks. The tables given in the catalogue offer a wide range of drive systems with different service factors able to satisfy most types of applications. To correctly understand service factor values sf given for each item, approximate values for load classes A, B and C along with the number of hours of daily operation h/d and number of start-ups/hours need to be known.
Once the load class required for the application has been determined, locate corresponding value sf to be used when selecting the most suitable drive system.

Tipo di carico	**A** - Uniforme	fa ≤ 0.3
	B - Medio	fa ≤ 3
	C - Forte	fa ≤ 10

Type of load	***A** - Uniform*	*fa ≤ 0.3*
	***B** - Moderate shocks*	*fa ≤ 3*
	***C** - Heavy shocks*	*fa ≤ 10*

$$fa = \frac{Je}{Jm}$$

- Je (kgm^2) momento d'inerzia esterno ridotto all'albero motore.
- Jm (kgm^2) momento d'inerzia motore.
  Se fa > 10 interpellare il ns. Servizio Tecnico.

$$fa = \frac{Je}{Jm}$$

- *Je (kgm^2) moment of reduced external inertia at the drive-shaft.*
- *Jm (kgm^2) moment of inertia of motor.*
  If fa > 10 call our Technical Service.

A — Classe di carico / *Load class*
Carico uniforme / *Uniform load*

h/d	sf								
	n. avviamenti/ora / n. start-up/hour								
	2	**4**	**8**	**16**	**32**	**63**	**125**	**250**	**500**
4	0.8	0.8	0.9	0.9	1.0	1.1	1.1	1.2	1.2
8	1.0	1.0	1.1	1.1	1.3	1.3	1.3	1.3	1.3
16	1.3	1.3	1.3	1.3	1.5	1.5	1.5	1.5	1.5
24	1.5	1.5	1.5	1.5	1.8	1.8	1.8	1.8	1.8

B — Classe di carico / *Load class*
Carico con urti moderati / *Moderate shock load*

h/d	sf								
	n. avviamenti/ora / n. start-up/hour								
	2	**4**	**8**	**16**	**32**	**63**	**125**	**250**	**500**
4	1.0	1.0	1.0	1.0	1.3	1.3	1.3	1.3	1.3
8	1.3	1.3	1.3	1.3	1.5	1.5	1.5	1.5	1.5
16	1.5	1.5	1.5	1.5	1.8	1.8	1.8	1.8	1.8
24	1.8	1.8	1.8	1.8	2.2	2.2	2.2	2.2	2.2

C — Classe di carico / *Load class*
Carico con urti forti / *Heavy shock load*

h/d	sf								
	n. avviamenti/ora / n. start-up/hour								
	2	**4**	**8**	**16**	**32**	**63**	**125**	**250**	**500**
4	1.3	1.3	1.3	1.3	1.5	1.5	1.5	1.5	1.5
8	1.5	1.5	1.5	1.5	1.8	1.8	1.8	1.8	1.8
16	1.8	1.8	1.8	1.8	2.2	2.2	2.2	2.2	2.2
24	2.2	2.2	2.2	2.2	2.5	2.5	2.5	2.5	2.5

Esempio applicazione:

Nastro trasportatore attribuibile alla classe di carico B **(carico con urti moderati)** e previsto per una durata di funzionamento giornaliero (h/d) di **16** ore e con **8** avviamenti/ora.
Dalla tabella rileviamo **sf = 1.5**

Application example:

*Conveyor belt assigned to load class B **(moderate shock load)**, to be run **16** hours a day (h/d) with **8** start-ups/hour.*
The following value is obtained from the table
sf = 1.5

Carico radiale — $R; R_2$ [N] — *Radial load*

L'applicazione sull'albero in uscita del riduttore di pignoni, pulegge, ecc. determina delle forze radiali che debbono necessariamente essere considerate per evitare sollecitazioni eccessive con il rischio di danneggiamenti del riduttore stesso.
Il calcolo del carico radiale esterno R agente sull'albero del riduttore può essere determinato come segue:

Pinions, pulleys, etc applied on the output shaft of the gearboxes create radial forces that must be taken into consideration to avoid excessive stress risking damage to the gearbox itself.

External radial load R that acts on the gearbox shaft can be calculated as follows:

$$R = \frac{2000 \cdot M_2 \cdot kr}{d} \leq R_2$$

dove:
d [mm] diametro primitivo del pignone o della puleggia
kr coefficiente riferito al tipo di trasmissione:
kr = 1.4 ruota per catena
kr = 1.1 ingranaggio
kr = 1.5 - 2.5 puleggia per cinghia a V

where:
***d** [mm] diameter of the pinion or pulley*
***kr** coefficient in relation to type of transmission:*
***kr = 1.4** sprocket wheel*
***kr = 1.1** gear*
***kr = 1.5 - 2.5** pulley for V belts*

È opportuno evidenziare che i valori di R_2 sono riferiti a carichi agenti sulla mezzeria dell'albero lento (considerando l'albero sporgente) per cui il confronto dovrà essere effettuato nelle medesime condizioni.

Keep in mind that values R_2 refer to loads that act on the centerline of the output shaft (considering the shaft protrudes). As a result, the value should be compared under the same conditions.

Carico assiale — $A; A_2$ [N] — *Axial load*

A volte, unitamente al carico radiale, può essere presente anche una forza A che agisce assialmente sull'albero uscita; in questo caso considerare che il carico assiale ammissibile A_2 sull'albero è da considerare:

At times, along with the radial load, force A may be present that acts axially on the output shaft. In this case, keep in mind allowable axial load A_2 that can be applied on the shaft is:

$$A_2 = R_2 \cdot 0.2$$

Nel caso in cui il valore del carico assiale A agente sull'albero risultasse superiore ad A_2 contattate il ns. Servizio Tecnico.

If axial load A that acts on the shaft is greater than A_2, contact the Technical Service.

Scelta dei motoriduttori — *Selecting the gearmotors*

Per la scelta di un motoriduttore è necessario seguire la seguente procedura.

To select the required gearmotor perform the procedure below:

1. Per l'applicazione desiderata ricavare il fattore di servizio sf dalle tabelle a pag. A5 in base alla classe di carico, alle ore di funzionamento giornaliere e al numero di avviamenti orari.

1. *Determine the service factor sf for the desired application by referring to the charts given on page A5. This is to be done by considering the class of load, the operational hours/day and the number of start-ups/ hour.*

2. Se si conosce la potenza motore P_1 [kW] richiesta, passare al punto 3); se è nota la coppia in uscita M_2 richiesta è necessario calcolare la potenza motore P_1 con la formula:

2. *If the required motor power output P_1 [kW] is known, go to item 3); if the required output torque M_2 is known, determine motor output P_1 by using the following formula:*

$$P_1 = \frac{M_2 \cdot n_2}{9550 \cdot Rd}$$

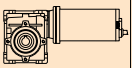
dove Rd è il rendimento dinamico e n_2 il numero di giri richiesti in uscita al motoriduttore.

where Rd stands for the dynamic efficiency and n_2 indicates the required output rpm of the gearmotor.

3. Nelle tabelle dei dati tecnici ricercare la motorizzazione in cui sia P_1 maggiore o uguale a P e con riferimento ad una velocità n_2/n_{2max} prossima a quella desiderata, scegliere la motorizzazione in cui il fattore di servizio sf indicato risulti uguale o superiore a quello ricavato al punto 1).

3. Use the specification chart to search for the power unit where P_1 is greater than or equal to P with a speed n_2/n_{2max} that approximates the desired one. Choose a power unit where the indicated service factor sf is equal to or greater than that calculated at point 1).

ECM

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
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		

Esempio / *Example:*

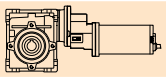
Applicazione / *Application:*
Carrello automatico / *Automatic carriage*

P_1 : 140 W
sf : 1.5
n_2 : 150 min^{-1}

Motorizzazione scelta / *Power unit selected:*

ECM100/026, i = 20, P_1 = 140 W, sf = 1.5

ECMP

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
250						
(3000 min^{-1})	**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		

Esempio / *Example:*

Applicazione / *Application:*
Carrello automatico / *Automatic carriage*

M_2 : 58 Nm
sf : 1.5
n_2 : 25 min^{-1}

Motorizzazione scelta / *Power unit selected:*

ECMP180/063/050, i = 120, P_1 = 250 W, sf = 1.5

Installazione e verifiche

In fase di installazione del motoriduttore è opportuno verificare che:

- i dati riportati in targhetta corrispondano al prodotto che è stato ordinato;
- le superfici di accoppiamento e gli alberi siano accuratamente puliti e privi di ammaccature;
- le superfici su cui verrà installato il riduttore siano perfettamente piane e sufficientemente rigide;
- l'albero macchina e quello del riduttore siano correttamente allineati;
- siano stati installati sistemi di limitazione della coppia se si prevedono urti o blocchi della macchina durante il funzionamento;
- siano state predisposte le necessarie protezioni antinfortunistiche agli organi rotanti;
- siano state create delle opportune coperture a protezione dagli agenti atmosferici se l'installazione è effettuata all'aperto ed è soggetta alle intemperie;
- l'ambiente di lavoro non sia corrosivo (a meno che tale specifica non sia stata dichiarata in fase di ordine al fine di predisporre il riduttore per questo utilizzo);
- gli eventuali pignoni o pulegge montati sull'albero uscita o entrata del riduttore, siano calettati correttamente in modo tale da non generare carichi radiali e/o assiali superiori a quelli ammissibili;
- su tutti gli accoppiamenti sia stato applicato un adeguato protettivo antiossidante per prevenire eventuali ossidazioni da contatto;
- tutte le viti di fissaggio siano state serrate correttamente.

Installation and inspection

While installing the gearmotor always make sure that:

- *the specifications stamped on the rating plate match those indicated for the unit actually ordered;*
- *the mating surfaces and the shafts are thoroughly clean and free of dents;*
- *the surfaces where the gearbox are to be mounted on are flat and strong enough;*
- *the machine drive shaft and the gearbox shaft are perfectly aligned;*
- *the required torque limiters have been installed if the machine is likely to produce shocks or blockages during operation;*
- *the rotary parts have been provided with the required safety guards;*
- *adequate weatherproof covering has been provided if the machine is to be installed outdoor;*
- *the working environment is not exposed to corrosive agents (unless this has been indicated while placing the order so that the gearbox assembly can be adequately set up);*
- *the pinions or pulleys on the gearbox input/output shafts are properly fitted in order not to produce radial and/or axial loads that exceed the maximum allowable limits;*
- *all the couplings have been treated with adequate rust preventative in order to avoid oxidation provoked by contact;*
- *all the mounting screws have been securely tightened.*

Applicazioni critiche

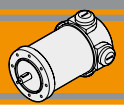
In tutti questi casi consultare il Servizio Tecnico

- utilizzo come argano di sollevamento;
- utilizzo in posizioni non previste a catalogo;
- utilizzo in ambiente con pressione diversa da quella atmosferica;
- utilizzo in ambiente con temperature <0°C o >+40°C
- utilizzo in ambienti esterni

Critical applications

In these cases please contact the Technical Service

- *used as a hoist;*
- *used in mounting positions not shown in the catalogue;*
- *used in environment pressure other than atmospheric pressure;*
- *used in places with temperature <0°C or >+40°C*
- *when used outdoors*



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 elettrici CC a magneti permanenti in neodimio 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 24 Vcc
- Potenza 160W e 250W S2
- Elevata coppia di spunto
- Maggiori coppie e potenze rispetto ai corrispettivi motori a magneti permanenti standard (a parità di dimensioni)
- Predisposizione encoder / freno

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 features of ND neodymium permanent magnets DC electric motors range 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 24 Vdc*
- *Power ratings available 160W and 250W S2*
- *High starting torque*
- *Higher torque and higher power than standard permanent magnet D.C. motors.*
- *Suitable for encoder / brake 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

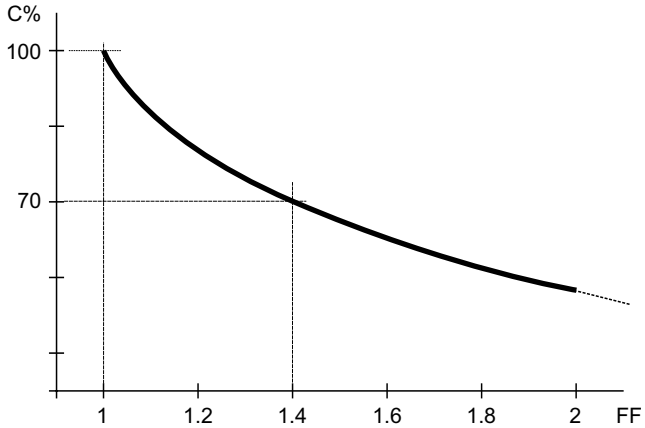
Indica quanta componente spuria alternata è presente nella alimentazione CC del motore. Più alto è il fattore ed inferiore è l'efficienza del motore. Alimentatori ad SCR = F.F 1.40. Alimentazione pura da batteria = FF 1 Alimentazione da transistori (modulazione PWM) = FF 1.05.

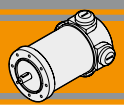
Qualitativamente l' andamento della coppia (percentuale) rispetto al fattore di forma è indicato nel grafico seguente:

Form factor

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:





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

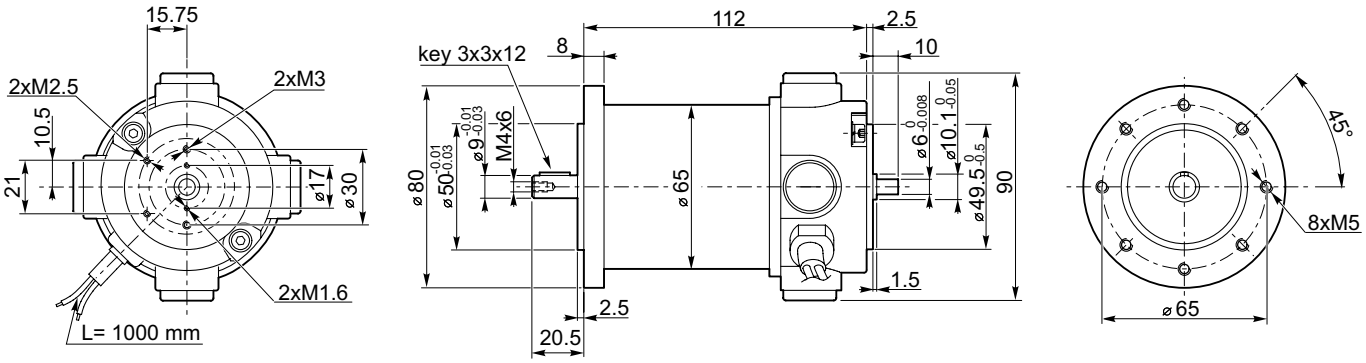
Caratteristiche / *Features*

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
Bisporgenza	Standard

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	*Length: 1000 mm*
Rear Shaft	*Standard*

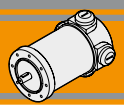
Tipo *Type*	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
ND120.120	**S1**	120	12	13.9	F	1	0.38	3000	20	1.6
	S2 20'	160		19			0.51			
ND120.240	**S1**	120	24	6.9			0.38			
	S2 20'	160		9.0			0.51			

Dimensioni / *Dimensions*



Freno / *Brake* B9

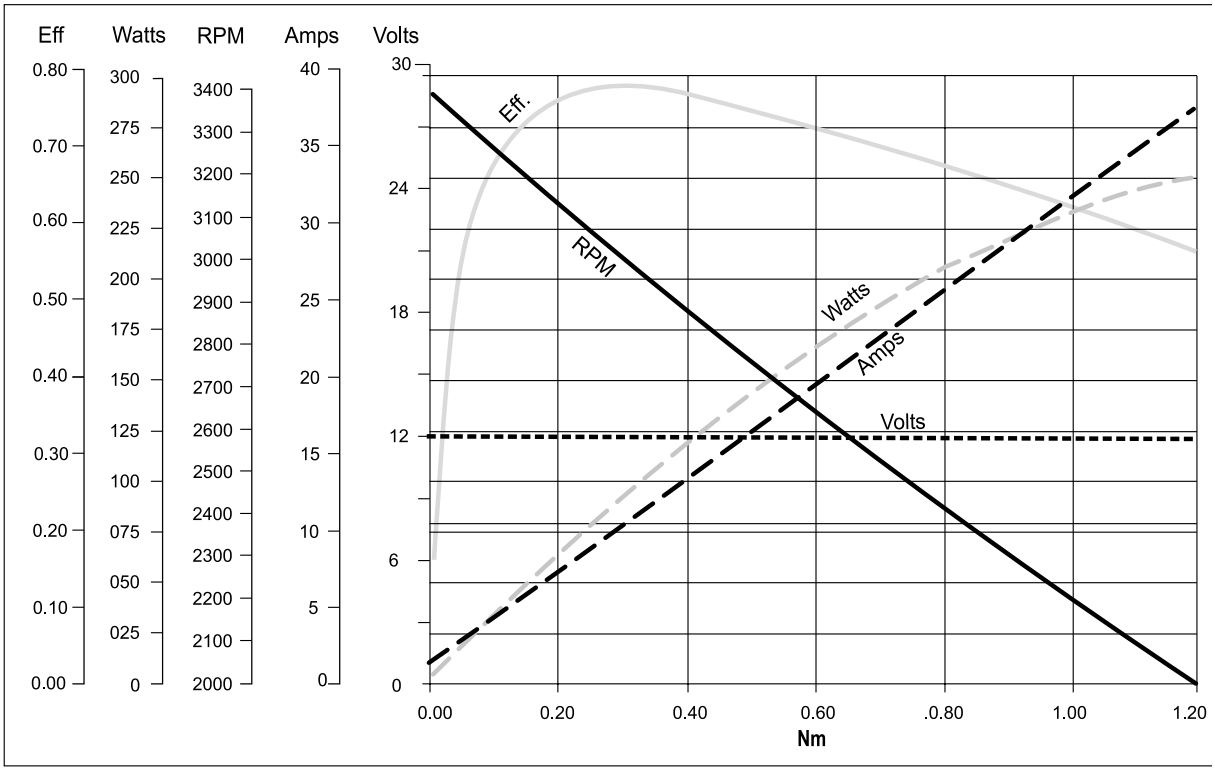
Encoder B9



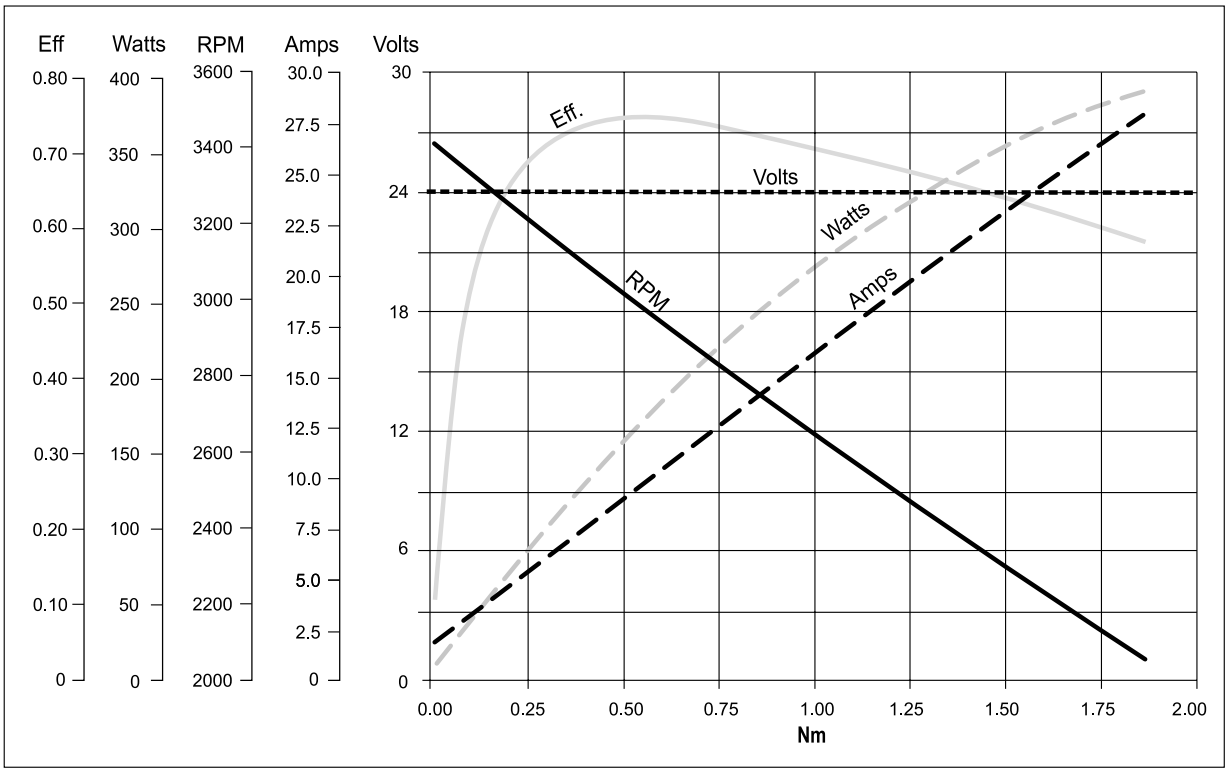
ND120.120 - ND120.240

Prestazioni *Performances*

ND120.120



ND120.240



ND180.120 - ND180.240

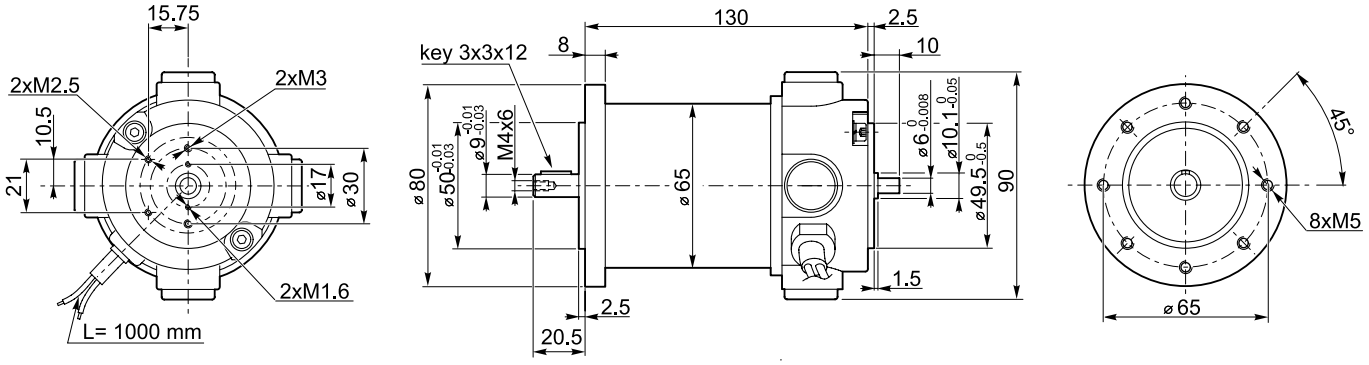
Caratteristiche / *Features*

Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 65 mm
Potenza	250 W S2 (180 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
Bisporgenza	Standard

Construction	*Tubular, without fan*
Size	*Ø 65 mm*
Power	*250 W S2 (180 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	*Length: 1000 mm*
Rear Shaft	*Standard*

Tipo *Type*	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
ND180.120	**S1**	180	12	20	F	1	0.57	3000	20	1.95
	S2 20'	250		30			0.80			
ND180.240	**S1**	180	24	10			0.57			
	S2 20'	250		14			0.80			

Dimensioni / *Dimensions*



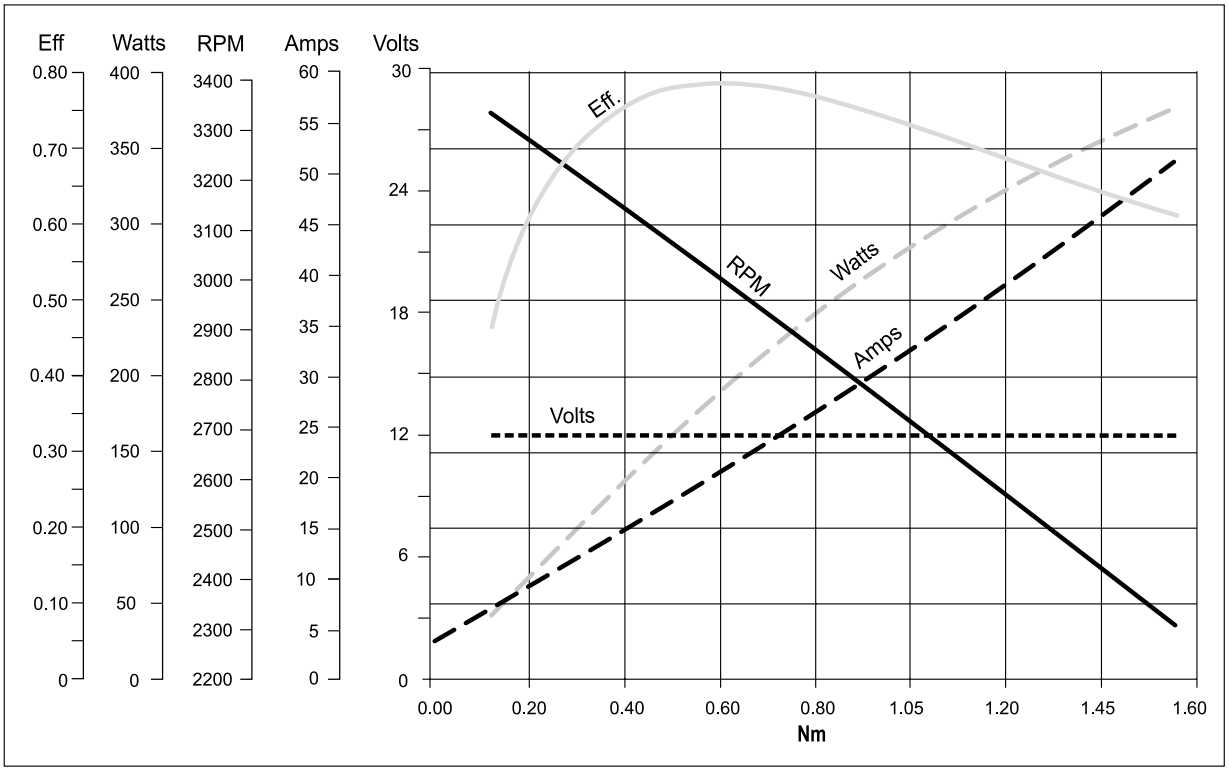
Freno / *Brake* → B9

Encoder → B9

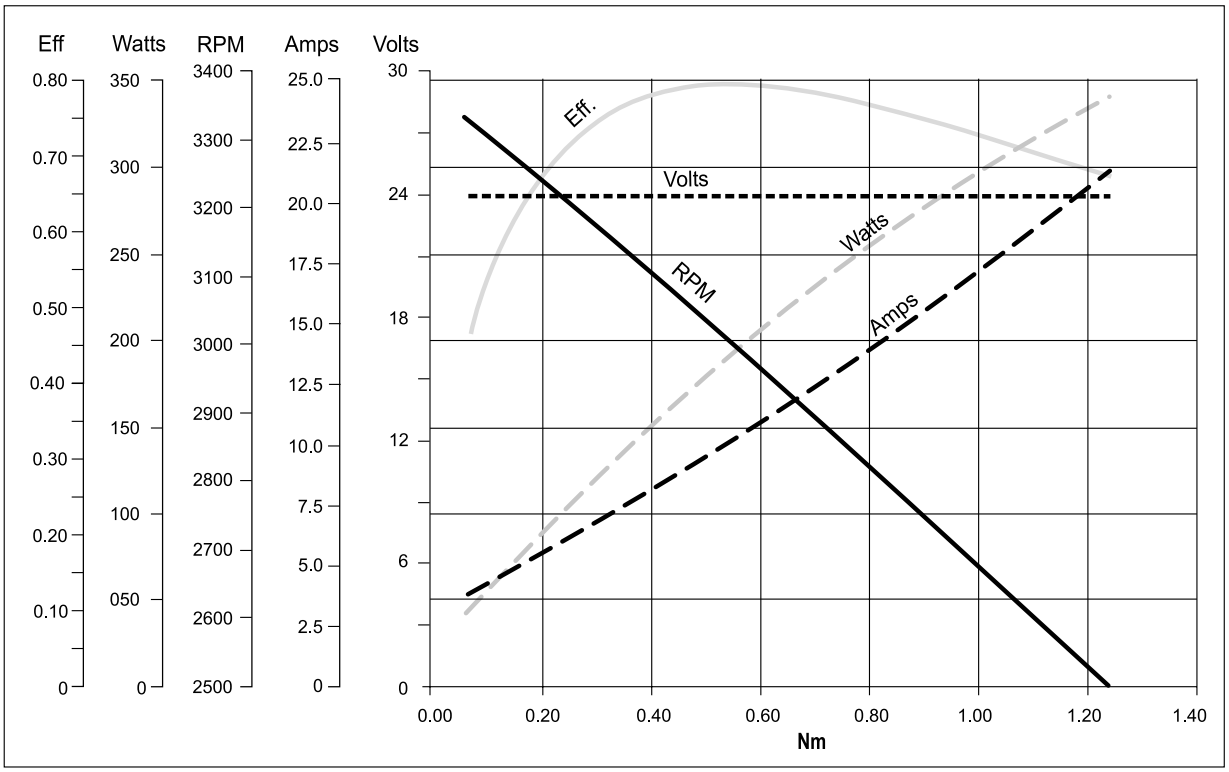
ND180.120 - ND180.240

Prestazioni *Performances*

ND180.120



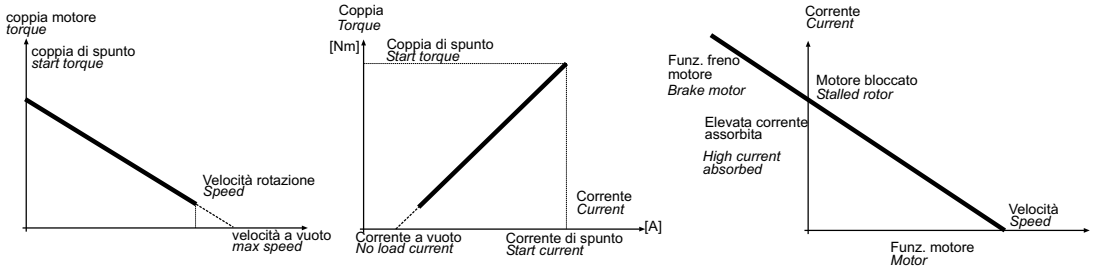
ND180.240



Legenda / Glossario dei grafici — *Key / Diagram Glossary*

Dato un motore in CC, 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 DC 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.

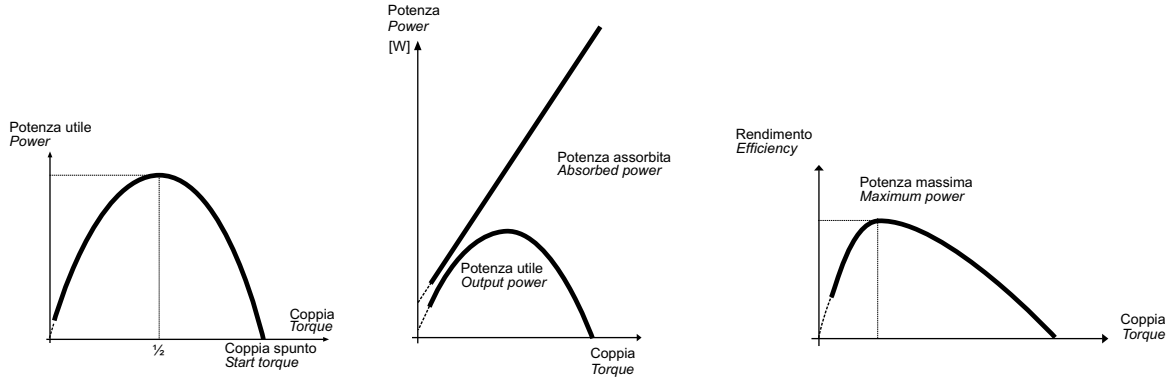


La potenza utile (potenza all'albero) si ricava dalla formula:

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

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 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.

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

$$Pa = V \cdot I$$

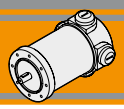
$$Pn = V \cdot I \cdot \eta$$

$$Pn = Mn \cdot Sv$$

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

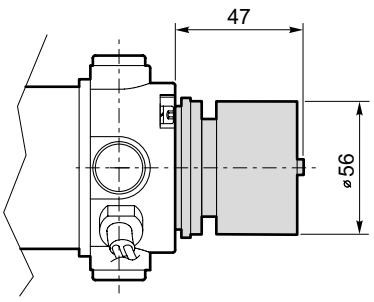
[HP] · 746 = [W].
Example 2 HP = approx. 1500 W.

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*

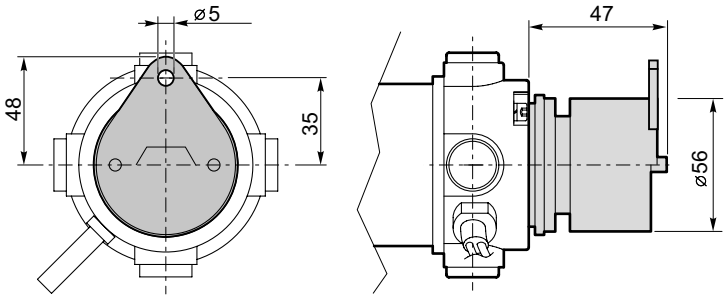


Freno / *Brake*

ND...BR Freno / *Brake*



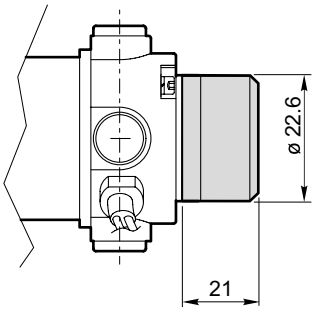
ND...BRL Freno con leva di sblocco/ *Brake with hand release*



	Pn [W]	V [V]	Mn [Nm]	n_1 [min^{-1}]
Caratteristiche del freno / *Break features*	14	12	2	3000
		24		

Encoder

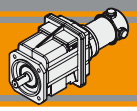
ND...ME22



Risoluzione Encoder (CPR) / *Encoder Resolution (CPR)*	Numero di canali / *Number of channels*	Tensione d'alimentazione / *Power supply*
001	2	5 VdC - TTL
100		
300		

Per risoluzioni encoder non standard, si prega di contattare il nostro Servizio Tecnico.

For non-standard encoder resolution, please contact our Technical Department.



ENERGY SAVING

Caratteristiche tecniche

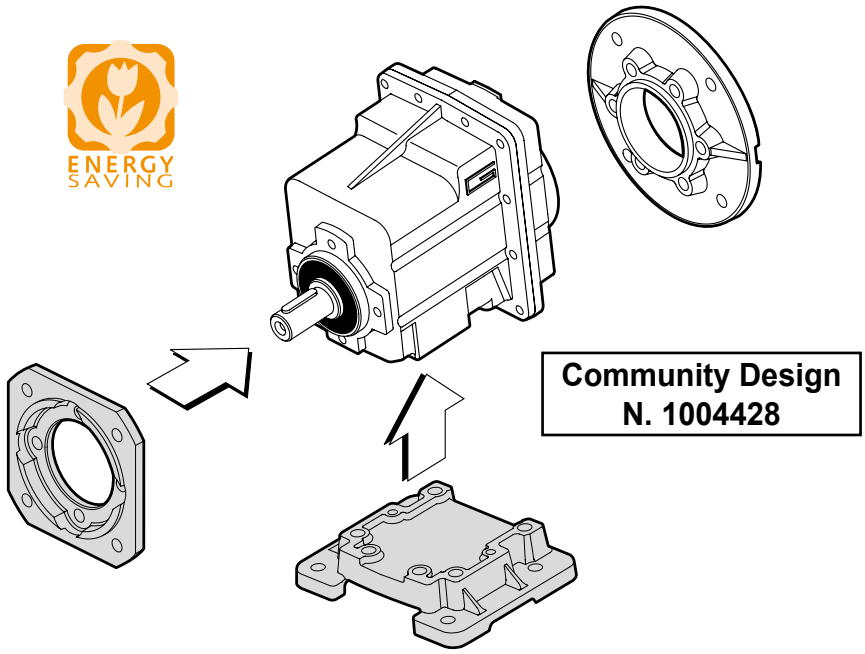
Le caratteristiche principali dei motoriduttori CC ad ingranaggi cilindrici a magneti permanenti in neodimio NDCMG sono:

- Alimentazione in bassa tensione 12/24 Vcc
- Possibilità di montaggio encoder
- Potenze motore disponibili da 160 a 250W S2
- Magneti in Neodimio
- Carcasse dei riduttori in pressofusione di alluminio
- Lubrificazione permanente con olio sintetico
- Ingranaggi sempre rettificati

Technical features

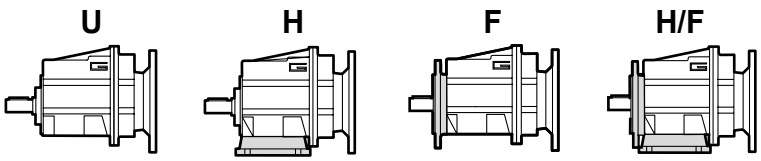
The main features of NDCMG neodymium permanent magnets DC helical in-line gearmotors range are:

- *Low voltage power supply 12/24 Vdc*
- *Suitable for encoder assembly*
- *Motor power ratings available from 160 to 250W S2*
- *Neodymium magnets*
- *Die-cast aluminum housing*
- *Permanent synthetic oil long-life lubrication*
- *Ground helical gears*



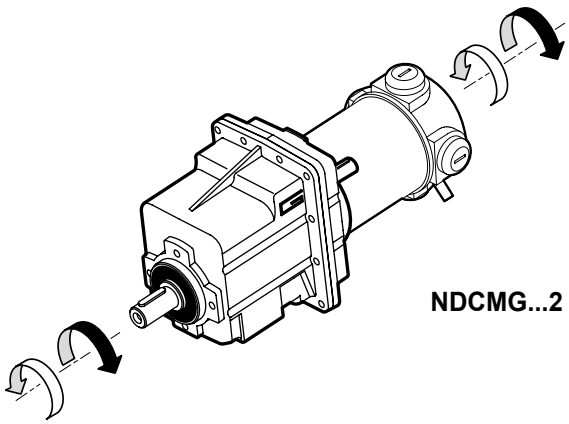
Designazione

Classification



MOTORIDUTTORE / *GEARMOTOR*					
NDCMG	**120/002**	**U**	**8.99**	**D20**	**240**
Tipo *Type*	Grandezza *Size*	Versione *Version*	Rapporto *Ratio*	Albero uscita *Output shaft*	Versione motore *Motor version*
NDCMG	**120/002** – **180/002**	**U...** **H...** **F...** **H.../F...**	vedi tabelle *see tables*	vedi tabelle *see tables*	**120** **240**

Sensi di rotazione — *Direction of rotation*



NDCMG...2

Lubrificazione — *Lubrication*

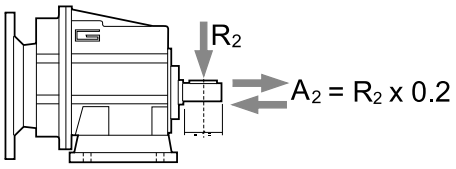
Tutti i riduttori nelle taglie 002 sono forniti completi di lubrificante sintetico viscosità 320, pertanto possono essere installati in qualunque posizione di montaggio e non necessitano di manutenzione.

Permanent synthetic oil long-life lubrication (viscosity grade 320) makes it possible to use sizes 002 in all mounting positions; for this reason they can be installed in any assembly position and do not require maintenance.

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 nominale 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*

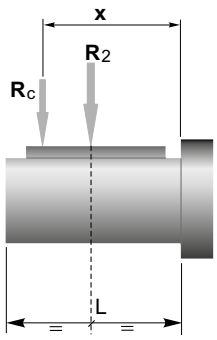
Carichi radiali — *Radial loads*



	CMG 002												
n_2 [min^{-1}]	700	600	500	400	250	180	150	120	100	80	60	40	10
R_2 [N]	416	437	465	501	586	653	748	806	958	1032	1136	1300	1300

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:

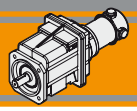


	CMG 002
a	73
b	53
R_{2MAX} [N]	1300

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

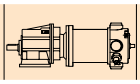
$$R \leq R_c$$

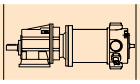
a, b = valori riportati nella tabella
a, b = values given in the table



Dati tecnici per servizio S2

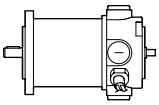
Technical data for S2 duty

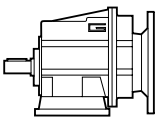
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
160						
(3000 min^{-1})	**596**	2.5	12.6	5.03	**120/002**	120/240
	492	3.0	10.4	6.10		
	401	3.7	8.5	7.49		
	334	4.4	8.9	8.99		
	295	5.0	7.9	10.16		
	249	5.9	6.6	12.07		
	224	6.6	8.4	13.40		
	198	7.4	7.4	15.14		
	165	8.9	6.2	18.17		
	139	10.6	5.2	21.58		
	128	11.5	4.8	23.51		
	120	12.3	4.5	25.10		
	111	13.2	4.2	27.08		
	92	15.9	3.5	32.49		
	71	20.6	2.7	42.04		
	67	21.9	2.5	44.89		
	61	23.9	2.3	48.86		
	54	26.9	2.0	55.10		

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
250						
(3000 min^{-1})	**596**	3.8	8.1	5.03	**180/002**	120/240
	492	4.7	6.7	6.10		
	401	5.7	5.4	7.49		
	334	6.9	5.7	8.99		
	295	7.8	5.0	10.16		
	249	9.2	4.2	12.07		
	224	10.2	5.4	13.40		
	198	11.6	4.8	15.14		
	165	13.9	4.0	18.17		
	139	16.5	3.3	21.58		
	128	18.0	3.1	23.51		
	120	19.2	2.9	25.10		
	111	20.7	2.7	27.08		
	92	24.8	2.2	32.49		
	71	32.1	1.7	42.04		
	67	34.3	1.6	44.89		
	61	37.3	1.5	48.86		
	54	42.1	1.3	55.10		

Motori applicabili

IEC Motor adapters





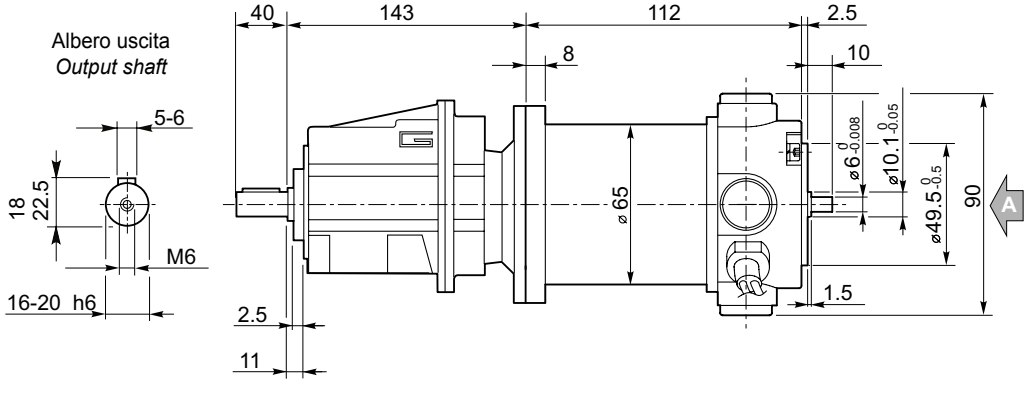
		ND	
		120.120 **120.240**	**180.120** **180.240**
CMG	**002**	5.03 - 55.10	5.03 - 55.10

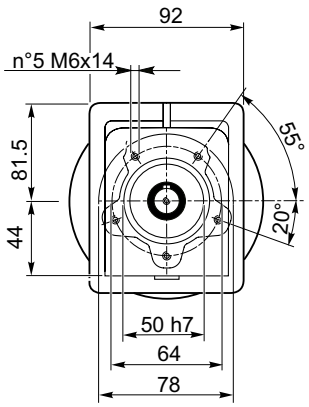
5.03 - 55.10 Rapporti di riduzione i
Ratio i

Dimensioni ***Dimensions***

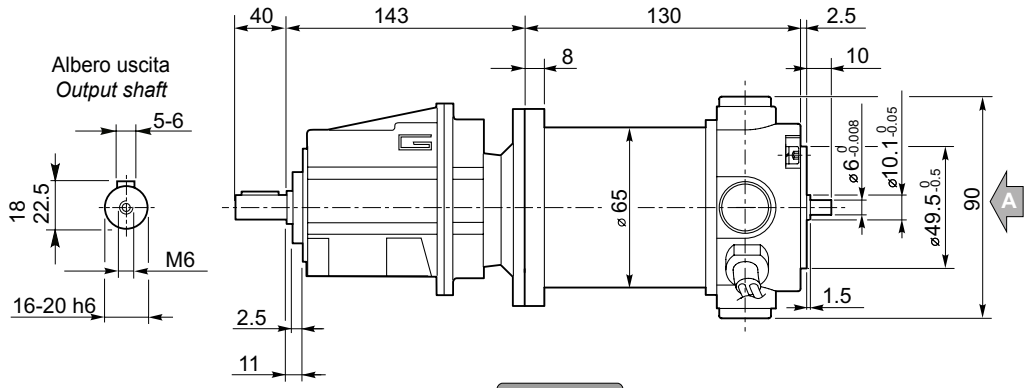
NDCMG..U

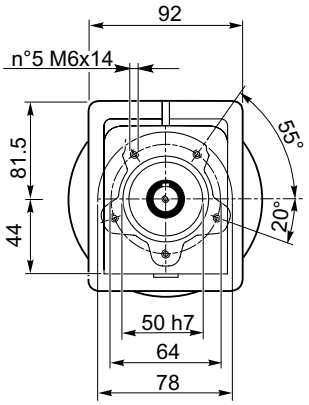
NDCMG120/002 U

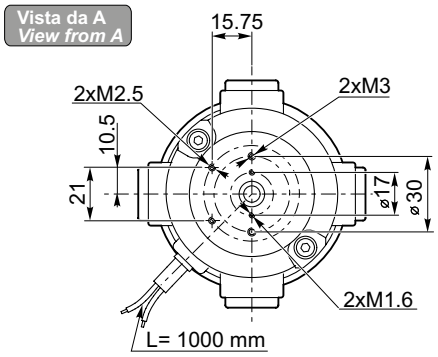




NDCMG180/002 U







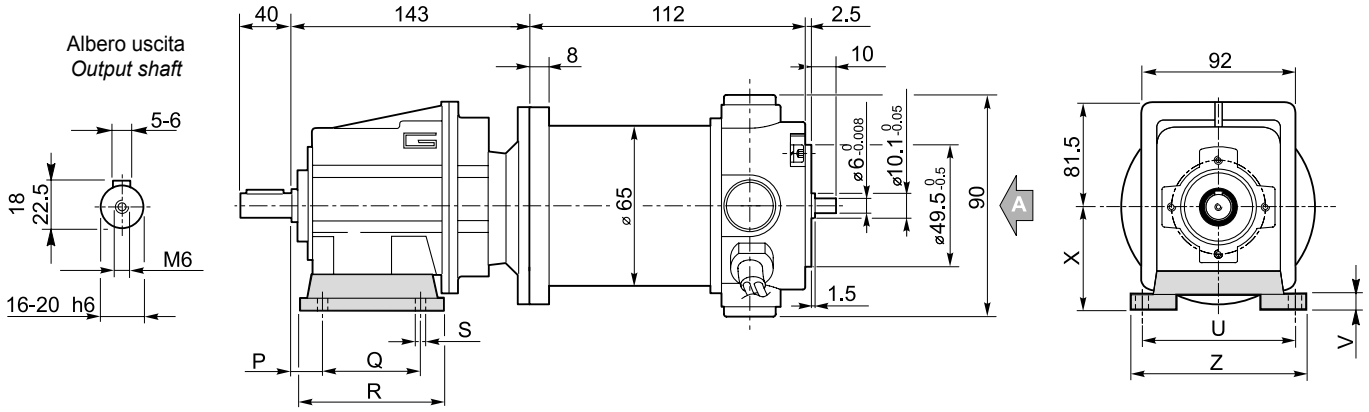
Freno / *Brake* → B9

Encoder → B9

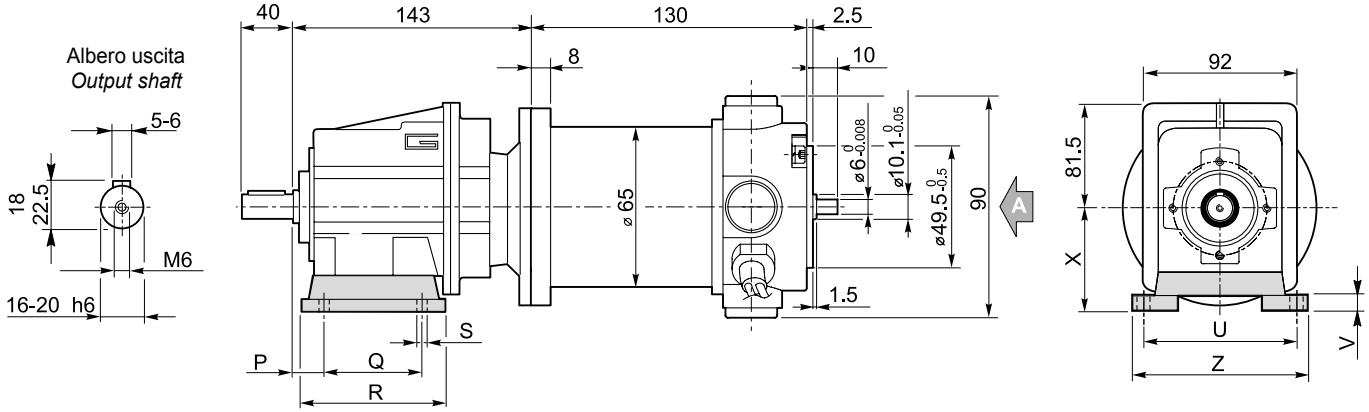
Dimensioni ***Dimensions***

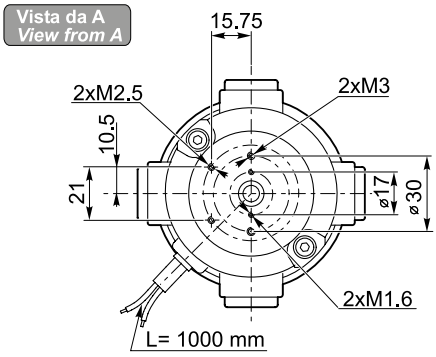
NDCMG..H

NDCMG120/002 H



NDCMG180/002 H





Freno / *Brake* → B9

Encoder → B9

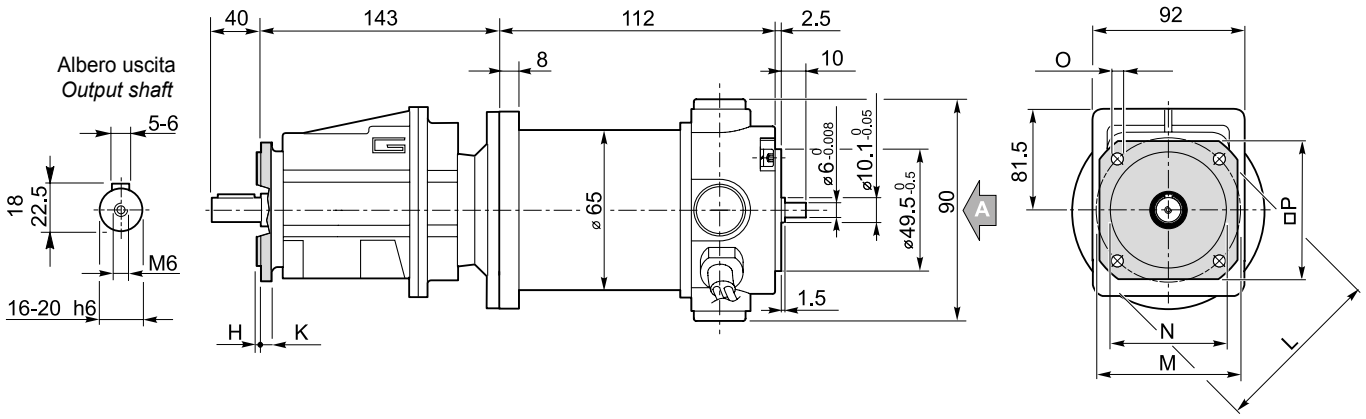
Versione **H** / ***H*** *Version*										
NDCMG	**P**	**Q**	**R**	**S**	**U**	**V**	**X**	**Z**	**Piede / *Foot***	
									Tipo / *Type*	Peso / *Weight* [kg]
120/002 180/002	**18**	**60**	**80**	**9**	**100**	**10**	**60**	**120**	**H60**	**0.2**
	18	80	104	9	110 - 120	10	75	145	H75	0.3
	18	50 - 87	110	9	110	10	85	135	H85	0.4

Preferenziale / *Preferred*

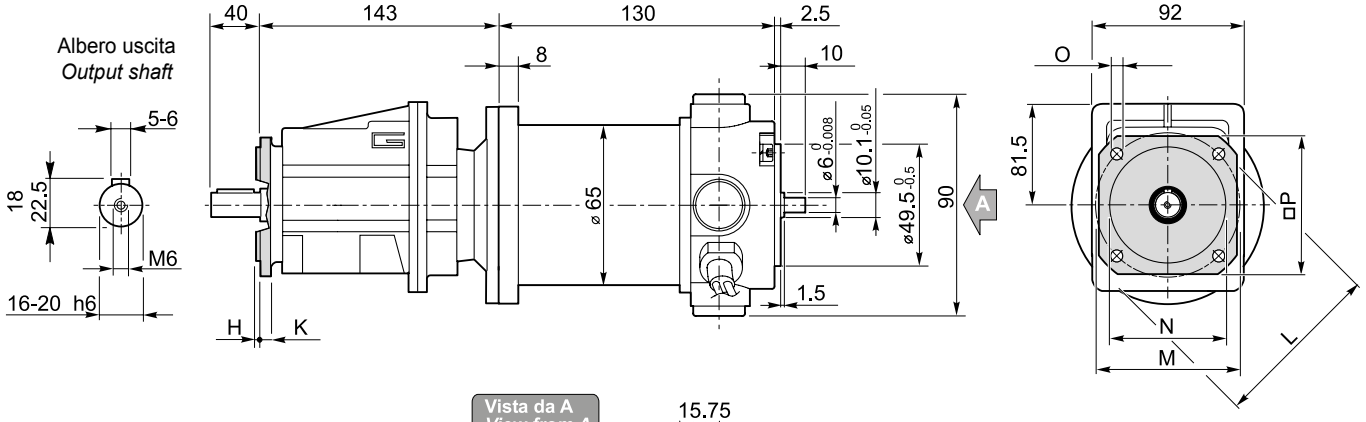
Dimensioni ***Dimensions***

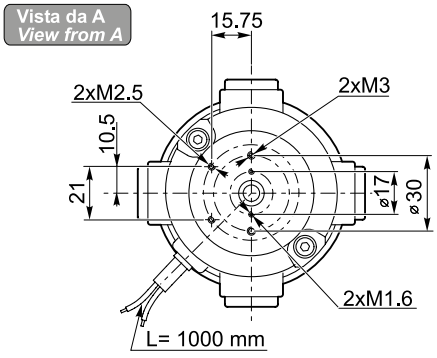
NDCMG..F

NDCMG120/002 F



NDCMG180/002 F





Freno / *Brake* → B9

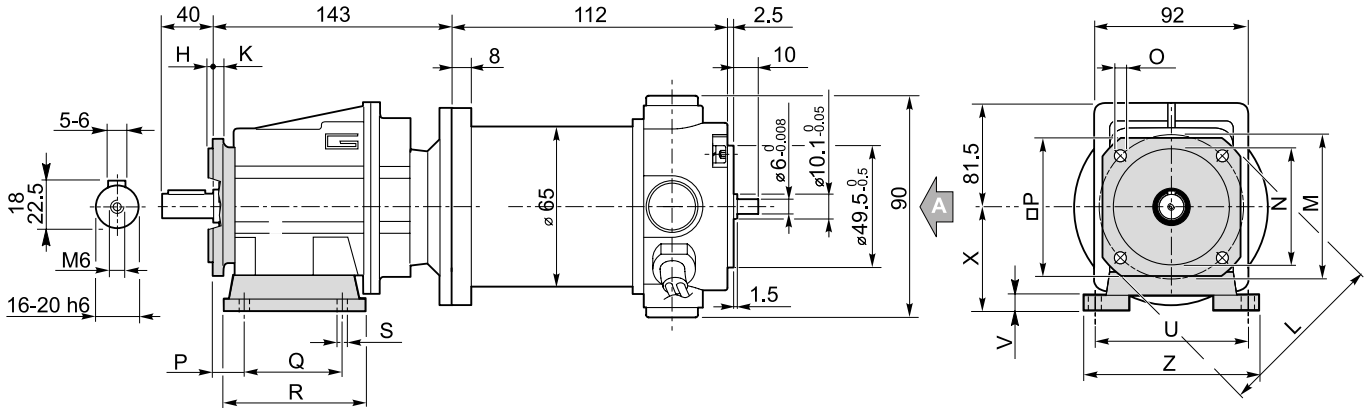
Encoder → B9

Versione **F** / ***F** Version*									
NDCMG	**H**	**K**	**L**	**M**	**N** f7	**O**	**P**	**Flangia** / ***Flange***	
								Tipo / *Type*	Peso / *Weight* [kg]
120/002 **180/002**	3.5	7	105	85	70	6.5	90	**F105**	0.1
	3.5	8	120	100	80	7	100	**F120**	0.2
	3.5	8	140	115	95	9	115	**F140**	0.2

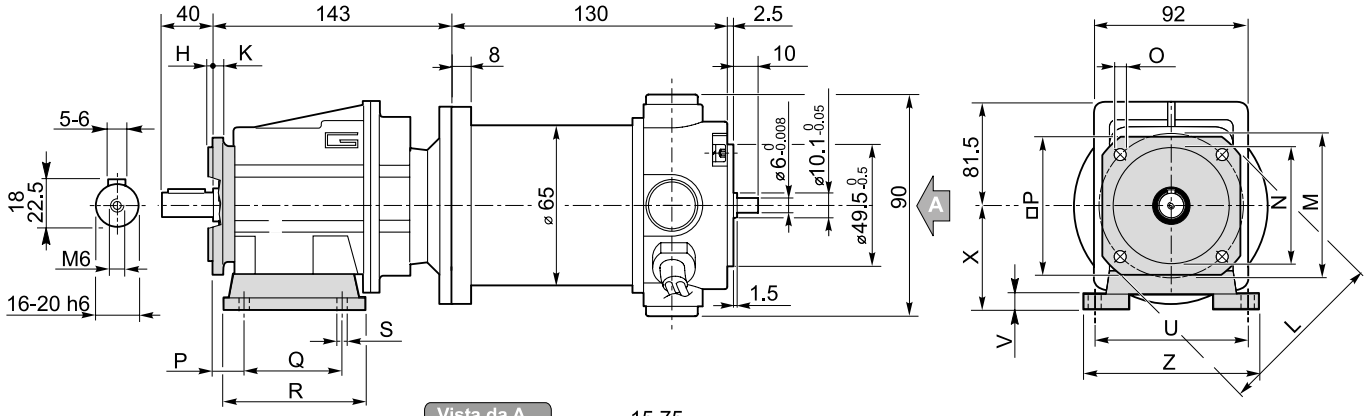
Dimensioni ***Dimensions***

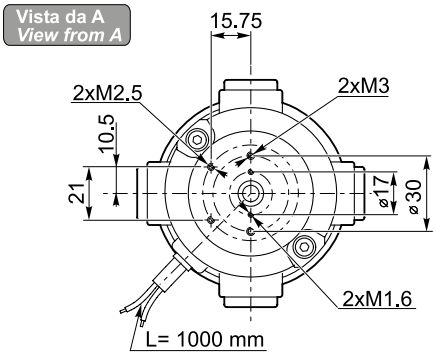
NDCMG..H../F..

NDCMG120/002 H../F



NDCMG180/002 H../F





Freno / *Brake* → B9

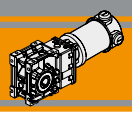
Encoder → B9

Versione **H** / ***H Version***											Combinazioni possibili H/F *Possible combinations H/F*		
NDCMG	**P**	**Q**	**R**	**S**	**U**	**V**	**X**	**Z**	**Piede / *Foot***				
									Tipo *Type*	Peso / *Weight* [kg]	**F105**	**F120**	**F140**
120/002 180/002	**18**	**60**	**80**	**9**	**100**	**10**	**60**	**120**	**H60**	**0.2**	•	•	•
	18	80	104	9	110 - 120	10	75	145	**H75**	0.3	•	•	•
	18	50 - 87	110	9	110	10	85	135	**H85**	0.4	•	•	•

Preferenziale / *Preferred*

• Combinazioni possibili H/F / *Possible combinations H/F*

Versione **F** / ***F Version***									
NDCMG	**H**	**K**	**L**	**M**	**N** f7	**O**	**P**	**Flangia / *Flange***	
								Tipo / *Type*	Peso / *Weight* [kg]
120/002 180/002	3.5	7	105	85	70	6.5	90	**F105**	0.1
	3.5	8	120	100	80	7	100	**F120**	0.2
	3.5	8	140	115	95	9	115	**F140**	0.2



ENERGY SAVING

Caratteristiche tecniche / *Technical features*

Le caratteristiche principali dei motoriduttori CC ad assi ortogonali a magneti permanenti in neodimio NDCMB sono:

- Alimentazione in bassa tensione 12/24 Vcc
- Possibilità di montaggio encoder
- Potenze motore disponibili da 160 a 250W S2
- Magneti in Neodimio
- Carcasse dei riduttori in pressofusione di alluminio
- Lubrificazione permanente con olio sintetico
- Ingranaggi sempre rettificati

The main features of NDCMB neodymium permanent magnets DC helical bevel gearmotors range are:

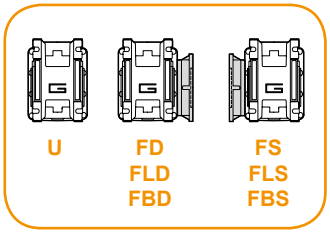
- *Low voltage power supply 12/24 Vdc*
- *Suitable for encoder assembly*
- *Motor power ratings available from 160 to 250W S2*
- *Neodymium magnets*
- *Die-cast aluminum housing*
- *Permanent synthetic oil long-life lubrication*
- *Ground helical gears*

Designazione / *Classification*

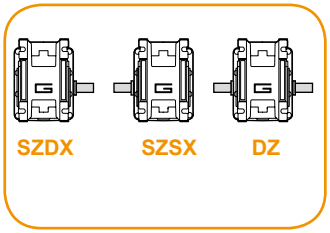
MOTORIDUTTORE / *GEARMOTOR*

NDCMB	120/402		U	9.2	D20	SZDX	BRSX	90	240
Tipo *Type*	Grandezza *Size*		Versione Riduttore *Gearbox Version*	Rapporto *Ratio*	Albero di uscita *Output shaft*	Albero di uscita *Output shaft*	Braccio di reazione *Torque arm*	Angolo *Angle*	Versione Motore *Motor Version*
NDCMB	**120/402** **120/502**	**180/402** **180/502**	**U** **FD** **FS** **FLD** **FLS** **FBD** **FBS**	Vedere tabella *See tables*	Vedere tabella *See tables*	**SZDX** **SZSX** **DZ**	**BRDX** **BRSX**	**0°** **90°** **180°** **270°**	**120** **240**

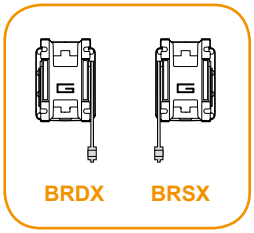
Versione Riduttore / *Gearbox Version*



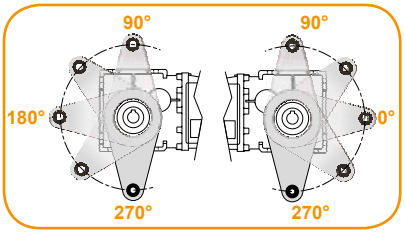
Albero di uscita / *Output shaft*



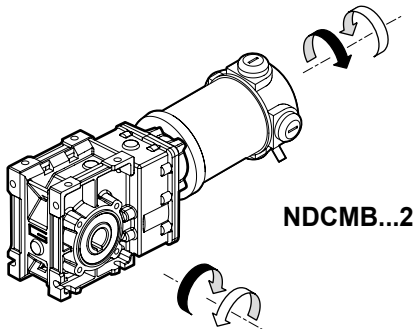
Braccio di reazione / *Torque arm*



Angolo / *Angle*



Sensi di rotazione / *Direction of rotation*



NDCMB...2

Simbologia / *Symbols*

n_1	[min^{-1}]	Velocità in ingresso / *Input speed*	M_2	[Nm]	Coppia in uscita in funzione di P_1 / *Output torque referred to P_1*
n_2	[min^{-1}]	Velocità in uscita / *Output speed*	sf		Fattore di servizio / *Service factor*
i		Rapporto di riduzione / *Ratio*	A_2	N]	Carico assiale ammissibile in uscita / *Permitted output axial load*
P_1	[kW]	Potenza in entrata / *Input power*	R_2	[N]	Carico radiale ammissibile in uscita / *Permitted output radial load*

Lubrificazione

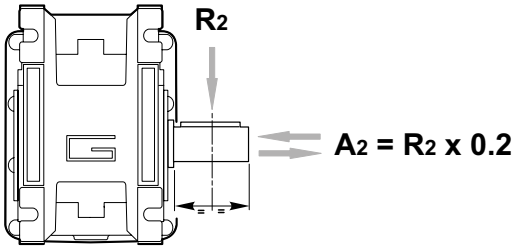
Tutti i riduttori nelle taglie 402 e 502 sono forniti completi di lubrificante sintetico viscosità 320, pertanto possono essere installati in qualunque posizione di montaggio e non necessitano di manutenzione.

Lubrication

Permanent synthetic oil long-life lubrication (viscosity grade 320) makes it possible to use sizes 402 and 502 in all mounting positions; for this reason they can be installed in any assembly position and do not require maintenance.

Carichi radiali

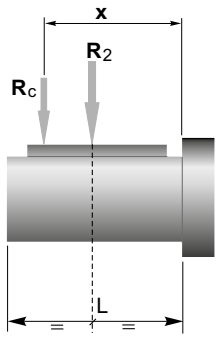
Radial loads



n_2 [min^{-1}]	R_2 [N]	
	CMB 402	CMB 502
400	905	1116
300	996	1228
200	1141	1406
170	1204	1484
140	1414	1743
100	1582	1949
90	1638	2019
60	2047	2490
40	2524	3029
30	2778	3334
20	3180	3816
15	3500	4200
10	3500	4200

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:



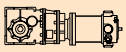
	CMB 402	CMB 502
a	86	104
b	66	79
R_{2MAX}	3500	4200

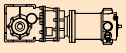
$$R_c = \frac{R_2 \cdot a}{(b+x)} \leq R_{2MAX}$$

$$R \leq R_c$$

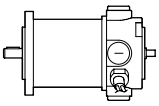
a, b = valori riportati nella tabella
a, b = values given in the table

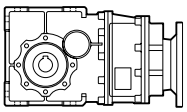
Dati tecnici per servizio S2 — *Technical data for S2 duty*

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
160						
(3000 min^{-1})	**485**	3.0	10.5	6.18	**120/402**	120/240
	401	3.6	8.6	7.49		
	326	4.4	7.0	9.20		
	254	5.7	6.2	11.83		
	240	6.0	5.9	12.48		
	202	7.1	4.9	14.83		
	170	8.4	4.1	17.63		
	161	8.9	4.8	18.60		
	134	10.7	4.0	22.33		
	125	11.4	3.8	23.91		
	104	13.8	3.7	28.89		
	97	14.8	3.5	30.84		
	89	16.1	3.2	33.57		
	84	17.1	3.0	35.63		
	70	20.5	2.5	42.75		
	54	26.5	1.9	55.31		
	51	28.3	1.8	59.06		
	47	30.8	1.7	64.29		
	41	34.7	1.5	72.50		
	70	20.5	4.8	42.75	**120/502**	120/240
	54	26.5	3.7	55.31		
	51	28.3	3.5	59.06		
	47	30.8	3.2	64.29		
	41	34.7	2.8	72.50		

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
250						
(3000 min^{-1})	**485**	4.6	6.7	6.18	**180/402**	120/240
	401	5.6	5.5	7.49		
	326	6.9	4.5	9.20		
	254	8.8	4.0	11.83		
	240	9.3	3.7	12.48		
	202	11.1	3.2	14.83		
	170	13.2	2.7	17.63		
	161	13.9	3.1	18.60		
	134	16.7	2.6	22.33		
	125	17.9	2.4	23.91		
	104	21.6	2.4	28.89		
	97	23.1	2.2	30.84		
	89	25.1	2.0	33.57		
	84	26.7	1.9	35.63		
	70	32.0	1.6	42.75		
	54	41.4	1.2	55.31		
	51	44.2	1.2	59.06		
	47	48.1	1.1	64.29		
	41	54.2	0.9	72.50		
	134	16.7	5.1	22.33	**180/502**	120/240
	125	17.9	4.8	23.91		
	104	21.6	4.5	28.89		
	97	23.1	4.2	30.84		
	89	25.1	3.9	33.57		
	84	26.7	3.7	35.63		
	70	32.0	3.1	42.75		
	54	41.4	2.4	55.31		
	51	44.2	2.2	59.06		
	47	48.1	2.0	64.29		
	41	54.2	1.8	72.50		

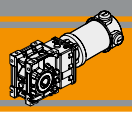
Motori applicabili — *Motor adapters*



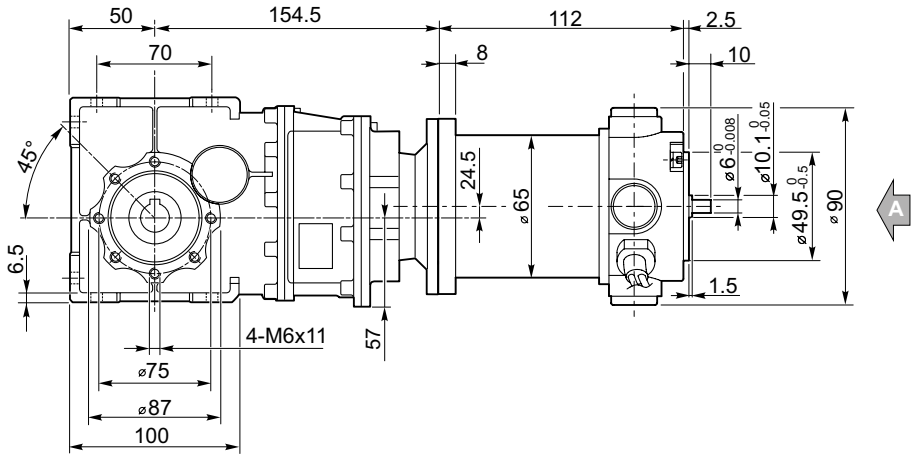


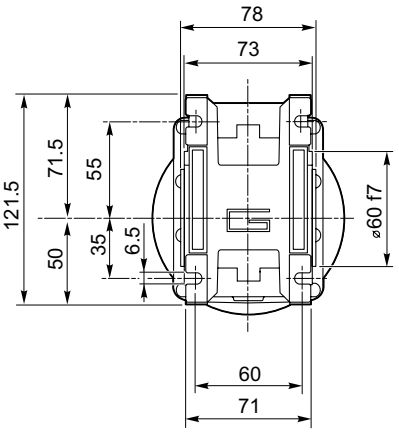
		ND	
		120.120 120.240	**180.120 180.240**
CMB	**402**	6.18 - 72.50	6.18 - 72.50
	502	6.18 - 72.50	6.18 - 72.50

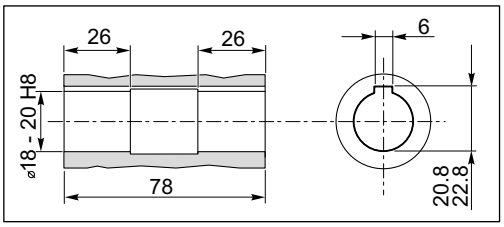
6.18 - 72.50 Rapporti di riduzione i
Ratio i

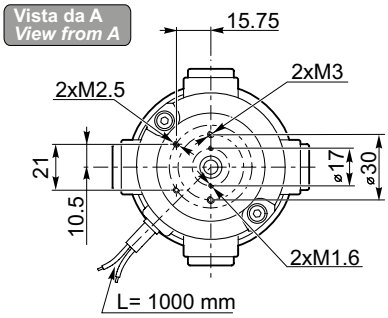


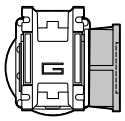
NDCMB120/402 U











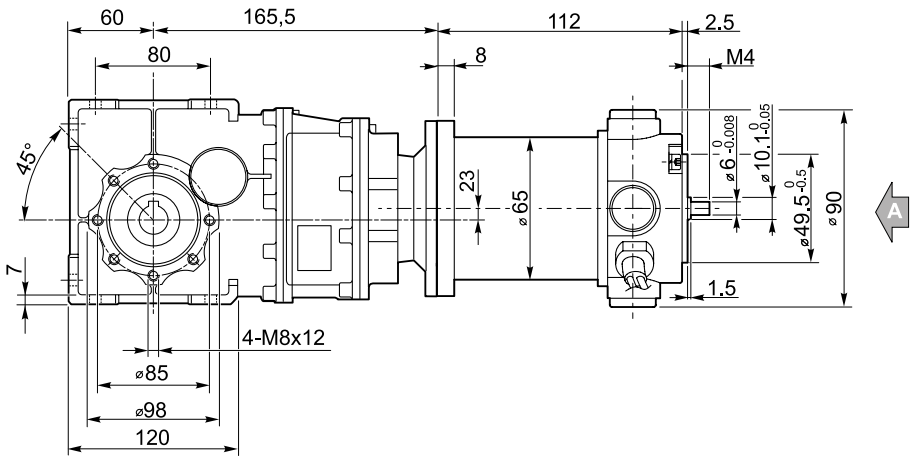
D7

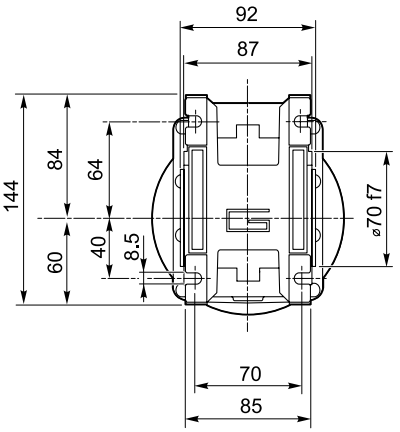
NDCMB120/402 F
NDCMB120/402 FL
NDCMB120/402 FB

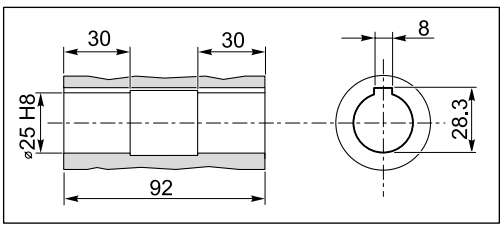
Freno / *Brake* → B9

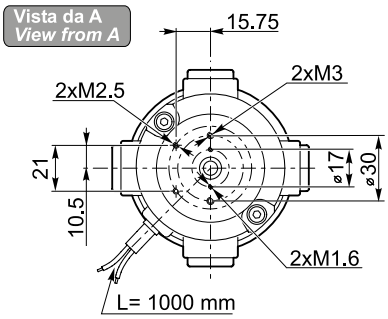
Encoder → B9

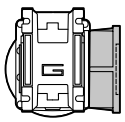
NDCMB120/502 U











D7

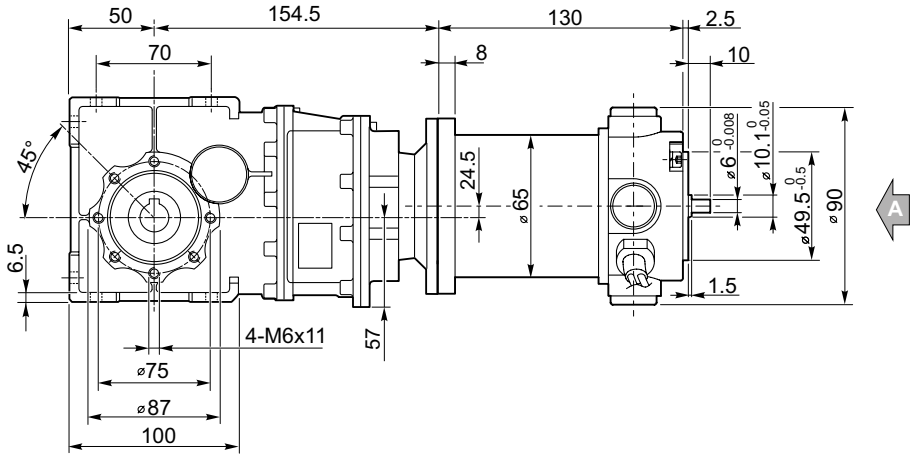
NDCMB120/502 F
NDCMB120/502 FL
NDCMB120/502 FB

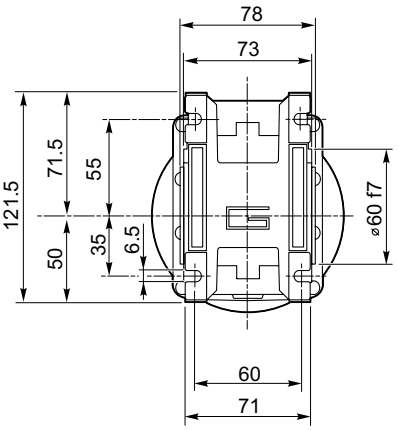
Freno / *Brake* → B9

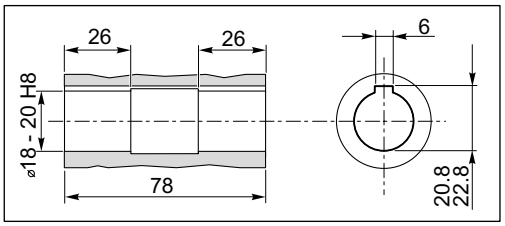
Encoder → B9

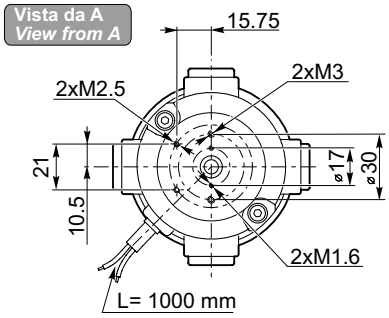
Dimensioni ***Dimensions***

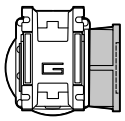
NDCMB180/402 U











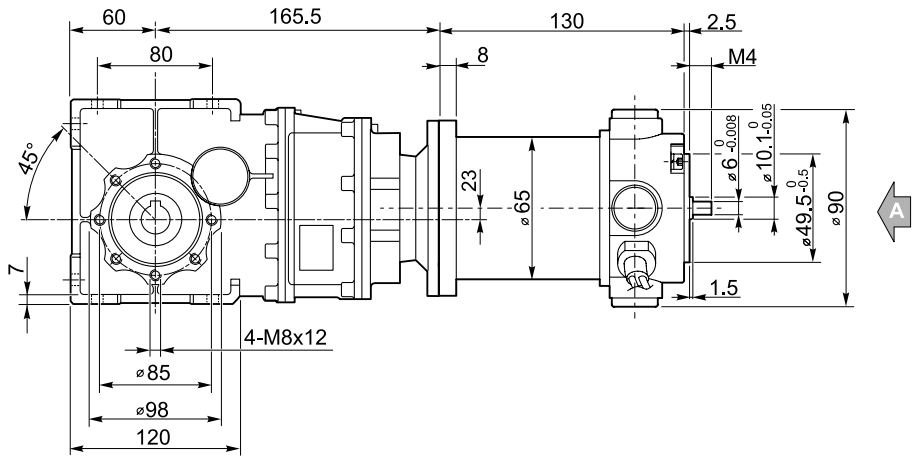
D7

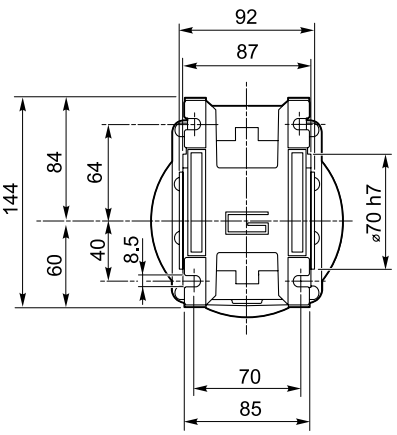
NDCMB180/402 F
NDCMB180/402 FL
NDCMB180/402 FB

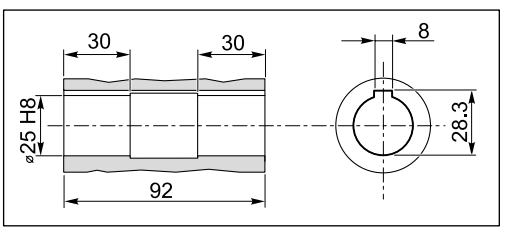
Freno / *Brake* B9

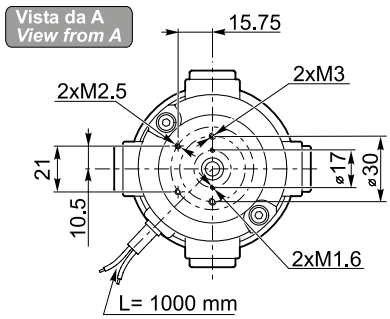
Encoder B9

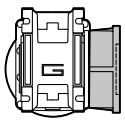
NDCMB180/502 U









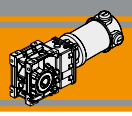


D7

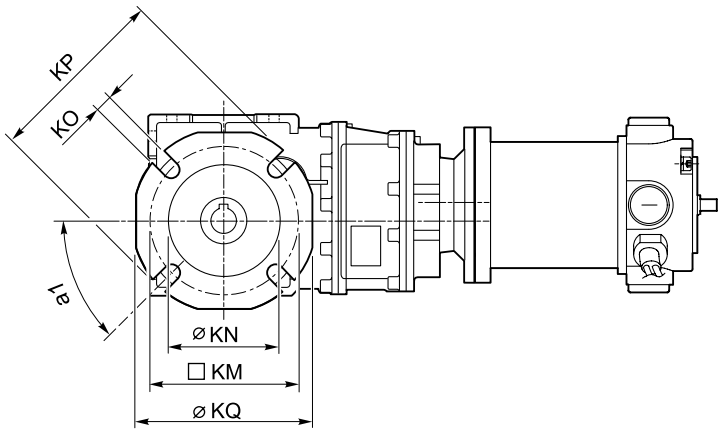
NDCMB180/502 F
NDCMB180/502 FL
NDCMB180/502 FB

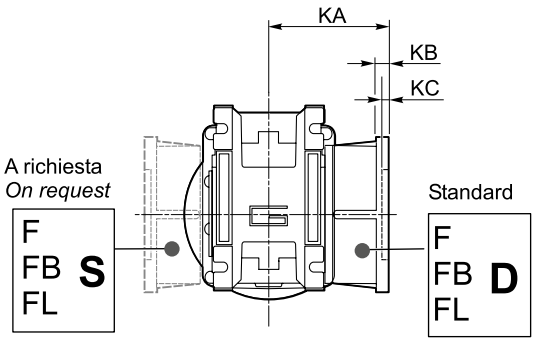
Freno / *Brake* B9

Encoder B9



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

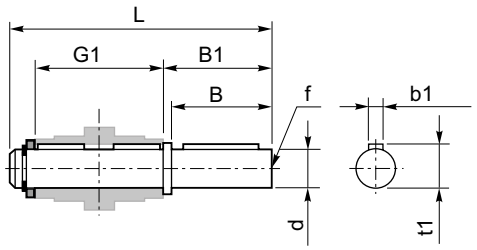




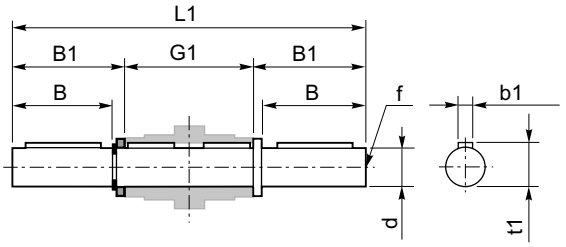
	Flange uscita / *Output flanges*																									
	F									**FL**									**FB**							
CMB	**a_1**	**KA**	**KB**	**KC**	**KM**	**KN** H8	**KO**	**KP**	**KQ**	**a_1**	**KA**	**KB**	**KC**	**KM**	**KN** H8	**KO**	**KP**	**KQ**	**a_1**	**KA**	**KB**	**KC**	**KM**	**KN** H8	**KO**	**KP**	**KQ**
402	45°	67	7.5	4.5	80-95	60	9	110	95	45°	97	7.5	4.5	80-95	60	9	110	95	45°	80	8.5	5	115-125	95	9.5	140	112
502	45°	90	9	5	90-110	70	11	125	110	45°	120	9	5	90-110	70	11	125	110	45°	89	9	5	130-145	110	9.5	160	132

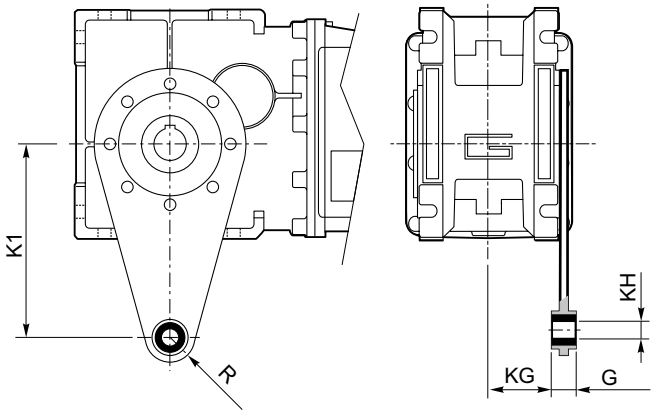
Accessori — *Accessories*

SZ



DZ





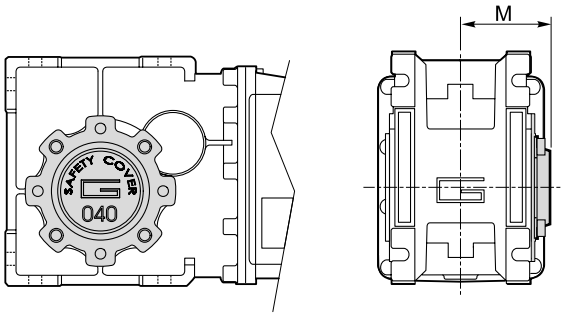
Albero lento / *Output shaft*

CMB	d h7	B	B1	G1	L	L1	f	b1	t1
402	18	40	43	78	128	164	M6	6	20.5
502	25	50	53.5	92	153	199	M10	8	28

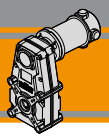
Braccio di reazione / *Torque arm*

CMB	K1	G	KG	KH	R
402	100	14	31	10	18
502	100	14	38	10	18

SC - *Safety cover*



CMB	M
402	54.5
502	62.5



ENERGY SAVING

Caratteristiche tecniche

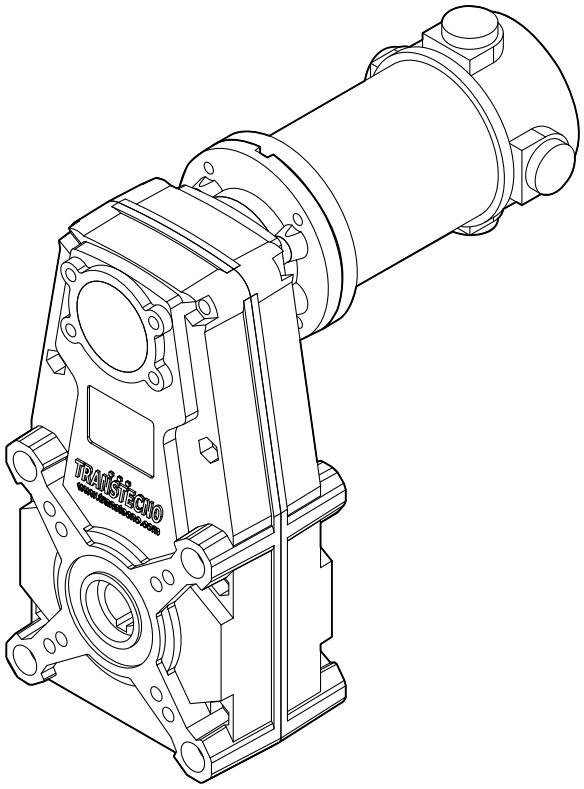
I motoriduttori CC pendolari a magneti permanenti in neodimio NDFT hanno le seguenti caratteristiche principali:

- Alimentazione in bassa tensione 12/24 Vcc
- Possibilità di montaggio encoder
- Potenze motore disponibili da 160 a 250W S2
- Magneti in Neodimio
- Carcasse dei riduttori in pressofusione di alluminio
- Lubrificazione permanente con olio sintetico
- Ingranaggi cilindrici a denti elicoidali.

Technical features

NDFT neodymium permanent magnets DC helical parallel gearmotors range has the following main features:

- *Low voltage power supply 12/24 Vdc*
- *Suitable for encoder assembly*
- *Motor power ratings available from 160 to 250W S2*
- *Neodymium magnets*
- *Die-cast aluminum housing*
- *Permanent synthetic oil long-life lubrication*
- *helical gears.*

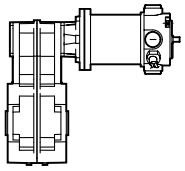


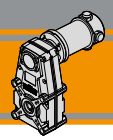
Designazione

Classification

MOTORIDUTTORE / *GEARMOTOR*

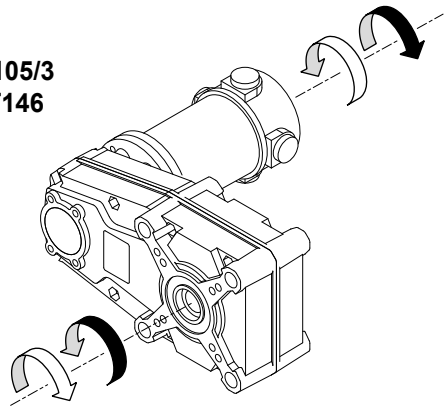
NDFT	120/146		U	60.63	O20	240
Tipo *Type*	Grandezza *Size*		Versione Riduttore *Gearbox Version*	Rapporto *Ratio*	Albero di uscita *Output shaft*	Versione Motore *Motor Version*
NDFT	**120/105/3** **120/146**	**180/105/3** **180/146**	**U...**	Vedere tabella *See tables*	Vedere tabella *See tables*	**120** **240**

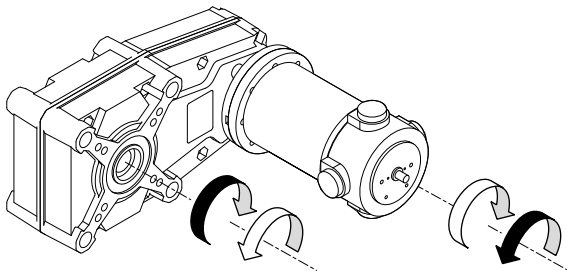




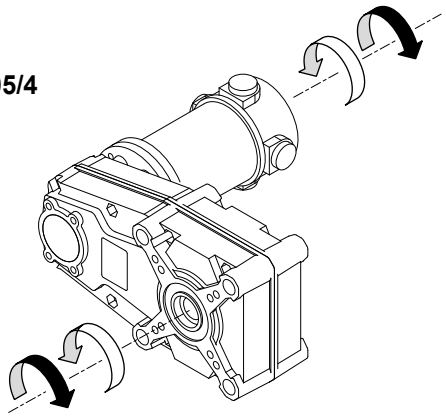
Sensi di rotazione — *Direction of rotation*

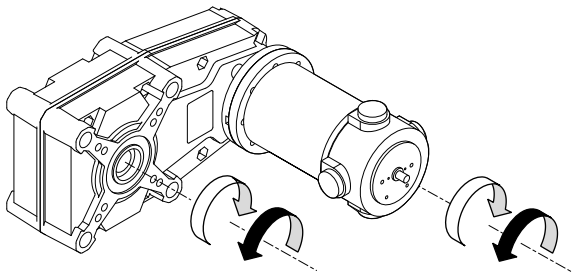
FT105/3
FT146





FT105/4





Simbologia — *Symbols*

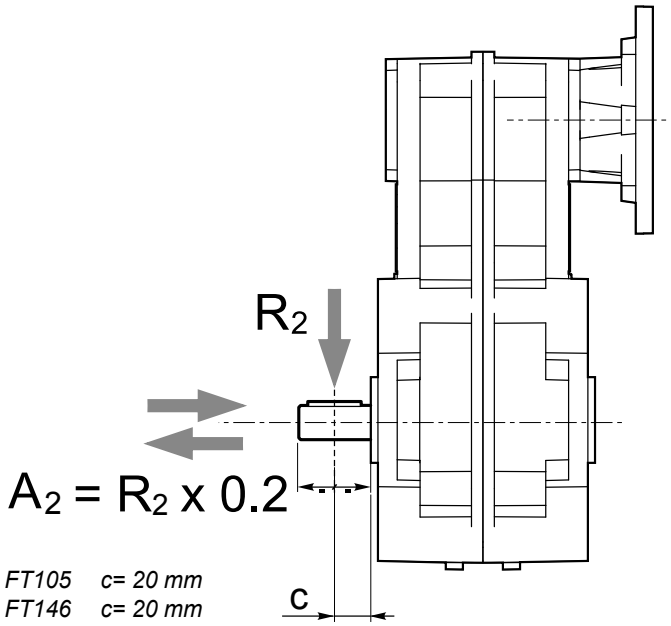
n_1	[min^{-1}]	Velocità in ingresso / *Input speed*
n_2	[min^{-1}]	Velocità in uscita / *Output speed*
i		Rapporto di riduzione / *Ratio*
P_1	[kW]	Potenza in entrata / *Input power*
M_2	[Nm]	Coppia nominale in uscita in funzione di P_1 / *Output torque referred to* P_1
Pn_1	[kW]	Potenza nominale in entrata / *Nominal input power*
Mn_2	[Nm]	Coppia nominale in uscita in funzione di Pn_1 / *Nominal output torque referred to* Pn_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*

Tutti i motoriduttori sono forniti completi di lubrificante sintetico viscosità 320, pertanto possono essere installati in qualunque posizione di montaggio e non necessitano di manutenzione.

Permanent synthetic oil long-life lubrication (viscosity grade 320) makes it possible to use the gearmotors in all mounting positions; for this reason they can be installed in any assembly position and do not require maintenance.

Carichi radiali — *Radial loads*

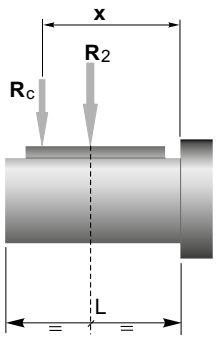


FT105 c= 20 mm
FT146 c= 20 mm

n_2 [min^{-1}]	R_2 [N]	
	FT105	FT146
70	1500	2500
40	1700	2700
30	1850	2850
20	2000	3000
10	2000	3000
5	2000	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:

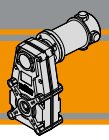


	FT105	FT146
a	82	82,5
b	62	62,5
R_{2MAX}	2000	3000

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

$$R \leq R_c$$

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



Dati tecnici — *Technical data*

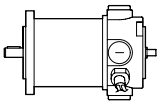
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
160						
(3000 min^{-1})	**146**	10	3.2	20.57	**120/105/3**	120/240
	90	16	2.4	33.32		
	68	21	2.4	44.36		
	55	26	1.9	54.87		
	42	34	1.5	71.84		
	39	37	1.4	77.07		
	34	43	1.2	88.87		
	24	60	0.8	124.81		
	17	86	0.6	181.35		
	13	86	0.6	224.32		
	9.5	86	0.6	315.05		
	49	29	3.0	60.63	**120/146**	120/240
	35	41	2.1	84.63		
	31	46	1.9	95.61		
	26	54	1.6	113.40		
	22	64	1.3	133.45		
	20	72	1.2	150.18		
	19	77	1.2	160.43		
	17	86	1.1	178.83		
	13	107	0.9	223.92		
	13	113	0.8	236.83		
	10	134	0.7	300.07		
	7.5	134	0.7	397.38		

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
250						
(3000 min^{-1})	**146**	15	2.0	20.57	**180/105/3**	120/240
	90	25	1.6	33.32		
	68	33	1.5	44.36		
	55	41	1.2	54.87		
	42	54	0.9	71.84		
	39	58	0.9	77.07		
	34	66	0.8	88.87		
	49	45	1.9	60.63	**180/146**	120/240
	35	63	1.4	84.63		
	31	72	1.2	95.61		
	26	85	1.0	113.40		
	22	100	0.9	133.45		
	20	112	0.8	150.18		
	19	120	0.8	160.43		
	17	134	0.7	178.83		

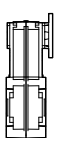
N.B.
Verificare sempre che la coppia M2 utilizzata non ecceda il valore indicato nelle caselle in grigio

N.B.
Please check that the output torque M2 does not exceed the value in the grey areas

Motori applicabili — *Motor adapters*



		ND	
		120.120 120.240	**180.120 180.240**
FT	**105/3**	20.57 - 315.05	20.57 - 315.05
	146	60.63 - 397.38	60.63- 397.38

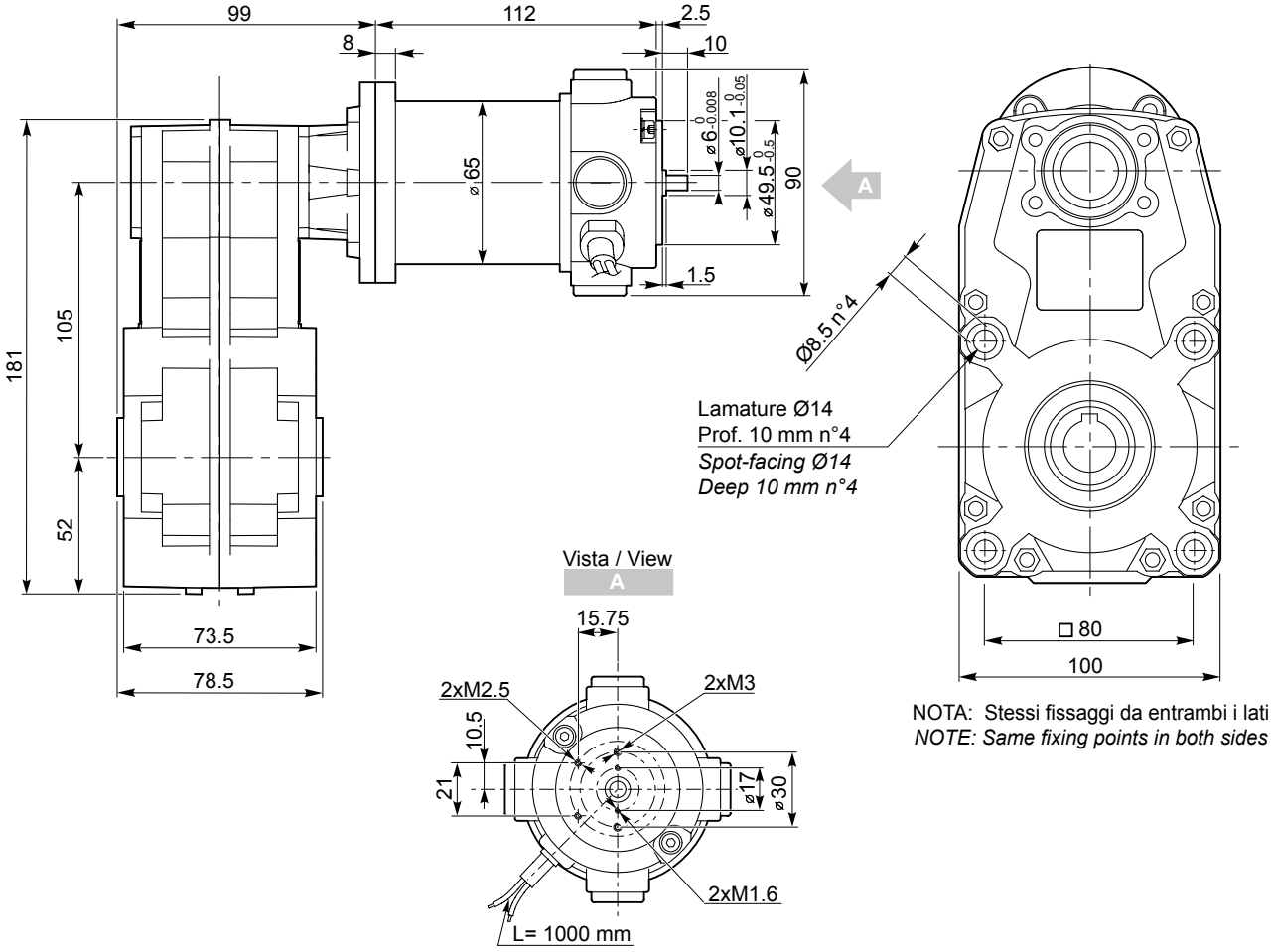


60.63 - 397.38 Rapporti di riduzione i
Ratio i

Dimensioni | *Dimensions*

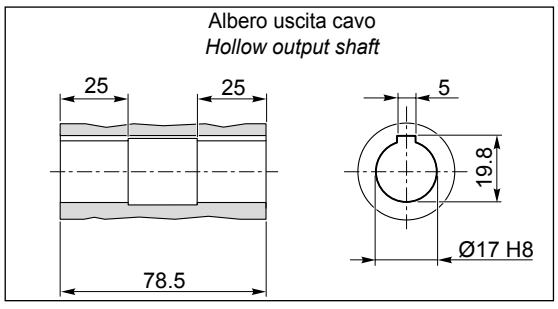
NDFT 120/105

NDFT 120/105...U

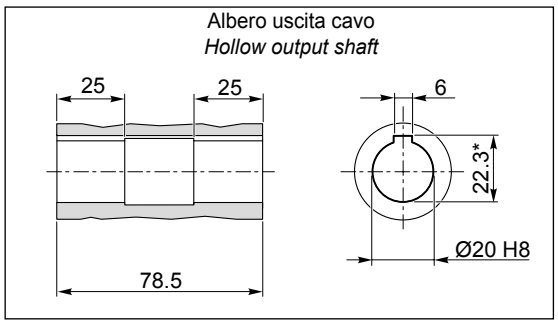


NOTA: Stessi fissaggi da entrambi i lati
NOTE: Same fixing points in both sides

O17

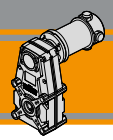


O20



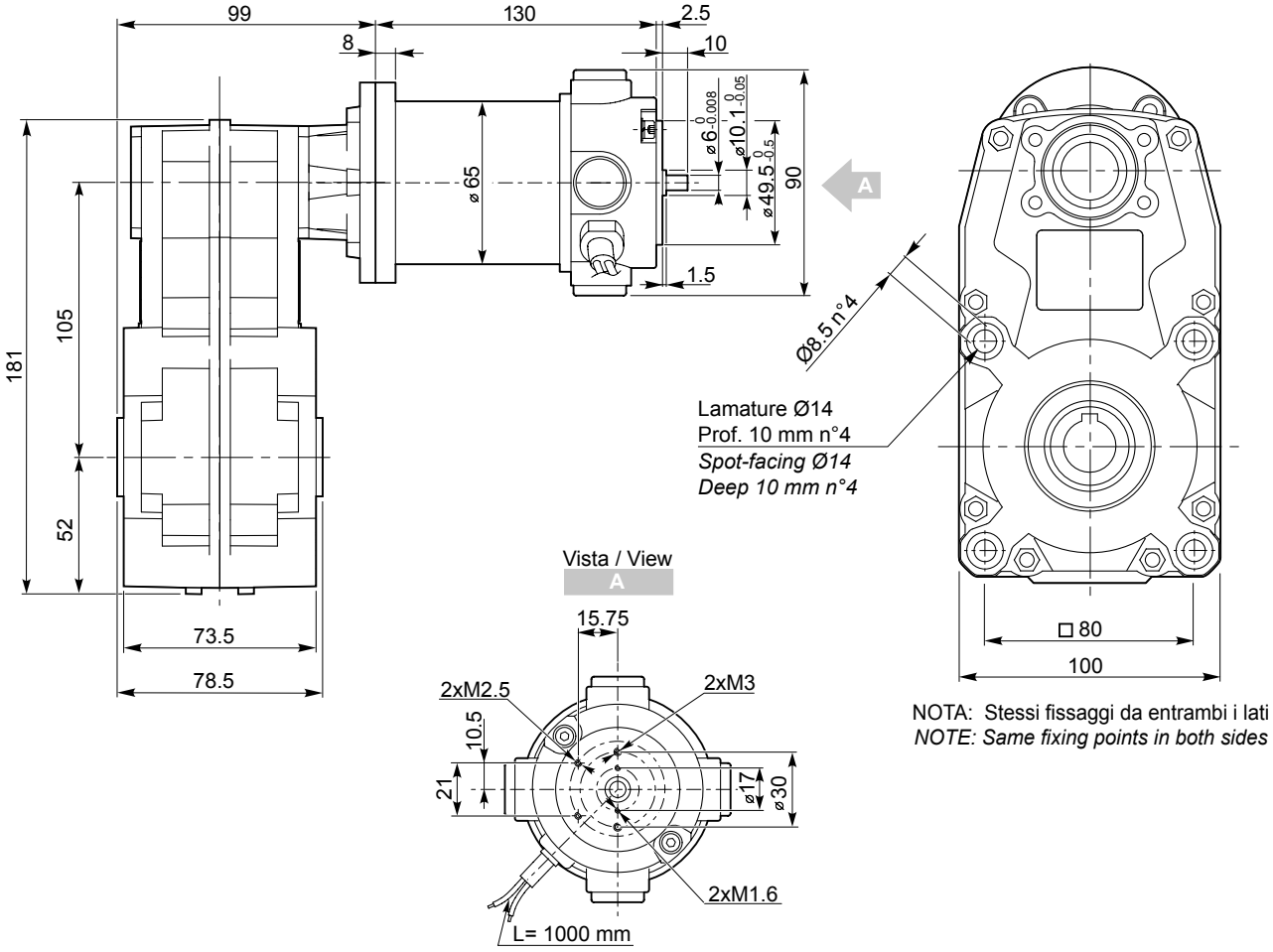
*: Sede linguetta ribassata / *Special keyway*

Freno / *Brake* B9
Encoder B9



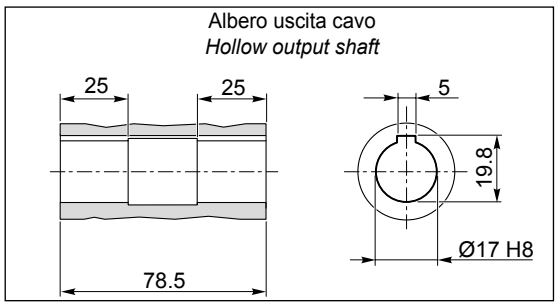
NDFT 180/105

NDFT 180/105...U

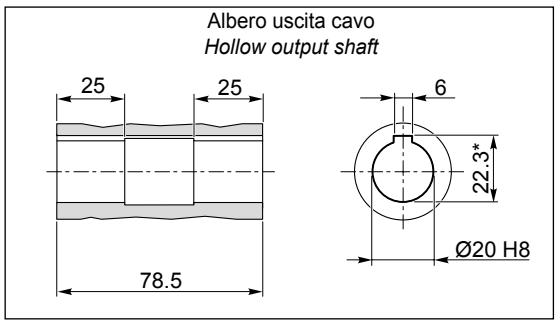


NOTA: Stessi fissaggi da entrambi i lati
NOTE: Same fixing points in both sides

O17



O20



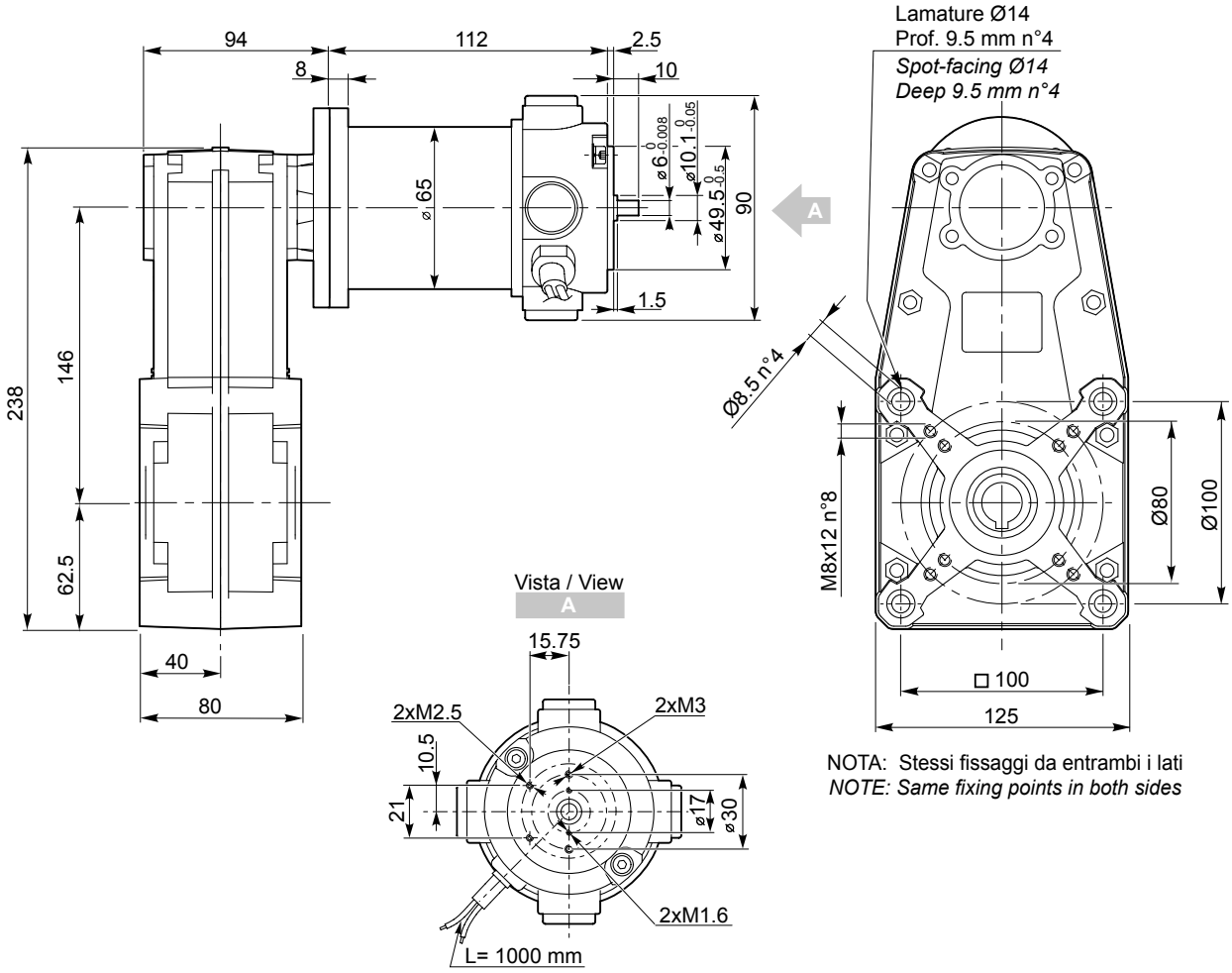
*: Sede linguetta ribassata / *Special keyway*

Freno / *Brake* B9
Encoder B9

Dimensioni | *Dimensions*

NDFT 120/146

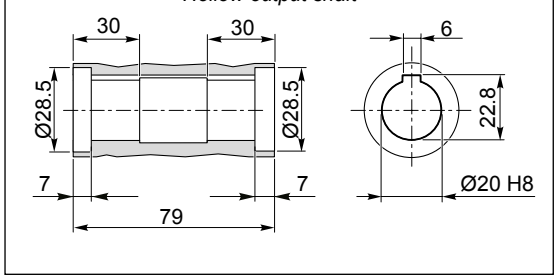
NDFT 120/146...U



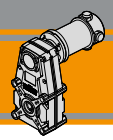
NOTA: Stessi fissaggi da entrambi i lati
NOTE: Same fixing points in both sides

O20

Albero uscita cavo
Hollow output shaft

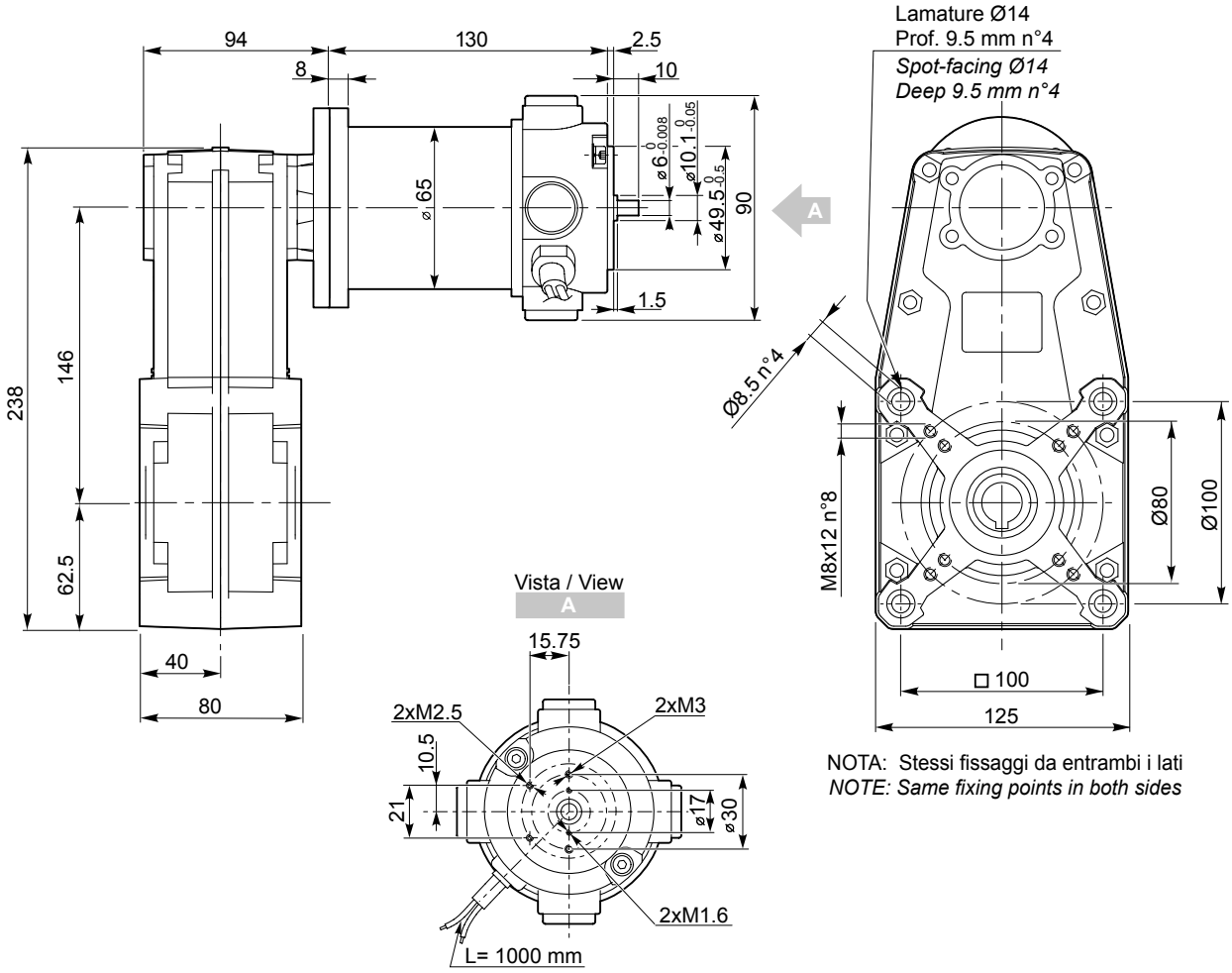


Freno / *Brake* B9
Encoder B9



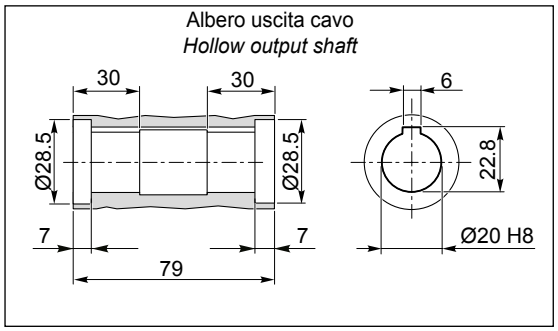
NDFT 180/146

NDFT 180/146...U



NOTA: Stessi fissaggi da entrambi i lati
NOTE: Same fixing points in both sides

O20



Freno / *Brake* B9
Encoder B9

Caratteristiche tecniche

Le caratteristiche principali dei motoriduttori CC a vite senza fine a magneti permanenti in neodimio NDCM sono:

- Alimentazione in bassa tensione 12/24 Vcc
- Possibilità di montaggio encoder
- Potenze motore disponibili da 160 a 250 W S2
- Magneti in Neodimio
- Carcasse dei riduttori a vite senza fine in pressofusione di alluminio
- Lubrificazione permanente con olio sintetico

Technical features

The main features of NDCM neodymium permanent magnets DC wormgearmotors range are:

- Low voltage power supply 12/24 Vdc
- Suitable for encoder assembly
- Motor power ratings available from 160 to 250 W S2
- Neodymium magnets
- Die-cast aluminum housing on wormgearboxes
- Permanent synthetic oil long-life lubrication

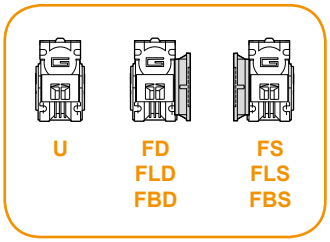
Designazione

Classification

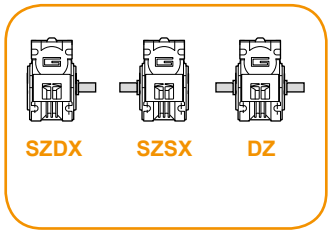
MOTORIDUTTORE / *GEARMOTOR*

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** **180/026** **120/030** **180/030** **120/040** **180/040**	**U** **FD** **FS** **FLD** **FLS** **FBD** **FBS**	Vedere tabella *See tables*	**SZDX** **SZSX** **DZ**	**BRDX** **BRSX**	**0°** **90°** **180°** **270°**	**120 — 240**	**VS**

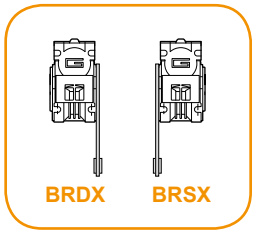
Versione Riduttore
Gearbox Version



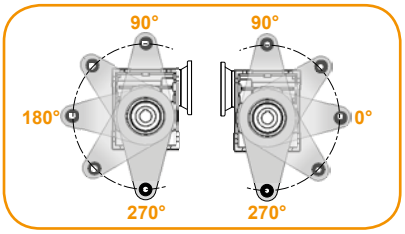
Albero di uscita
Output shaft



Braccio di reazione
Torque arm



Angolo
Angle



Simbologia

Symbols

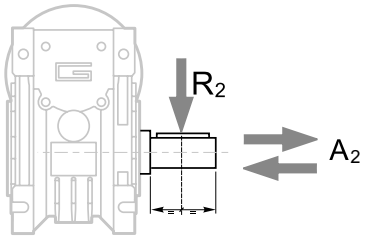
n_1	[min^{-1}]	Velocità in ingresso / *Input speed*	Rd	%	Rendimento dinamico / *Dynamic efficiency*
n_2	[min^{-1}]	Velocità in uscita / *Output speed*	A_2	N]	Carico assiale ammissibile in uscita / *Permitted output axial load*
i		Rapporto di riduzione / *Ratio*	Rs	%	Rendimento statico / *Static efficiency*
P_1	[kW]	Potenza in entrata / *Input power*	R_2	[N]	Carico radiale ammissibile in uscita / *Permitted output radial load*
M_2	[Nm]	Coppia in uscita in funzione di P_1 / *Output torque referred to* P_1	Z		Numero di principi della vite / *Worm starts*
sf		Fattore di servizio / *Service factor*	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.

Carichi radiali — *Radial loads*

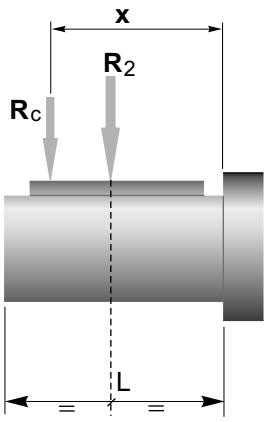


$A_2 = R_2 \times 0.2$

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'

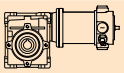
Rendimento — *Efficiency*

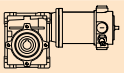
	n_1 [min^{-1}]	Rendimento *Efficiency*	Rapporto / *Ratio*											
			5	**7.5**	**10**	**15**	**20**	**25**	**30**	**40**	**50**	**60**	**80**	**100**
CM026	2800	Rd	89	87	85	83	80		73	68	64	60		
	1400		87	84	83	78	74		66	61	57	53		
	900		84	83	80	75	71		61	57	52	48		
		Rs	72	71	68	61	56		46	41	36	34		
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	4.4	5	**120/026**	**120/240**
	400	3	3.3	7.5	**120/026**	
	300	4	2.5	10	**120/026**	
	200	6	1.7	15	**120/026**	
	150	8	1.3	20	**120/026**	
	100	11	1.1	30	**120/026**	
	75	14	0.8	40	**120/026**	
	60	14	0.7	50	**120/026**	
	50	13	0.7	60	**120/026**	
	600	2	5.7	5	**120/030**	**120/240**
	400	3	4.5	7.5	**120/030**	
	300	4	3.7	10	**120/030**	
	200	6	2.5	15	**120/030**	
	150	8	1.7	20	**120/030**	
	120	10	1.5	25	**120/030**	
	100	11	1.6	30	**120/030**	
	75	14	1.1	40	**120/030**	
	60	17	0.9	50	**120/030**	
	50	20	0.7	60	**120/030**	
	38	17	0.7	80	**120/030**	
	30	16	0.7	100	**120/030**	
	150	8	3.7	20	**120/040**	**120/240**
	120	10	2.7	25	**120/040**	
	100	12	3.2	30	**120/040**	
	75	15	2.3	40	**120/040**	
	60	18	1.8	50	**120/040**	
	50	20	1.4	60	**120/040**	
	38	24	1.1	80	**120/040**	
	30	29	0.8	100	**120/040**	

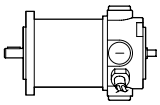
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
250						
(3000 min^{-1})	**600**	4	2.8	5	**180/026**	**120/240**
	400	5	2.1	7.5	**180/026**	
	300	7	1.6	10	**180/026**	
	200	10	1.1	15	**180/026**	
	150	13	0.9	20	**180/026**	
	100	17	0.7	30	**180/026**	
	75	16	0.7	40	**180/026**	
	60	14	0.7	50	**180/026**	
	50	13	0.7	60	**180/026**	
	600	4	3.7	5	**180/030**	**120/240**
	400	5	2.9	7.5	**180/030**	
	300	7	2.3	10	**180/030**	
	200	10	1.6	15	**180/030**	
	150	13	1.1	20	**180/030**	
	120	16	1.0	25	**180/030**	
	100	18	1.0	30	**180/030**	
	75	22	0.7	40	**180/030**	
	60	21	0.7	50	**180/030**	
	50	20	0.7	60	**180/030**	
	38	17	0.7	80	**180/030**	
	30	16	0.7	100	**180/030**	
	600	4	8.1	5	**180/040**	**120/240**
	400	5	5.8	7.5	**180/040**	
	300	7	4.8	10	**180/040**	
	200	10	3.5	15	**180/040**	
	150	13	2.3	20	**180/040**	
	120	16	1.8	25	**180/040**	
	100	18	2.1	30	**180/040**	
	75	23	1.5	40	**180/040**	
	60	27	1.2	50	**180/040**	
	50	32	0.9	60	**180/040**	
	38	38	0.7	80	**180/040**	
	30	34	0.7	100	**180/040**	

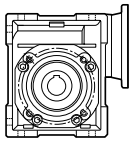
N.B.
Verificare sempre che la coppia M2 utilizzata non ecceda il valore indicato nelle caselle in grigio

N.B.
Please check that the output torque M2 does not exceed the value in the grey areas

Motori applicabili

IEC Motor adapters



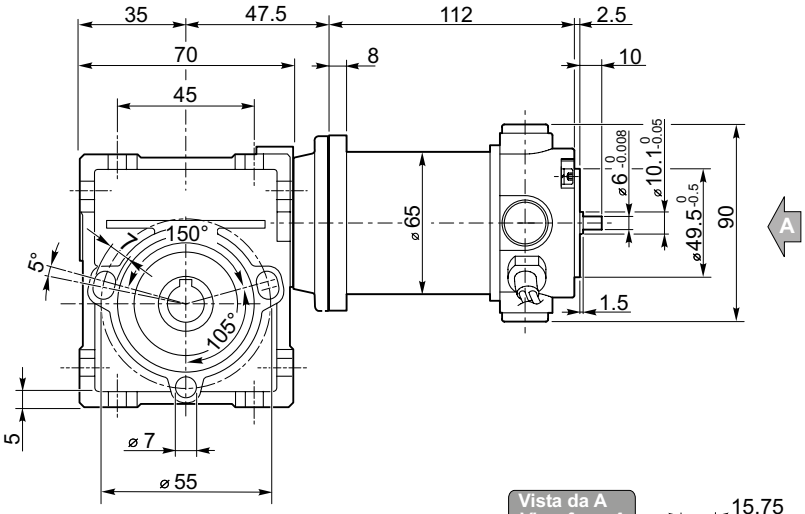


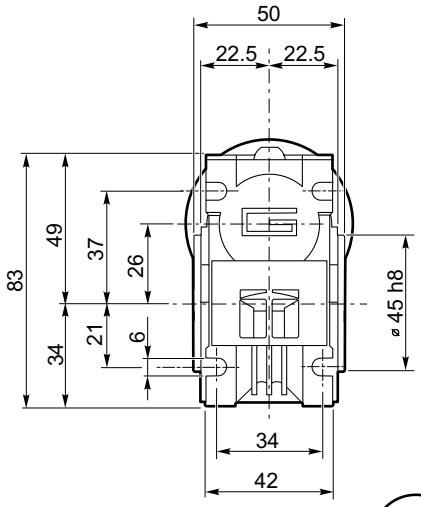
		ND	
		120.120 120.240	**180.120 180.240**
CM	**026**	5 - 60	5 - 60
	030	5 - 100	5 - 100
	040	5 - 100	5 - 100

5-100 Rapporti di riduzione i
Ratio i

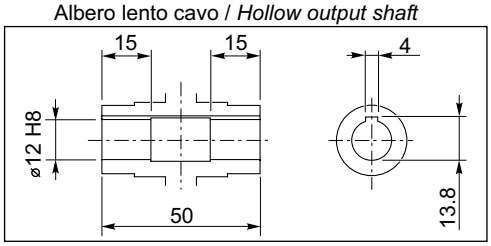
Dimensioni | ***Dimensions***

NDCM120/026 U

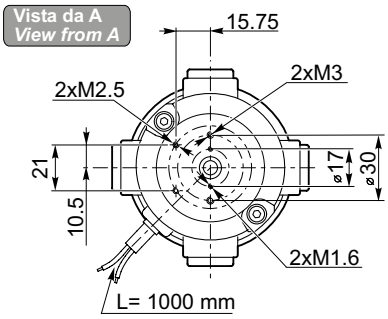


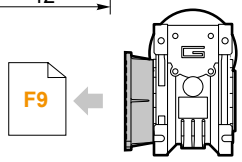


Albero lento cavo / *Hollow output shaft*



Vista da A / *View from A*



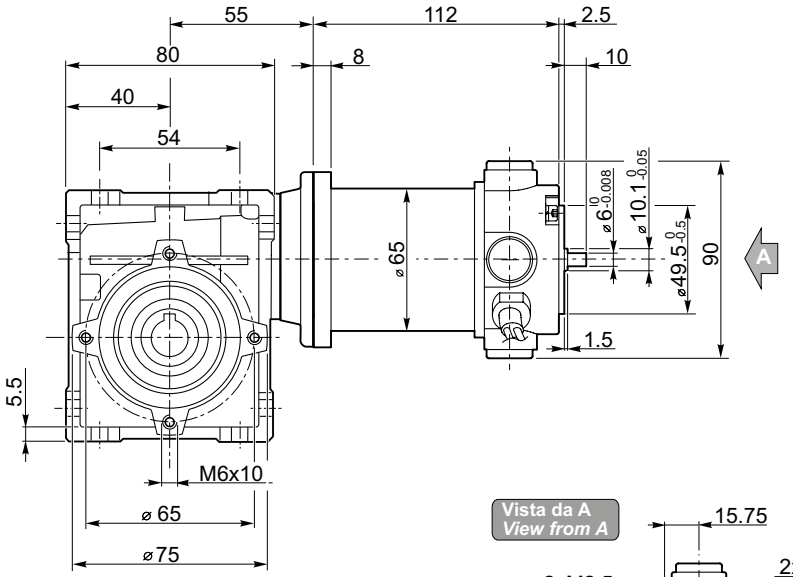


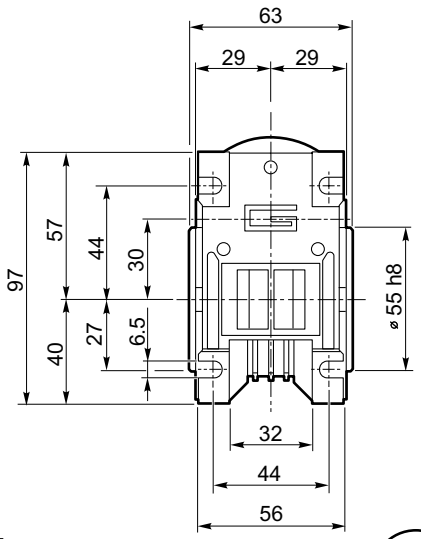
NDCM120/026 F

Freno / *Brake* → B9

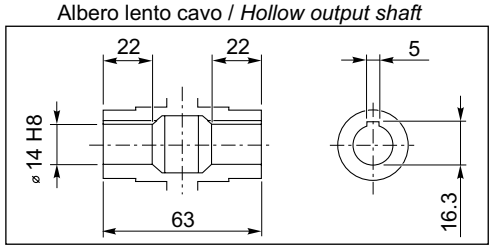
Encoder → B9

NDCM120/030 U

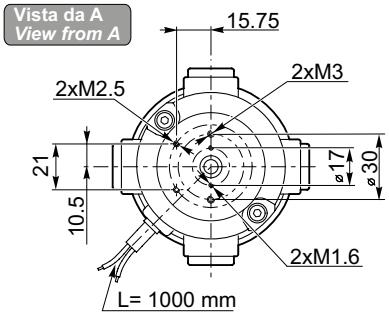


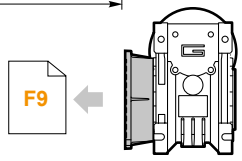


Albero lento cavo / *Hollow output shaft*



Vista da A / *View from A*





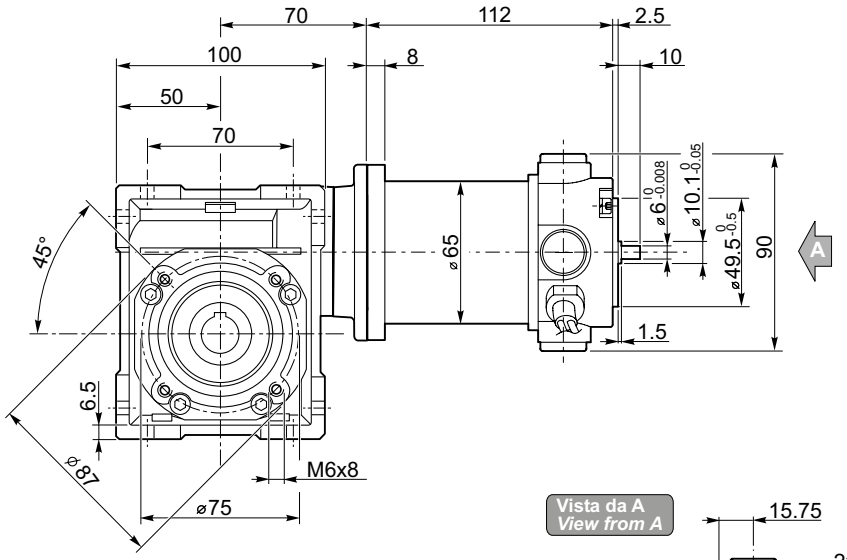
NDCM120/030 F

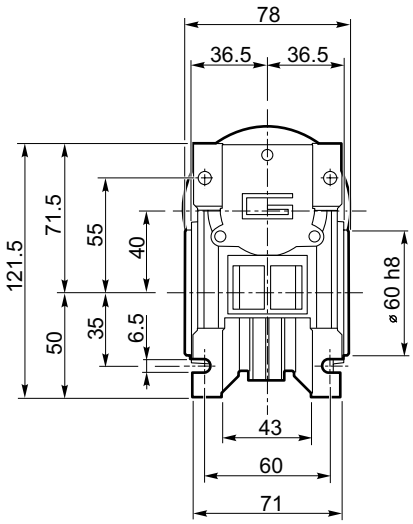
Freno / *Brake* → B9

Encoder → B9

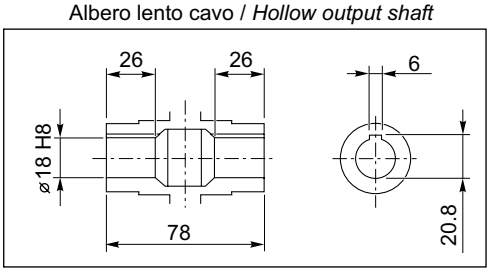
Dimensioni — *Dimensions*

NDCM120/040 U

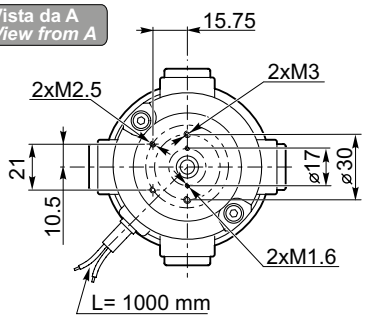


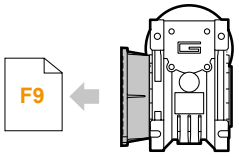


Albero lento cavo / *Hollow output shaft*



Vista da A / *View from A*





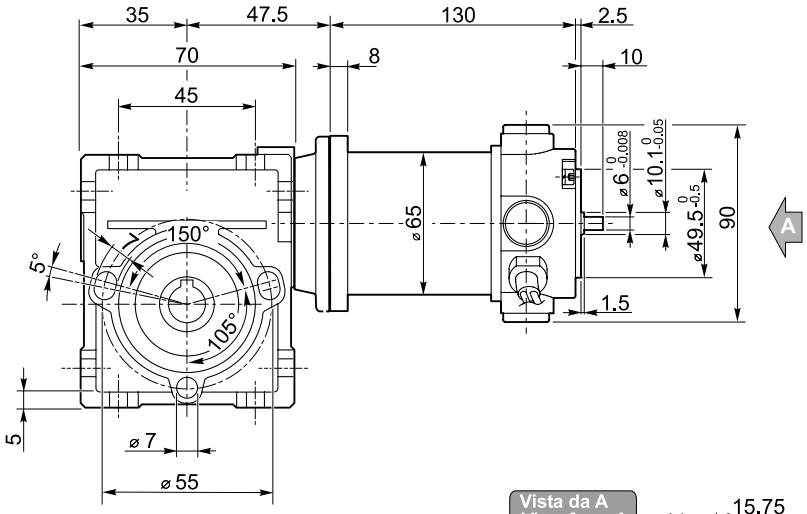
NDCM120/040 F
NDCM120/040 FB
NDCM120/040 FL

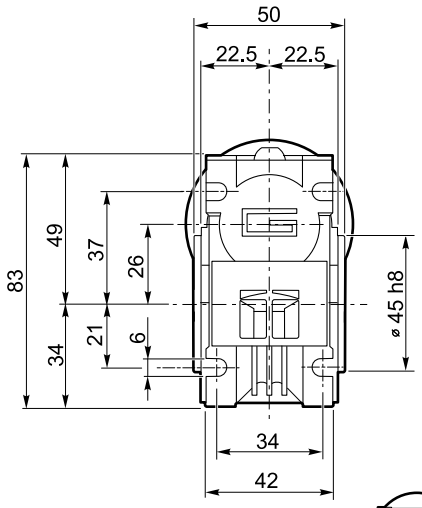
Freno / *Brake* → B9

Encoder → B9

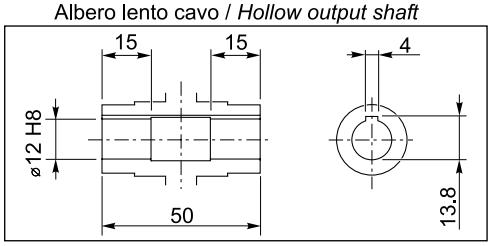
Dimensioni ***Dimensions***

NDCM180/026 U

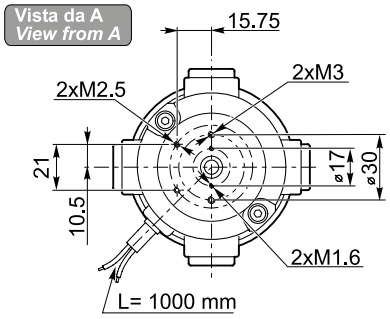


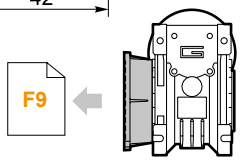


Albero lento cavo / *Hollow output shaft*



Vista da A / *View from A*



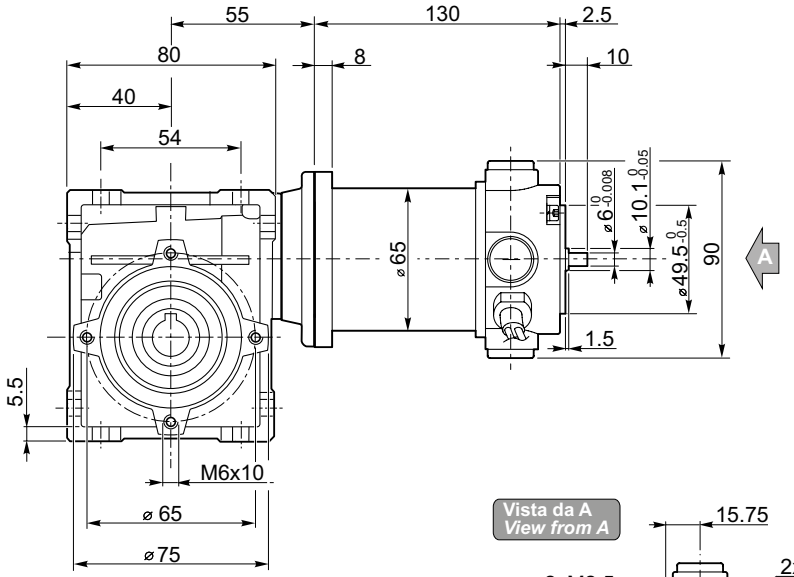


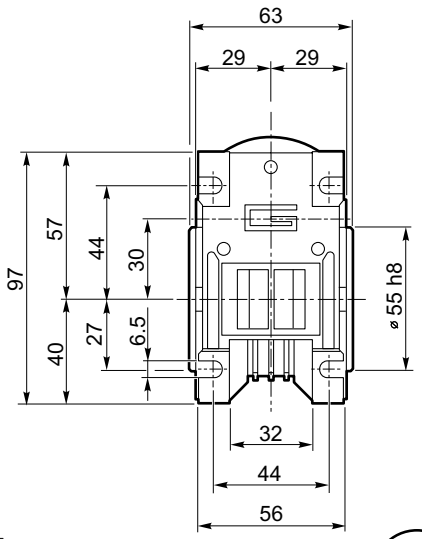
NDCM180/026 F

Freno / *Brake* B9

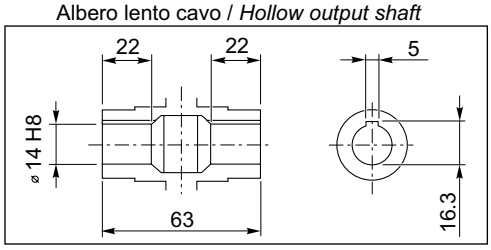
Encoder B9

NDCM180/030 U

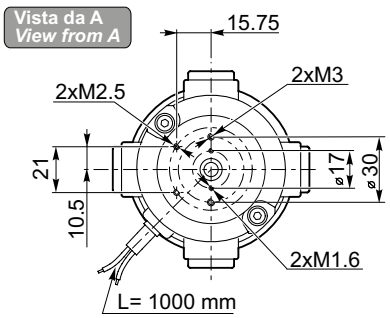


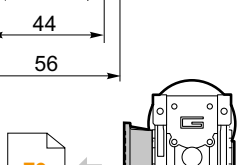


Albero lento cavo / *Hollow output shaft*



Vista da A / *View from A*





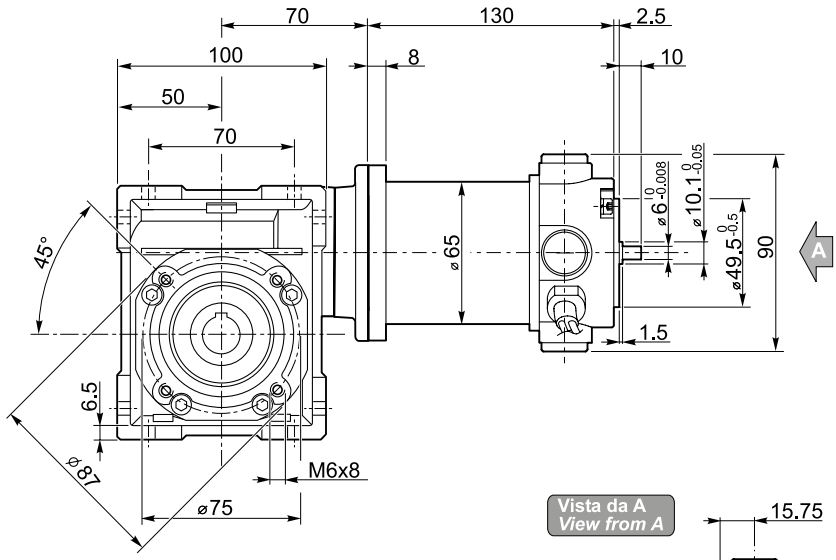
NDCM180/030 F

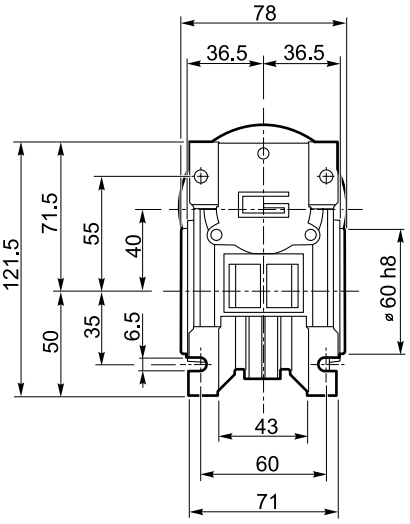
Freno / *Brake* B9

Encoder B9

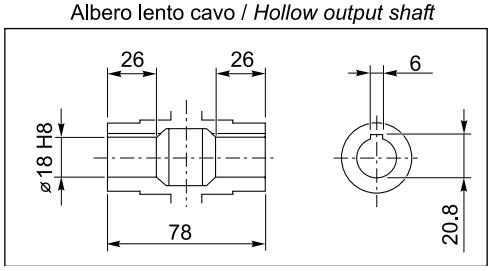
Dimensioni — *Dimensions*

NDCM180/040 U

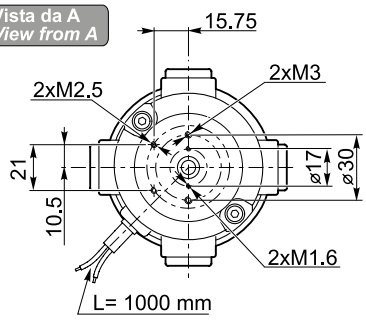




Albero lento cavo / *Hollow output shaft*



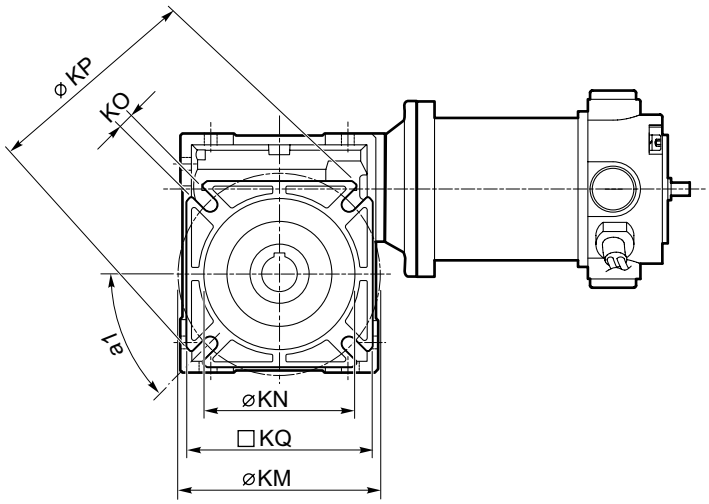
Vista da A / *View from A*

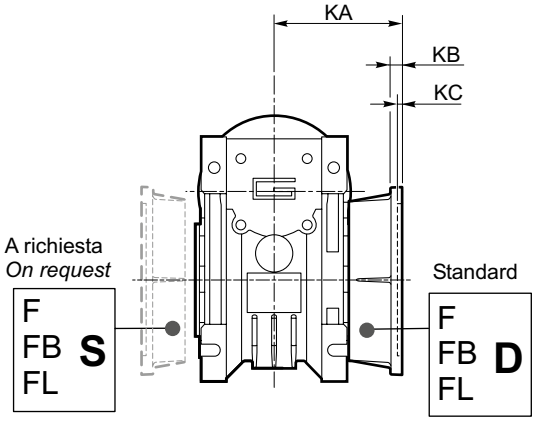


Freno / *Brake* → B9

Encoder → B9

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

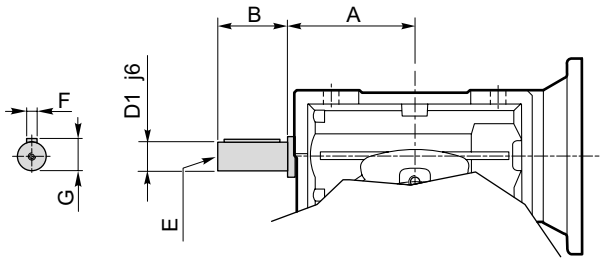




CM		CM..F								CM..FB								CM..FL							
	a1	KA	KB	KC	KM	KN H8	KO	KP	KQ	KA	KB	KC	KM	KN H8	KO	KP	KQ	KA	KB	KC	KM	KN H8	KO	KP	KQ
026	45°	45	6	4.5	55-69	40	6.5(n.4)	75	70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
030	45°	54.5	6	4	68	50	6.5(n.4)	80	70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
040	45°	67	7.5	4.5	80-95	60	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*

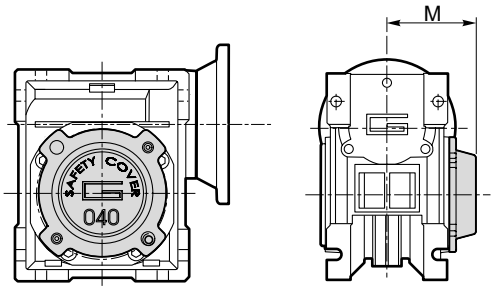
VS - Vite sporgente / *Extended input shaft*



	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

Costruito su richiesta
Built on request

SC - *Safety cover*

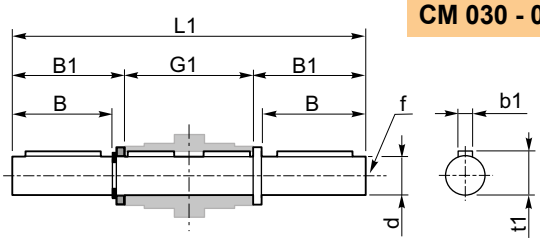


	M
CM 030	47
CM 040	54.5

Accessori / *Accessories*

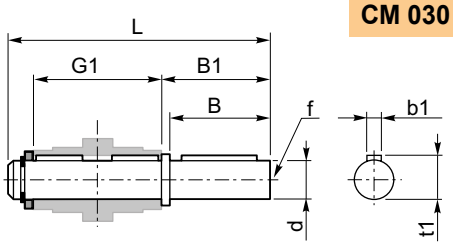
Albero lento / *Output shaft*

DZ



CM 030 - 040

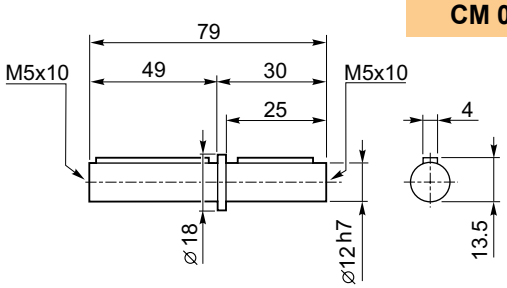
SZ



CM 030 - 040

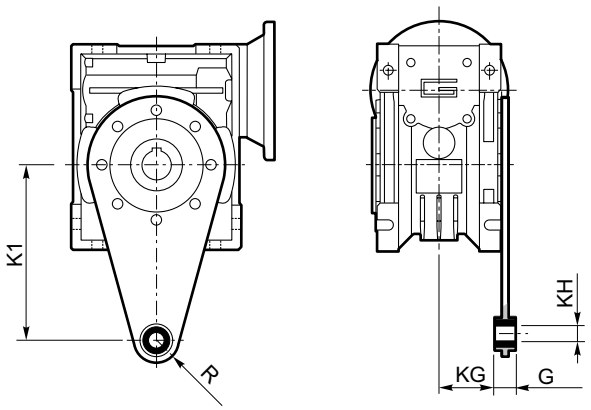
	d h7	B	B1	G1	L	L1	f	b1	t1
CM 030	14	30	32.5	63	102	128	M6	5	16
CM 040	18	40	43	78	128	164	M6	6	20.5

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



Caratteristiche tecniche — *Technical features*

Le caratteristiche principali dei motoriduttori CC a vite senza fine con precoppia a magneti permanenti in neodimio NDCMP sono:

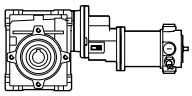
- Alimentazione in bassa tensione 12/24 Vcc
- Possibilità di montaggio encoder
- Potenze motore disponibili da 160 a 250 W S2
- Magneti in Neodimio
- Sia le carcasse dei riduttori a vite senza fine che delle precoppie sono in pressofusione di alluminio
- Lubrificazione permanente con olio sintetico.

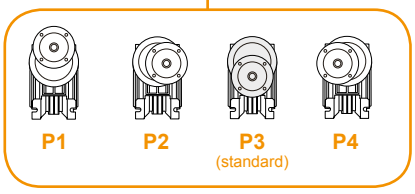
The main features of NDCMP neodymium permanent magnets DC pre stage wormgearmotors range are:

- *Low voltage power supply 12/24 Vdc*
- *Suitable for encoder assembly*
- *Motor power ratings available from 160 to 250 W S2*
- *Neodymium magnets*
- *Die-cast aluminum housing on pre-stage and wormgearboxes*
- *Permanent synthetic oil long-life lubrication.*

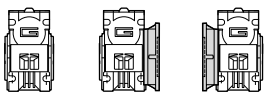
Designazione — *Classification*

MOTORIDUTTORE / *GEARMOTOR*

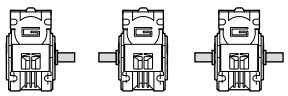
NDCMP	120/056/030	U	90	SZDX	BRSX	90	P4	240	VS
Tipo *Type*	Grandezza *Size*	Versione Riduttore *Gearbox Version*	Rapporto *Ratio*	Albero di uscita *Output shaft*	Braccio di reazione *Torque arm*	Angolo *Angle*	Pos. di montaggio precoppia *Pre stage mounting position*	Versione Motore *Motor Version*	Opzioni *Options*
NDCMP 	**120/056/030** **120/056/040** **180/056/030** **180/056/040**	**U** **FD** **FS** **FLD** **FLS** **FBD** **FBS**	Vedere tabella *See tables*	**SZDX** **SZSX** **DZ**	**BRDX** **BRSX**	**0°** **90°** **180°** **270°**	**P1** **P2** **P3** (standard) **P4**	**120 — 240**	**VS**



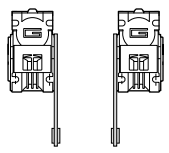
Versione Riduttore *Gearbox Version*



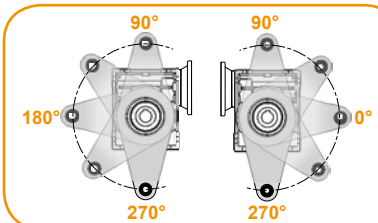
Albero di uscita *Output shaft*



Braccio di reazione *Torque arm*



Angolo *Angle*



Simbologia — *Symbols*

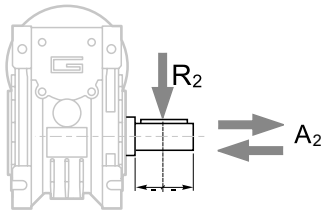
n_1	[min^{-1}]	Velocità in ingresso / *Input speed*	M_2	[Nm]	Coppia in uscita in funzione di P_1 / *Output torque referred to P_1*
n_2	[min^{-1}]	Velocità in uscita / *Output speed*	sf		Fattore di servizio / *Service factor*
i		Rapporto di riduzione / *Ratio*	R_2	[N]	Carico radiale ammissibile in uscita / *Permitted output radial load*
P_1	[kW]	Potenza in entrata / *Input power*	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.

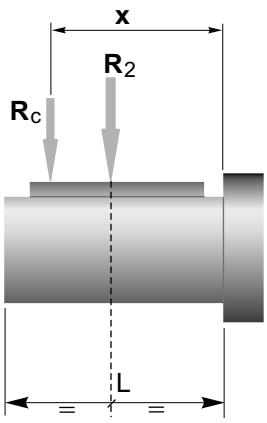
Carichi radiali — *Radial loads*



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:



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

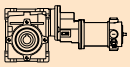
$$R \leq R_c$$

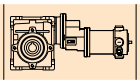
a, b = valori riportati nella tabella
a, b = values given in the table

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

Dati tecnici per servizio S2

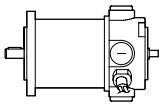
Technical data for S2 duty

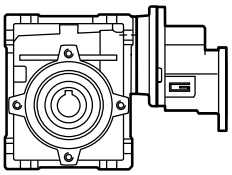
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
160						
(3000 min^{-1})	**50**	21	1.0	60	**120/056/030**	120/240
	40	25	0.9	75		
	33	28	1.0	90		
	25	35	0.7	120		
	20	31	0.7	150		
	50	22	2.0	60	**120/056/040**	120/240
	40	26	1.7	75		
	33	30	1.9	90		
	25	36	1.3	120		
	20	43	1.1	150		
	17	48	0.9	180		
	13	55	0.7	240		
	10	51	0.7	300		

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
250						
(3000 min^{-1})	50	31	0.7	60	**180/056/030**	180/240
	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	**180/056/040**	180/240
	40	41	1.1	75		
	33	46	1.2	90		
	25	56	0.9	120		
	20	66	0.7	150		
	17	61	0.7	180		
	13	57	0.7	240		
	10	51	0.7	300		

Motori applicabili

IEC Motor adapters





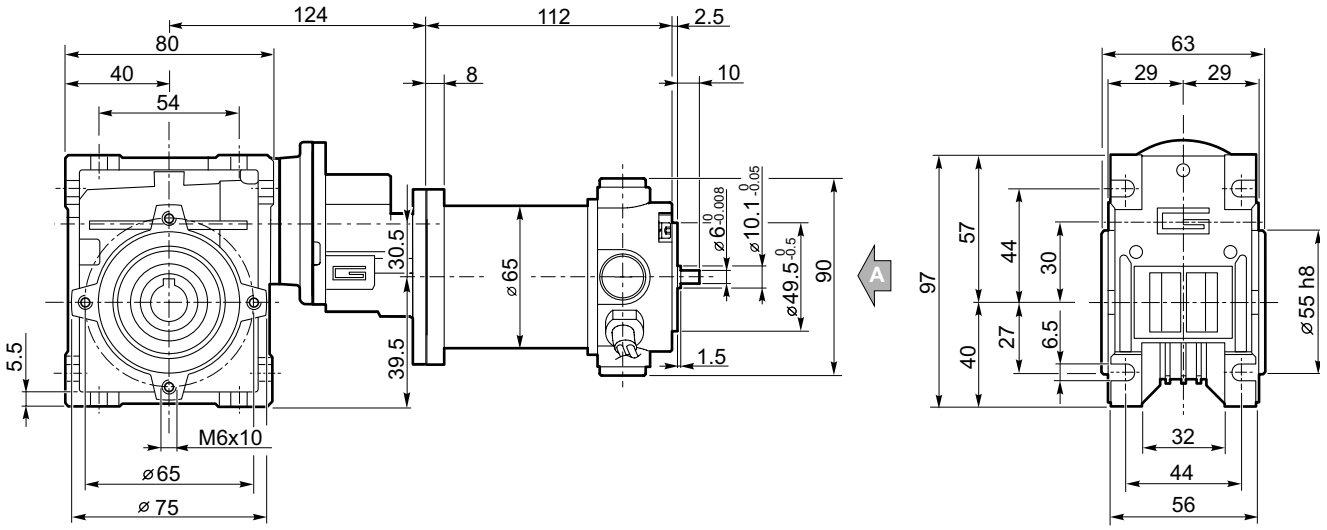
		ND	
		120.120 120.240	**180.120 180.240**
CMP	**056/030**	150	300
	056/040	150	300

150

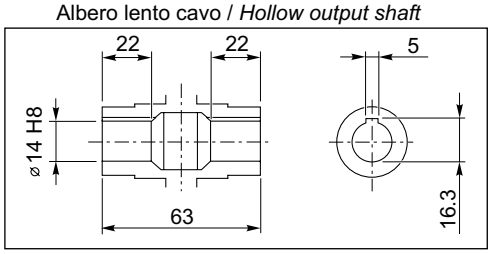
Rapporto di riduzione massimo i_{max}
Maximum ratio i_{max}

Dimensioni *Dimensions*

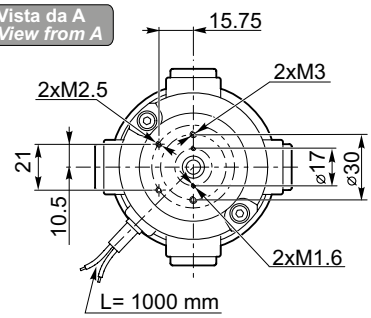
NDCMP120/056/030 U

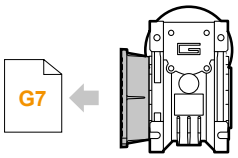


Albero lento cavo / *Hollow output shaft*



Vista da A / *View from A*



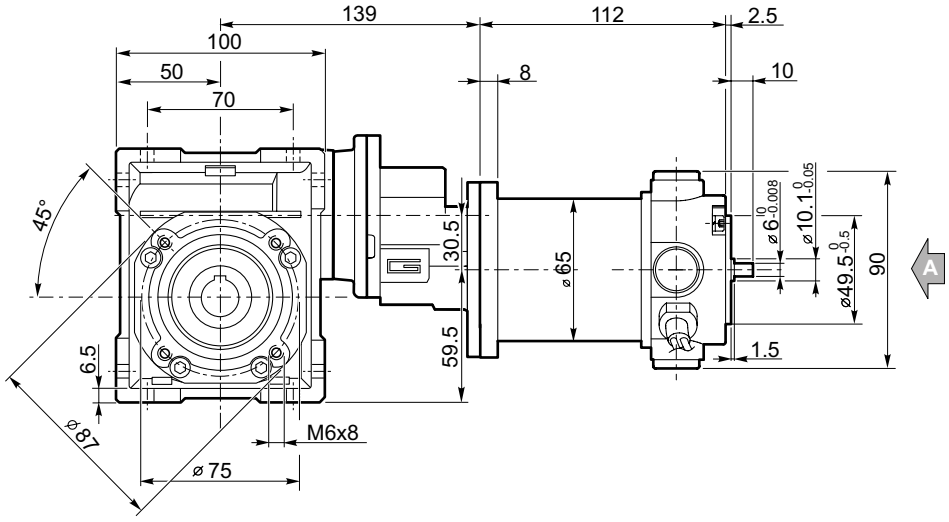


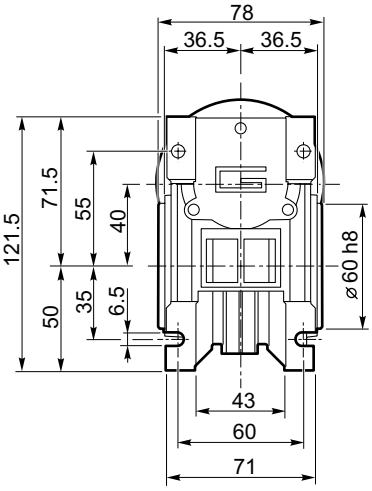
NDCMP120/056/030 F

Freno / *Brake* → B9

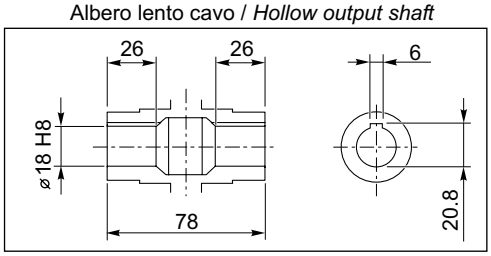
Encoder → B9

NDCMP120/056/040 U

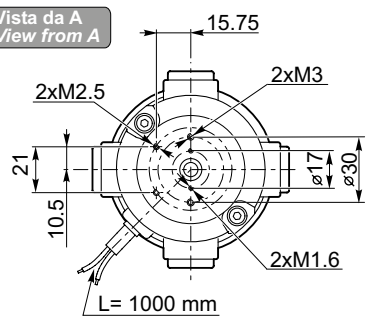


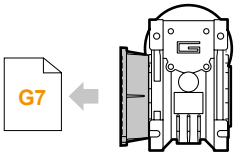


Albero lento cavo / *Hollow output shaft*



Vista da A / *View from A*





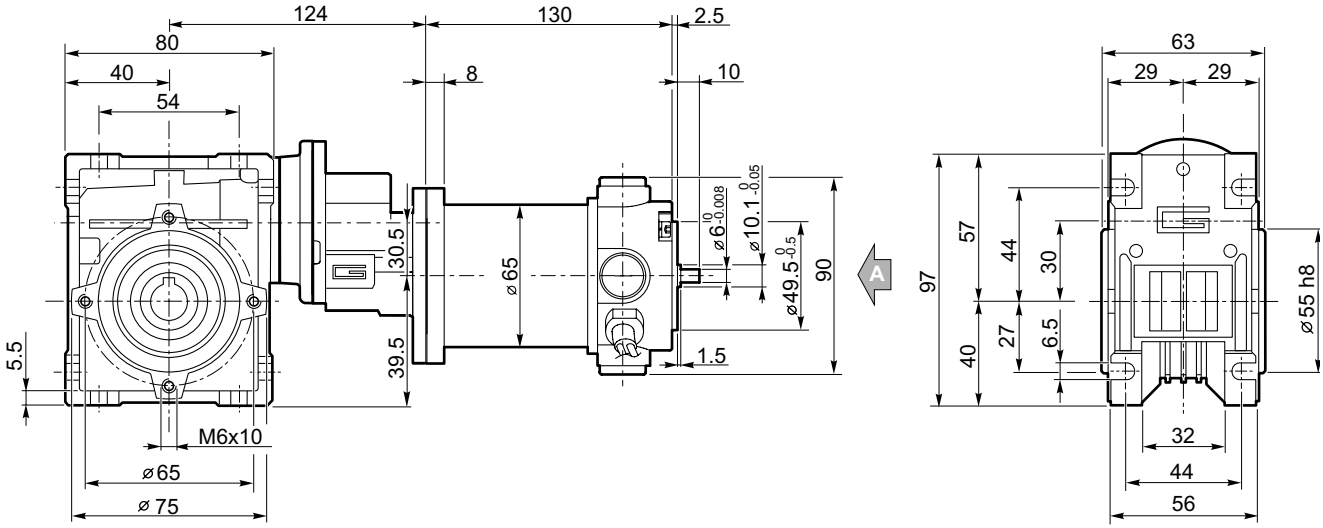
NDCMP120/056/040 F
NDCMP120/056/040 FB
NDCMP120/056/040 FL

Freno / *Brake* → B9

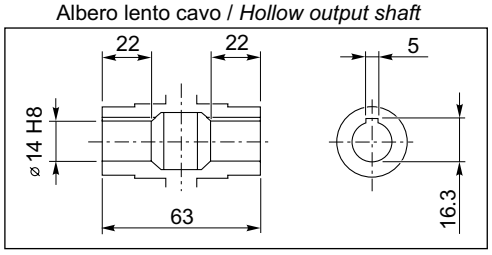
Encoder → B9

Dimensioni ***Dimensions***

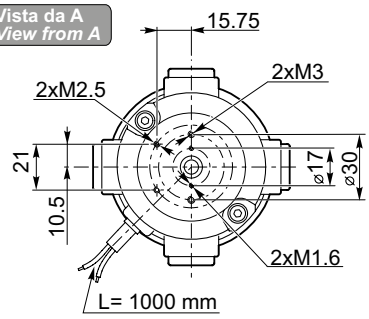
NDCMP180/056/030 U

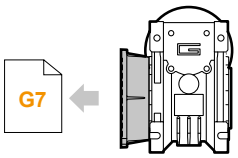


Albero lento cavo / *Hollow output shaft*



Vista da A / *View from A*



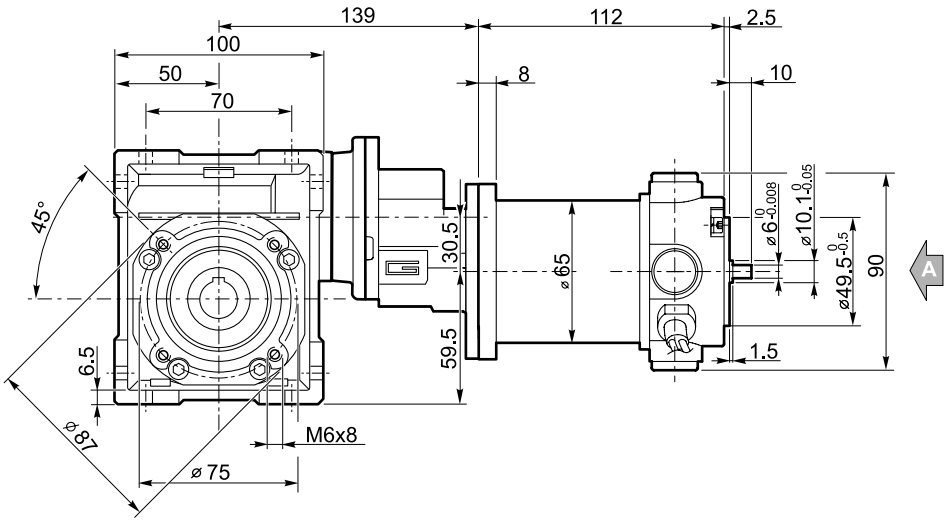


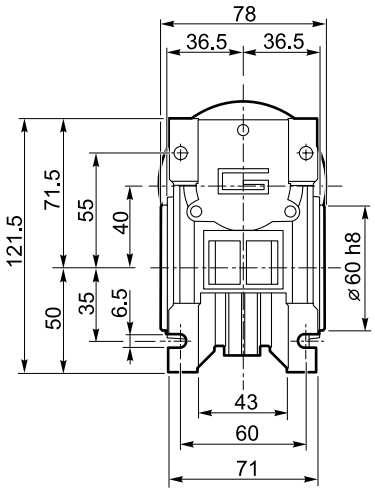
NDCMP180/056/030 F

Freno / *Brake* B9

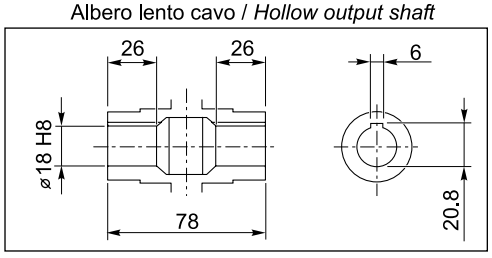
Encoder B9

NDCMP180/056/040 U

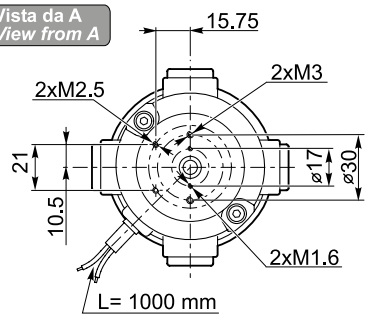


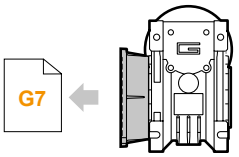


Albero lento cavo / *Hollow output shaft*



Vista da A / *View from A*





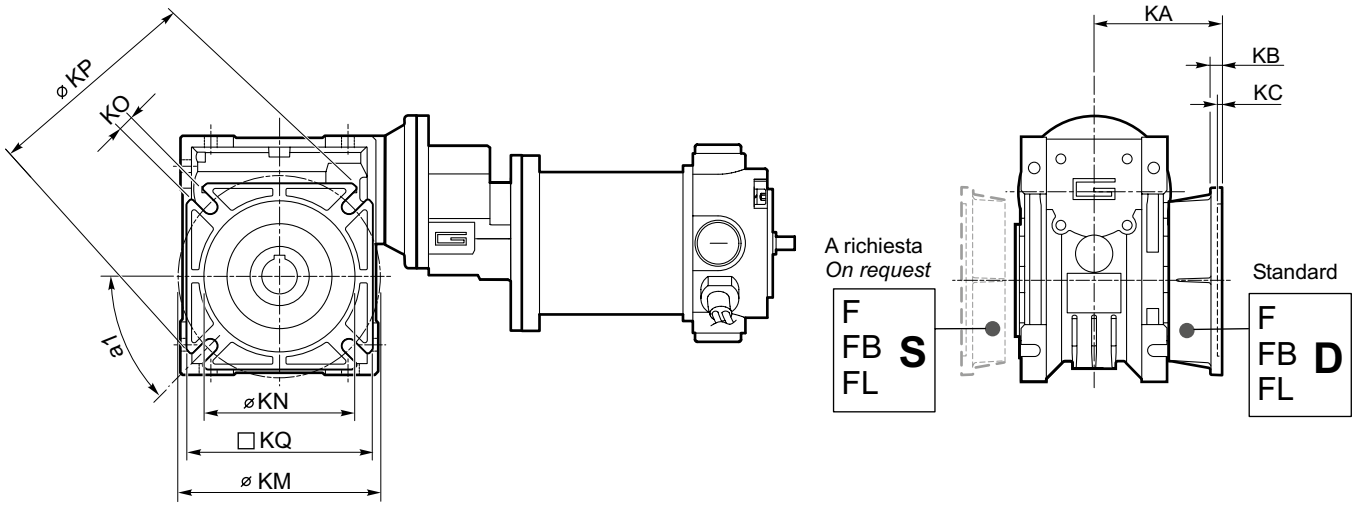
NDCMP180/056/040 F
NDCMP180/056/040 FB
NDCMP180/056/040 FL

Freno / *Brake* B9

Encoder B9

Dimensioni — *Dimensions*

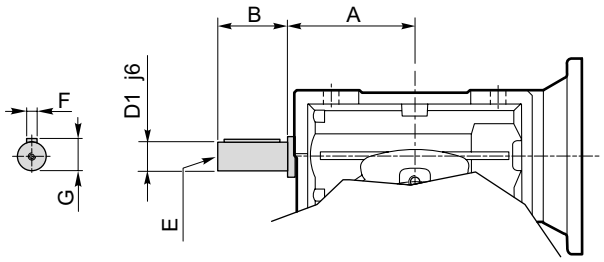
NDCMP.../... F... Flange uscita / *Output flanges*



CMP	a1	CMP..F								CMP..FB								CMP..FL							
		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*

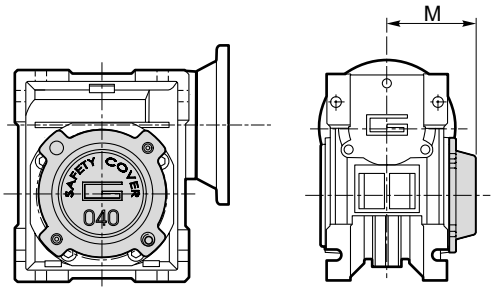
VS - Vite sporgente / *Extended input shaft*



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

Costruito su richiesta
Built on request

SC - *Safety cover*

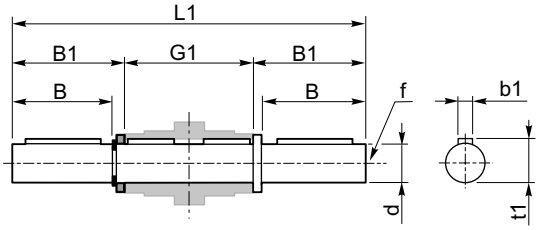


	M
CM 030	47
CM 040	54.5

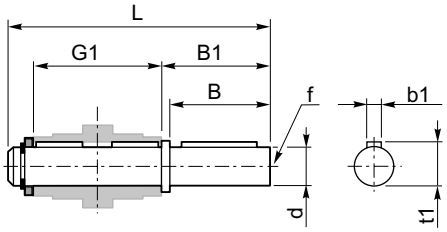
Accessori *Accessories*

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

DZ



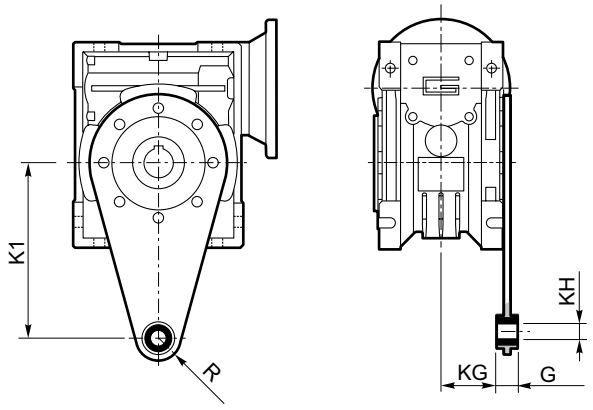
SZ

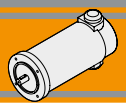


CMP	d h6	B	B1	G1	L	L1	f	b1	t1
056/030	14	30	32.5	63	102	128	M6	5	16
056/040	18	40	43	78	128	164	M6	6	20.5

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





Caratteristiche tecniche

Le caratteristiche principali dei motori elettrici CC a magneti permanenti in ferrite EC sono:

- Campo magnetico generato da magneti permanenti in ferrite
- Costruzione tubolare, senza ventilazione
- Disponibili in 6 grandezze: diametro 42, 52, 65, 81, 104, 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 ferrite permanent magnets DC electric motors range are:

- *Magnetic field generated by permanent ferrite magnets*
- *Tubular construction, without fan*
- *Available in 6 sizes: diameter 42, 52, 65, 81, 104, 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

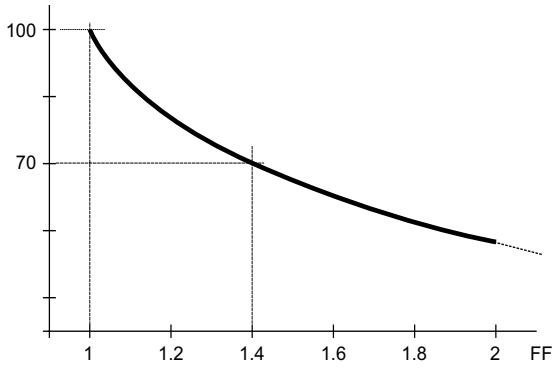
Indica quanta componente spuria alternata è presente nella alimentazione CC del motore. Più alto è il fattore ed inferiore è l'efficienza del motore. Alimentatori ad SCR = F.F 1.40. Alimentazione pura da batteria = FF 1. Alimentazione da transistori (modulazione PWM) = FF 1.05.

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

Form factor

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.

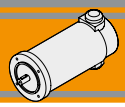
The graph below indicates the torque trend (percentage) in relation to the form factor.



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*

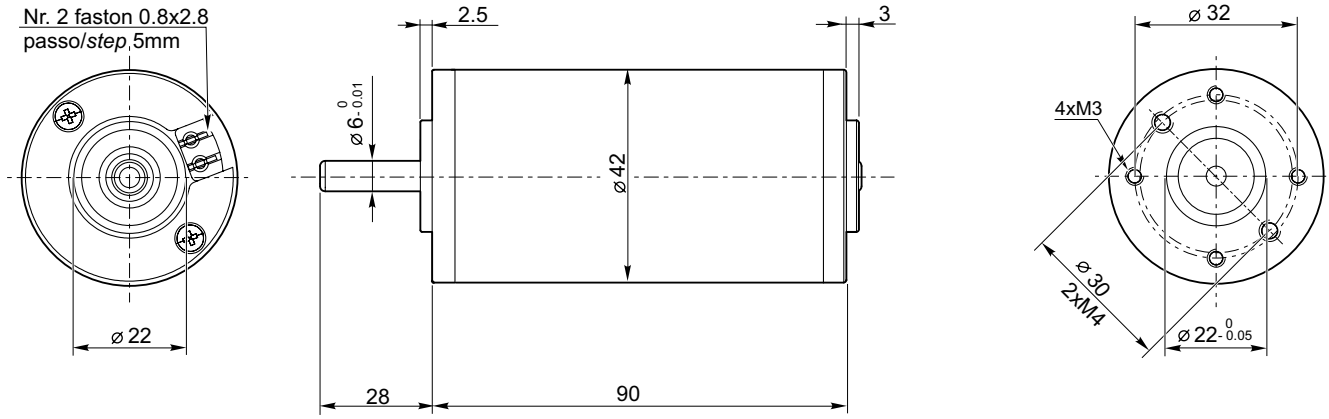
Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 42 mm
Potenza	30 W S2 (20 W S1)
Magneti	2
Supporti	Cuscinetti a sfera
Fori di montaggio	4
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 2 di composto grafite-rame
Cavo di alimentazione	Connettori faston (0.8 x 2.8 mm)
Opzioni	Filtro EMC
	Encoder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

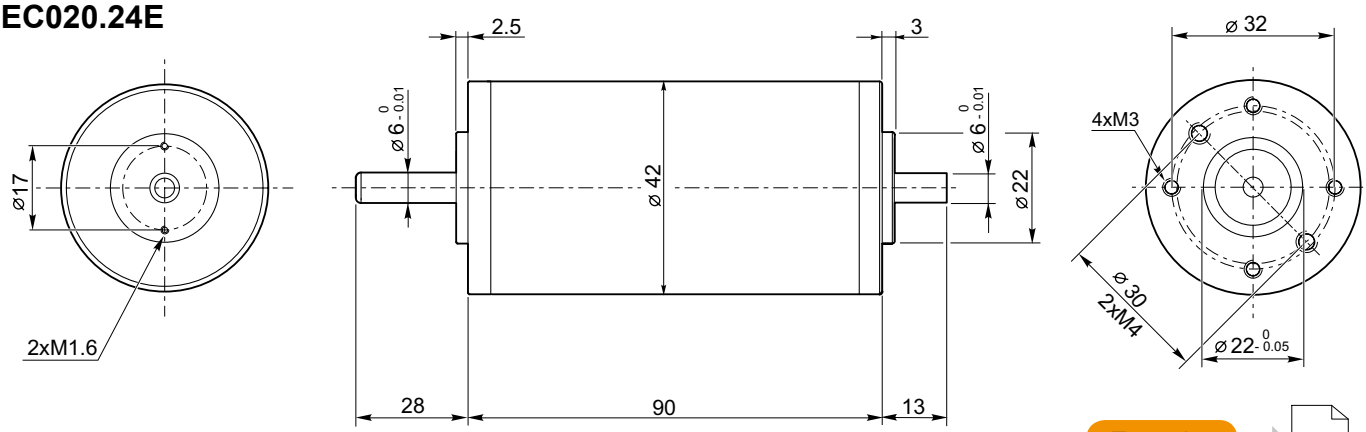
Tipo *Type*	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC020.120	**S1**	20	12	2.6	B	1	0.06	2850	20	0.4
	S2 6'	30		3.5			0.08			
EC020.24E	**S1**	20	24	1.4			0.06			
	S2 6'	30		1.9			0.08			

Dimensioni / *Dimensions*

EC020.120



EC020.24E

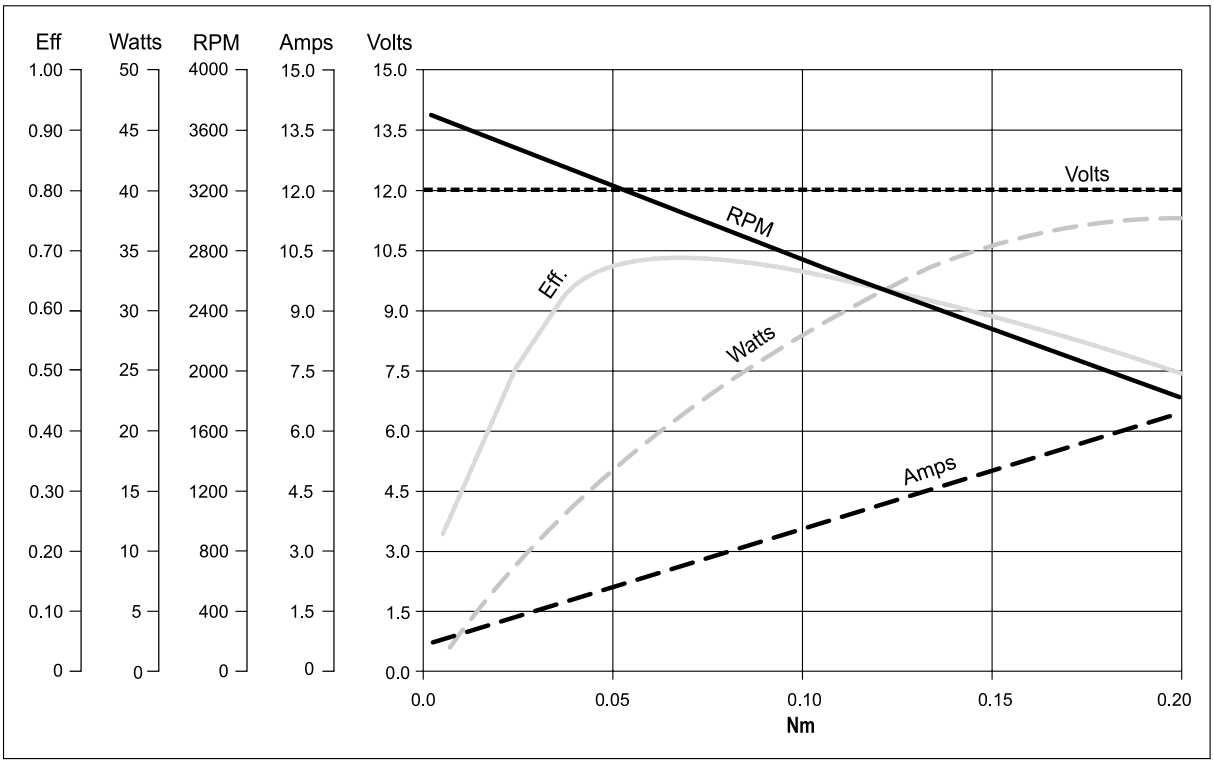


Encoder H24

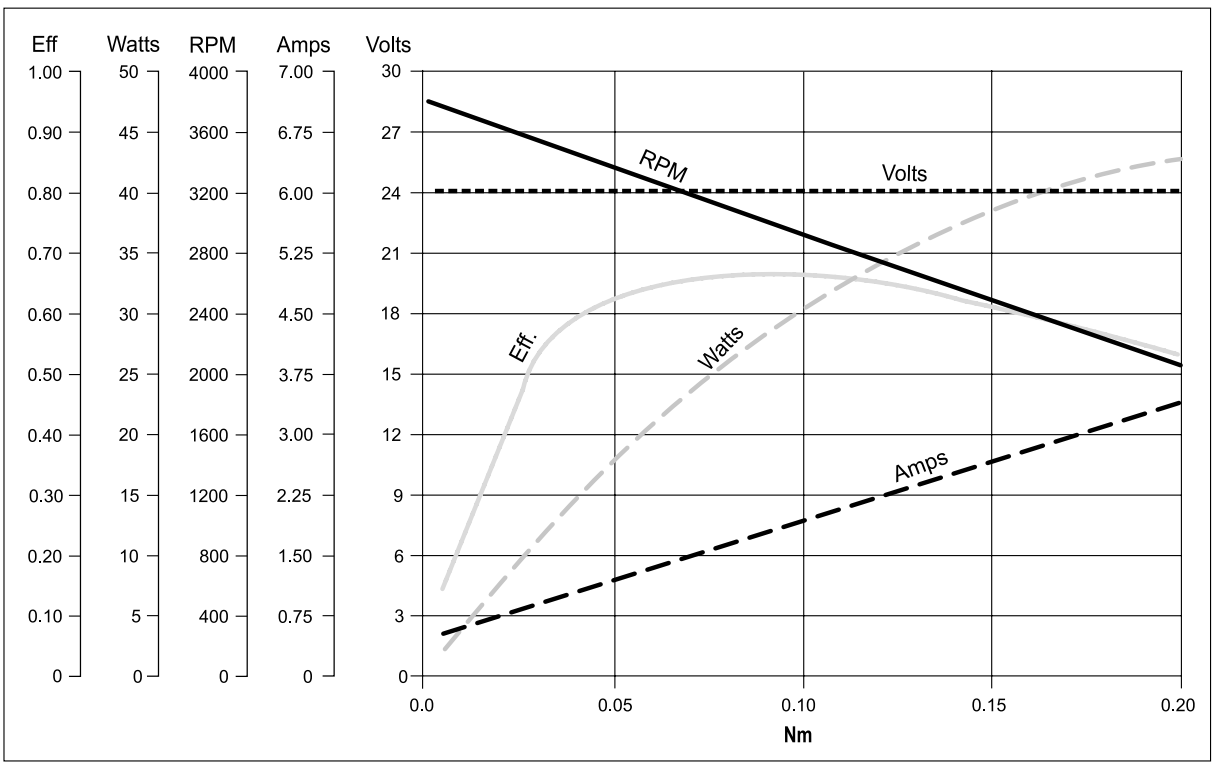
EC020.120 - EC020.24E

Prestazioni ***Performances***

EC020.120



EC020.24E



EC035.120 - EC035.240

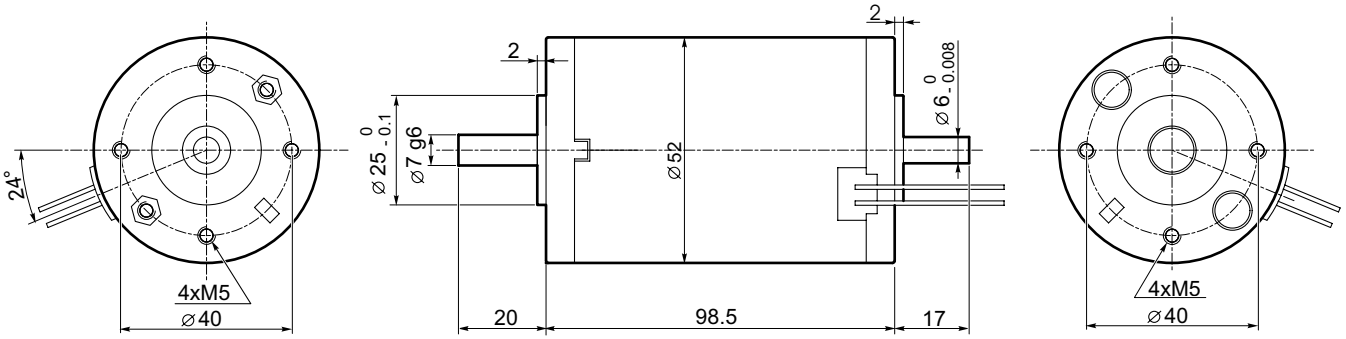
Caratteristiche / *Features*

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	20	0.8
	S2 9'	55		8.0			0.18			
EC035.240	**S1**	35	24	2.6	F	1	0.11		20	0.8
	S2 9'	55		4.0			0.18			

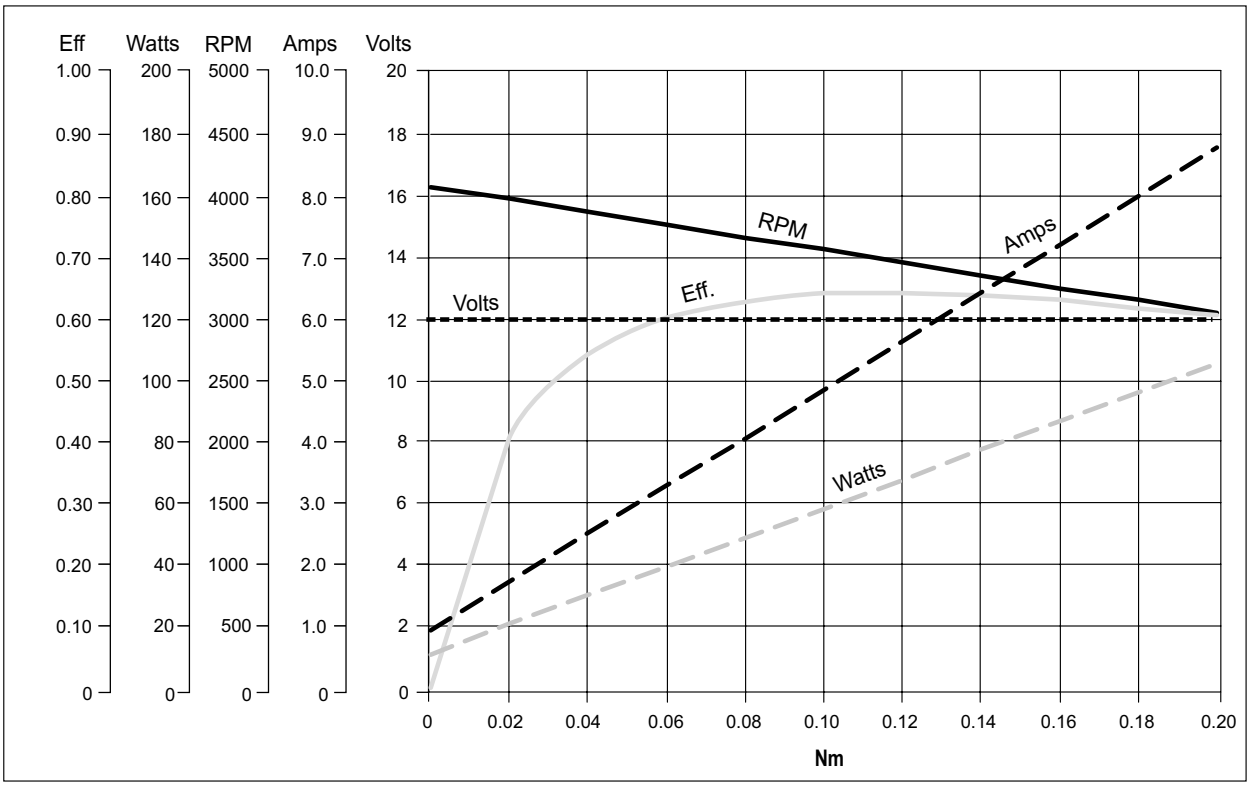
Dimensioni / *Dimensions*



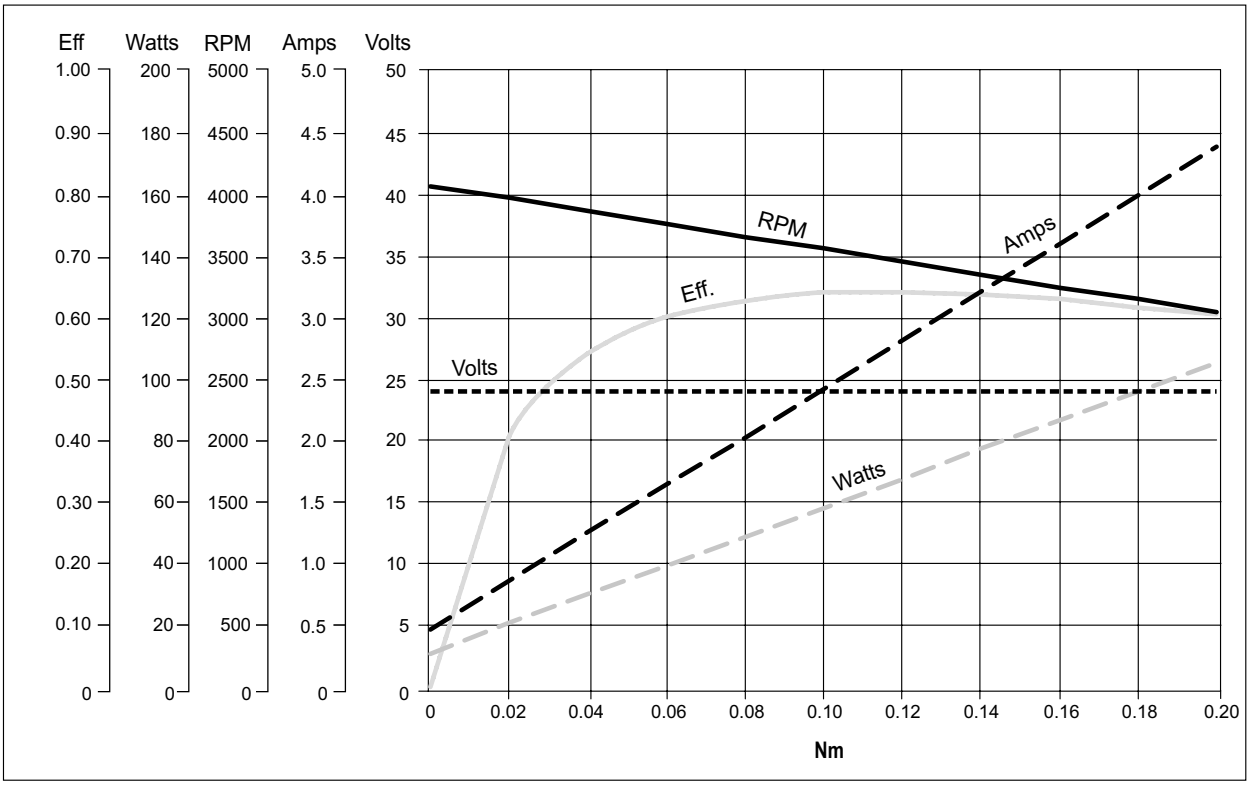
EC035.120 - EC035.240

Prestazioni ***Performances***

EC035.120



EC035.240



EC050.12E - EC050.24E

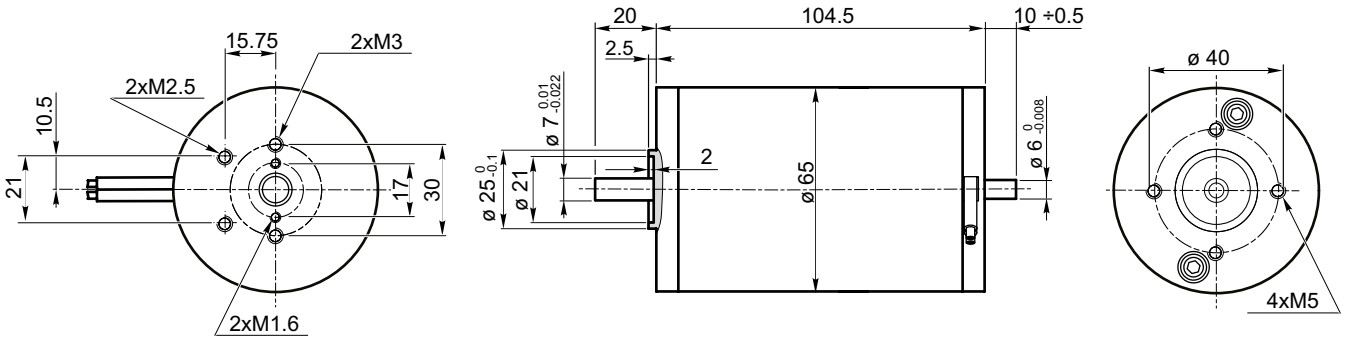
Caratteristiche / *Features*

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	20	1.2
	S2 30'	70		9.0			0.22			
EC050.24E	**S1**	50	24	3.2			0.16			
	S2 30'	70		4.5			0.22			

Dimensioni / *Dimensions*

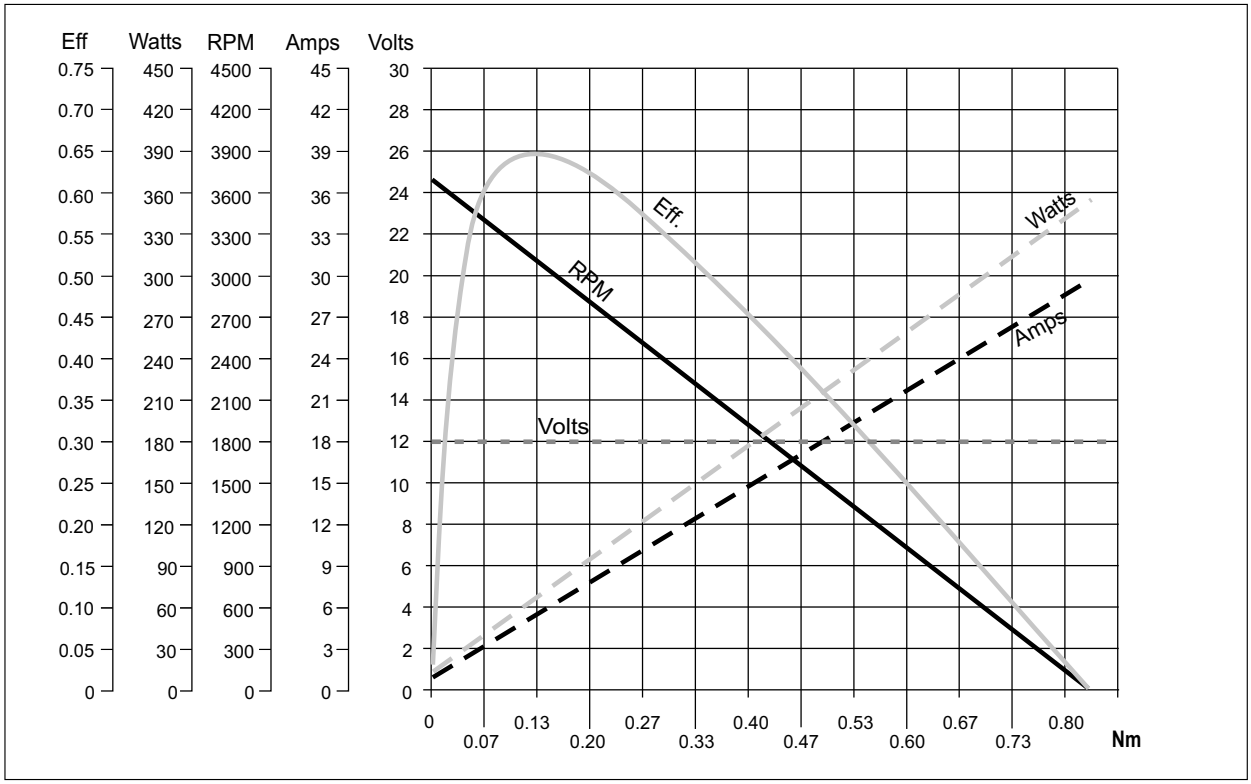


Freno / *Brake* → H23
Encoder → H24

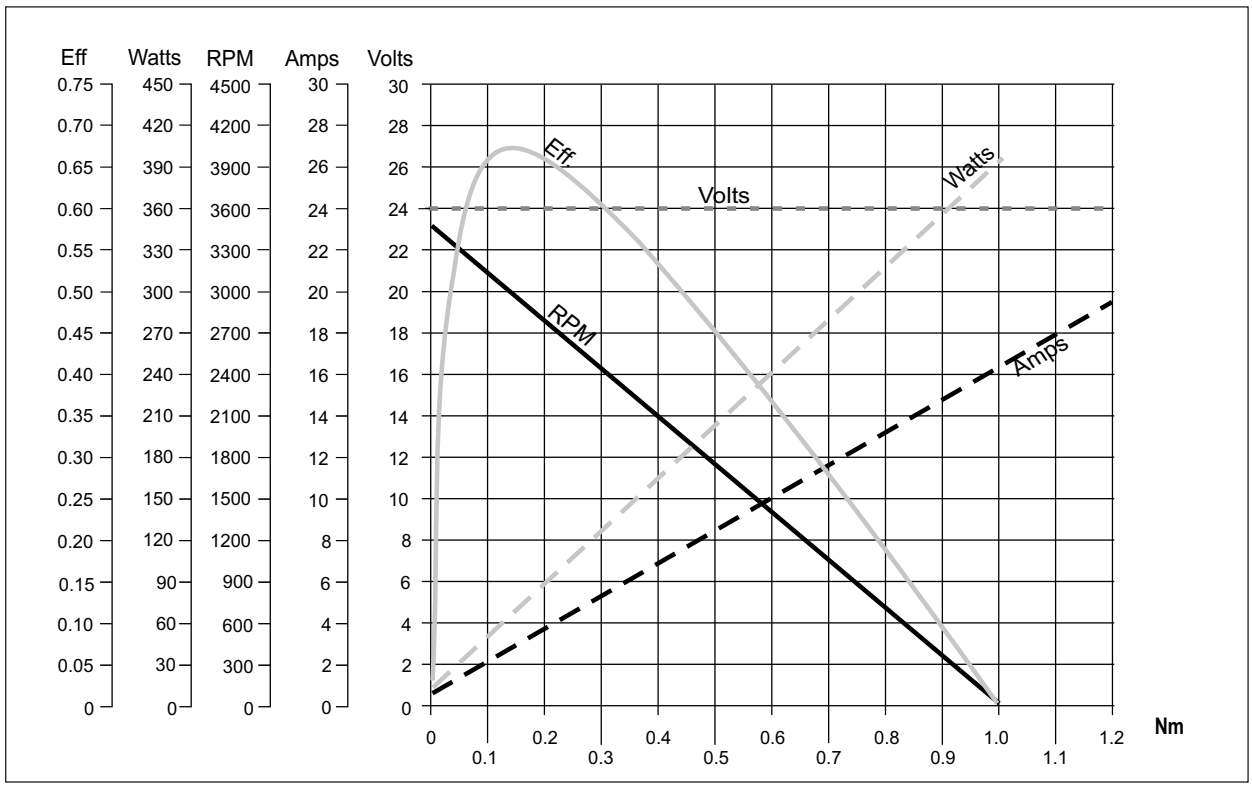
EC050.12E - EC050.24E

Prestazioni ***Performances***

EC050.12E



EC050.24E



EC070.12E - EC070.24E

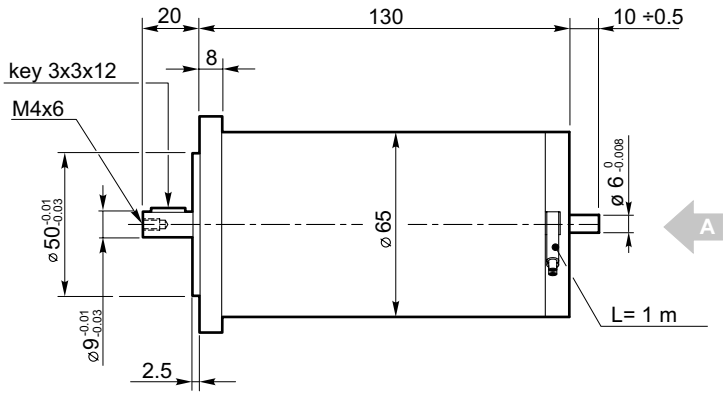
Caratteristiche / *Features*

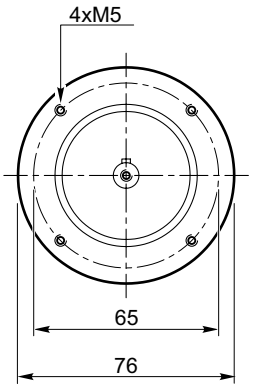
Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 65 mm
Potenza	100 W S2
Magneti	2
Supporti	Cuscinetti a sfera
Fori di montaggio	4
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 2 interne di composto grafite-rame
Cavo di alimentazione	Lunghezza: 1000 mm

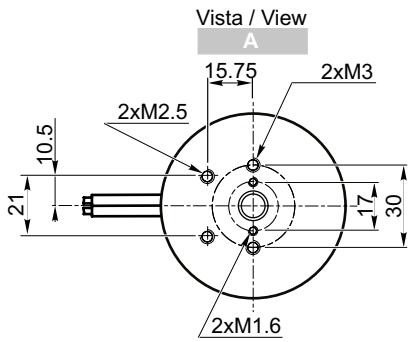
Construction	*Tubular, without fan*
Size	*Ø 65 mm*
Power	*100 W S2*
Magnets	*2*
Bearings	*Ball bearings*
Mounting holes	*4*
Power supply	*Low voltage, 12 or 24 Vdc*
Brushes	*2 inside brushes made of graphite/copper composite*
Electric cable	*Length: 1000 mm*

Tipo *Type*	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC070.12E	**S1**	70	12	8.4	F	1	0.22	3000	20	1.7
	S2 30'	100		11.8			0.31			
EC070.24E	**S1**	70	24	4.2			0.22			
	S2 30'	100		5.9			0.31			

Dimensioni / *Dimensions*







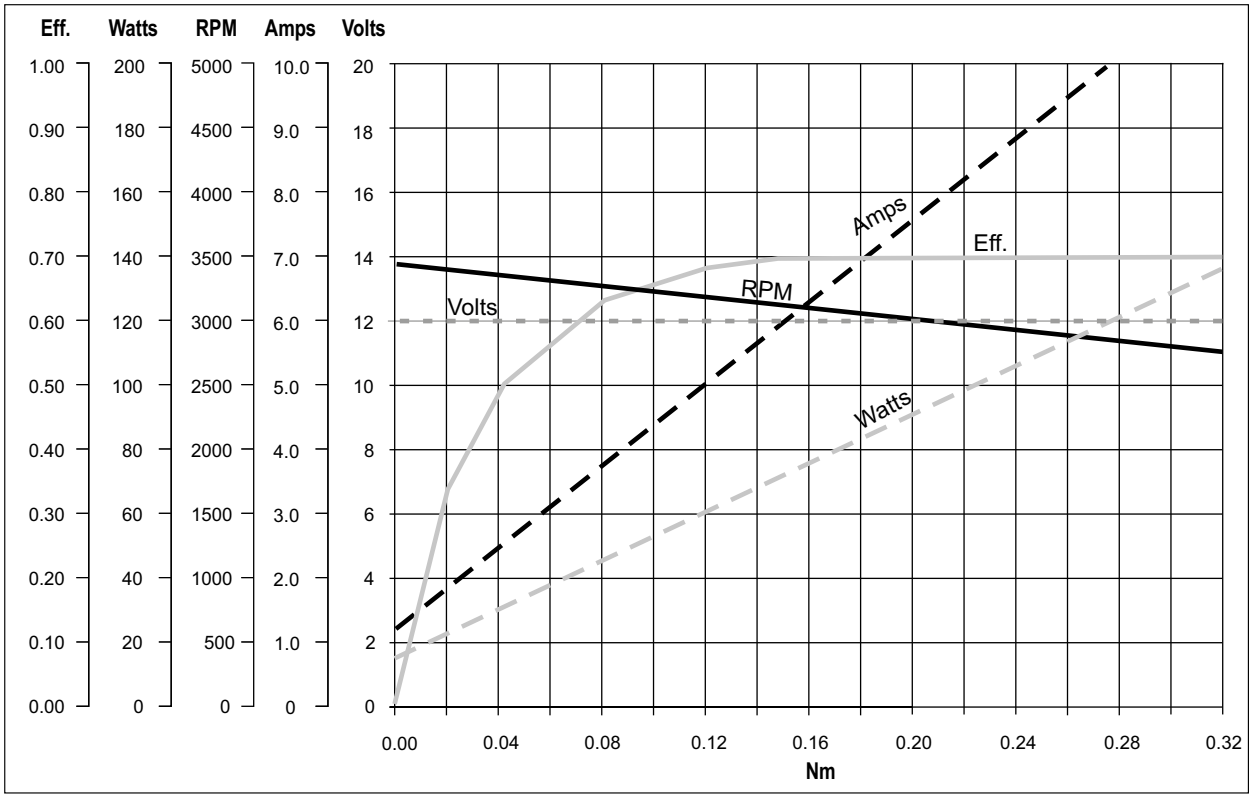
Freno / *Brake* → H23

Encoder → H24

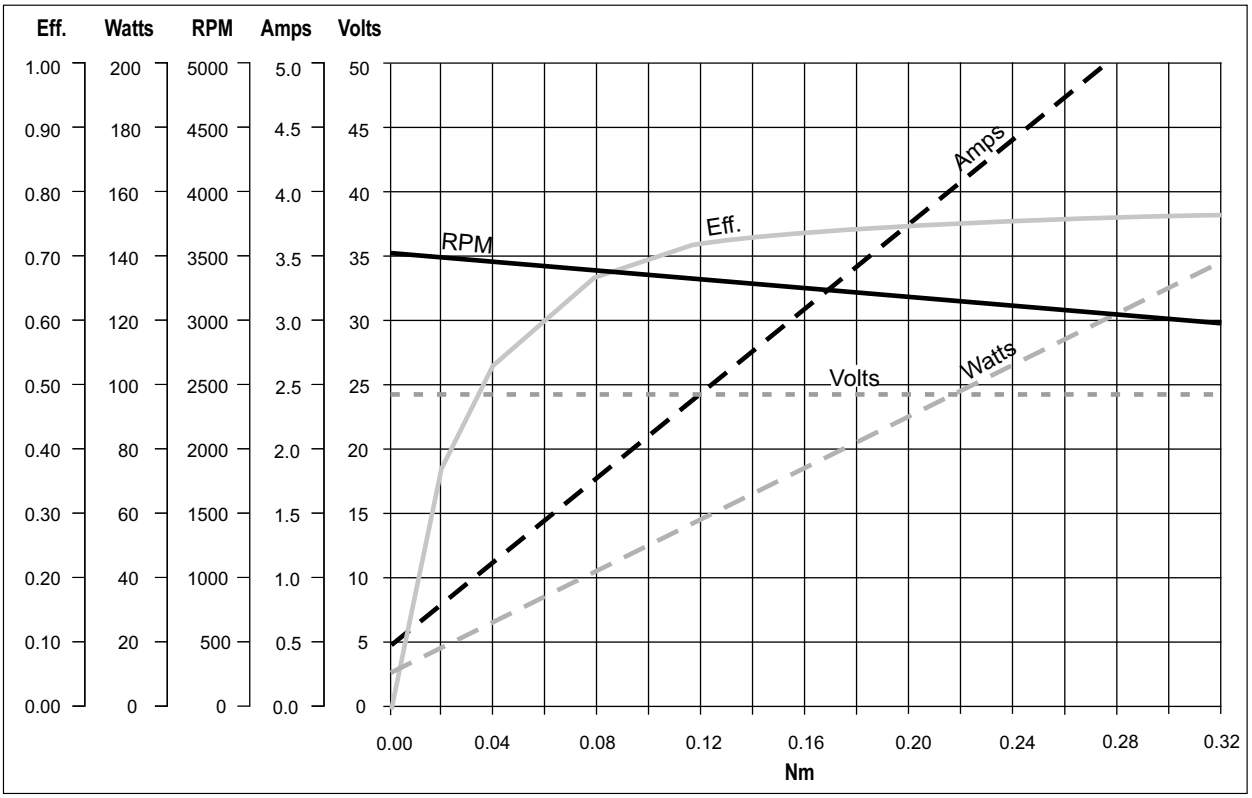
EC070.12E - EC070.24E

Prestazioni *Performances*

EC070.12E



EC070.24E



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*

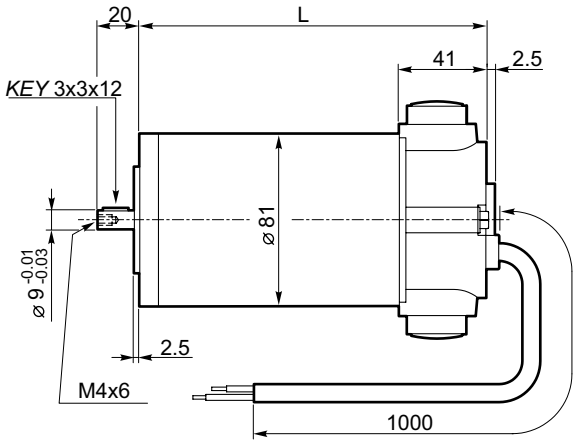
Tipo *Type*	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC100.120	**S1**	100	12	12	F	1	0.31	3000	40	2.7
	S2 25'	140		16.8			0.43			
EC100.240	**S1**	100	24	6			0.31			
	S2 25'	140		8.4			0.43			
EC100.24E	**S1**	100		6			0.31		20	
	S2 25'	140		8.4			0.43			

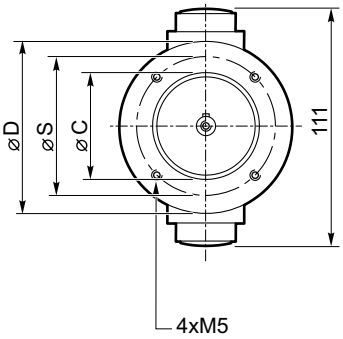
Dimensioni / *Dimensions*

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*

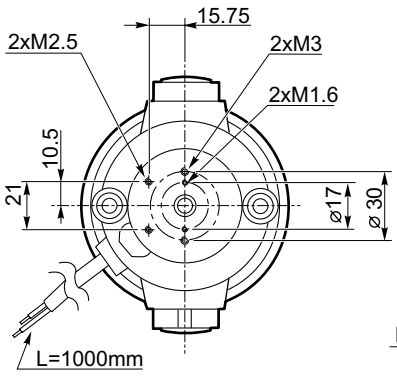


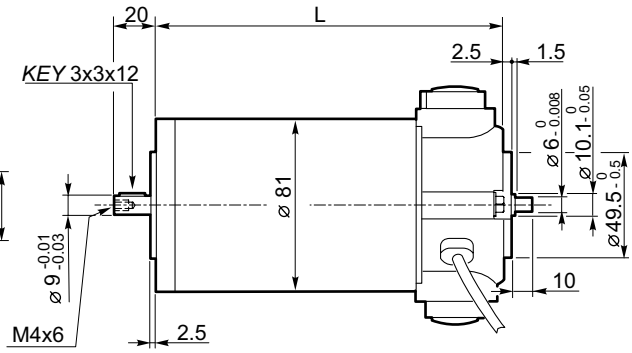


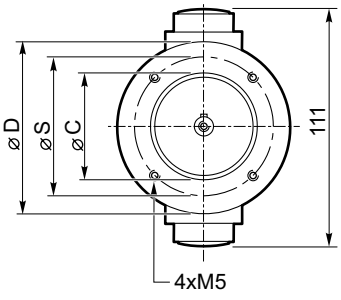
Freno / *Brake* → H23

Encoder → H24

EC100.24E



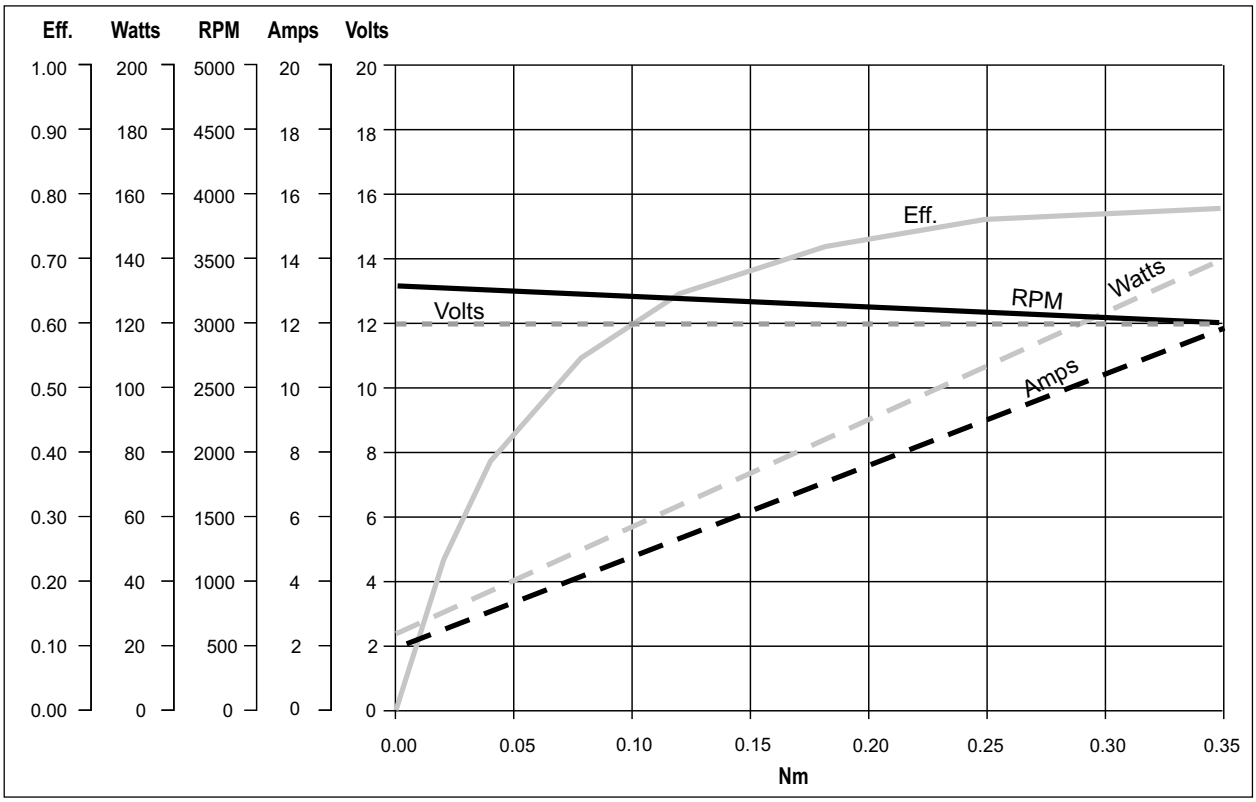




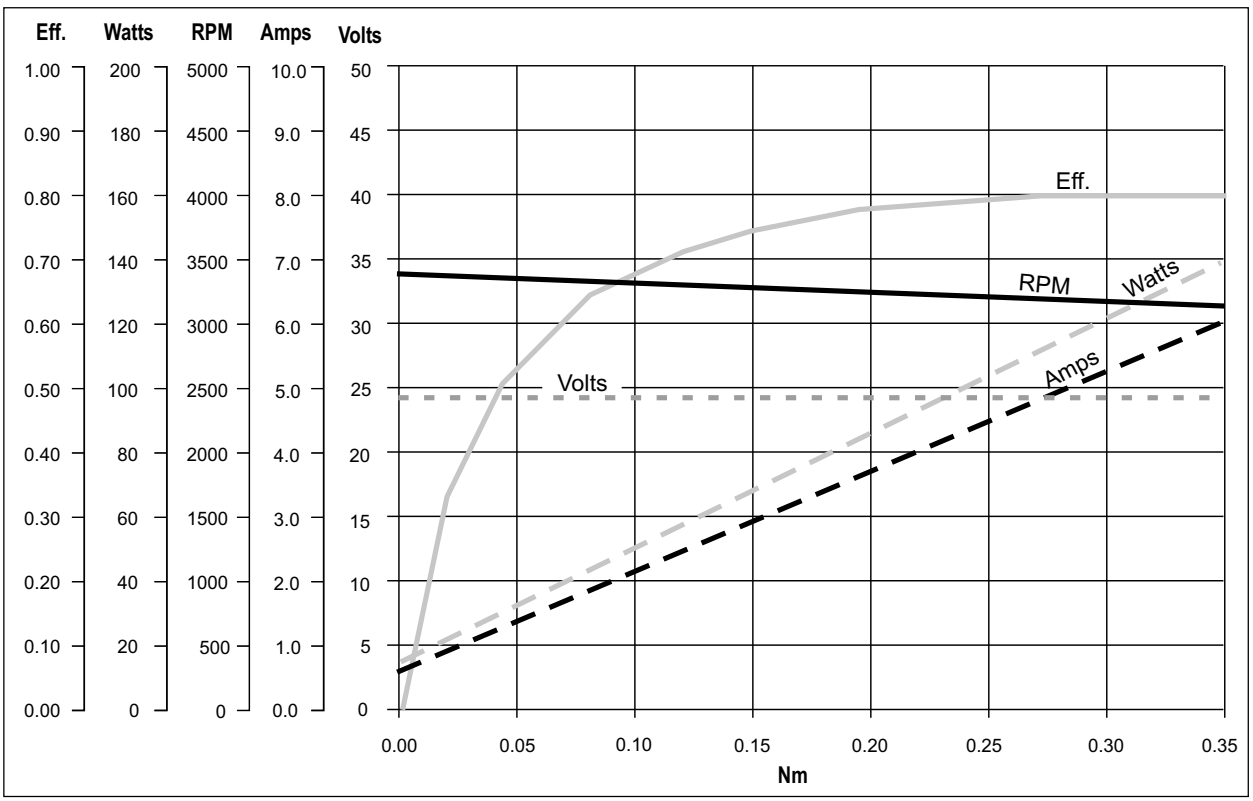
EC100.120 - EC100.240 - EC100.24E

Prestazioni *Performances*

EC100.120



EC100.240 - EC100.24E



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

Caratteristiche / *Features*

Costruzione	Tubolare, senza ventilazione
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*

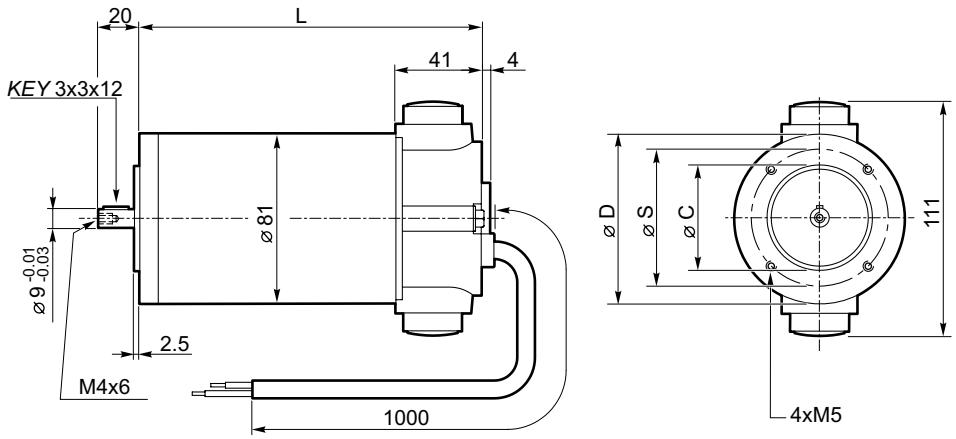
Tipo *Type*	S	Pn [W]	V [V]	I [A]	IC	FF	Mn [Nm]	n_1 [min^{-1}]	IP	Kg
EC180.120	**S1**	180	12	21.5	F	1	0.57	3000	40	3.4
	S2 25'	250		30			0.8			
EC180.240	**S1**	180	24	10.8			0.57			
	S2 25'	250		15			0.8			
EC180.24E	**S1**	180		10.8			0.57		20	
	S2 25'	250		15			0.8			

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

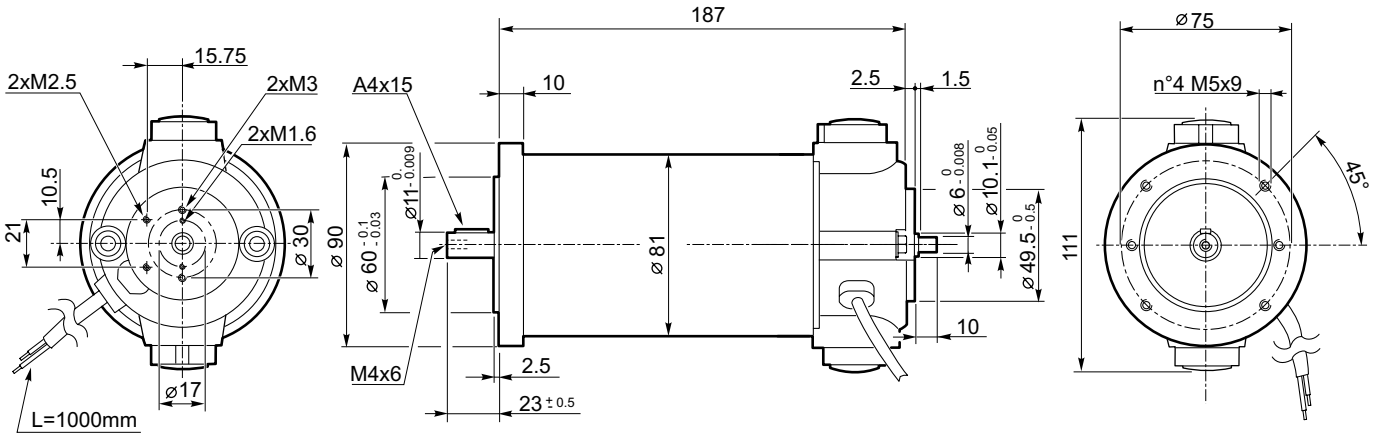
* Usare boccola 9/11
** Use sleeve 9/11*



Freno / *Brake* → H23

Encoder → H24

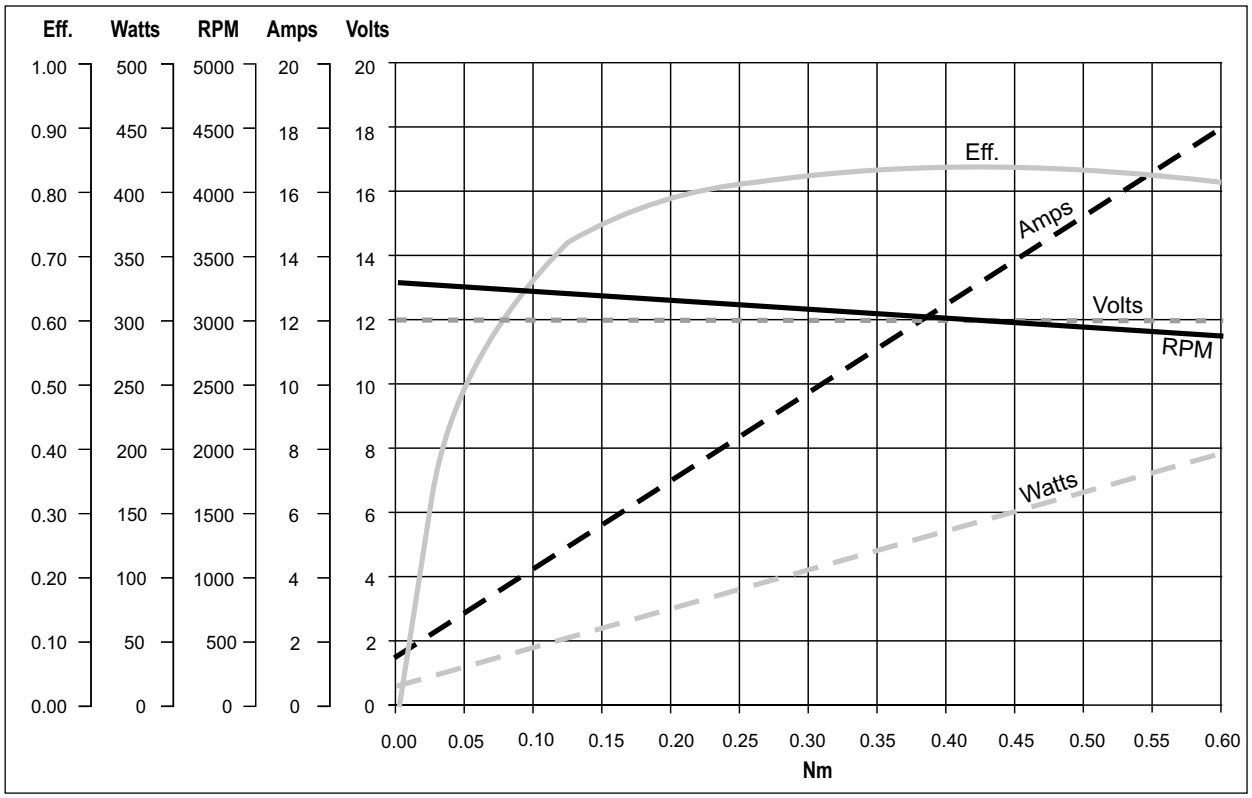
EC180.24E



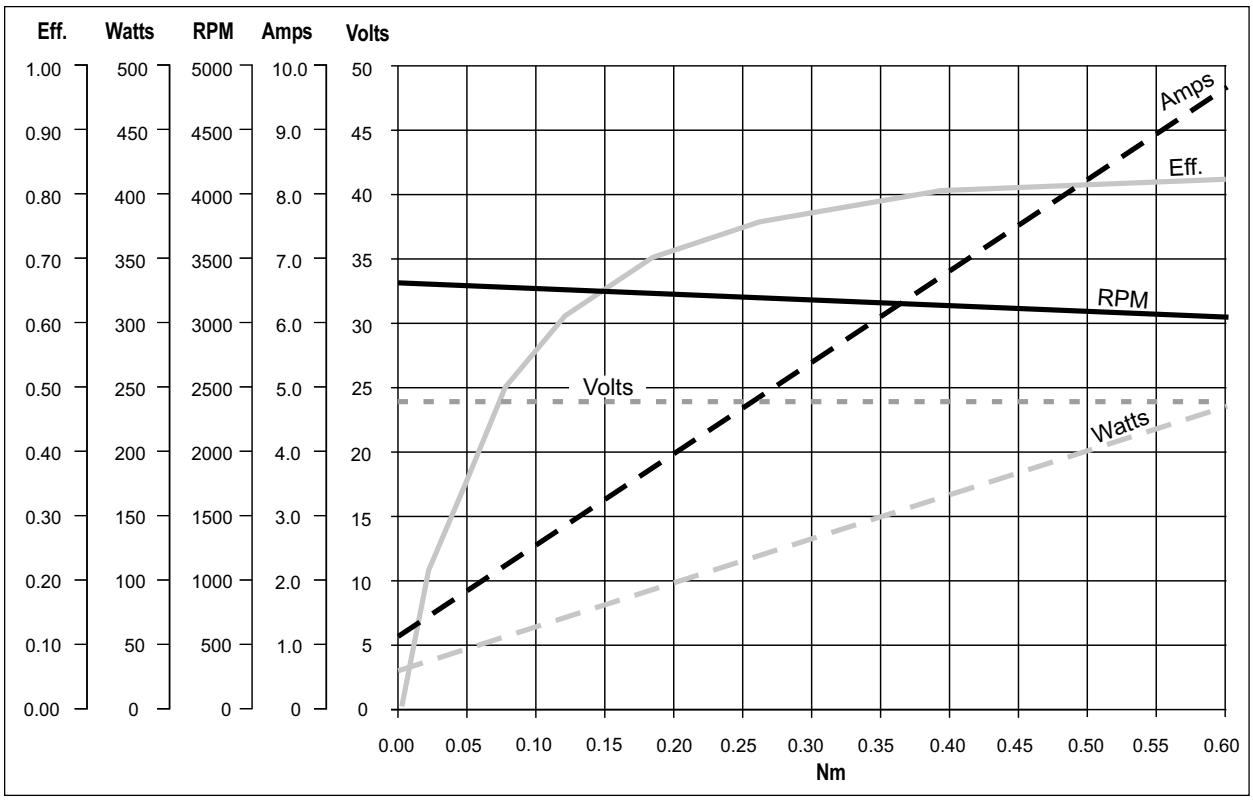
EC180.120 - EC180.240 - EC180.24E

Prestazioni ***Performances***

EC180.120



EC180.240 - EC180.24E



EC250.120 - EC250.240

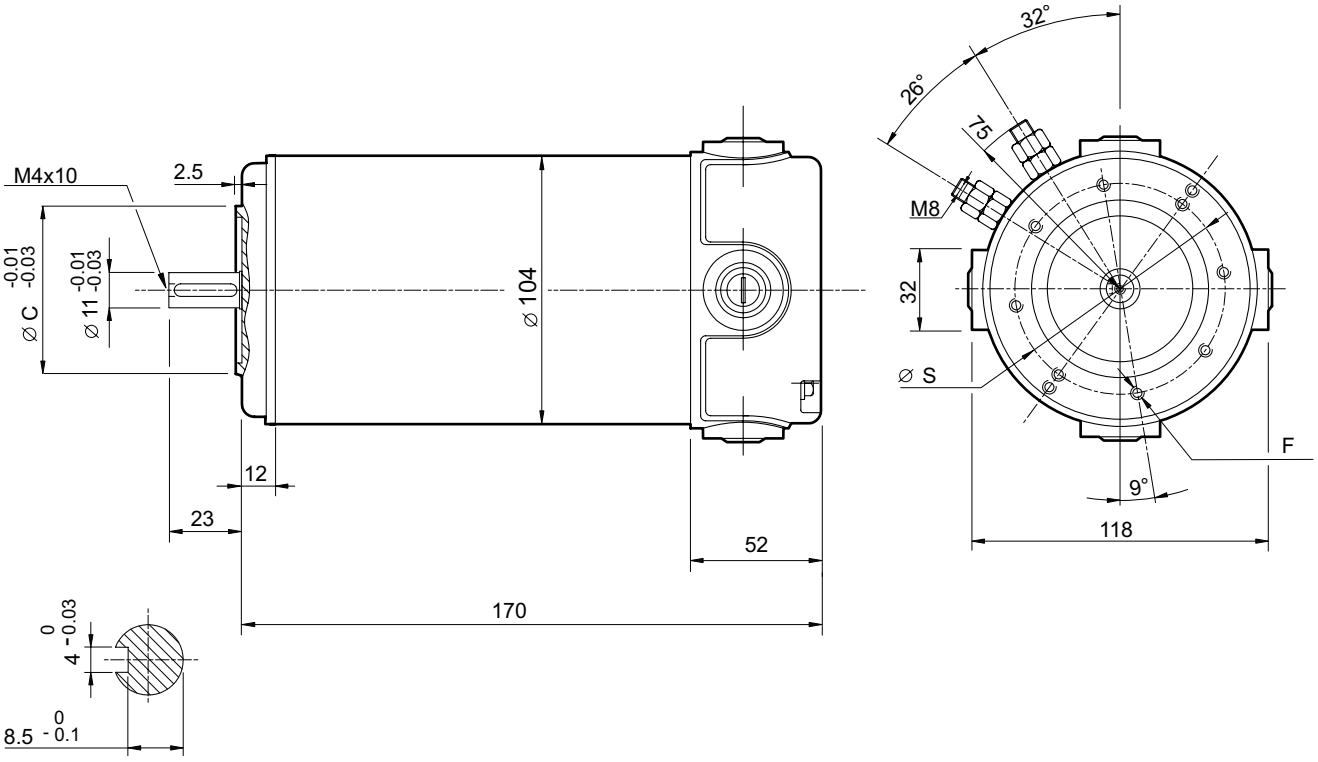
Caratteristiche / *Features*

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	40	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*



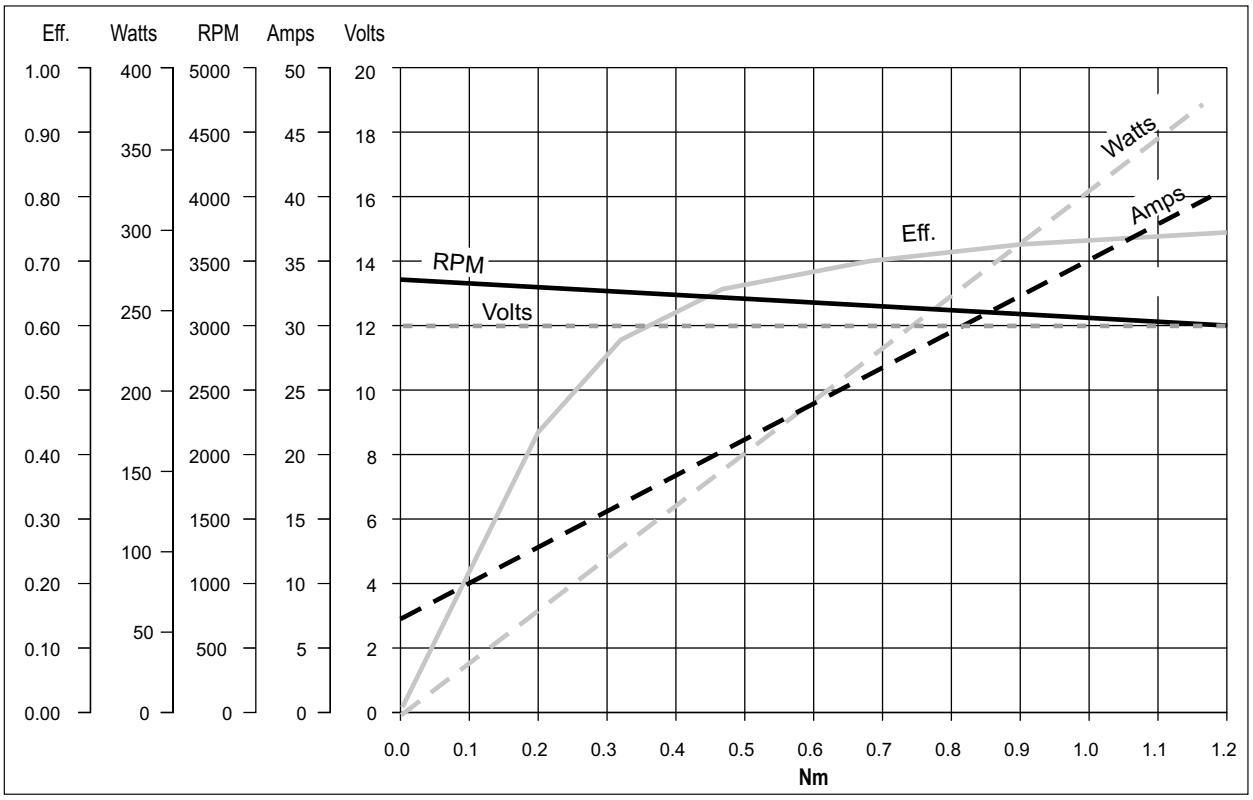
	63 B14	71 B14*
S	75	85
C (-0.03 / -0.01)	60	70
F	8 - M5	8 - M6

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

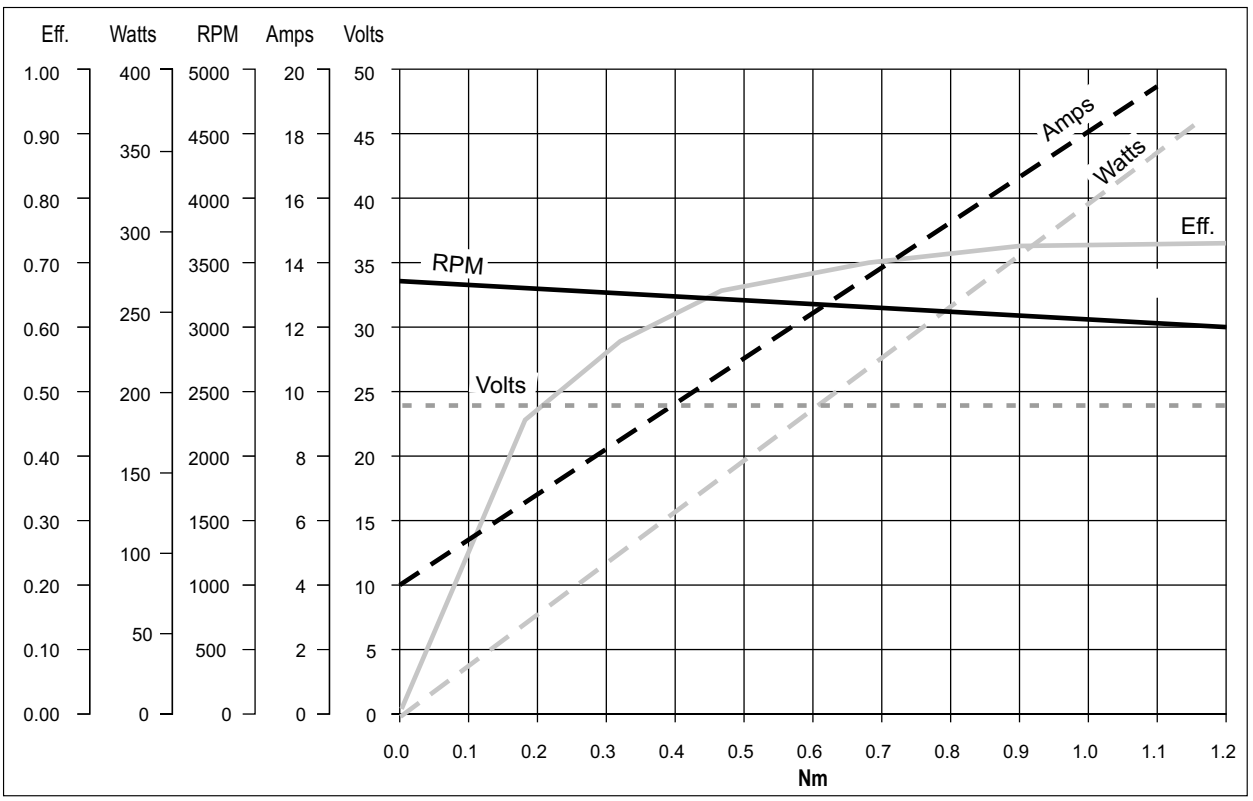
EC250.120 - EC250.240

Prestazioni ***Performances***

EC250.120



EC250.240



EC350.120 - EC350.240

Caratteristiche / *Features*

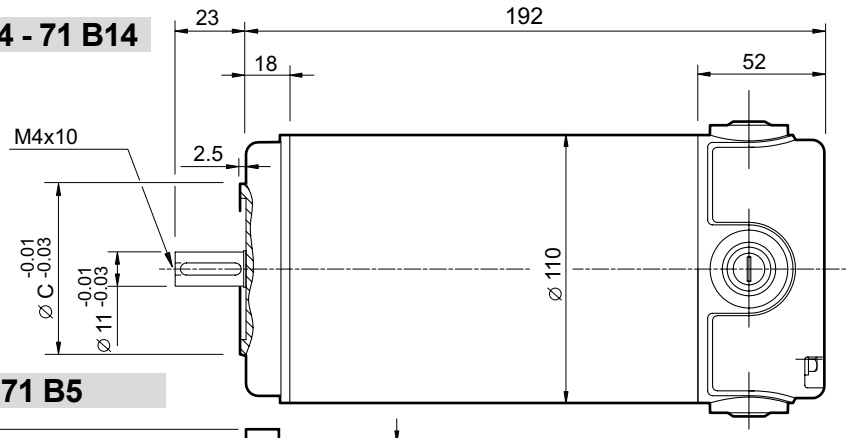
Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 110 mm
Potenza	500 W S2 (350 W S1)
Magneti	4
Supporti	Cuscinetti a sfera
Fori di montaggio	8
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 4 di composto grafite-rame
Dimensione spazzole	LxPxH = 18.9 x 9.5 x 16.7 mm
Terminali	2 con dadi di fissaggio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

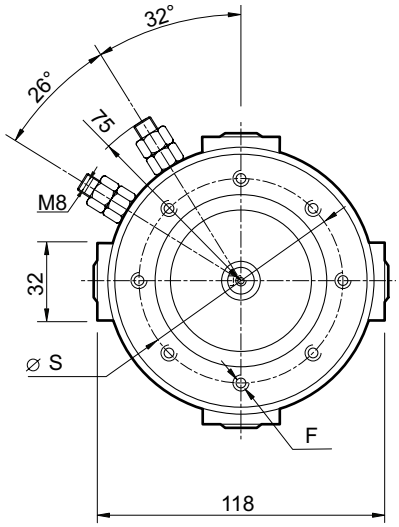
Construction	*Tubular, without fan*
Size	*Ø 110 mm*
Power	*500 W S2 (350 W S1)*
Magnets	*4*
Bearings	*Ball bearings*
Mounting holes	*8*
Power supply	*Low voltage, 12 or 24 Vdc*
Brushes	*4 brushes made of graphite/copper composite*
Brushes size	*LxPxH = 18.9 x 9.5 x 16.7 mm*
Leads terminals	*2, with double 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	40	5.1
	S2 30'	500		58.8			1.57			
EC350.240	**S1**	350	24	21			1.12		40	5.3
	S2 30'	500		29.4			1.57			

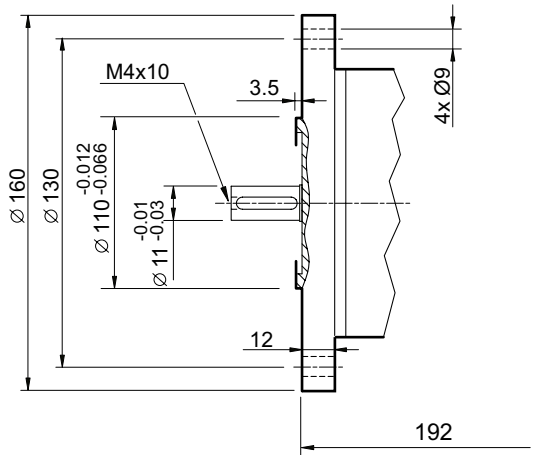
Dimensioni / *Dimensions*

63 B14 - 71 B14

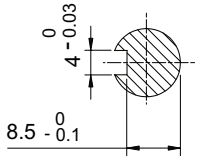




71 B5

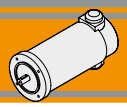


Freno / *Brake* → H23



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

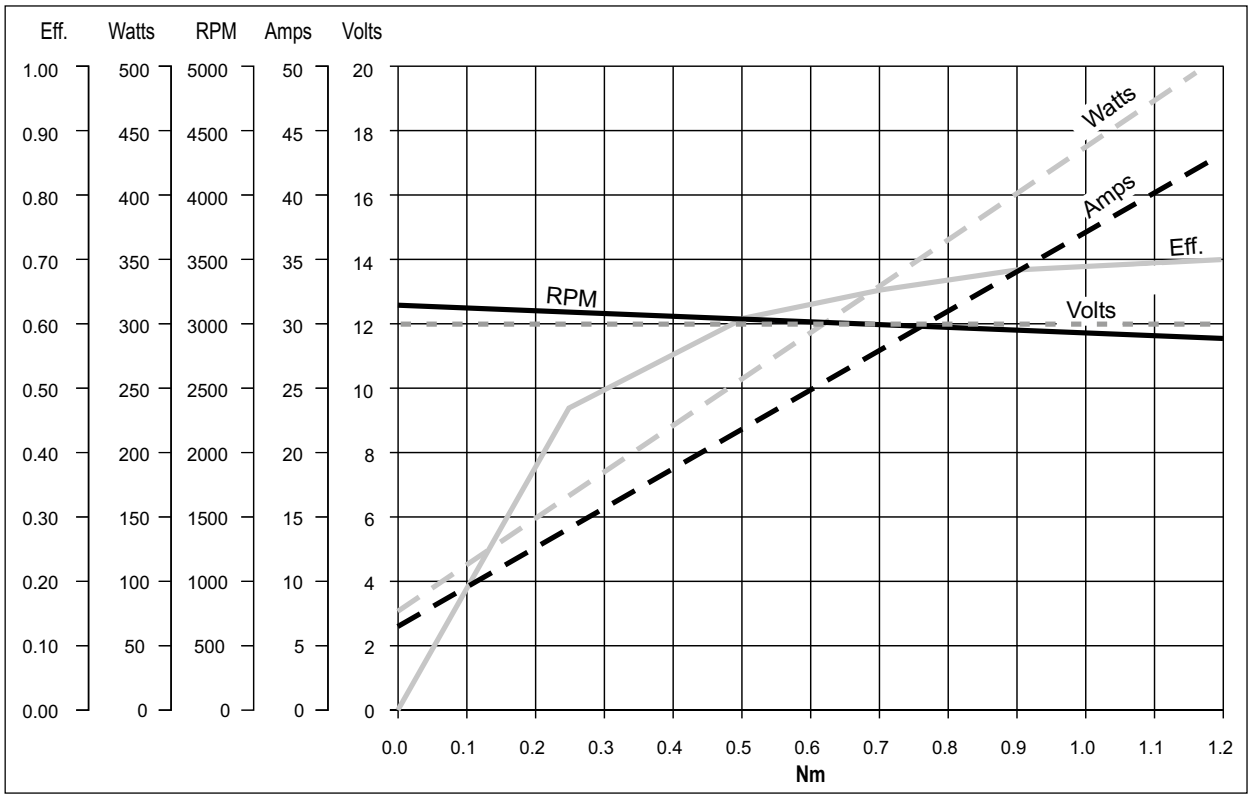
* Usare boccola 11/14
** Use sleeve 11/14*



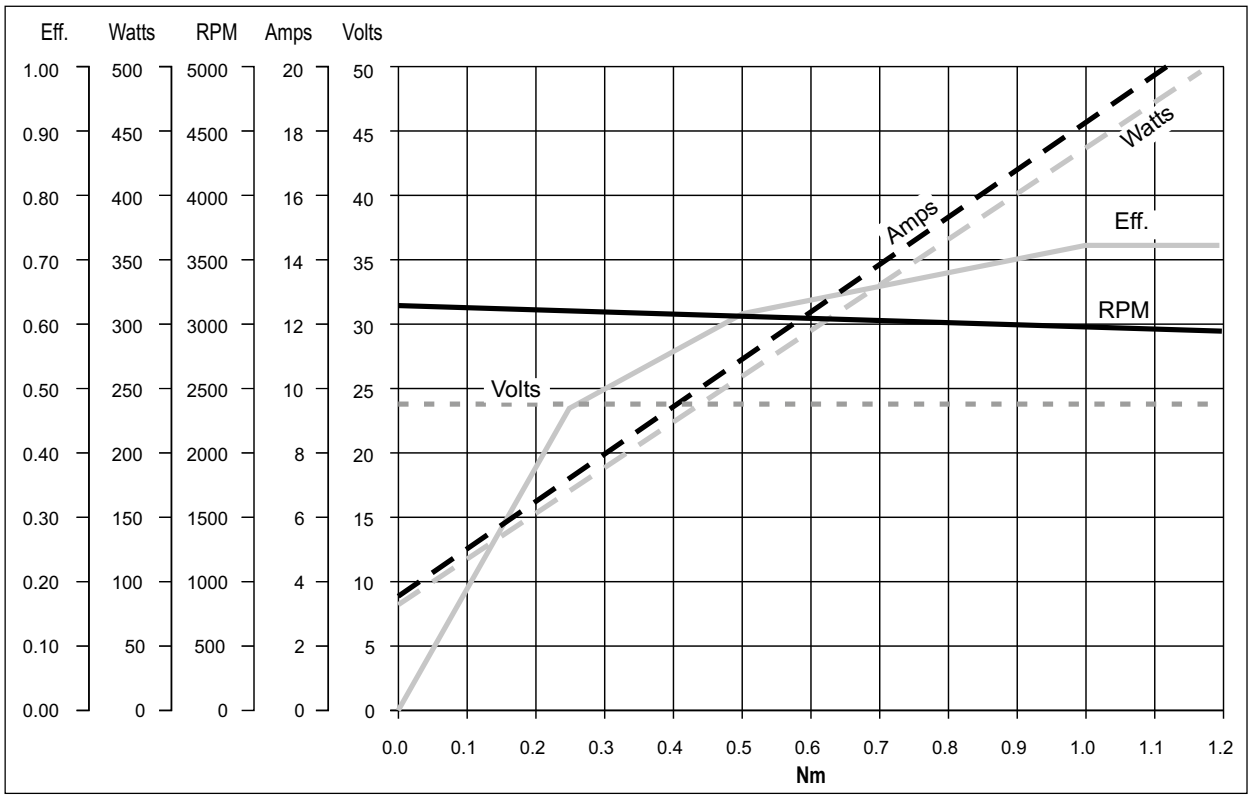
EC350.120 - EC350.240

Prestazioni ***Performances***

EC350.120



EC350.240



EC600.120 - EC600.240

Caratteristiche / *Features*

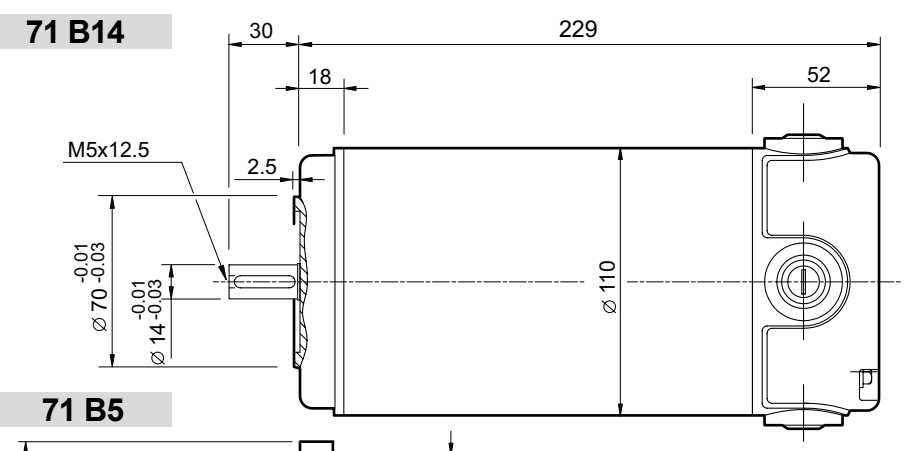
Costruzione	Tubolare, senza ventilazione
Grandezza	Ø 110 mm
Potenza	800 W S2 (600 W S1)
Magneti	4
Supporti	Cuscinetti a sfera
Fori di montaggio	8
Alimentazione	Bassa tensione, 12 o 24 Vcc
Spazzole	N° 4 di composto grafite-rame
Dimensione spazzole	LxPxH = 18.9 x 9.5 x 16.7 mm
Terminali	2 con doppio dado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

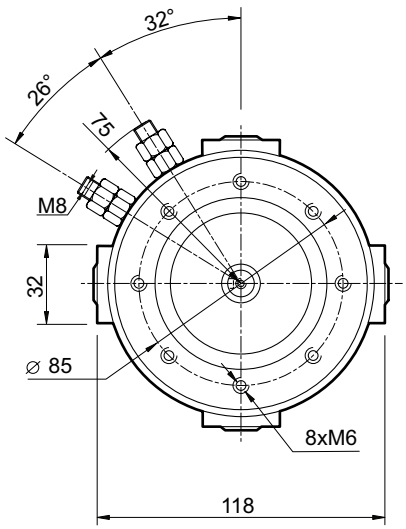
Construction	*Tubular, without fan*
Size	*Ø 110 mm*
Power	*800 W S2 (600 W S1)*
Magnets	*4*
Bearings	*Ball bearings*
Mounting holes	*8*
Power supply	*Low voltage, 12 or 24 Vdc*
Brushes	*4 brushes made of graphite/copper composite*
Brushes size	*LxPxH = 18.9 x 9.5 x 16.7 mm*
Leads terminals	*2, with double 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	40	6.6
	S2 30'	800		94.4			2.54			
EC600.240	**S1**	600	24	35.5			1.91		40	7.1
	S2 30'	800		47.2			2.54			

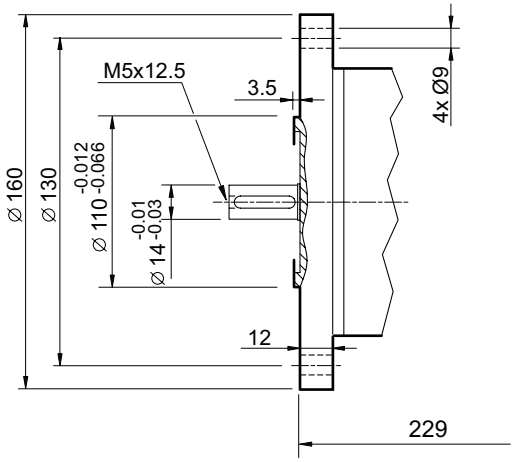
Dimensioni / *Dimensions*

71 B14

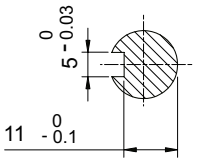


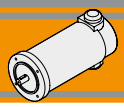


71 B5



Freno / *Brake* → H23

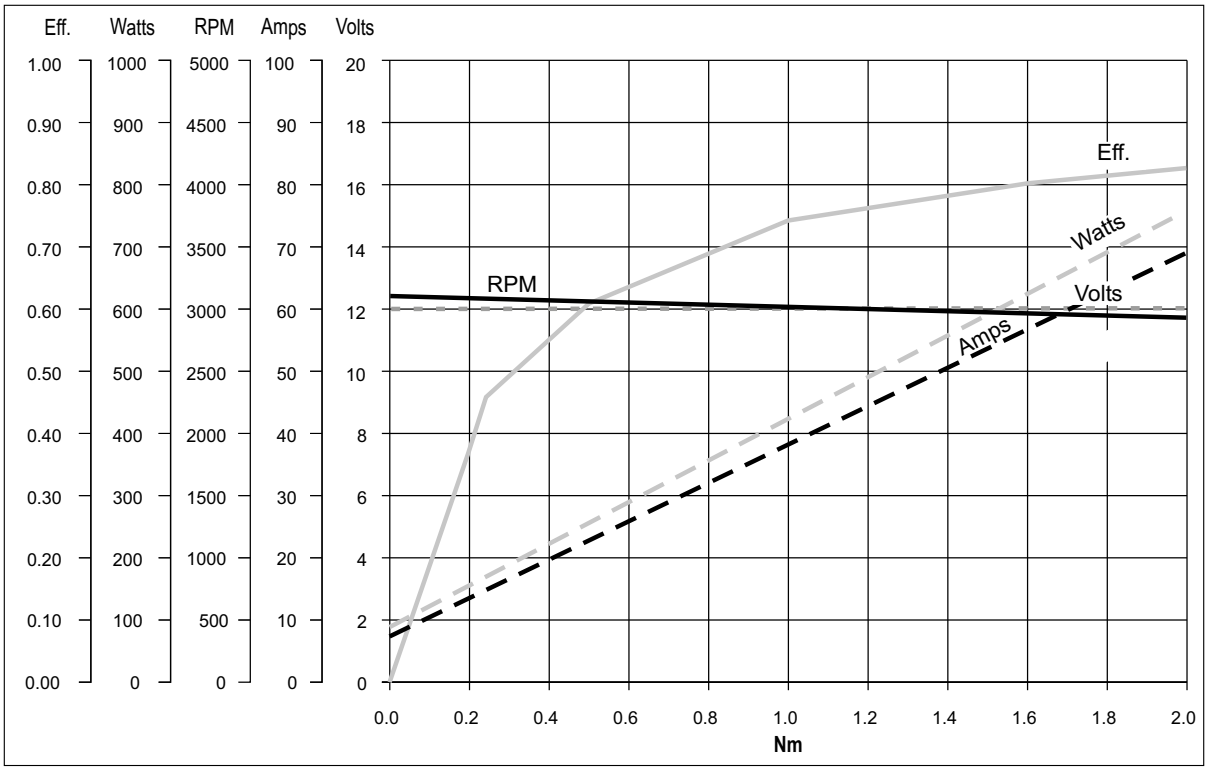




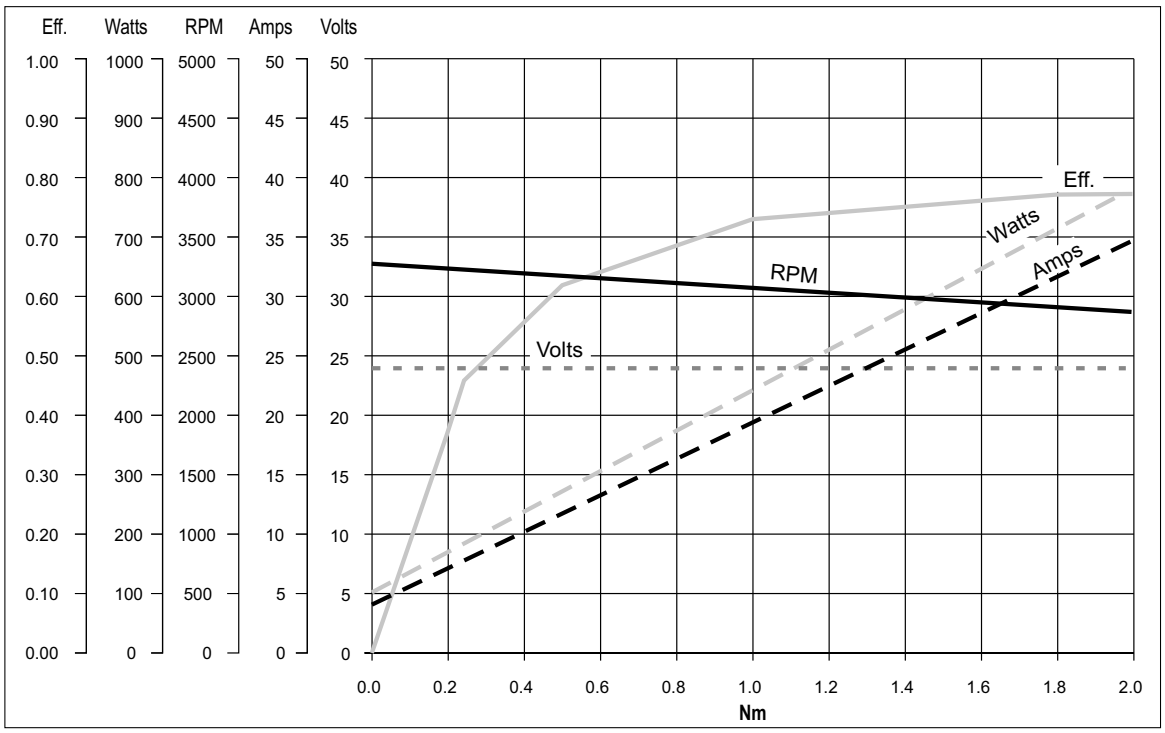
EC600.120 - EC600.240

Prestazioni — *Performances*

EC600.120



EC600.240

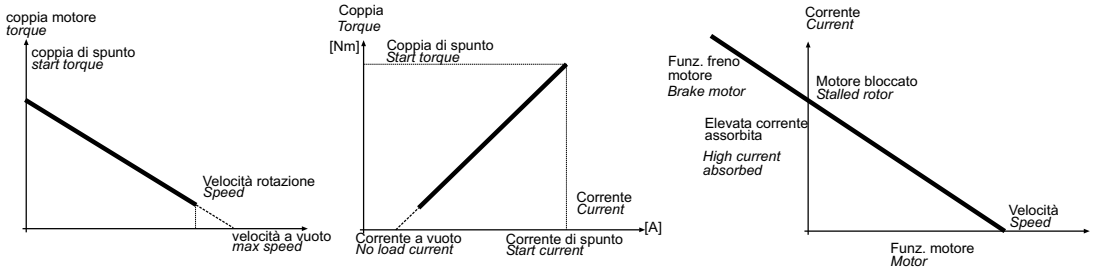


Legenda / Glossario dei grafici

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. 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.

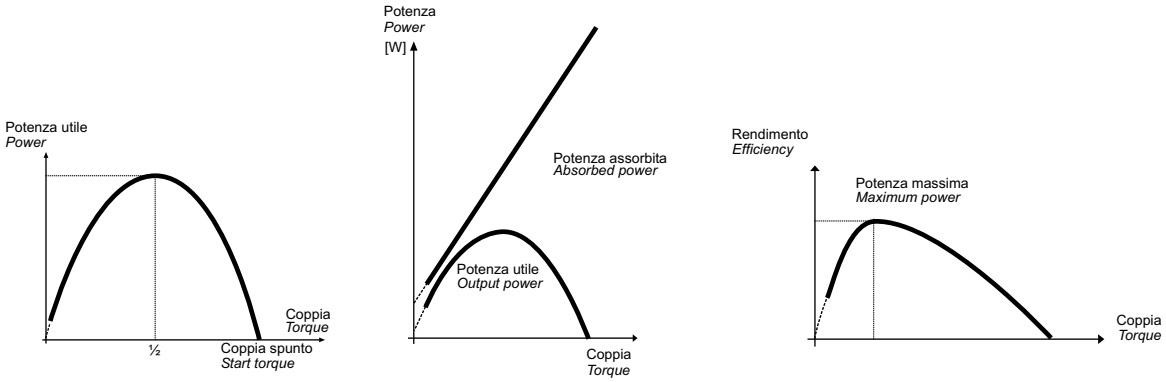


La potenza utile (potenza all' albero) si ricava dalla formula:

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

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.

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

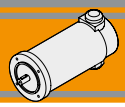
$$Pa = V \cdot I$$

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

$$Pn = Mn \cdot Sv$$

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

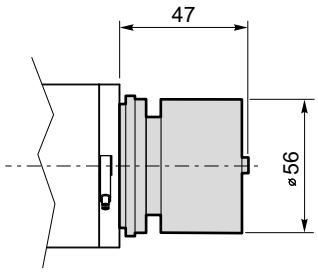
[HP] · 746 = [W].
Example 2 HP = approx. 1500 W.



Freno *Brake*

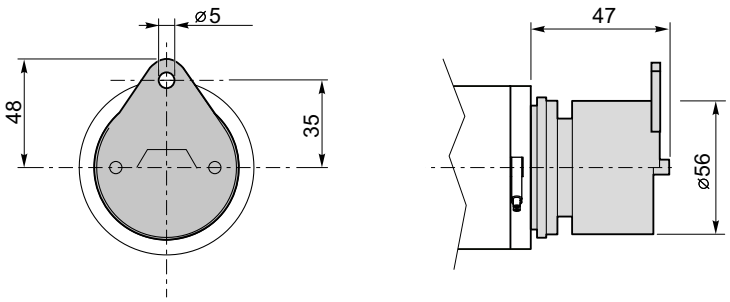
Freno / *Brake*

EC050...BR
EC070...BR



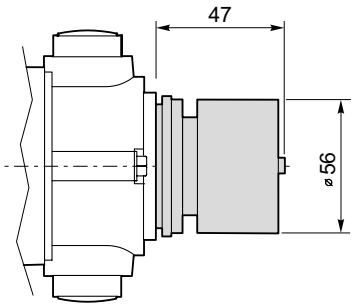
Freno con leva di sblocco/ *Brake with hand release*

EC050...BRL
EC070...BRL

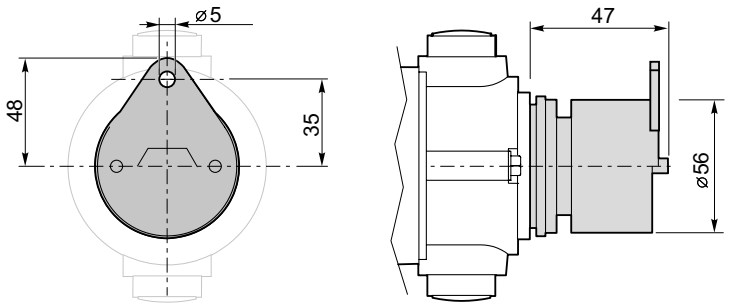


	Pn [W]	V [V]	Mn [Nm]	n_1 [min^{-1}]
Caratteristiche del freno / *Break features*	14	12 24	2	3000

EC100.24E BR
EC180.24E BR

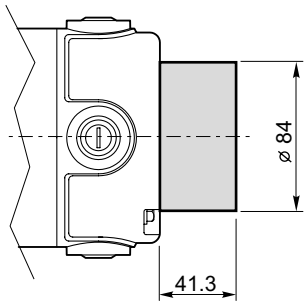


EC100.24E BRL
EC180.24E BRL

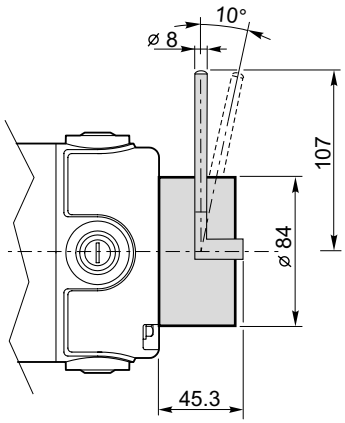


	Pn [W]	V [V]	Mn [Nm]	n_1 [min^{-1}]
Caratteristiche del freno / *Break features*	14	12 24	2	3000

EC350...BR
EC600...BR



EC350...BRL
EC600...BRL



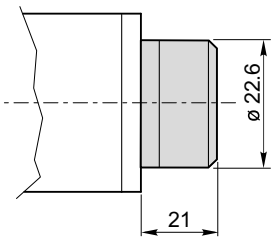
	Pn [W]	V [V]	Mn [Nm]	n_1 [min^{-1}]
Caratteristiche del freno / *Break features*	25	12 24	5	3000

Encoder ***Encoder***

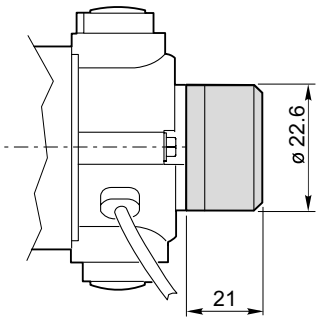
EC020.24E ME22

EC050.12E ME22
EC050.24E ME22

EC070.12E ME22
EC070.24E ME22



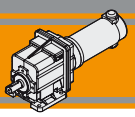
EC100.24E ME22
EC180.24E ME22



Risoluzione Encoder (CPR) / *Encoder Resolution (CPR)*	Numero di canali / *Number of channels*	Tensione d'alimentazione / *Power supply*
001	2	5 VdC - TTL
100		
300		

Per risoluzioni encoder non standard, si prega di contattare il nostro Servizio Tecnico.

For non-standard encoder resolution, please contact our Technical Department.



ENERGY SAVING

Caratteristiche tecniche

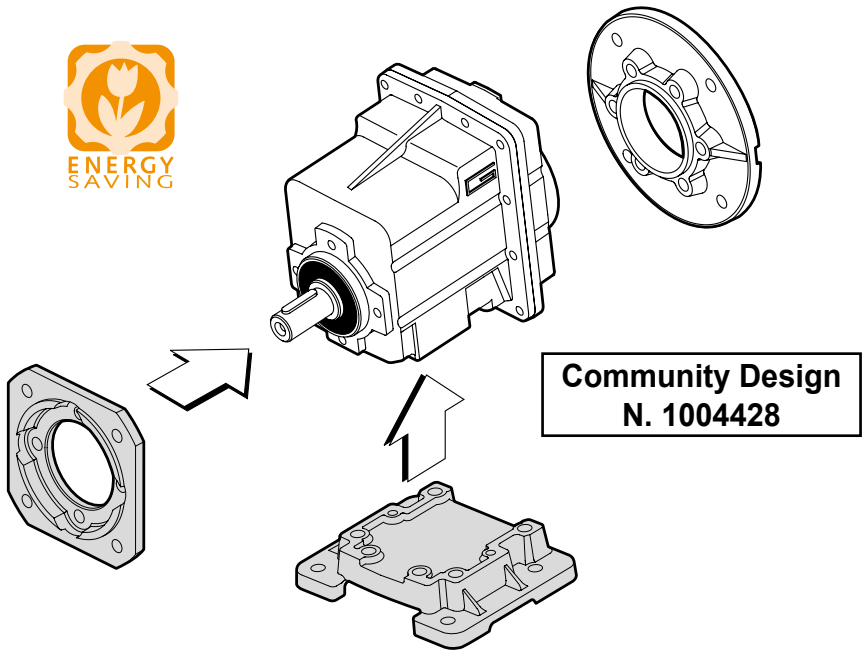
Technical features

Le caratteristiche principali dei motoriduttori CC ad ingranaggi cilindrici a magneti permanenti in ferrite serie ECMG sono:

- Alimentazione in bassa tensione 12/24 Vcc
- Possibilità di montaggio encoder
- Potenze motore disponibili da 100 a 800W S2
- Magneti in ferrite
- Carcasse dei riduttori in pressofusione di alluminio
- Lubrificazione permanente con olio sintetico
- Ingranaggi sempre rettificati

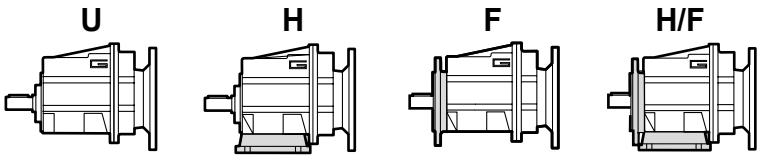
The main features of ECMG ferrite permanent magnets DC helical in-line gearmotors range are:

- *Low voltage power supply 12/24 Vdc*
- *Suitable for encoder assembly*
- *Motor power ratings available from 100 to 800W S2*
- *Ferrite magnets*
- *Die-cast aluminum housing*
- *Permanent synthetic oil long-life lubrication*
- *Ground helical gears*

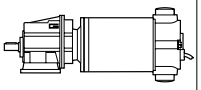


Designazione

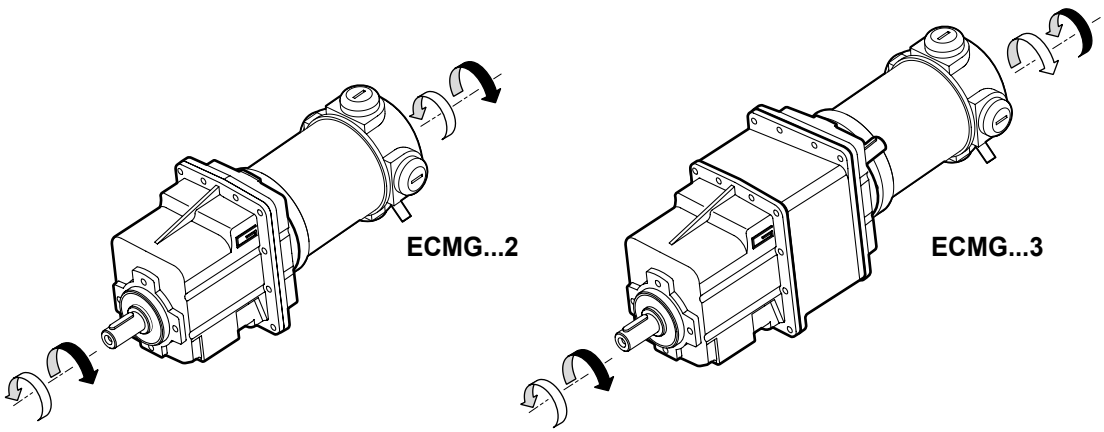
Classification



MOTORIDUTTORE / *GEARMOTOR*

ECMG	100/002	U	8.99	D20	240
Tipo *Type*	Grandezza *Size*	Versione *Version*	Rapporto *Ratio*	Albero uscita *Output shaft*	Versione motore *Motor version*
ECMG 	**070/002** | **100/002** | **180/002** | **250/002** **250/012** **250/013** **250/022** **250/023** **250/033** **250/043** | **350/002** **350/012** **350/013** **350/022** **350/023** **350/033** **350/043** | **600/002** **600/012** **600/013** **600/022** **600/023** **600/033** **600/043**	**U...** **H...** **F...** **H.../F...**	vedi tabelle *see tables*	vedi tabelle *see tables*	**120** **240** **24E**

Sensi di rotazione — *Direction of rotation*



Lubrificazione — *Lubrication*

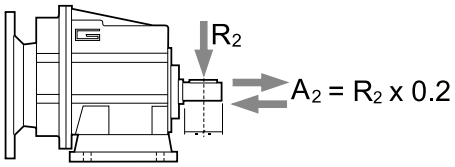
Tutti i riduttori sono forniti completi di lubrificante sintetico viscosità 320, pertanto possono essere installati in qualunque posizione di montaggio e non necessitano di manutenzione.

Permanent synthetic oil long-life lubrication (viscosity grade 320) makes it possible to use in all mounting positions; for this reason they can be installed in any assembly position and do not require maintenance.

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 nominale 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*

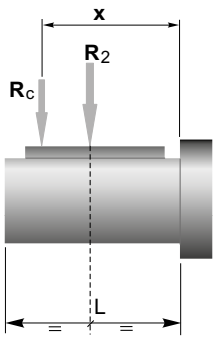
Carichi radiali — *Radial loads*



n_2 [min^{-1}]	R_2 [N]				
	CMG 00	CMG 01	CMG 02	CMG 03	CMG 04
700	416	764	1529	1987	2379
600	437	805	1609	2092	2504
500	465	855	1710	2223	2661
400	501	921	1842	2395	2866
250	586	1077	2154	2801	3353
180	653	1323	2554	3321	3897
150	748	1406	2714	3529	4244
120	806	1631	3467	3801	4572
100	958	1842	3684	4507	5234
80	1032	1984	3969	5042	5991
60	1136	2184	4368	5549	6594
40	1300	2500	5000	6500	8000
10	1300	2500	5000	6500	8000

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:



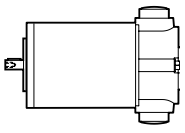
	CMG 00	CMG 01	CMG 02	CMG 03	CMG 04
a	73	104	117	132	150
b	53	84	92	102	115
R_{2MAX}	1300	2500	5000	6500	8000

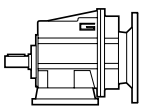
$$R_c = \frac{R_2 \cdot a}{(b+x)} \leq R_{2MAX}$$

$$R \leq R_c$$

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

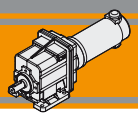
Motori applicabili — *IEC Motor adapters*





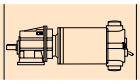
		EC						
		070.12E 070.24E	100.120 100.240 100.24E	180.120 180.240	180.24E	250.120 250.240	350.120 350.240	600.120 600.240
CMG	002	5.03 - 55.10	5.03 - 55.10	5.03 - 55.10	5.03 - 55.10	5.03 - 55.10	5.03 - 55.10	5.03 - 55.10
	012					3.82 - 60.15	3.82 - 60.15	3.82 - 60.15
	013					63.22 - 443.59	63.22 - 443.59	63.22 - 443.59
	022					3.66 - 60.9	3.66 - 60.9	3.66 - 60.9
	023					64.01 - 449.14	64.01 - 449.14	64.01 - 449.14
	033					72.83 - 427.03	72.83 - 427.03	72.83 - 427.03
	043					72.83 - 427.03	72.83 - 427.03	72.83 - 427.03

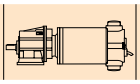
5.03 - 55.10 — Rapporti di riduzione i
Ratio i



Dati tecnici per servizio S2

Technical data for S2 duty

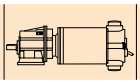
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
100						
(3000 min^{-1})	**596**	1.5	20.2	5.03	**070/002**	12E/24E
	492	1.9	16.6	6.10		
	401	2.3	13.5	7.49		
	334	2.7	14.2	8.99		
	295	3.1	12.6	10.16		
	249	3.7	10.6	12.07		
	224	4.1	13.4	13.40		
	198	5	11.9	15.14		
	165	6	9.9	18.17		
	139	6.6	8.3	21.58		
	128	7.2	7.7	23.51		
	120	7.7	7.2	25.10		
	111	8.3	6.6	27.08		
	92	9.9	5.5	32.49		
	71	12.8	4.3	42.04		
	67	13.7	4.0	44.89		
	61	14.9	3.7	48.86		
	54	17	3.3	55.10		
140						
(3000 min^{-1})	**596**	2	14.4	5.03	**100/002**	120/240/24E
	492	3	11.9	6.10		
	401	3	9.7	7.49		
	334	4	10.1	8.99		
	295	4.3	9.0	10.16		
	249	5.2	7.6	12.07		
	224	5.7	9.6	13.40		
	198	6.5	8.5	15.14		
	165	7.8	7.1	18.17		
	139	9	6.0	21.58		
	128	10	5.5	23.51		
	120	11	5.1	25.10		
	111	12	4.7	27.08		
	92	13.9	4.0	32.49		
	71	18.0	3.1	42.04		
	67	19.2	2.9	44.89		
	61	21	2.6	48.86		
	54	24	2.3	55.10		
250						
(3000 min^{-1})	**596**	4	8.1	5.03	**180/002**	120/240/24E
	492	5	6.7	6.10		
	401	6	5.4	7.49		
	334	7	5.7	8.99		
	295	8	5.0	10.16		
	249	9	4.2	12.07		
	224	10	5.4	13.40		
	198	12	4.8	15.14		
	165	13.9	4.0	18.17		
	139	16.5	3.3	21.58		
	128	18.0	3.1	23.51		
	120	19	2.9	25.10		
	111	21	2.7	27.08		
	92	25	2.2	32.49		
	71	32	1.7	42.04		
	67	34	1.6	44.89		
	61	37	1.5	48.86		
	54	42	1.3	55.10		

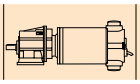
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
350						
(3000 min^{-1})	**596**	5	5.8	5.03	**250/002**	120/240
	492	7	4.8	6.10		
	401	8	3.9	7.49		
	334	10	4.1	8.99		
	295	11	3.6	10.16		
	249	13	3.0	12.07		
	224	14	3.8	13.40		
	198	16	3.4	15.14		
	165	19	2.8	18.17		
	139	23	2.4	21.58		
	128	25	2.2	23.51		
	120	27	2.0	25.10		
	111	29	1.9	27.08		
	92	35	1.6	32.49		
	71	45	1.2	42.04		
	67	48	1.1	44.89		
	61	52	1.1	48.86		
	54	59	0.9	55.10		
	327	10	6.3	9.17	**250/012**	120/240
	306	10	5.9	9.81		
	261	12	6.3	11.50		
	252	13	6.1	11.90		
	217	15	6.4	13.80		
	205	16	6.0	14.62		
	168	19	4.9	17.86		
	157	20	4.6	19.07		
	151	21	4.4	19.83		
	127	25	3.7	23.56		
	101	32	3.0	29.56		
	85	38	2.5	35.47		
	65	49	1.9	45.89		
	61	52	1.8	49.00		
	56	57	1.6	53.33		
	50	64	1.5	60.15		
	47	66	1.4	63.22	**250/013**	120/240
	40	79	1.2	75.08		
	34	93	1.0	89.17		
	27	118	0.8	113.05		
	22	141	0.7	134.27		
	17	134	0.7	173.72		
	15	134	0.7	202.16		
	11	134	0.7	261.57		
	10	134	0.7	304.00		
	8	134	0.7	393.33		
	7	134	0.7	443.59		
	126	26	6.1	23.85	**250/022**	120/240
	100	32	4.9	29.93		
	84	38	4.1	35.91		
	65	50	3.1	46.46		
	60	53	2.9	49.61		
	56	58	2.7	54.00		
	49	65	2.4	60.90		

N.B.
Verificare sempre che la coppia M2 utilizzata non ecceda il valore indicato nelle caselle in grigio
N.B.
Please check that the output torque M2 does not exceed the value in the grey areas

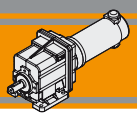
Dati tecnici per servizio S2

Technical data for S2 duty

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
350						
(3000 min^{-1})	**47**	67	2.3	64.01	**250/023**	120/240
	39	80	2.0	76.02		
	33	95	1.6	90.29		
	26	120	1.3	114.46		
	22	142	1.1	135.95		
	17	184	0.8	175.89		
	15	214	0.7	204.69		
	11	223	0.7	264.84		
	10	223	0.7	307.80		
	8	223	0.7	398.25		
	7	223	0.7	449.14		
	41	76	3.1	72.83	**250/033**	120/240
	31	102	2.3	97.45		
	26	121	1.9	115.74		
	21	147	1.6	140.81		
	17	183	1.3	174.26		
	13	236	1.0	225.47		
	11	274	0.9	262.05		
	9	341	0.7	325.79		
	8	334	0.7	378.64		
	7	334	0.7	427.03		
	41	76	5.1	72.83	**250/043**	120/240
	31	102	3.8	97.45		
	26	121	3.2	115.74		
	21	147	2.6	140.81		
	17	183	2.1	174.26		
	13	236	1.7	225.47		
	11	274	1.4	262.05		
	9	341	1.1	325.79		
	8	397	1.0	378.64		
	7	447	0.9	427.03		
500						
(3000 min^{-1})	**596**	7.7	4.0	5.03	**350/002**	120/240
	492	9.3	3.3	6.10		
	401	11	2.7	7.49		
	334	14	2.8	8.99		
	295	16	2.5	10.16		
	249	18	2.1	12.07		
	224	20	2.7	13.40		
	198	23	2.4	15.14		
	165	28	2.0	18.17		
	139	33	1.7	21.58		
	128	36	1.5	23.51		
	120	38	1.4	25.1		
	111	41	1.3	27.08		
	92	50	1.1	32.49		
	71	64	0.9	42.04		
	67	69	0.8	44.89		
	61	75	0.7	48.86		
	785	6	8.1	3.82	**350/012**	120/240
	648	7	6.6	4.63		
	527	9	5.4	5.69		
	389	12	5.3	7.72		
	327	14	4.4	9.17		
	306	15	4.1	9.81		
	261	18	4.4	11.5		
	252	18	4.3	11.9		
	217	21	4.5	13.80		
	205	22	4.2	14.62		

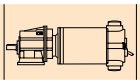
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
500						
(3000 min^{-1})	**168**	27	3.4	17.86	**350/012**	120/240
	157	29	3.2	19.07		
	151	30	3.1	19.83		
	127	36	2.6	23.56		
	101	45	2.1	29.56		
	85	54	1.7	35.47		
	65	70	1.3	45.89		
	61	75	1.3	49.00		
	56	81.5	1.2	53.33		
	50	92	1.0	60.15		
	47	95	1.0	63.22	**350/013**	120/240
	40	112	0.8	75.08		
	34	133	0.7	89.17		
	126	36	4.3	23.85	**350/022**	120/240
	100	46	3.4	29.93		
	84	55	2.8	35.91		
	65	71	2.2	46.46		
	60	76	2.1	49.61		
	56	83	1.9	54		
	49	93	1.7	60.90		
	47	96	1.6	64.01	**350/023**	120/240
	39	114	1.4	76.02		
	33	135	1.2	90.29		
	26	171	0.9	114.46		
	22	203	0.8	135.95		
	17	223	0.7	175.89		
	41	109	2.1	72.83	**350/033**	120/240
	31	146	1.6	97.45		
	26	173	1.4	115.74		
	21	211	1.1	140.81		
	17	261	0.9	174.26		
	13	334	0.7	225.47		
	11	334	0.7	262.05		
	41	109	3.6	72.83	**350/043**	120/240
	31	146	2.7	97.45		
	26	173	2.3	115.74		
	21	211	1.9	140.81		
	17	261	1.5	174.26		
	13	337	1.2	225.47		
	11	392	1.0	262.05		
	9	487	0.8	325.79		
	8	557	0.7	378.64		
	7	557	0.7	427.03		

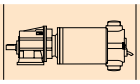
N.B.
Verificare sempre che la coppia M2 utilizzata non ecceda il valore indicato nelle caselle in grigio
N.B.
Please check that the output torque M2 does not exceed the value in the grey areas



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*
800						
(3000 min^{-1})	**596**	12	2.5	5.03	**600/002**	120/240
	492	15	2.1	6.10		
	401	18	1.7	7.49		
	334	22	1.8	8.99		
	295	25	1.6	10.16		
	249	30	1.3	12.07		
	224	33	1.7	13.40		
	198	37	1.5	15.14		
	165	44	1.2	18.17		
	139	53	1.0	21.58		
	128	57	1.0	23.51		
	120	61	0.9	25.10		
	111	66	0.8	27.08		
	92	79	0.7	32.49		
	71	79	0.7	42.04		
	67	79	0.7	44.89		
	785	9	5.0	3.82	**600/012**	120/240
	648	11	4.2	4.63		
	527	14	3.4	5.69		
	389	19	3.3	7.72		
	327	22	2.8	9.17		
	306	24	2.6	9.81		
	261	28	2.8	11.5		
	252	29	2.7	11.9		
	217	34	2.8	13.8		
	205	36	2.6	14.62		
	168	44	2.2	17.86		
	157	47	2.0	19.07		
	151	48	1.9	19.83		
	127	58	1.6	23.56		
	101	72	1.3	29.56		
	85	87	1.1	35.47		
	65	112	0.8	45.89		
	61	120	0.8	49		
	56	130	0.7	53.33		
	47	134	0.7	63.22	**600/013**	120/240
	40	134	0.7	75.08		

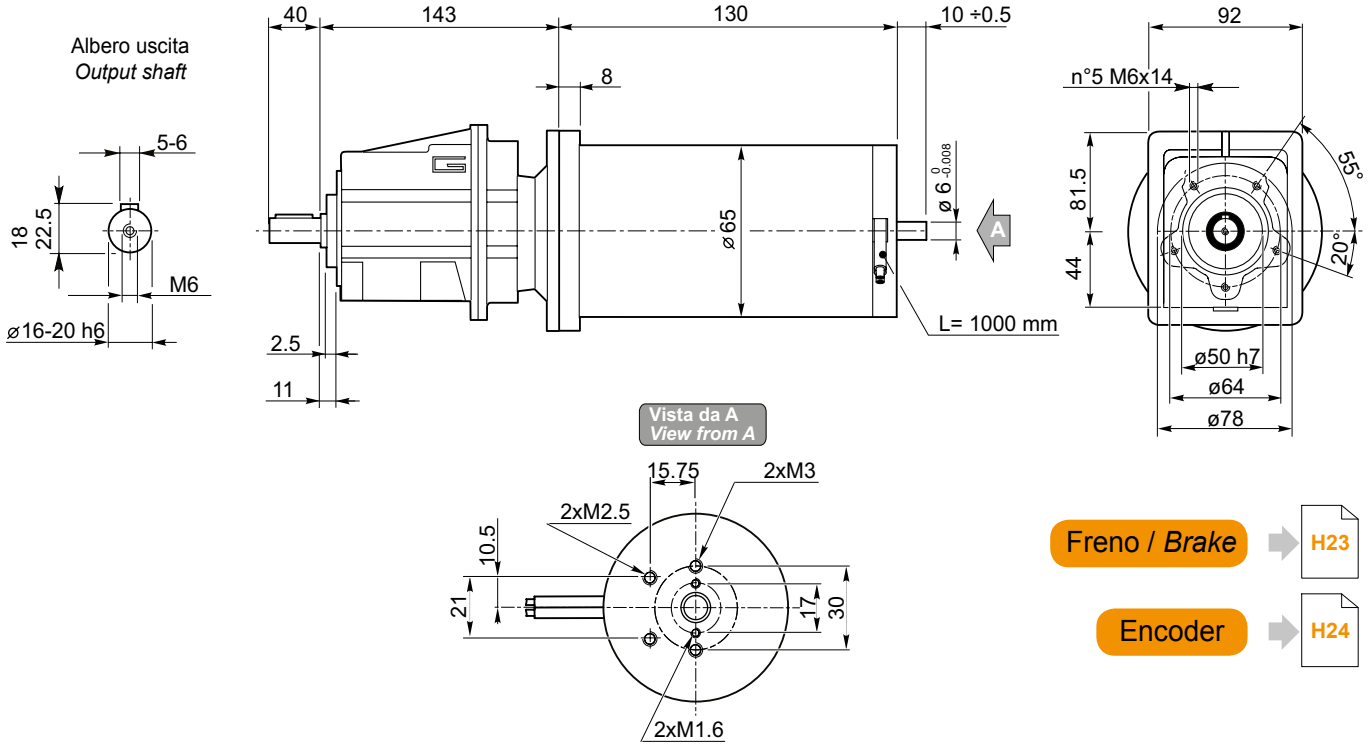
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
800						
(3000 min^{-1})	**302**	24	3.9	9.93	**600/022**	120/240
	272	27	5.8	11.01		
	249	29	5.3	12.05		
	227	32	4.8	13.21		
	203	36	4.3	14.81		
	175	42	3.0	17.1		
	164	45	2.8	18.26		
	149	49	3.2	20.08		
	126	58	2.7	23.85		
	100	73	2.1	29.93		
	84	88	1.8	35.91		
	65	114	1.4	46.46		
	60	121	1.3	49.61		
	56	132	1.2	54		
	49	149	1.0	60.90		
	47	153	1.0	64.01	**600/023**	120/240
	39	182	0.9	76.02		
	33	216	0.7	90.29		
	26	223	0.7	114.46		
	22	223	0.7	135.95		
	41	174	1.3	72.83	**600/033**	120/240
	31	233	1.0	97.45		
	26	277	0.8	115.74		
	21	334	0.7	140.81		
	17	334	0.7	174.26		
	13	334	0.7	225.47		
	41	174	2.2	72.83	**600/043**	120/240
	31	233	1.7	97.45		
	26	277	1.4	115.74		
	21	337	1.2	140.81		
	17	417	0.9	174.26		
	13	540	0.7	225.47		
	11	557	0.7	262.05		
	9	557	0.7	325.79		

N.B.
Verificare sempre che la coppia M2 utilizzata non ecceda il valore indicato nelle caselle in grigio
N.B.
Please check that the output torque M2 does not exceed the value in the grey areas

Dimensioni ***Dimensions***

ECMG..U

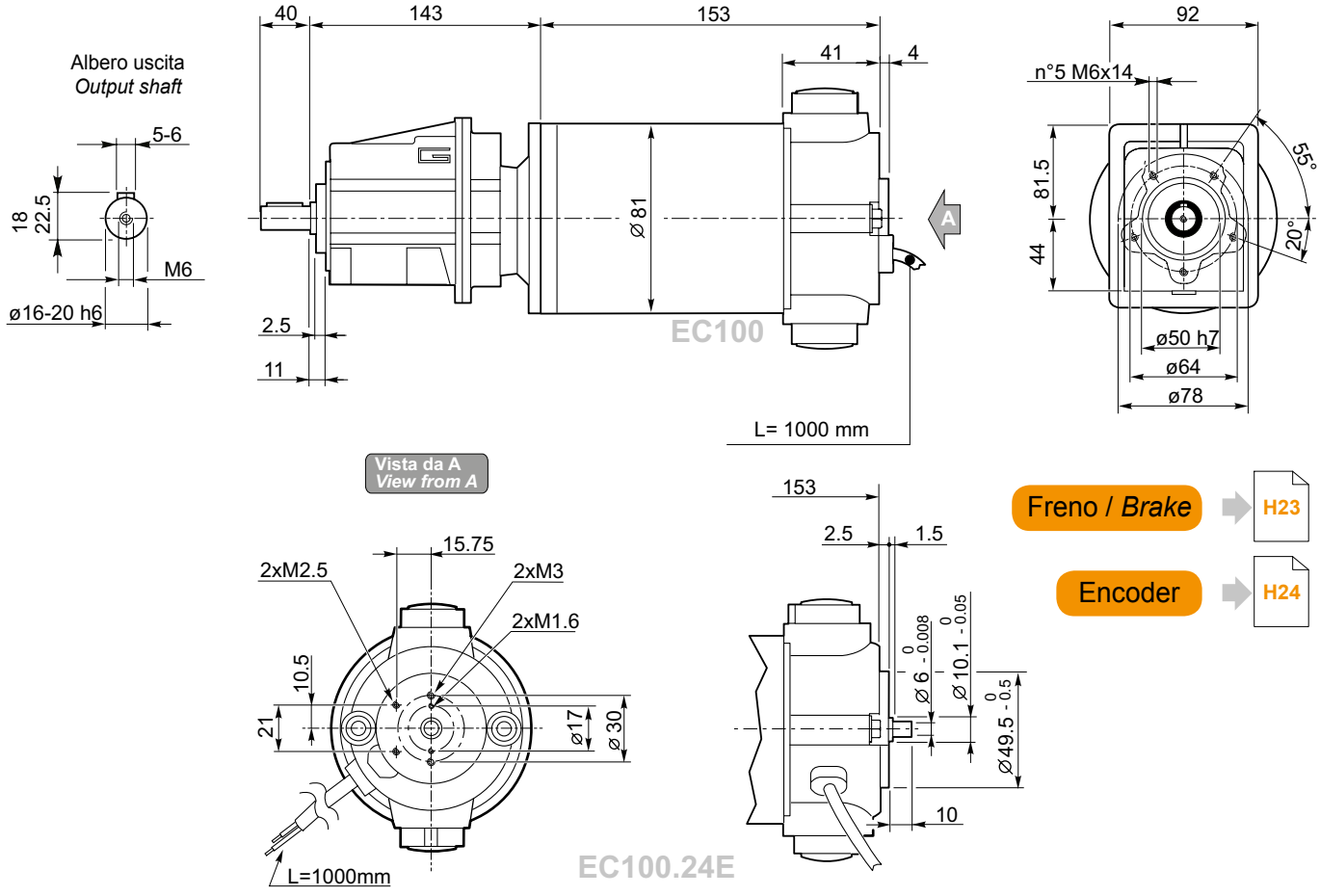
ECMG070/002 U



Freno / *Brake* → H23

Encoder → H24

ECMG100/002 U



Freno / *Brake* → H23

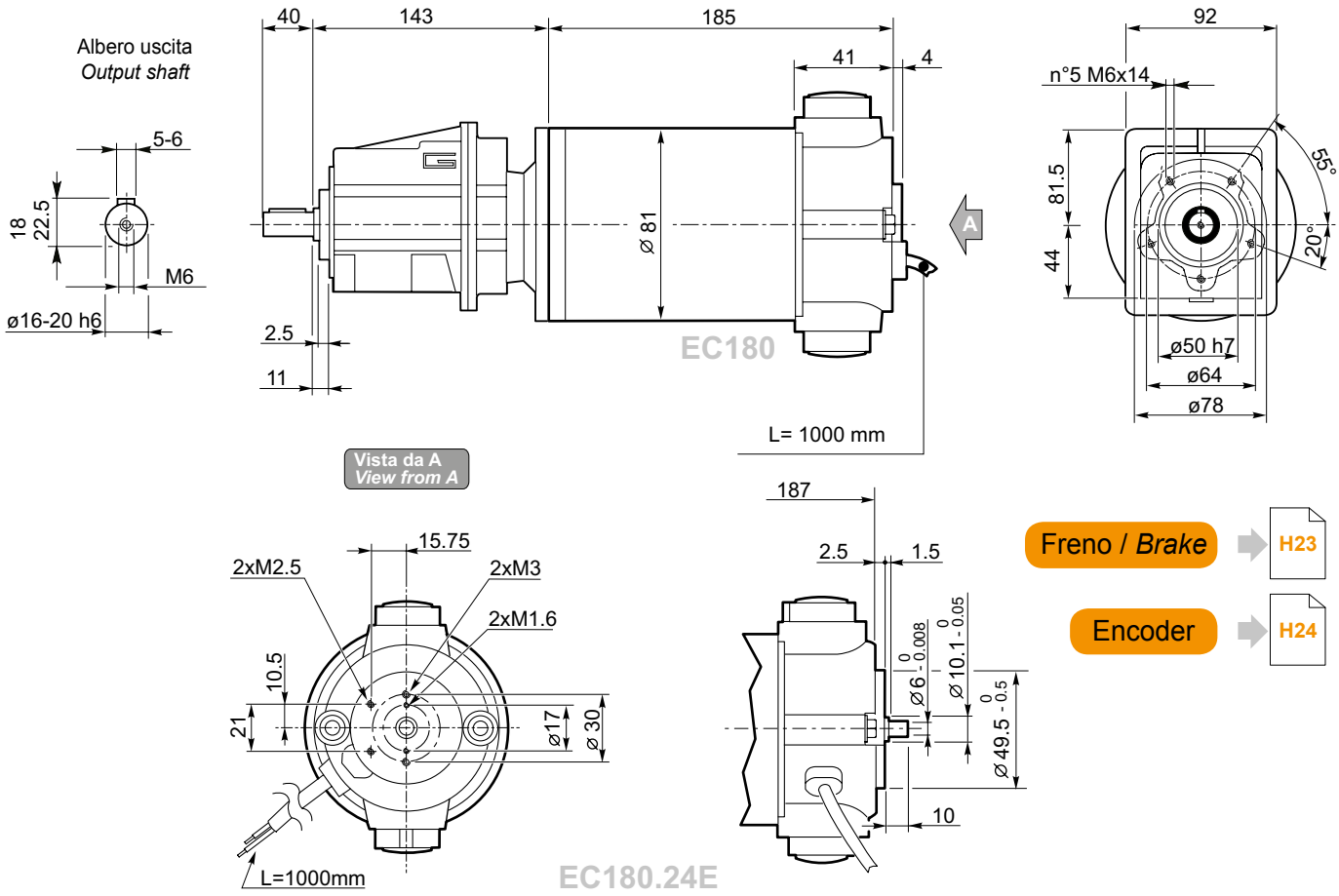
Encoder → H24

ECMG...H → I18 ECMG...F → I19 ECMG...H/F → I20

Dimensioni ***Dimensions***

ECMG..U

ECMG180/002 U



Freno / *Brake* → H23

Encoder → H24

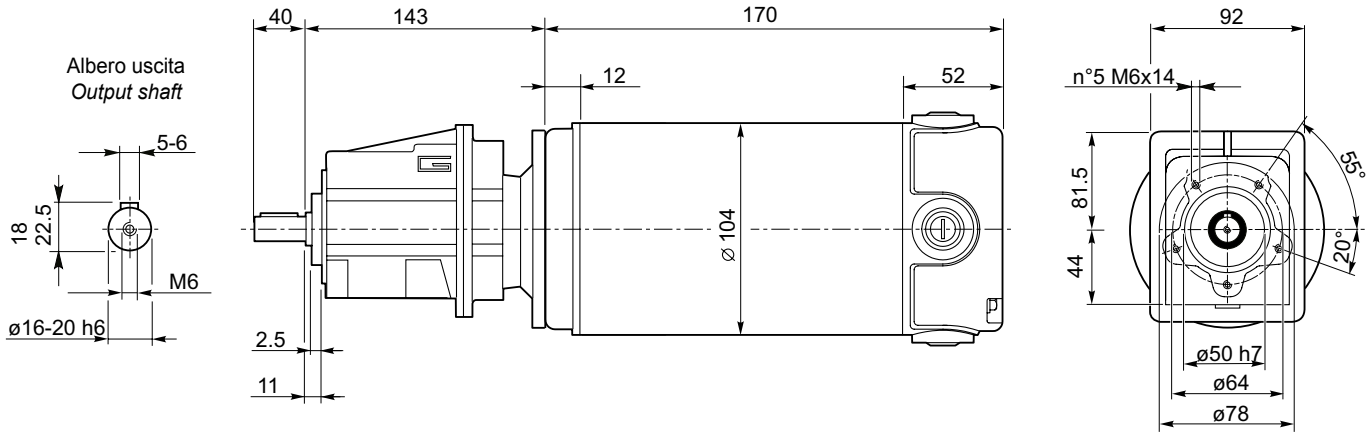
ECMG

ECMG...H → I18 **ECMG...F** → I19 **ECMG...H/F** → I20

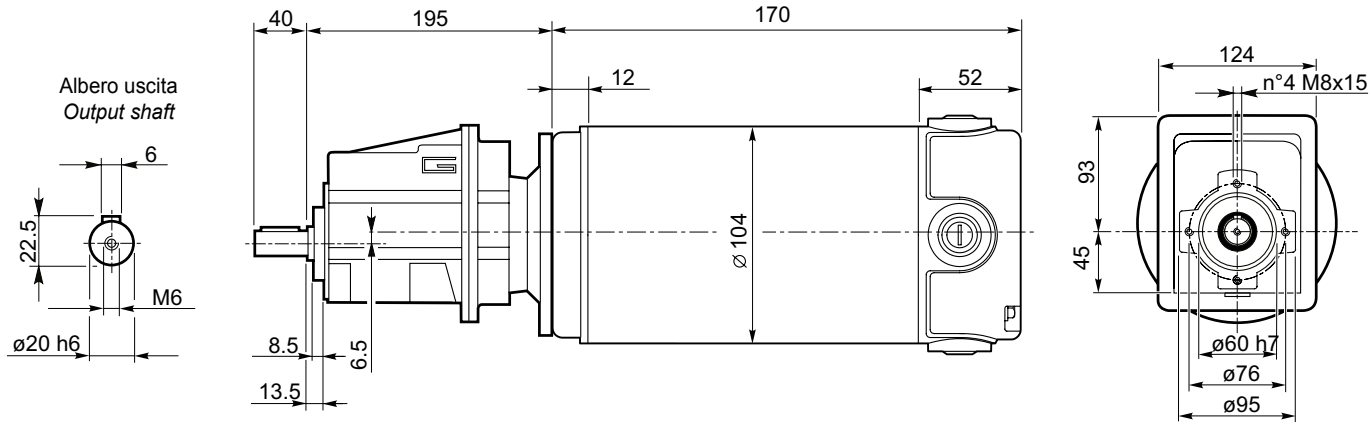
Dimensioni ***Dimensions***

ECMG..U

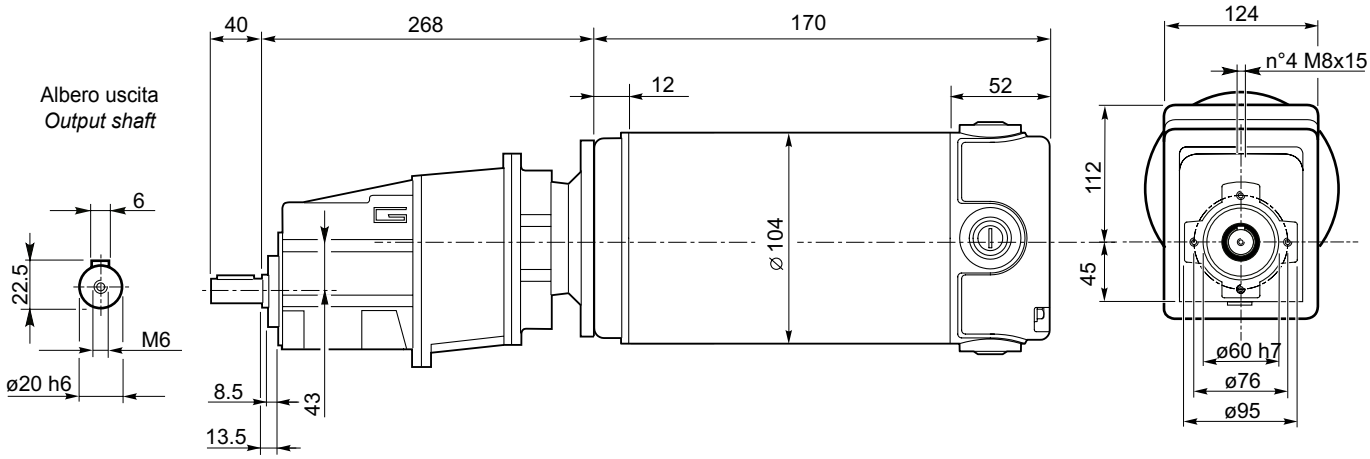
ECMG250/002 U



ECMG250/012 U



ECMG250/013 U

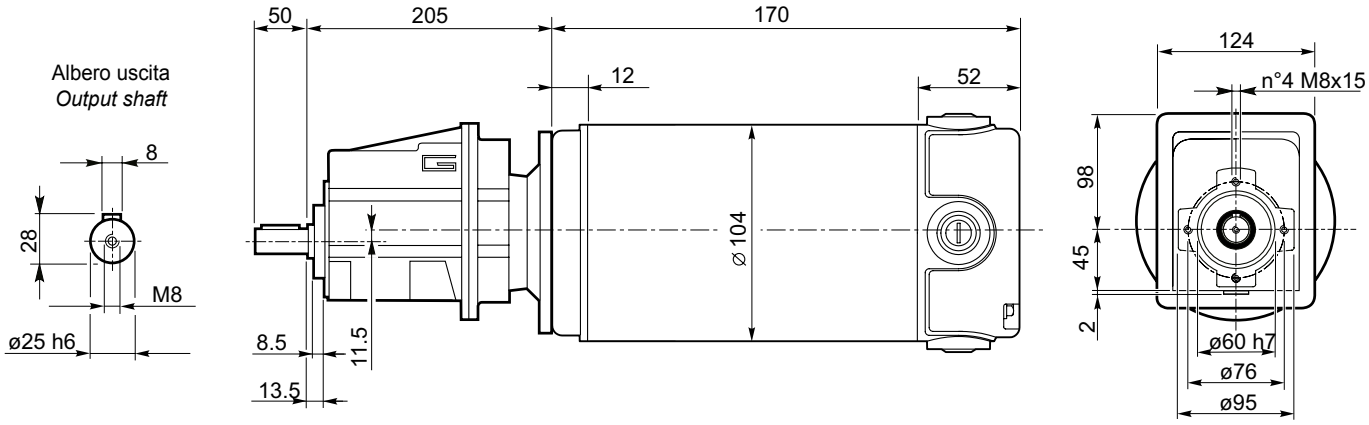


ECMG...H I18 **ECMG...F** I19 **ECMG...H/F** I20

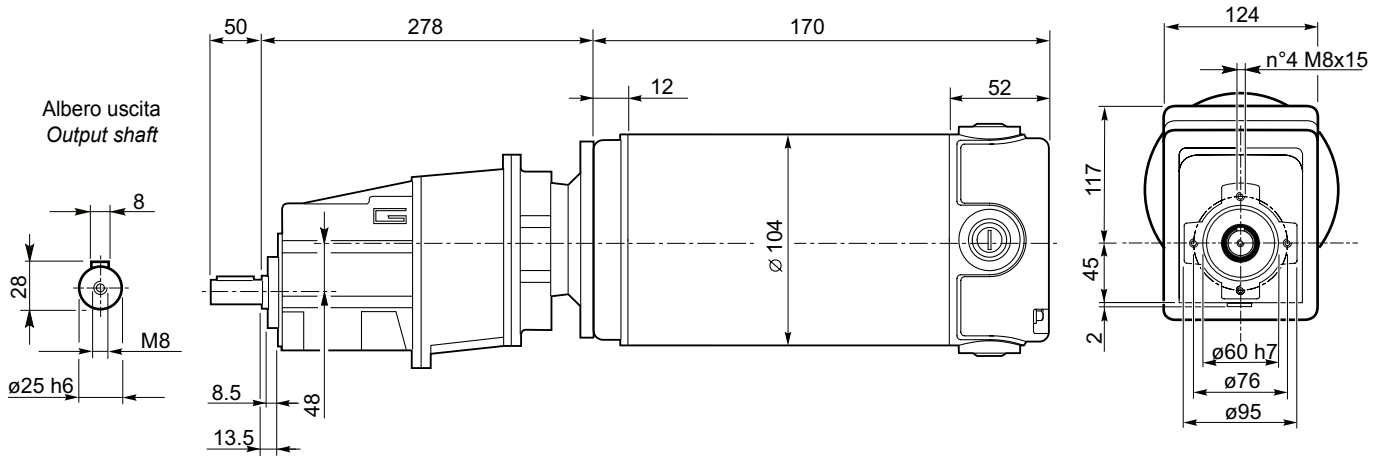
Dimensioni *Dimensions*

ECMG..U

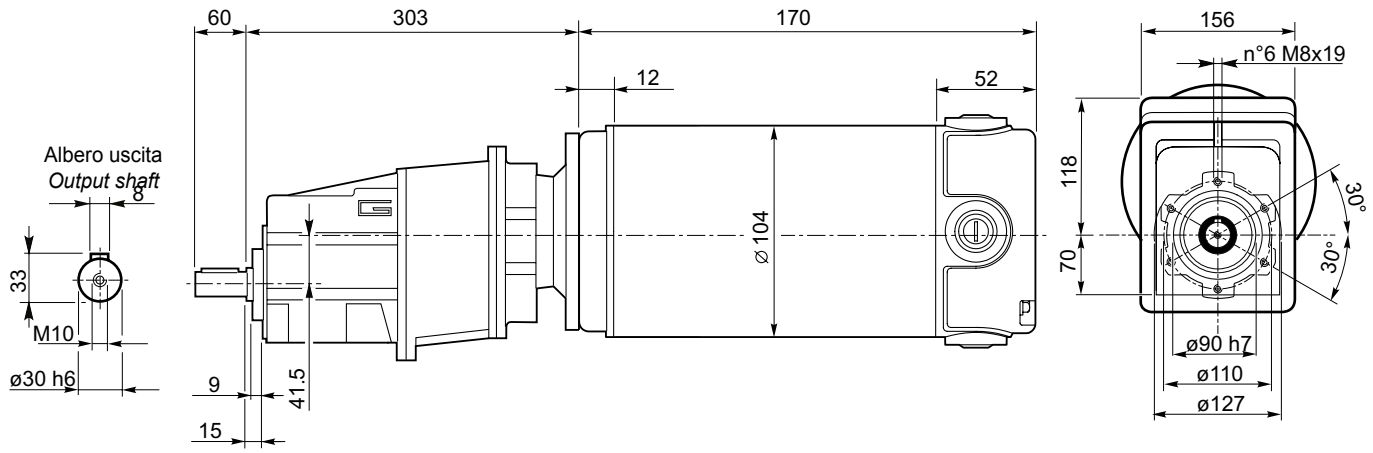
ECMG250/022 U



ECMG250/023 U



ECMG250/033 U

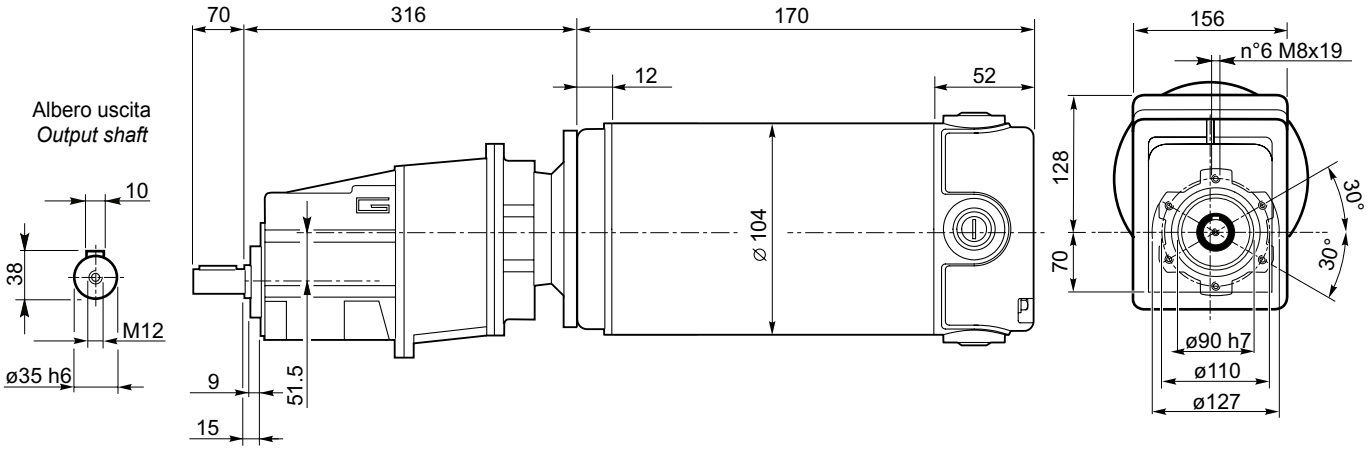


ECMG...H I18 ECMG...F I19 ECMG...H/F I20

Dimensioni ***Dimensions***

ECMG..U

ECMG250/043 U



ECMG...H I18

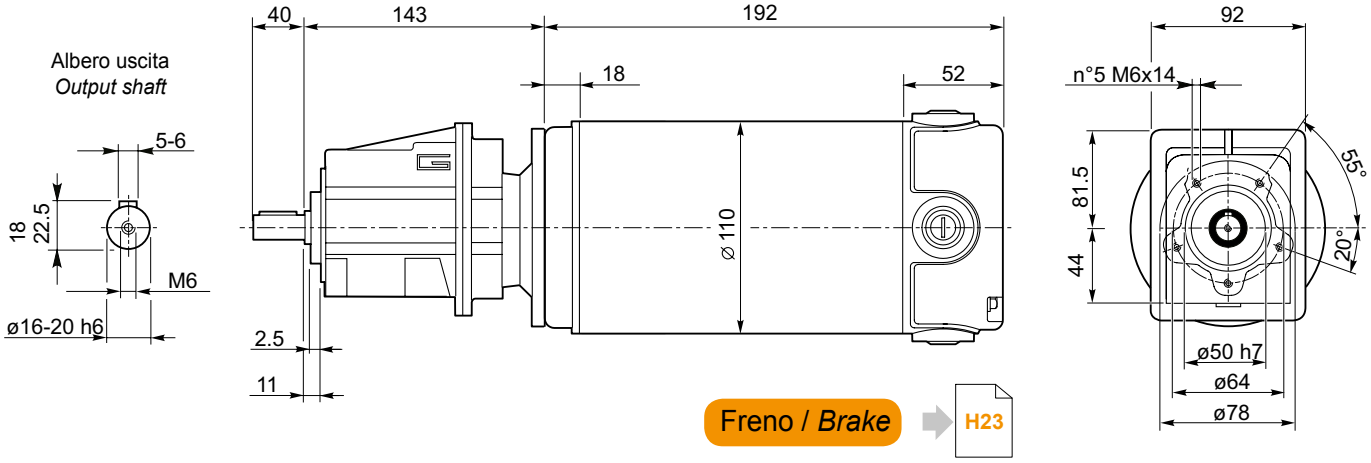
ECMG...F I19

ECMG...H/F I20

Dimensioni ***Dimensions***

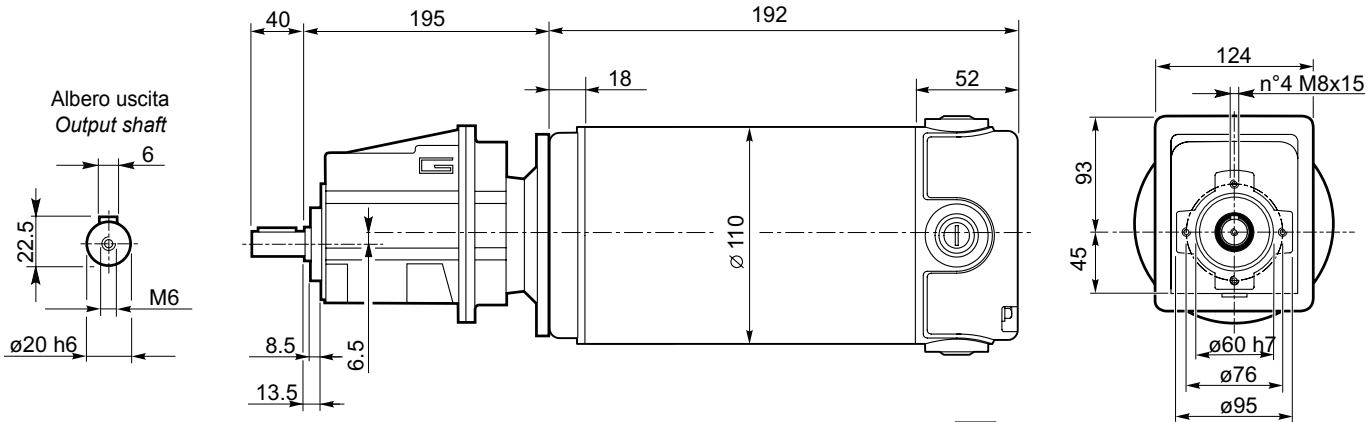
ECMG..U

ECMG350/002 U



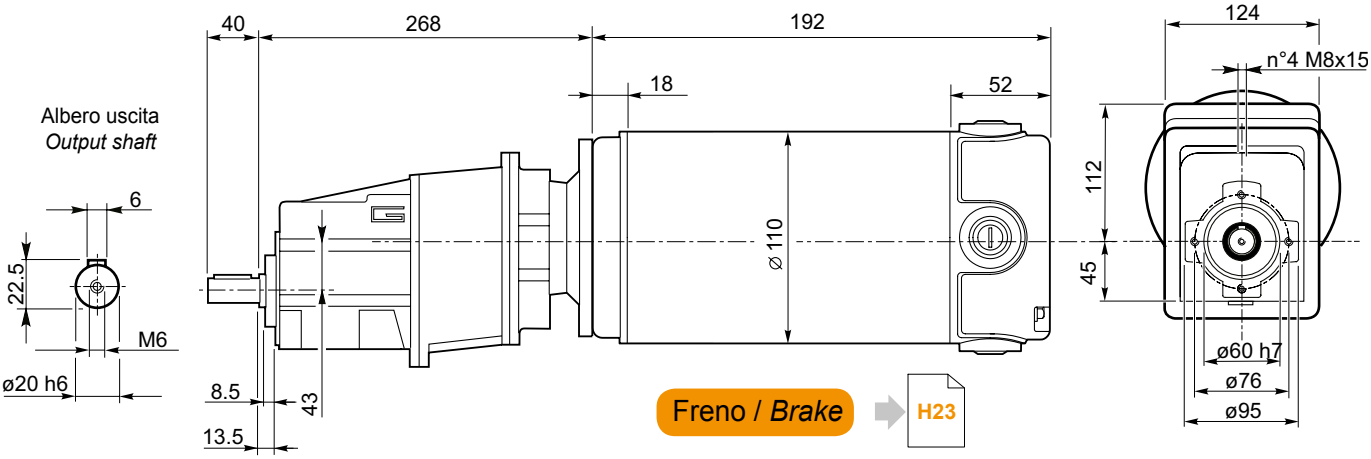
Freno / *Brake* → H23

ECMG350/012 U



Freno / *Brake* → H23

ECMG350/013 U



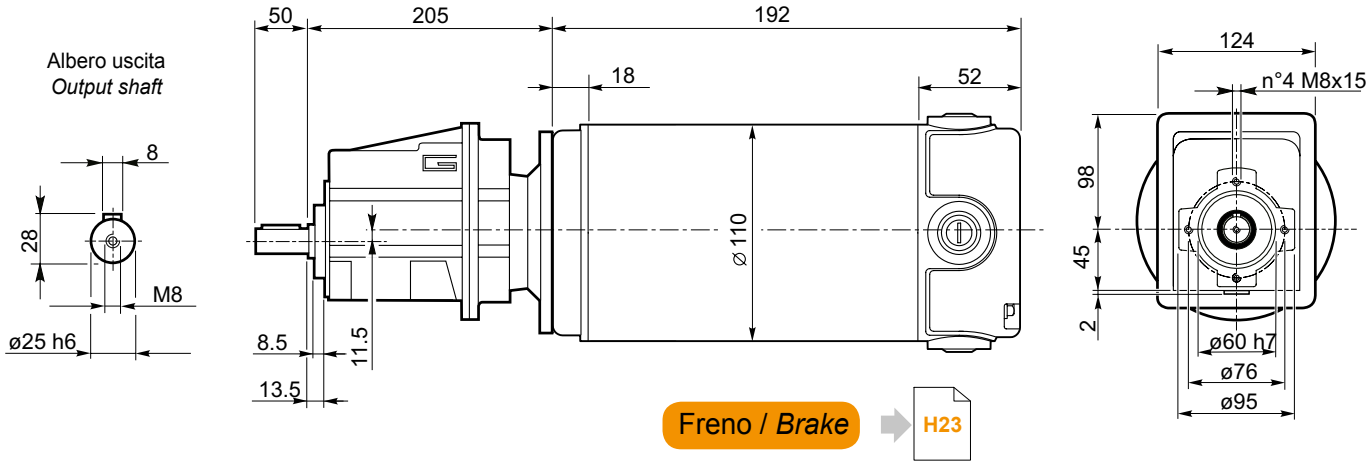
Freno / *Brake* → H23

ECMG...H → I18 **ECMG...F** → I19 **ECMG...H/F** → I20

Dimensioni ***Dimensions***

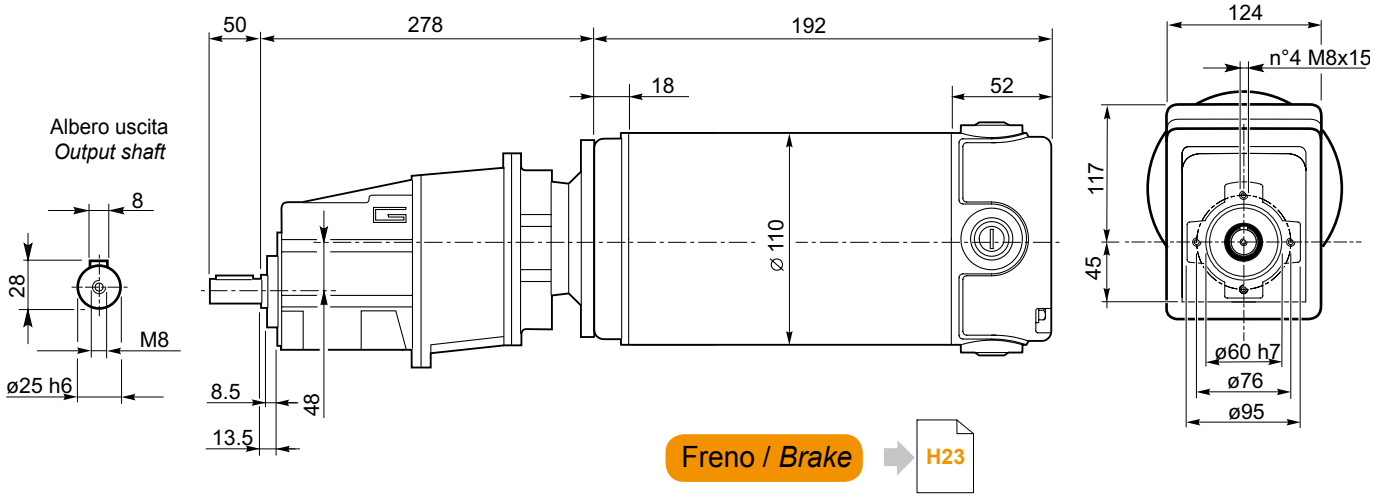
ECMG..U

ECMG350/022 U



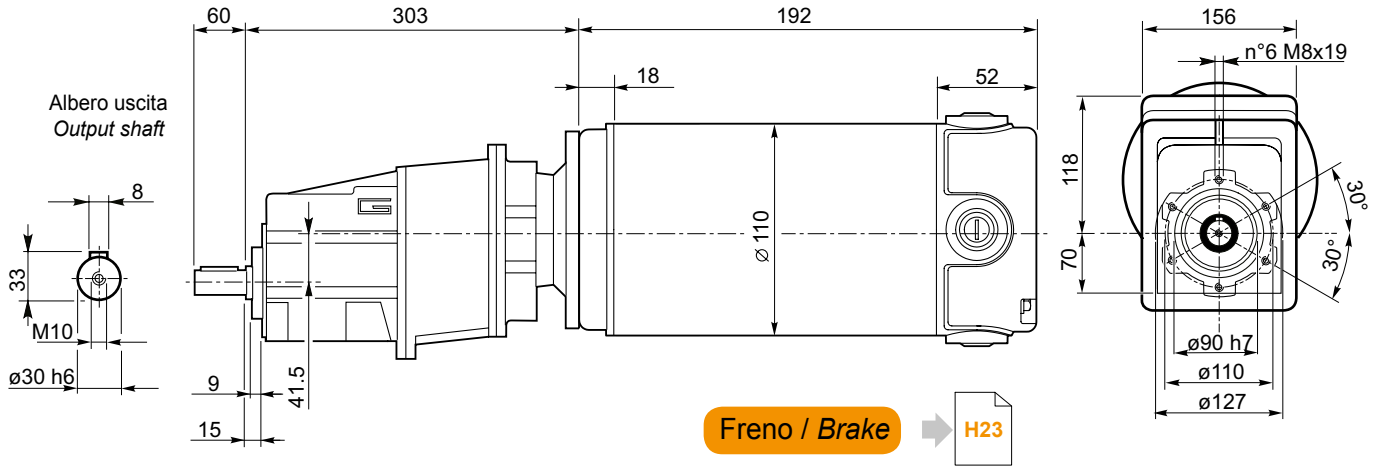
Freno / *Brake* → H23

ECMG350/023 U



Freno / *Brake* → H23

ECMG350/033 U



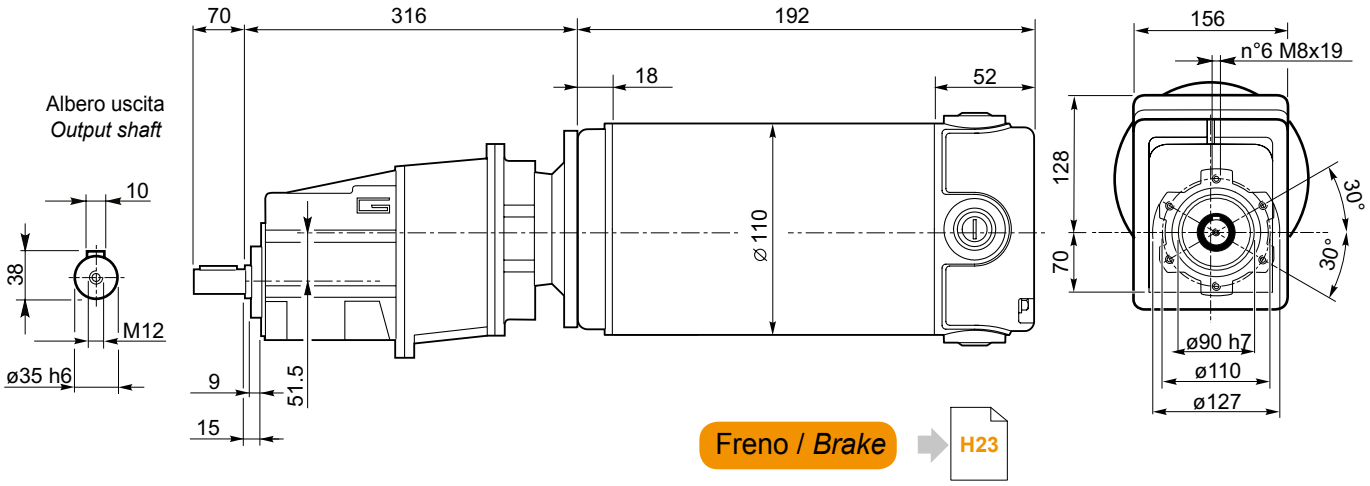
Freno / *Brake* → H23

ECMG...H → I18 **ECMG...F** → I19 **ECMG...H/F** → I20

Dimensioni ***Dimensions***

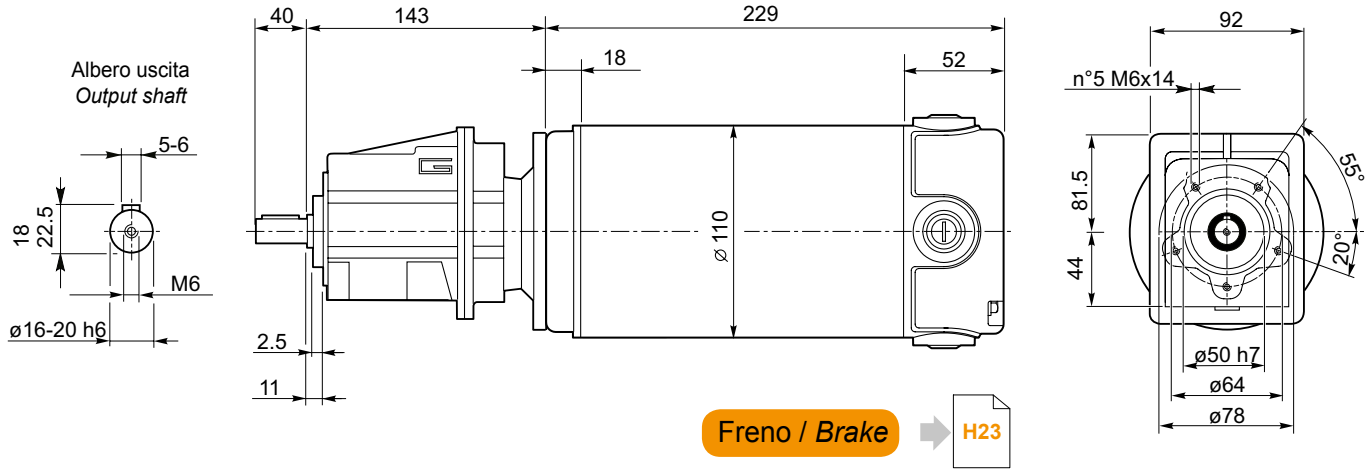
ECMG..U

ECMG350/043 U



Freno / *Brake* H23

ECMG600/002 U



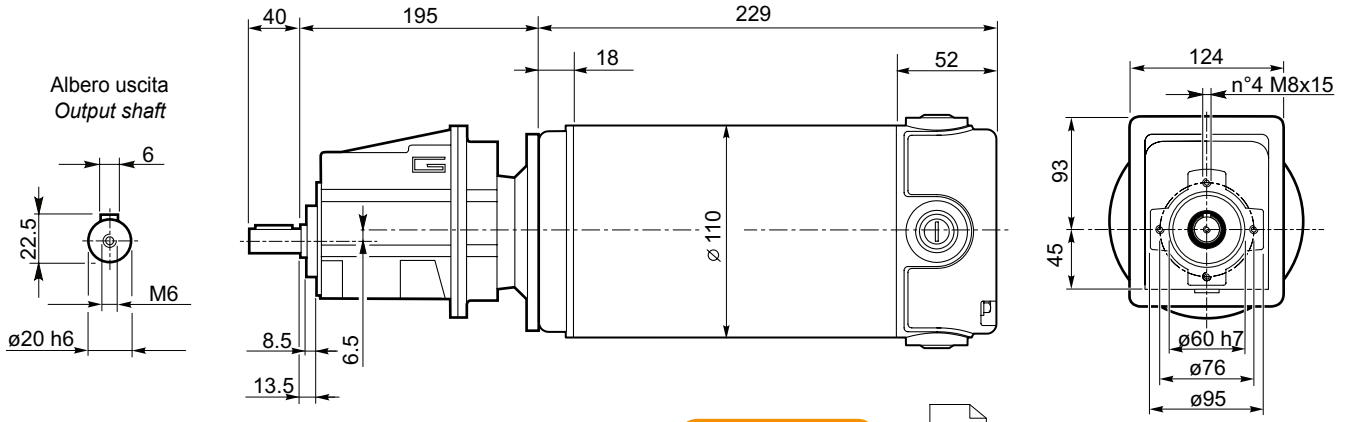
Freno / *Brake* H23

ECMG...H I18 ECMG...F I19 ECMG...H/F I20

Dimensioni ***Dimensions***

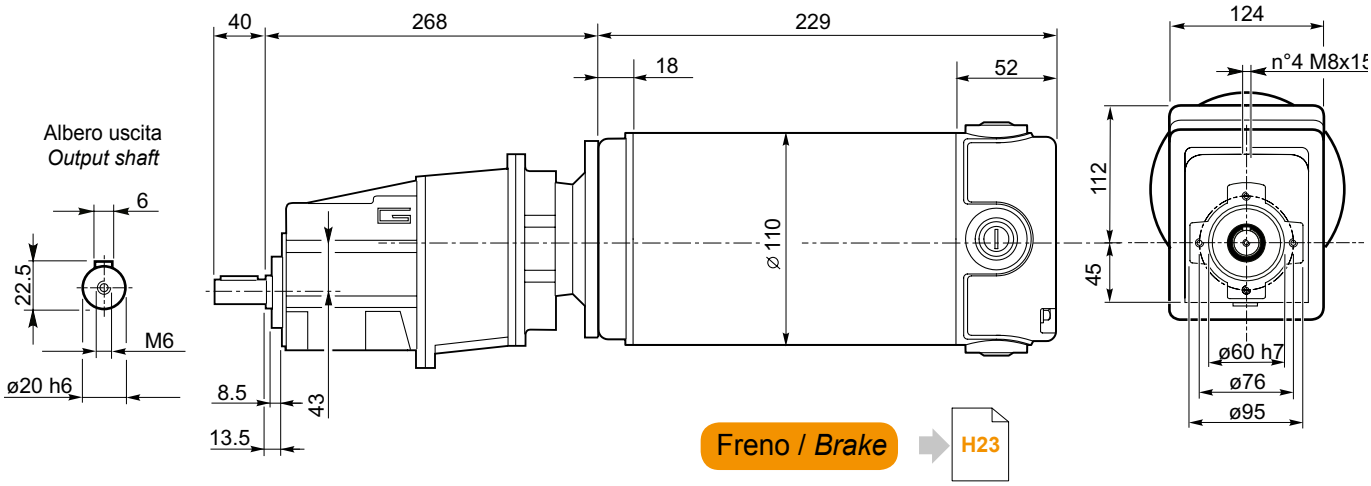
ECMG..U

ECMG600/012 U



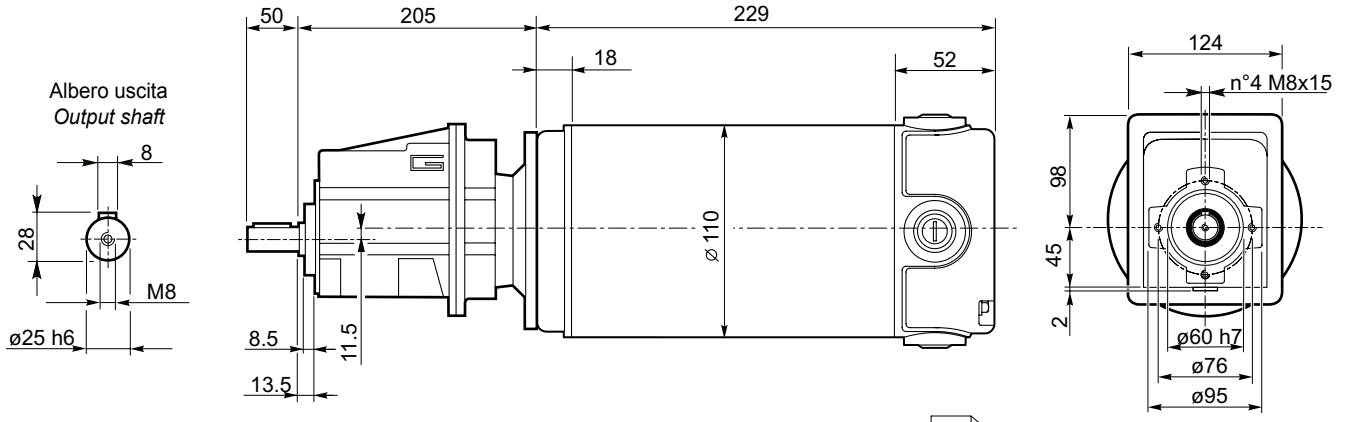
Freno / *Brake* → H23

ECMG600/013 U



Freno / *Brake* → H23

ECMG600/022 U



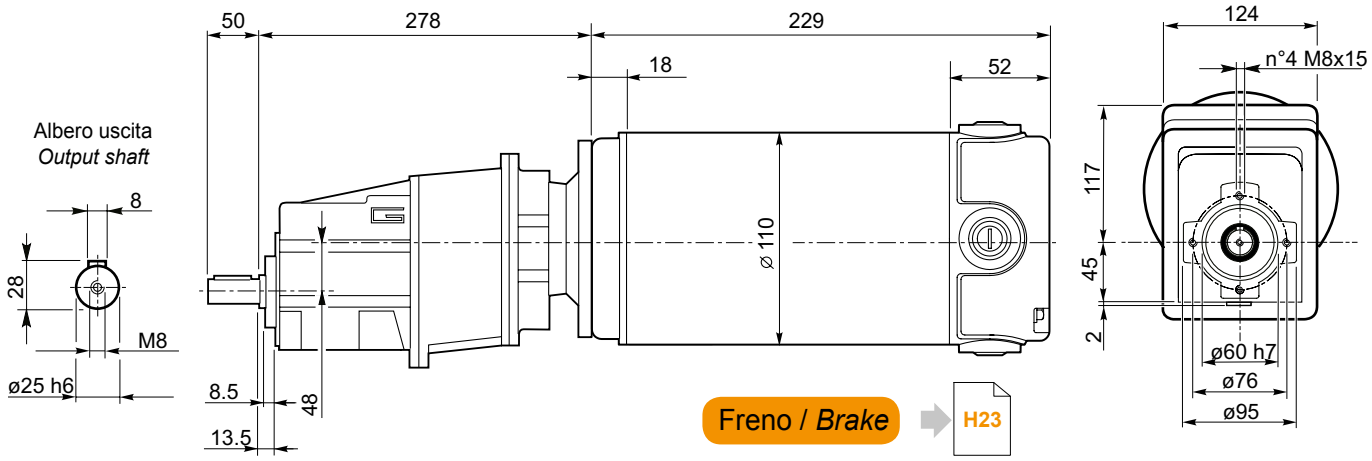
Freno / *Brake* → H23

ECMG...H → I18 **ECMG...F** → I19 **ECMG...H/F** → I20

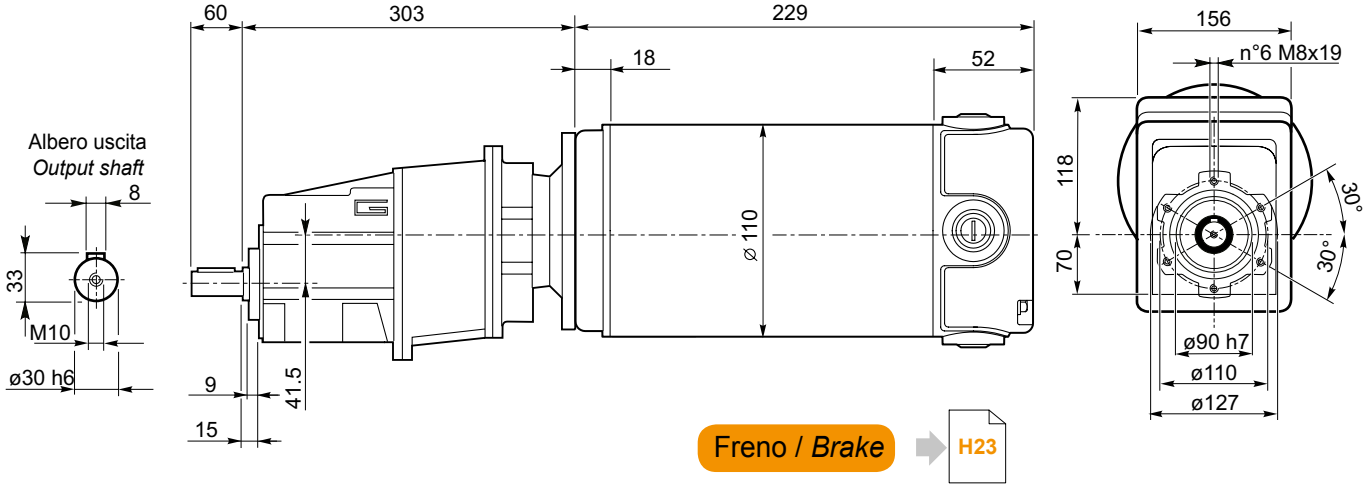
Dimensioni ***Dimensions***

ECMG..U

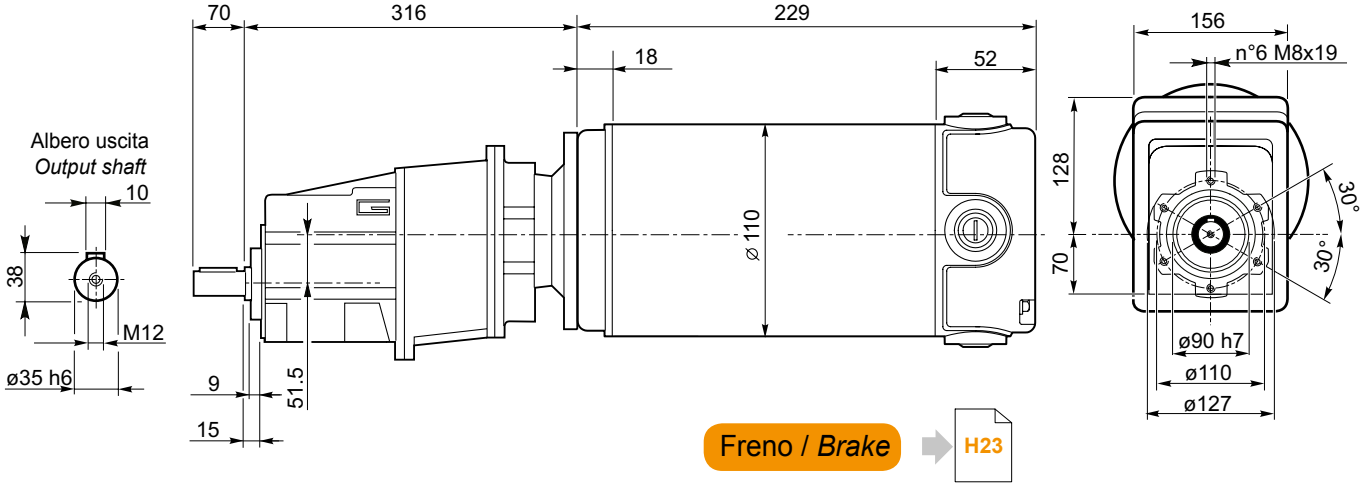
ECMG600/023 U



ECMG600/033 U



ECMG600/043 U

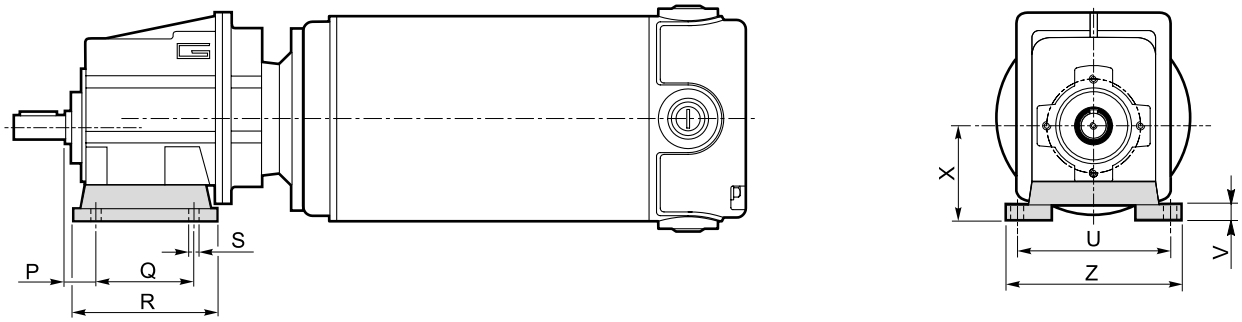


ECMG...H I18 ECMG...F I19 ECMG...H/F I20

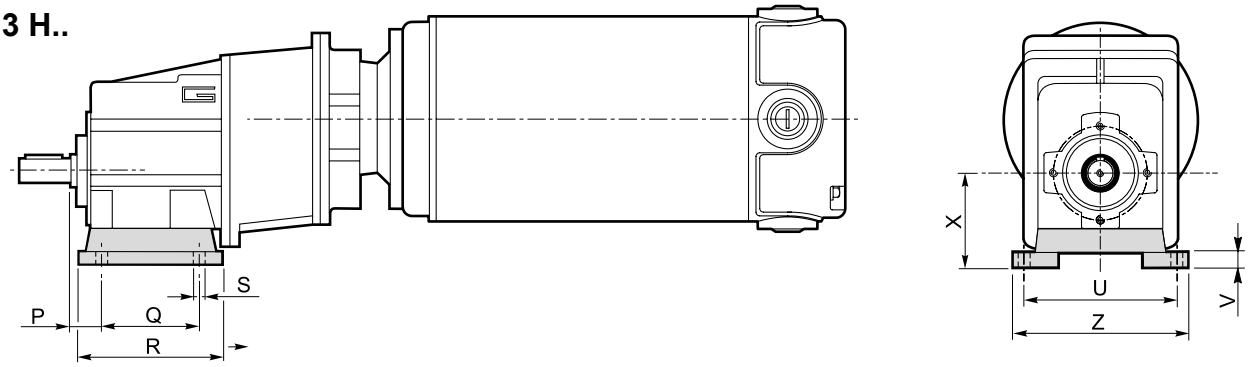
Dimensioni ***Dimensions***

ECMG..H

ECMG..2 H..



ECMG..3 H..



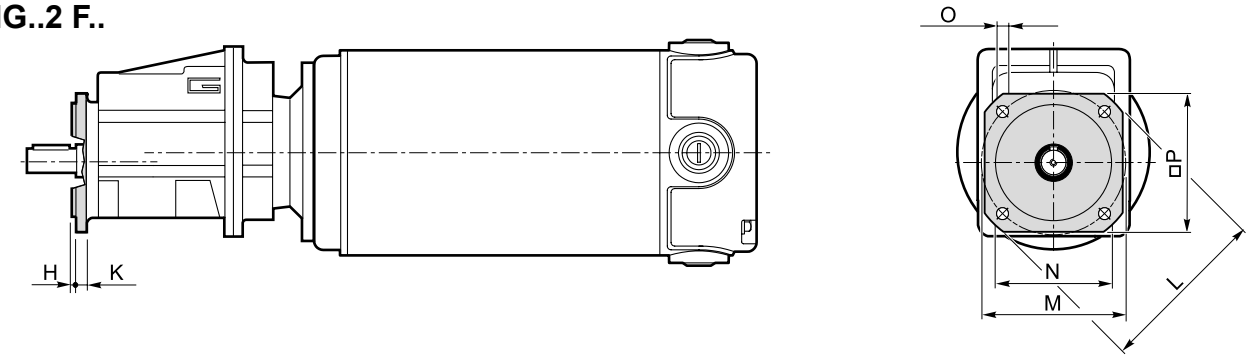
Versione **H** / ***H** Version*										
CMG	**P**	**Q**	**R**	**S**	**U**	**V**	**X**	**Z**	**Piede / *Foot***	
									Tipo / *Type*	Peso / *Weight* [kg]
002	**18**	**60**	**80**	**9**	**100**	**10**	**60**	**120**	**H60**	**0.2**
	18	80	104	9	110 - 120	10	75	145	H75	0.3
	18	50 - 87	110	9	110	10	85	135	H85	0.4
012 013	**20**	**85**	**108**	**9**	**115**	**12**	**65**	**139**	**H65**	**0.7**
	18	80	118	9	110	12	75	140	**H75**	1.0
	25	85	120	9	120	12	80	140	**H80**	1.1
	18	50 - 87	118	9	110	12	85	130	**H85**	1.2
	25	130	154	9	110	12	90	135	**H90**	1.5
	18	60 - 107.5	135	11	130	12	100	155	**H100**	1.7
022 023	**20**	**85**	**108**	**9**	**115**	**12**	**65**	**139**	**H65**	**0.7**
	18	80	118	9	110	12	75	140	**H75**	1.0
	25	85	120	9	120	12	80	140	**H80**	1.1
	18	50 - 87	118	9	110	12	85	130	**H85**	1.2
	25	130	154	9	110	12	90	135	**H90**	1.5
	18	60 - 107.5	135	11	130	12	100	155	**H100**	1.7
033	**30**	**105**	**136**	**14**	**160**	**14**	**95**	**194**	**H95**	**1.5**
	30	100	150	11	150	14	110	185	**H110**	1.9
	18	70			160					
	30	165	195	14	135	14	115	170	**H115**	2.2
	35	110	160	14	170	14	120	210	**H120**	2.6
043	**30**	**105**	**136**	**14**	**160**	**14**	**95**	**194**	**H95**	**1.5**
	30	100	150	11	150	14	110	185	**H110**	1.9
	18	70			160					
	30	165	195	14	135	14	115	170	**H115**	2.2
	35	110	160	14	170	14	120	210	**H120**	2.6

Preferenziale / *Preferred*

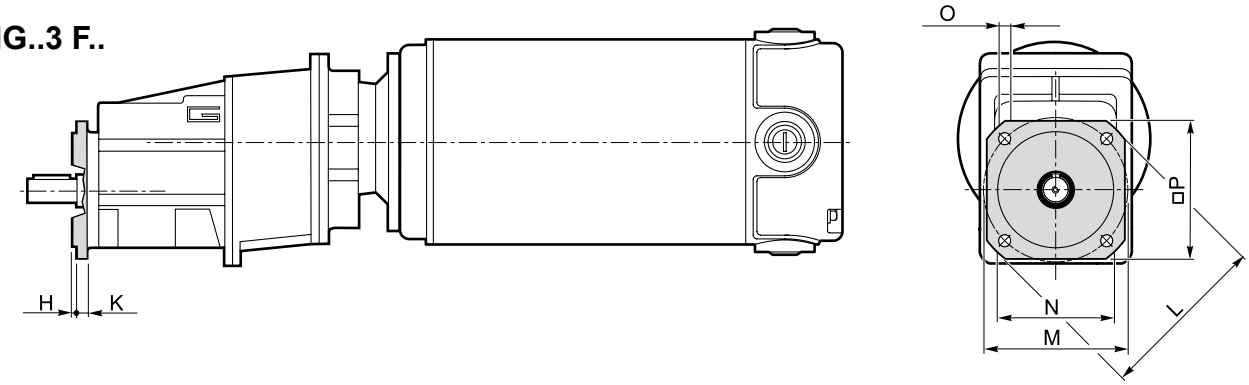
Dimensioni ***Dimensions***

ECMG..F

ECMG..2 F..



ECMG..3 F..



Versione **F** / ***F** Version*									
CMG	**H**	**K**	**L**	**M**	**N** f7	**O**	**P**	**Flangia / *Flange***	
								Tipo / *Type*	Peso / *Weight* [kg]
002	3.5	7	105	85	70	6.5	90	**F105**	0.1
	3.5	8	120	100	80	7	100	**F120**	0.2
	3.5	8	140	115	95	9	115	**F140**	0.2
012 013	3	9	120	100	80	9	106	**F120**	0.5
	3.5	9	140	115	95	9	115	**F140**	0.8
	3.5	9	160	130	110	9	126	**F160**	1.1
	3.5	11	200	165	130	11	165	**F200**	1.8
022 023	3	9	120	100	80	9	106	**F120**	0.5
	3.5	9	140	115	95	9	115	**F140**	0.8
	3.5	9	160	130	110	9	126	**F160**	1.1
	3.5	11	200	165	130	11	165	**F200**	1.8
033	3.5	11	160	130	110	9	140	**F160**	1.0
	3.5	11	200	165	130	11	165	**F200**	1.8
	4	13	250	215	180	14	215	**F250**	2.9
043	3.5	11	160	130	110	9	140	**F160**	1.0
	3.5	11	200	165	130	11	165	**F200**	1.8
	4	13	250	215	180	14	215	**F250**	2.9

Dimensioni — *Dimensions*

Versione **H** / ***H*** Version											Combinazioni possibili H/F *Possible combinations H/F*						
CMG	**P**	**Q**	**R**	**S**	**U**	**V**	**X**	**Z**	**Piede / *Foot***								
									Tipo *Type*	Peso / *Weight* [kg]	**F105**	**F120**	**F140**	**F160**	**F200**	**F250**	**F300**
002	**18**	**60**	**80**	**9**	**100**	**10**	**60**	**120**	**H60**	**0.2**	•	•	•				
	18	80	104	9	110 - 120	10	75	145	**H75**	0.3	•	•	•				
	18	50 - 87	110	9	110	10	85	135	**H85**	0.4	•	•	•				
012 013	**20**	**85**	**108**	**9**	**115**	**12**	**65**	**139**	**H65**	**0.7**		•	•				
	18	80	118	9	110	12	75	140	**H75**	1.0		•	•	•			
	25	85	120	9	120	12	80	140	**H80**	1.1		•	•	•			
	18	50 - 87	118	9	110	12	85	130	**H85**	1.2		•	•	•			
	25	130	154	9	110	12	90	135	**H90**	1.5		•	•	•	•		
	18	60 - 107.5	135	11	130	12	100	155	**H100**	1.7		•	•	•	•		
022 023	**20**	**85**	**108**	**9**	**115**	**12**	**65**	**139**	**H65**	**0.7**		•	•				
	18	80	118	9	110	12	75	140	**H75**	1.0		•	•	•			
	25	85	120	9	120	12	80	140	**H80**	1.1		•	•	•			
	18	50 - 87	118	9	110	12	85	130	**H85**	1.2		•	•	•			
	25	130	154	9	110	12	90	135	**H90**	1.5		•	•	•	•		
	18	60 - 107.5	135	11	130	12	100	155	**H100**	1.7		•	•	•	•		
033	**30**	**105**	**136**	**14**	**160**	**14**	**95**	**194**	**H95**	**1.5**				•	•		
	30	100	150	11	150	14	110	185	**H110**	1.9				•	•		
	18	70			160												
	30	165	195	14	135	14	115	170	**H115**	2.2				•	•	•	
	35	110	160	14	170	14	120	210	**H120**	2.6				•	•	•	
043	**30**	**105**	**136**	**14**	**160**	**14**	**95**	**194**	**H95**	**1.5**				•	•		
	30	100	150	11	150	14	110	185	**H110**	1.9				•	•		
	18	70			160												
	30	165	195	14	135	14	115	170	**H115**	2.2				•	•	•	
	35	110	160	14	170	14	120	210	**H120**	2.6				•	•	•	

Preferenziale / *Preferred*

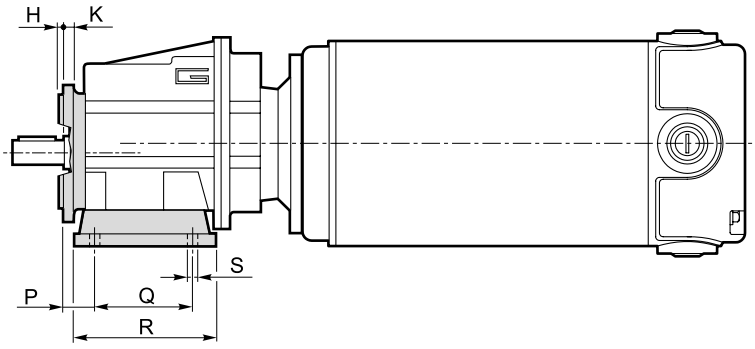
• Combinazioni possibili H/F / *Possible combinations H/F*

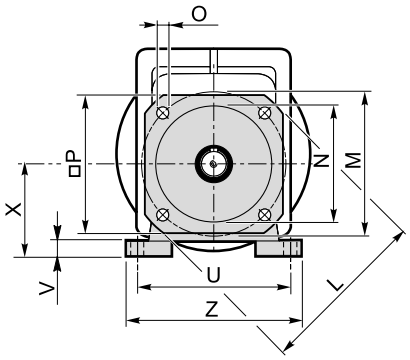
Versione **F** / ***F*** *Version*									
CMG	**H**	**K**	**L**	**M**	**N** f7	**O**	**P**	**Flangia / *Flange***	
								Tipo / *Type*	Peso / *Weight* [kg]
002	3.5	7	105	85	70	6.5	90	**F105**	0.1
	3.5	8	120	100	80	7	100	**F120**	0.2
	3.5	8	140	115	95	9	115	**F140**	0.2
012 013	3	9	120	100	80	9	106	**F120**	0.5
	3.5	9	140	115	95	9	115	**F140**	0.8
	3.5	9	160	130	110	9	126	**F160**	1.1
	3.5	11	200	165	130	11	165	**F200**	1.8
022 023	3	9	120	100	80	9	106	**F120**	0.5
	3.5	9	140	115	95	9	115	**F140**	0.8
	3.5	9	160	130	110	9	126	**F160**	1.1
	3.5	11	200	165	130	11	165	**F200**	1.8
033	3.5	11	160	130	110	9	140	**F160**	1.0
	3.5	11	200	165	130	11	165	**F200**	1.8
	4	13	250	215	150	14	215	**F250**	2.9
043	3.5	11	160	130	110	9	140	**F160**	1.0
	3.5	11	200	165	130	11	165	**F200**	1.8
	4	13	250	215	150	14	215	**F250**	2.9

Dimensioni *Dimensions*

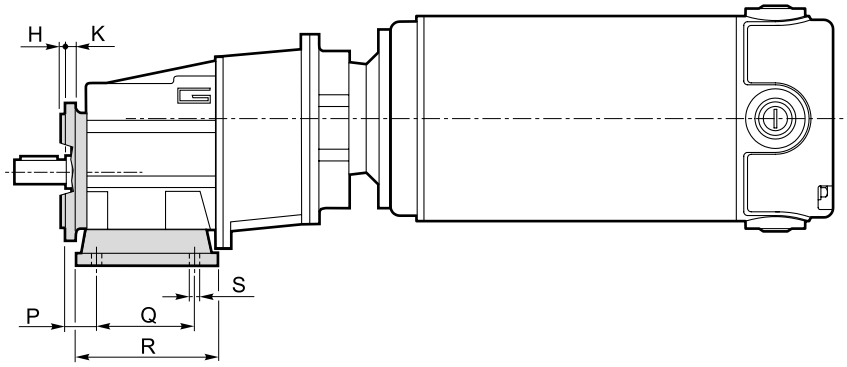
ECMG..H../F..

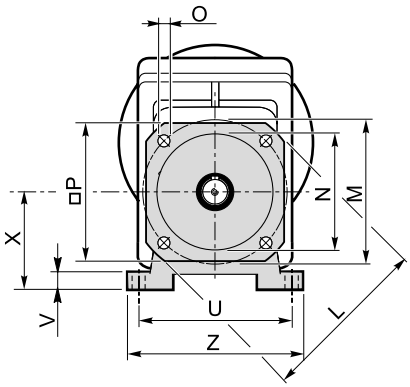
ECMG..2 H../F..

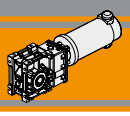




ECMG..3 H../F..







ENERGY SAVING

Caratteristiche tecniche — *Technical features*

Le caratteristiche principali dei motoriduttori CC ad assi ortogonali a magneti permanenti in ferrite serie ECMB sono:

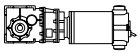
- Alimentazione in bassa tensione 12/24 Vcc
- Possibilità di montaggio encoder
- Potenze motore disponibili da 100 a 800W S2
- Magneti in ferrite
- Carcasse dei riduttori in pressofusione di alluminio
- Lubrificazione permanente con olio sintetico
- Ingranaggi sempre rettificati

The main features of ECMB ferrite pemanent magnets DC helical bevel gearmotors range are:

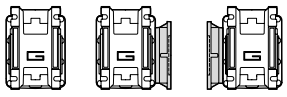
- *Low voltage power supply 12/24 Vdc*
- *Suitable for encoder assembly*
- *Motor power ratings available from 100 to 800W S2*
- *Ferrite magnets*
- *Die-cast aluminum housing*
- *Permanent synthetic oil long-life lubrication*
- *Ground helical gears*

Designazione — *Classification*

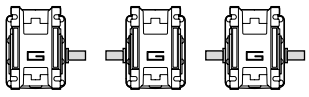
MOTORIDUTTORE / *GEARMOTOR*

ECMB	100/402	U	9.2	D20	SZDX	BRSX	90	240
Tipo *Type*	Grandezza *Size*	Versione Riduttore *Gearbox Version*	Rapporto *Ratio*	Albero di uscita *Output shaft*	Albero di uscita *Output shaft*	Braccio di reazione *Torque arm*	Angolo *Angle*	Versione Motore *Motor Version*
ECMB 	**070/402** **100/402** **100/502** **180/402** **180/502** **250/402** **250/502** **250/633** **350/402** **350/502** **350/633** **600/402** **600/502** **600/633**	**U** **FD** **FS** **FLD** **FLS** **FBD** **FBS**	Vedere tabella *See tables*	Vedere tabella *See tables*	**SZDX** **SZSX** **DZ**	**BRDX** **BRSX**	**0°** **90°** **180°** **270°**	**120** **240** **24E**

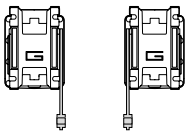
Versione Riduttore *Gearbox Version*



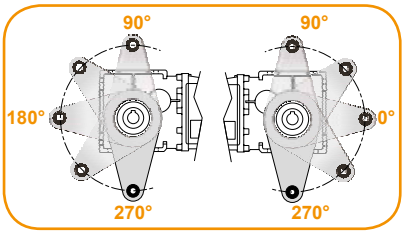
Albero di uscita *Output shaft*



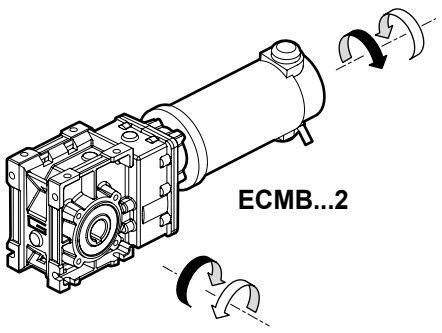
Braccio di reazione *Torque arm*

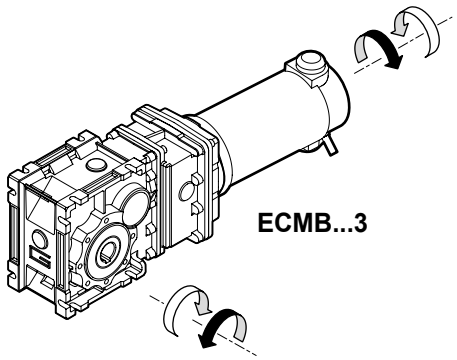


Angolo *Angle*



Sensi di rotazione — *Direction of rotation*





Simbologia — *Symbols*

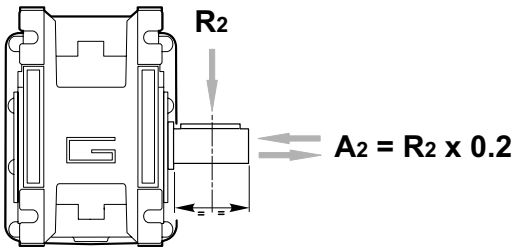
n_1	[min^{-1}]	Velocità in ingresso / *Input speed*	M_2	[Nm]	Coppia in uscita in funzione di P_1 / *Output torque referred to P_1*
n_2	[min^{-1}]	Velocità in uscita / *Output speed*	sf		Fattore di servizio / *Service factor*
i		Rapporto di riduzione / *Ratio*	A_2	N]	Carico assiale ammissibile in uscita / *Permitted output axial load*
P_1	[kW]	Potenza in entrata / *Input power*	R_2	[N]	Carico radiale ammissibile in uscita / *Permitted output radial load*

Lubrificazione — *Lubrication*

Tutti i riduttori nelle taglie 402, 502 e 633 sono forniti completi di lubrificante sintetico viscosità 320, pertanto possono essere installati in qualunque posizione di montaggio e non necessitano di manutenzione.

Permanent synthetic oil long-life lubrication (viscosity grade 320) makes it possible to use sizes 402, 502 and 603 in all mounting positions; for this reason they can be installed in any assembly position and do not require maintenance.

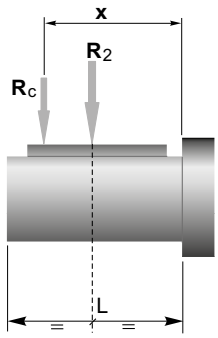
Carichi radiali — *Radial loads*



n_2 [min^{-1}]	R_2 [N]		
	CMB 402	CMB 502	CMB 633
400	905	1116	1835
300	996	1228	2020
200	1141	1406	2312
170	1204	1484	2441
140	1414	1743	2604
100	1582	1949	2913
90	1638	2019	3321
60	2047	2490	3801
40	2524	3029	4492
30	2778	3334	5159
20	3180	3816	5906
15	3500	4200	6500
10	3500	4200	6500

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:



	CMB 402	CMB 502	CMB 633
a	86	104	118
b	66	79	93
R_{2MAX}	3500	4200	6500

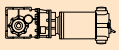
$$R_c = \frac{R_2 \cdot a}{(b+x)} \leq R_{2MAX}$$

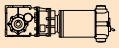
$$R \leq R_c$$

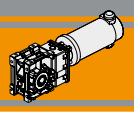
a, b = valori riportati nella tabella
a, b = values given in the table

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})	**485**	1.8	16.8	6.18	**070/402**	12E/24E
	401	2.2	13.8	7.49		
	326	2.8	11.3	9.20		
	254	3.5	9.9	11.83		
	240	3.7	9.4	12.48		
	202	4.4	7.9	14.83		
	170	5.3	6.6	17.63		
	161	5.6	7.7	18.60		
	134	6.7	6.4	22.33		
	125	7.2	6.0	23.91		
	104	8.6	5.9	28.89		
	97	9.2	5.5	30.84		
	89	10.0	5.1	33.57		
	84	10.7	4.8	35.63		
	70	12.8	4.0	42.75		
	54	16.6	3.1	55.31		
	51	17.7	2.9	59.06		
	47	19.2	2.7	64.29		
	41	21.7	2.4	72.50		
140						
(3000 min^{-1})	**485**	2.6	12.0	6.18	**100/402**	120/240/24E
	401	3.1	9.9	7.49		
	326	3.9	8.0	9.20		
	254	5.0	7.1	11.83		
	240	5.2	6.7	12.48		
	202	6.2	5.6	14.83		
	170	7.4	4.7	17.63		
	161	7.8	5.5	18.60		
	134	9.4	4.6	22.33		
	125	10.0	4.3	23.91		
	104	12.1	4.2	28.89		
	97	12.9	3.9	30.84		
	89	14.1	3.6	33.57		
	84	14.9	3.4	35.63		
	70	17.9	2.8	42.75		
	54	23.2	2.2	55.31		
	51	24.7	2.1	59.06		
	47	26.9	1.9	64.29		
	41	30.4	1.7	72.50		
	54	23.2	4.23	55.31	**100/502**	120/240/24E
	51	24.7	3.96	59.06		
	47	26.9	3.64	64.29		
	41	30.4	3.2	72.50		
250						
(3000 min^{-1})	**485**	4.6	6.7	6.18	**180/402**	120/240/24E
	401	5.6	5.5	7.49		
	326	6.9	4.5	9.20		
	254	8.8	4.0	11.83		
	240	9.3	3.7	12.48		
	202	11.1	3.2	14.83		
	170	13.2	2.7	17.63		
	161	13.9	3.1	18.60		
	134	16.7	2.6	22.33		
	125	17.9	2.4	23.91		

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
250						
(3000 min^{-1})	**104**	21.6	2.4	28.89	**180/402**	120/240/24E
	97	23.1	2.2	30.84		
	89	25.1	2.0	33.57		
	84	26.7	1.9	35.63		
	70	32.0	1.6	42.75		
	54	41.4	1.2	55.31		
	51	44.2	1.2	59.06		
	47	48.1	1.1	64.29		
	41	54.2	0.9	72.50		
	134	16.7	5.1	22.33	**180/502**	120/240/24E
	125	17.9	4.8	23.91		
	104	21.6	4.5	28.89		
	97	23.1	4.2	30.84		
	89	25.1	3.9	33.57		
	84	26.7	3.7	35.63		
	70	32.0	3.1	42.75		
	54	41.4	2.4	55.31		
	51	44.2	2.2	59.06		
	47	48.1	2.0	64.29		
	41	54.2	1.8	72.50		
350						
(3000 min^{-1})	**485**	6.5	4.8	6.18	**250/402**	120/240
	401	7.8	4	7.49		
	326	9.6	3.2	9.20		
	254	12.4	2.8	11.83		
	240	13.1	2.7	12.48		
	202	15.5	2.3	14.83		
	170	18.5	1.9	17.63		
	161	19.5	2.2	18.60		
	134	23.4	1.8	22.33		
	125	25.0	1.7	23.91		
	104	30.3	1.7	28.89		
	97	32.3	1.6	30.84		
	89	35.2	1.5	33.57		
	84	37.3	1.4	35.63		
	70	44.8	1.1	42.75		
	54	57.9	0.9	55.31		
	51	61.9	0.8	59.06		
	47	67.3	0.8	64.29		
	41	72	0.7	72.50		
	485	6.5	8.5	6.18	**250/502**	120/240
	401	7.8	7.0	7.49		
	326	9.6	5.7	9.2		
	254	12.4	5.7	11.83		
	240	13.1	5.4	12.48		
	202	15.5	4.5	14.83		
	170	18.5	3.8	17.63		
	161	19.5	4.4	18.6		
	134	23.4	3.7	22.33		
	125	25.0	3.4	23.91		
	104	30.3	3.2	28.89		
	97	32.3	3.0	30.84		
	89	35.2	2.8	33.57		
	84	37.3	2.6	35.63		
	70	44.8	2.2	42.75		
	54	57.9	1.7	55.31		
	51	61.9	1.6	59.06		
	47	67.3	1.5	64.29		
	41	75.9	1.3	72.50		



Dati tecnici per servizio S2

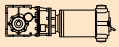
Technical data for S2 duty

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
350						
(3000 min^{-1})	**106**	29.5	5.8	28.17	**250/633**	120/240
	89	35.4	4.9	33.81		
	84	37.6	4.6	35.92		
	77	40.7	4.8	38.88		
	64	49.4	4.0	47.16		
	52	60.7	3.2	57.93		
	49	64.5	3.0	61.63		
	41	77.5	2.5	73.96		
	38	82.3	2.4	78.58		
	32	97.7	2.0	93.33		
	21	147.2	1.3	140.52		
	17	190.4	1.0	181.81		
	14	221.3	0.9	211.31		
	13	249.6	0.8	238.31		
500						
(3000 min^{-1})	**485**	9	3.4	6.18	**350/402**	120/240
	401	11	2.8	7.49		
	326	14	2.3	9.2		
	254	18	2.0	11.83		
	240	19	1.9	12.48		
	202	22	1.6	14.83		
	170	26	1.3	17.63		
	161	28	1.5	18.6		
	134	33	1.3	22.33		
	125	36	1.2	23.91		
	104	43	1.2	28.89		
	97	46	1.1	30.84		
	89	50	1.0	33.57		
	84	53	1.0	35.63		
	70	64	0.8	42.75		
	54	73	0.7	55.31		
	51	73	0.7	59.06		
	47	73	0.7	64.29		
	326	14	4.0	9.20	**350/502**	120/240
	254	18	4.0	11.83		
	240	19	3.7	12.48		
	202	22	3.2	14.83		
	170	26	2.7	17.63		
	161	28	3.1	18.60		
	134	33	2.6	22.33		
	125	35.8	2.4	23.91		
	104	43	2.3	28.89		
	97	46	2.1	30.84		
	89	50	2.0	33.57		
	84	53	1.8	35.63		
	70	64	1.5	42.75		
	54	83	1.2	55.31		
	51	88	1.1	59.06		
	47	96	1.0	64.29		
	41	108.5	0.9	72.50		

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
500						
(3000 min^{-1})	**139**	32	5.3	21.56	**350/633**	120/240
	113	40	4.3	26.48		
	106	42	4.1	28.17		
	89	51	3.4	33.81		
	84	54	3.2	35.92		
	77	58	3.4	38.88		
	64	71	2.8	47.16		
	52	87	2.2	57.93		
	49	92	2.1	61.63		
	41	111	1.8	73.96		
	38	118	1.7	78.58		
	32	140	1.4	93.33		
	21	210	0.9	140.52		
	17	272	0.7	181.81		
	14	279	0.7	211.31		
	13	279	0.7	238.31		
800						
(3000 min^{-1})	**485**	15	2.1	6.18	**600/402**	120/240
	401	18	1.7	7.49		
	326	22	1.4	9.20		
	254	28	1.2	11.83		
	240	30	1.2	12.48		
	202	36	1.0	14.83		
	170	42	0.8	17.63		
	161	45	1.0	18.60		
	134	53	0.8	22.33		
	125	57	0.8	23.91		
	104	69	0.7	28.89		
	97	73	0.7	30.84		
	89	73	0.7	33.57		
	84	73	0.7	35.63		
	70	73	0.7	42.75		
	485	15	3.7	6.18	**600/502**	120/240
	401	18	3.1	7.49		
	326	22	2.5	9.20		
	254	28	2.5	11.83		
	240	30	2.3	12.48		
	202	36	2.0	14.83		
	170	42	1.7	17.63		
	161	45	1.9	18.60		
	134	53	1.6	22.33		
	125	57	1.5	23.91		
	104	69	1.4	28.89		
	97	74	1.3	30.84		
	89	80	1.2	33.57		
	84	85	1.1	35.63		
	70	102	1.0	42.75		
	54	132	0.7	55.31		
	51	140	0.7	59.06		
	47	140	0.7	64.29		
	41	140	0.7	72.50		

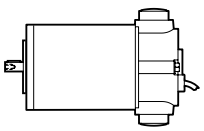
N.B.
Verificare sempre che la coppia M2 utilizzata non ecceda il valore indicato nelle caselle in grigio
N.B.
Please check that the output torque M2 does not exceed the value in the grey areas

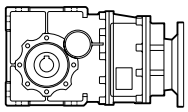
Dati tecnici per servizio S2 — *Technical data for S2 duty*

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
800						
(3000 min^{-1})	**306**	23	5.0	9.81	**600/633**	120/240
	287	25	4.7	10.44		
	239	30	3.9	12.53		
	225	32	3.7	13.31		
	190	38	3.5	15.81		
	169	43	4.0	17.77		
	139	52	3.3	21.56		
	113	63	2.7	26.48		
	106	67	2.6	28.17		
	89	81	2.1	33.81		
	84	86	2.0	35.92		
	77	93	2.1	38.88		
	64	113	1.7	47.16		
	52	139	1.4	57.93		
	49	148	1.3	61.63		
	41	177	1.1	73.96		
	38	188	1.0	78.58		
	32	223	0.9	93.33		
	21	279	0.7	140.52		

N.B.
Verificare sempre che la coppia M2 utilizzata non ecceda il valore indicato nelle caselle in grigio
N.B.
Please check that the output torque M2 does not exceed the value in the grey areas

Motori applicabili — *Motor adapters*



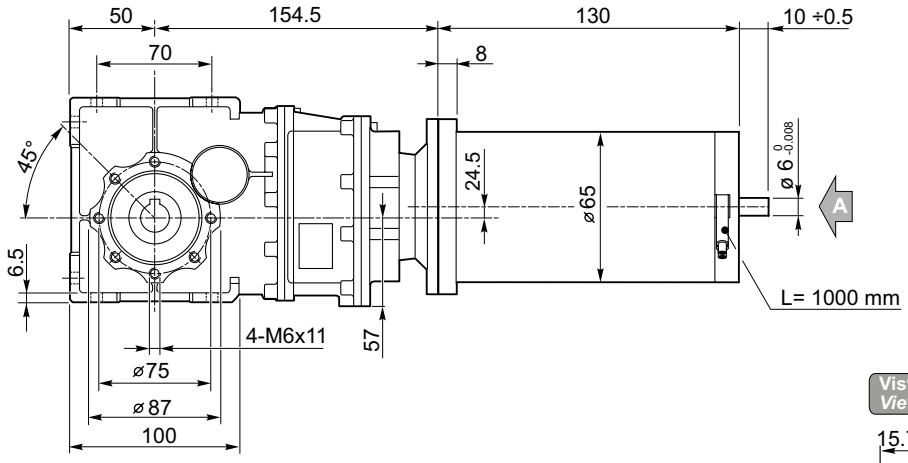


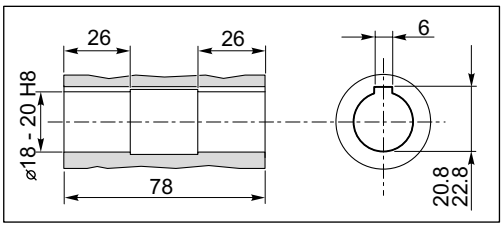
		EC					
		070.12E 070.24E	**100.120 100.240 100.24E**	**180.120 180.240 180.24E**	**250.120 250.240**	**350.120 350.240**	**600.120 600.240**
CMB	**402**	6.18 - 72.50	6.18 - 72.50	6.18 - 72.50	6.18 - 72.50	6.18 - 72.50	6.18 - 72.50
	502	6.18 - 72.50	6.18 - 72.50	6.18 - 72.50	6.18 - 72.50	6.18 - 72.50	6.18 - 72.50
	633				6.58 - 238.31	6.58 - 238.31	6.58 - 238.31

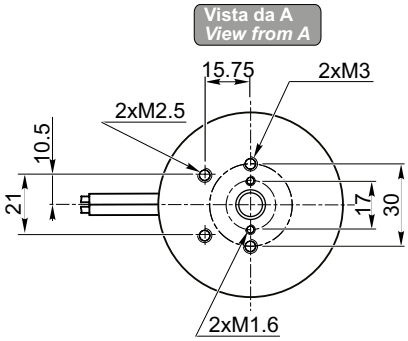
6.18 - 72.50 Rapporti di riduzione i
Ratio i

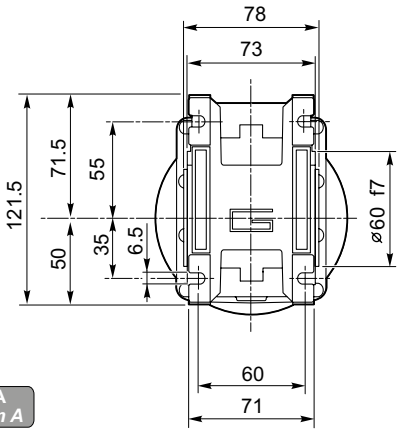
Dimensioni *Dimensions*

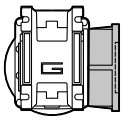
ECMB070/402 U









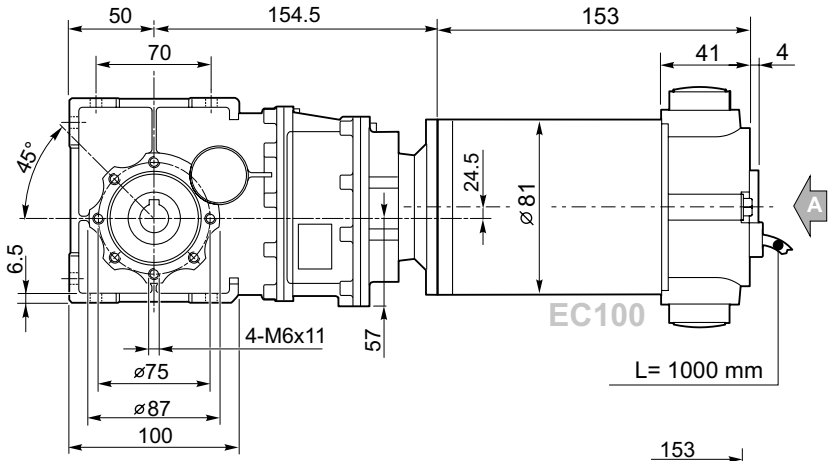


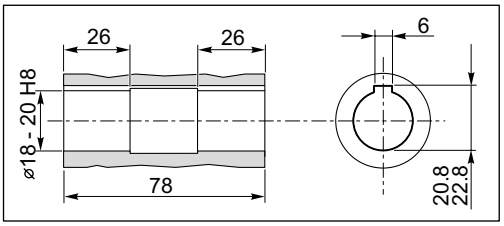
L14

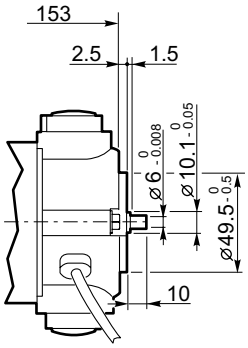
ECMB070/402 F
ECMB070/402 FL
ECMB070/402 FB

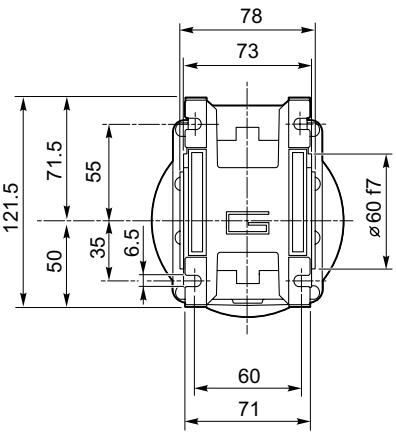
Freno / *Brake* → H23 Encoder → H24

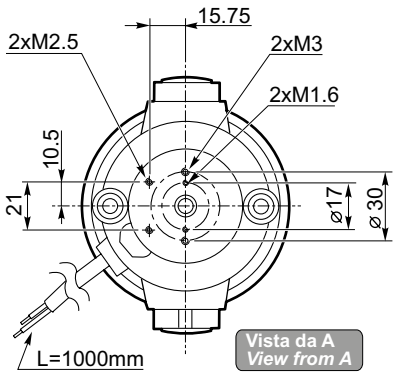
ECMB100/402 U

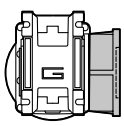












L14

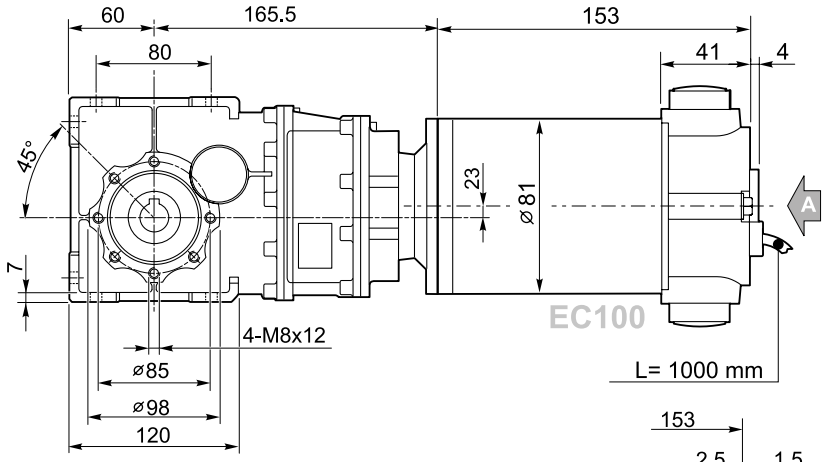
ECMB100/402 F
ECMB100/402 FL
ECMB100/402 FB

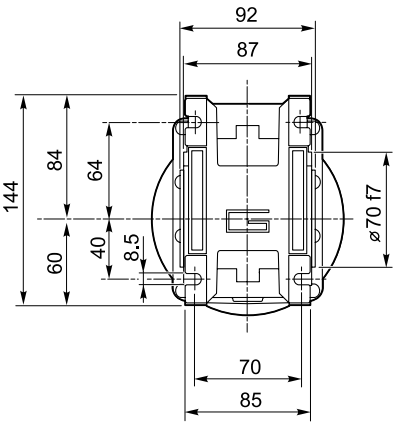
EC100.24E

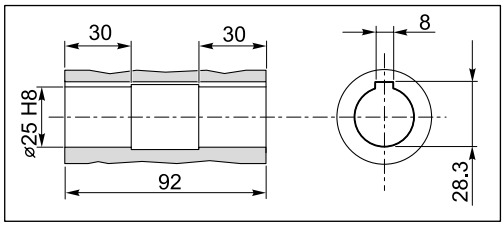
Freno / *Brake* → H23 Encoder → H24

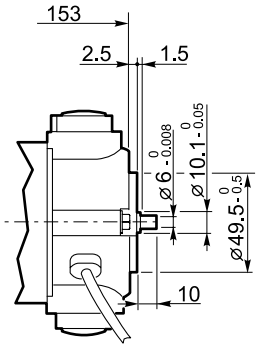
Dimensioni | ***Dimensions***

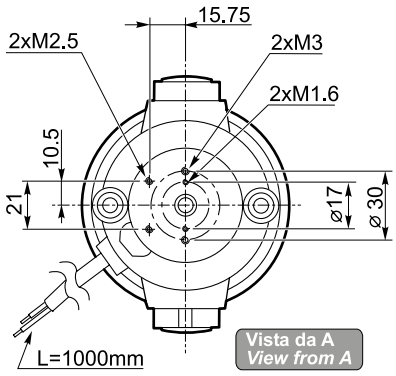
ECMB100/502 U

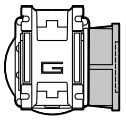












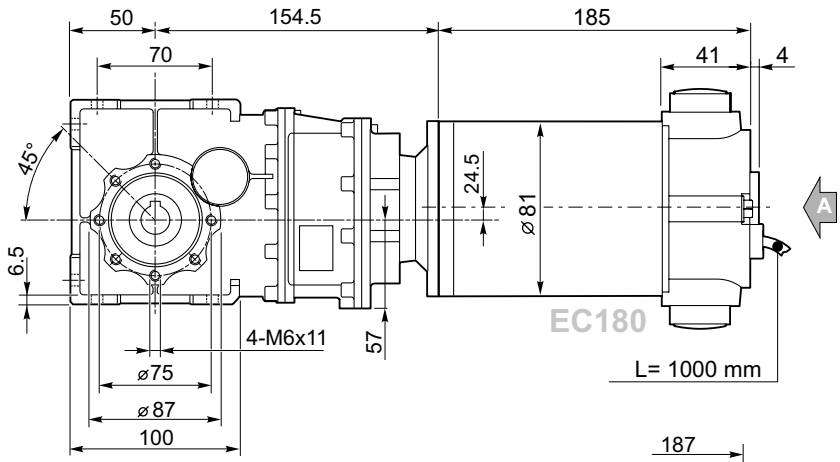
L14

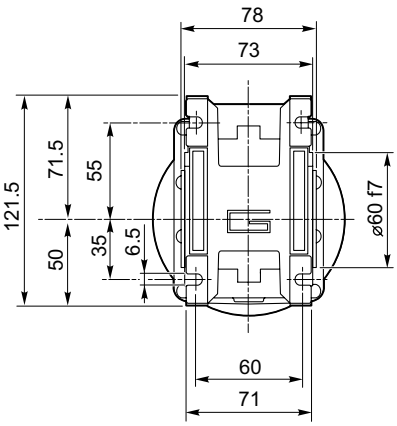
ECMB100/502 F
ECMB100/502 FL
ECMB100/502 FB

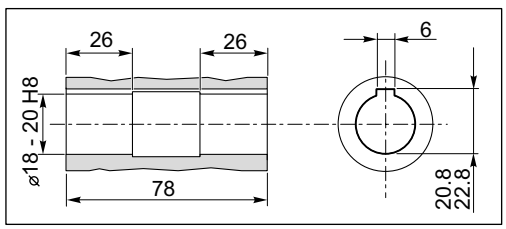
EC100.24E

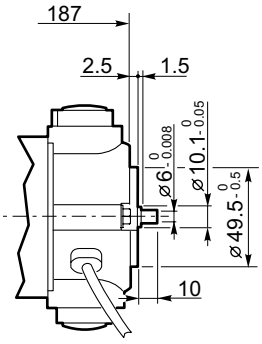
Freno / *Brake* → H23 | Encoder → H24

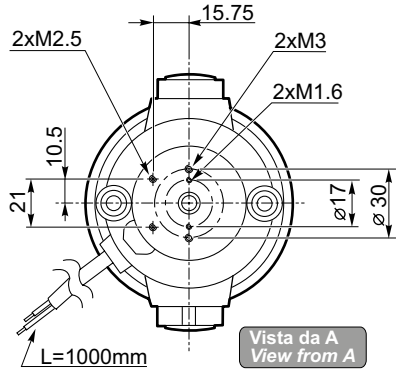
ECMB180/402 U

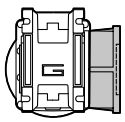












L14

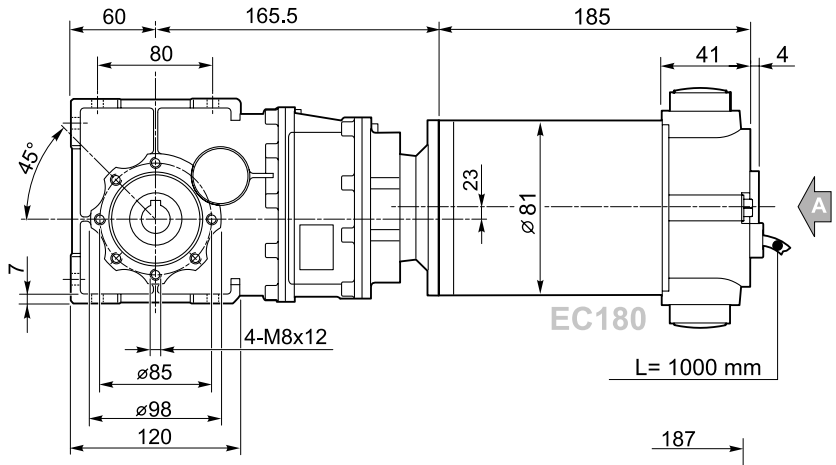
ECMB180/402 F
ECMB180/402 FL
ECMB180/402 FB

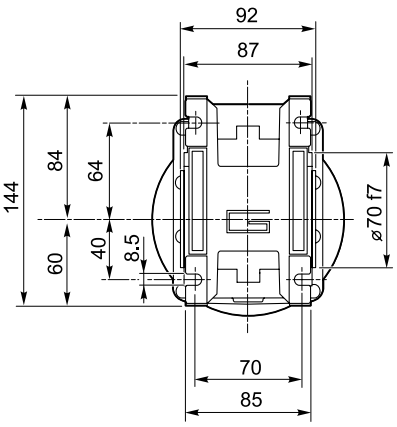
EC180.24E

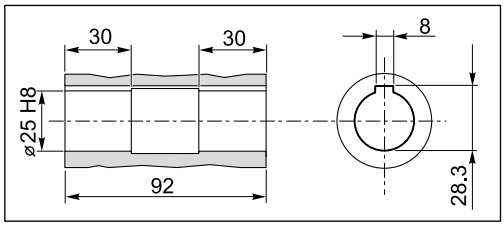
Freno / *Brake* → H23 | Encoder → H24

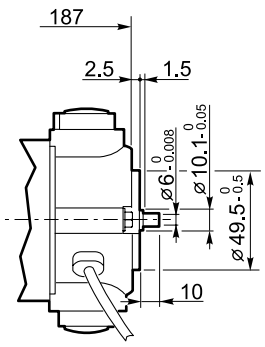
Dimensioni ***Dimensions***

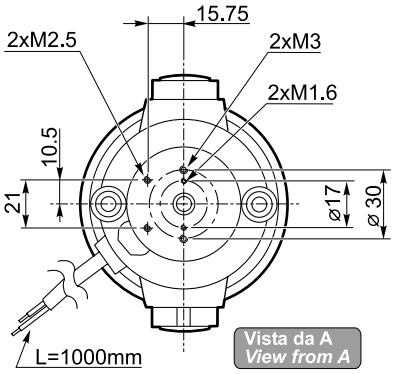
ECMB180/502 U

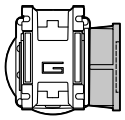












L14

ECMB180/502 F
ECMB180/502 FL
ECMB180/502 FB

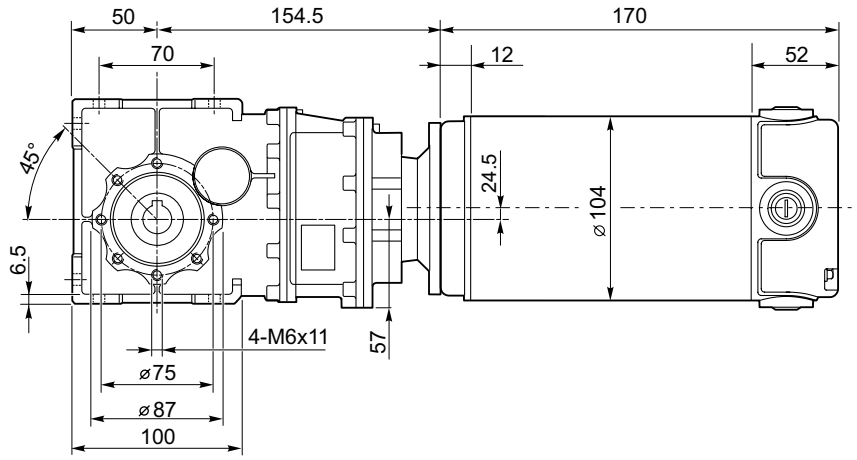
Freno / *Brake* → H23

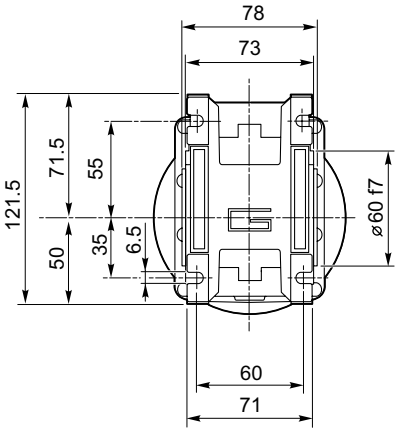
Encoder → H24

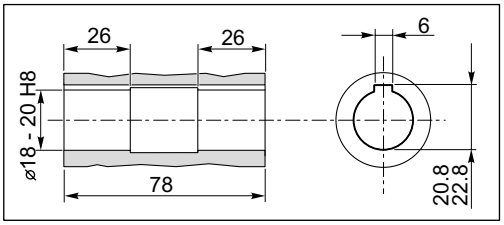
ECMB

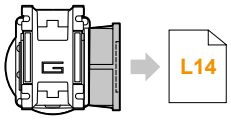
Dimensioni ***Dimensions***

ECMB250/402 U



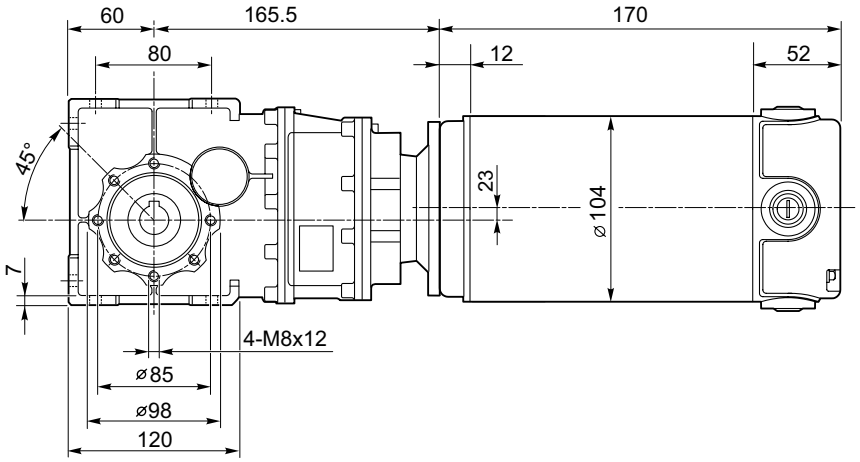


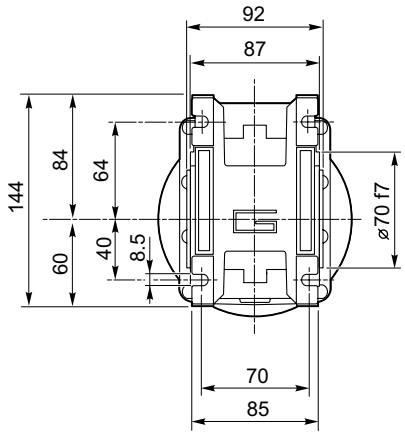


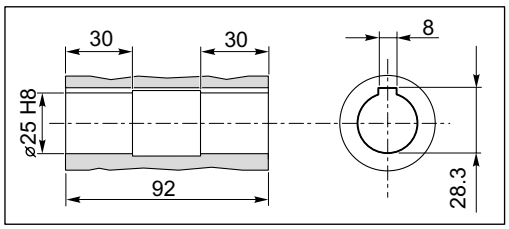


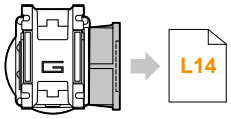
ECMB250/402 F
ECMB250/402 FL
ECMB250/402 FB

ECMB250/502 U





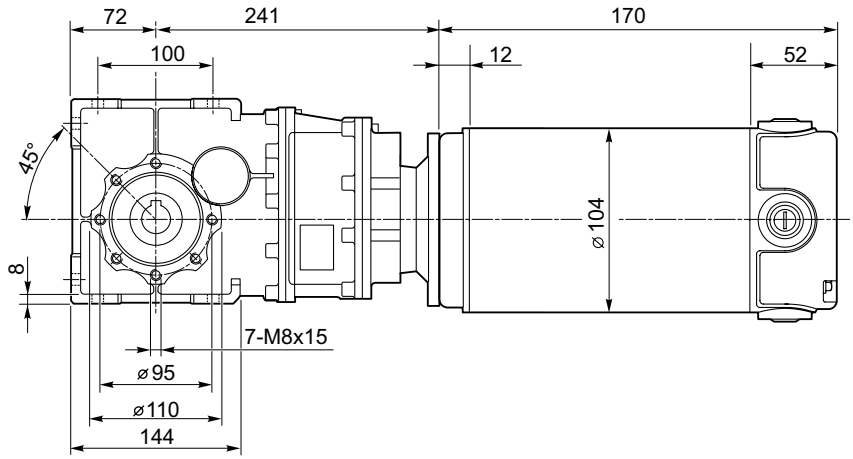


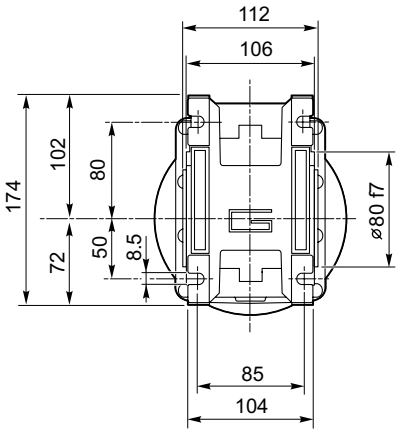


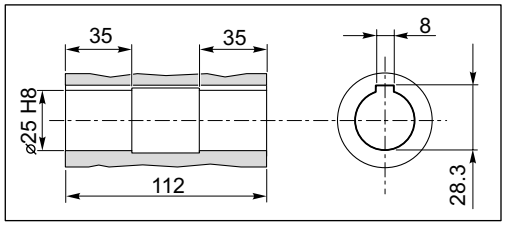
ECMB250/502 F
ECMB250/502 FL
ECMB250/502 FB

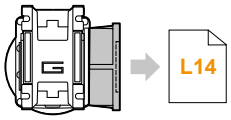
Dimensioni ***Dimensions***

ECMB250/633 U



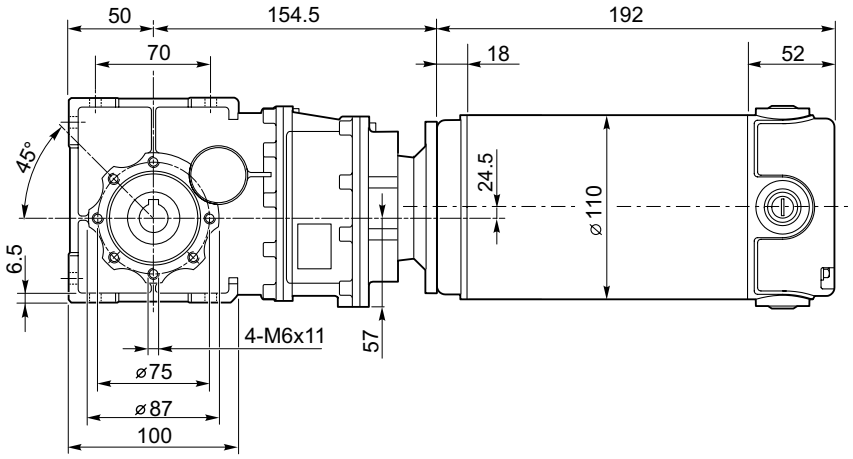


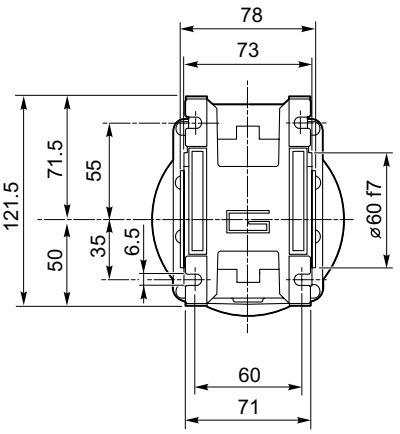


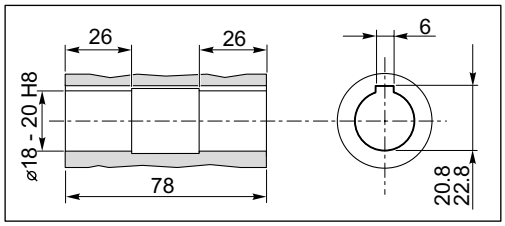


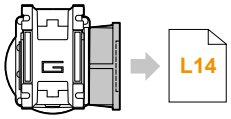
ECMB250/633 F
ECMB250/633 FL
ECMB250/633 FB

ECMB350/402 U







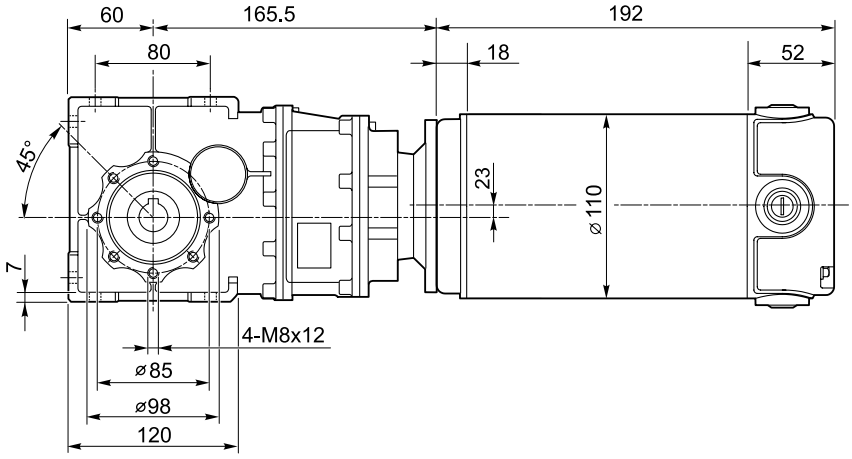


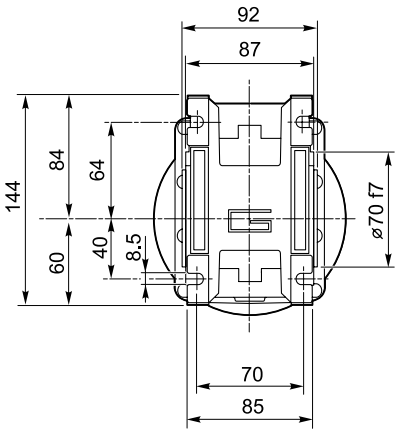
ECMB350/402 F
ECMB350/402 FL
ECMB350/402 FB

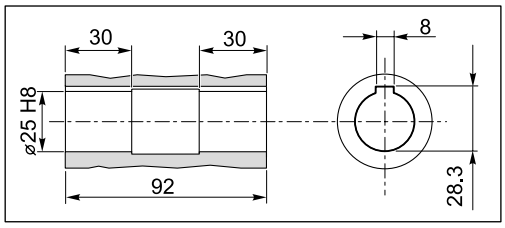
Freno / *Brake* 

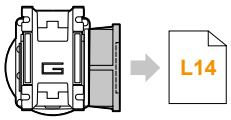
Dimensioni ***Dimensions***

ECMB350/502 U





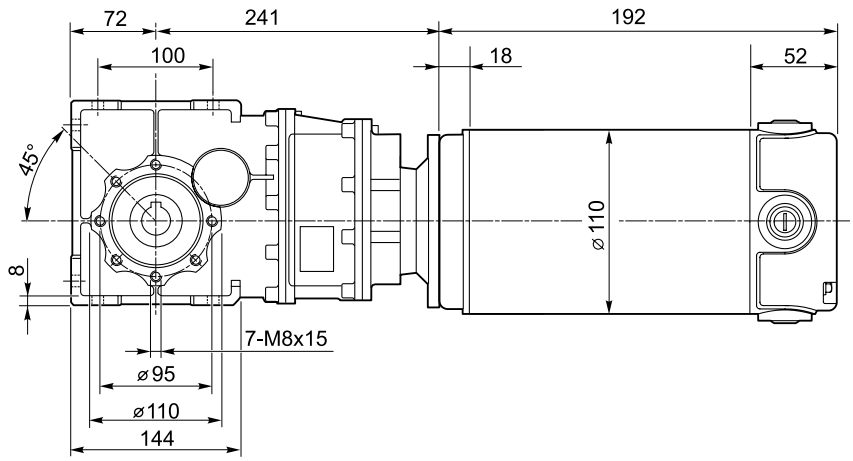


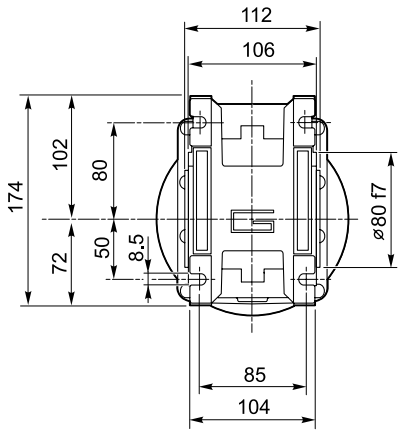


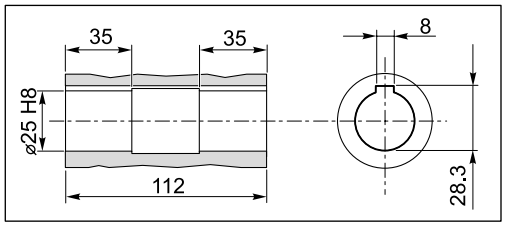
ECMB350/502 F
ECMB350/502 FL
ECMB350/502 FB

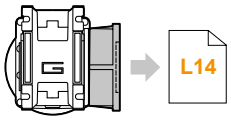
Freno / *Brake* H23

ECMB350/633 U







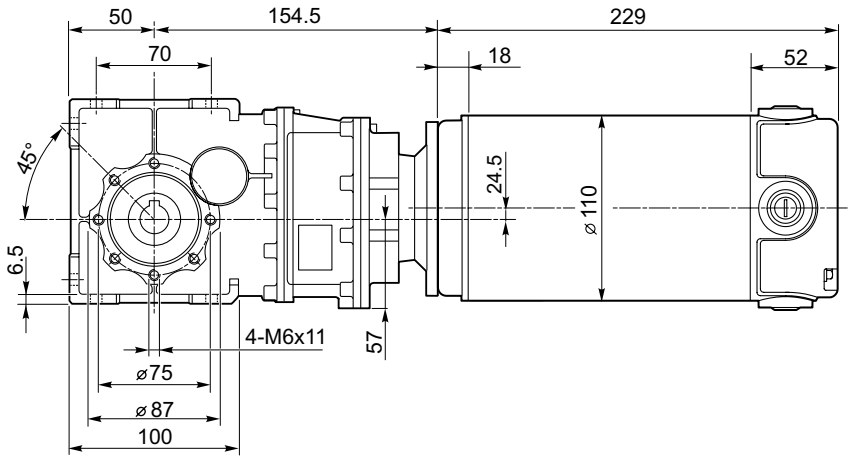


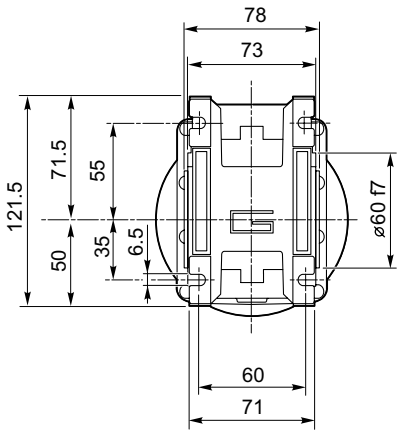
ECMB350/633 F
ECMB350/633 FL
ECMB350/633 FB

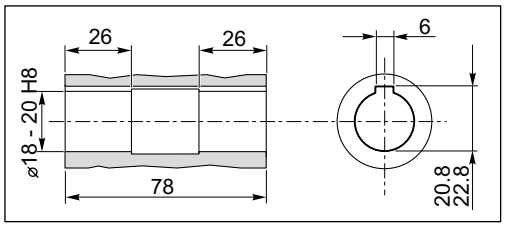
Freno / *Brake* H23

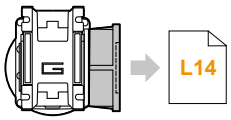
Dimensioni ***Dimensions***

ECMB600/402 U





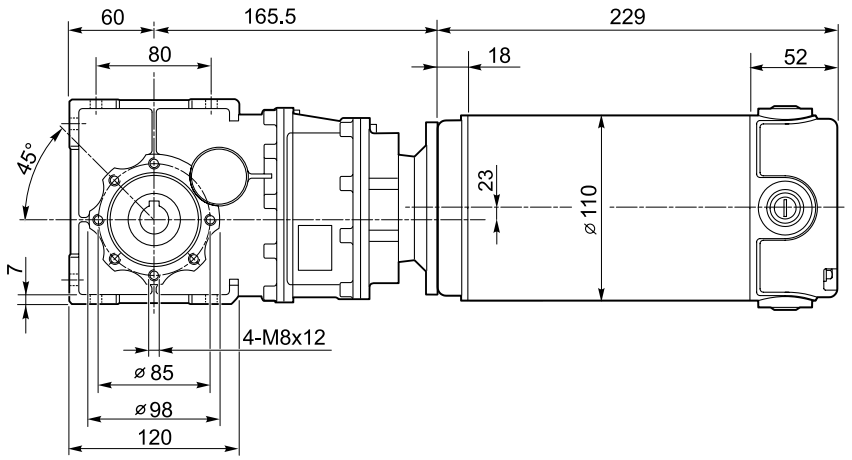


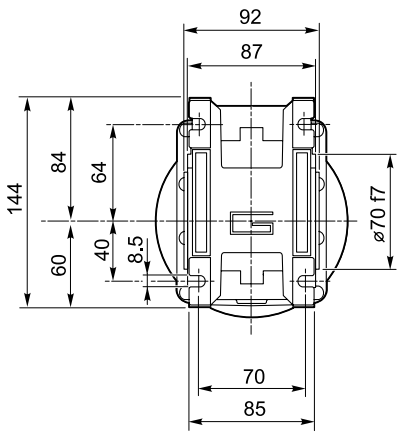


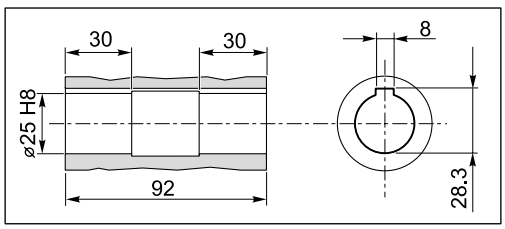
ECMB600/402 F
ECMB600/402 FL
ECMB600/402 FB

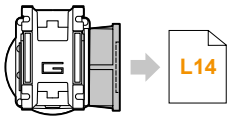
Freno / *Brake* H23

ECMB600/502 U







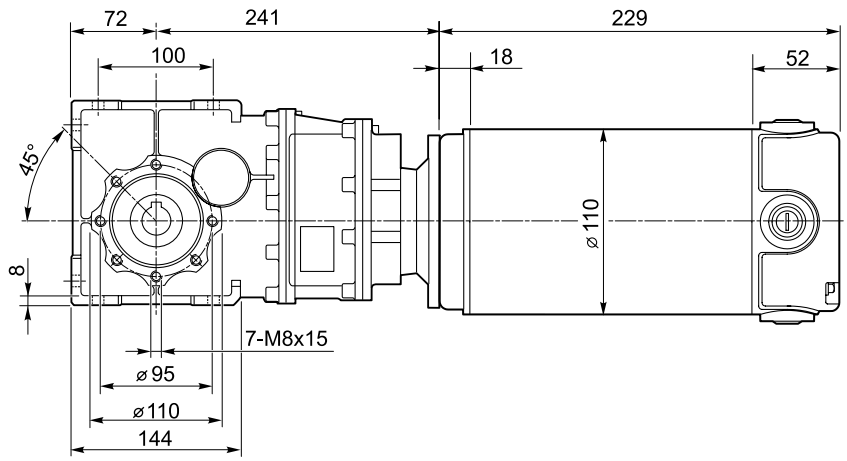


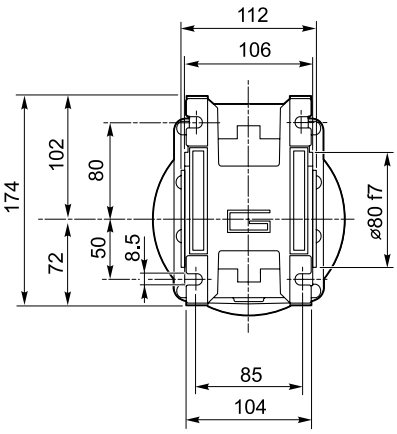
ECMB600/502 F
ECMB600/502 FL
ECMB600/502 FB

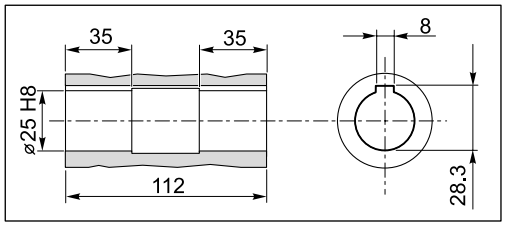
Freno / *Brake* H23

Dimensioni ***Dimensions***

ECMB600/633 U

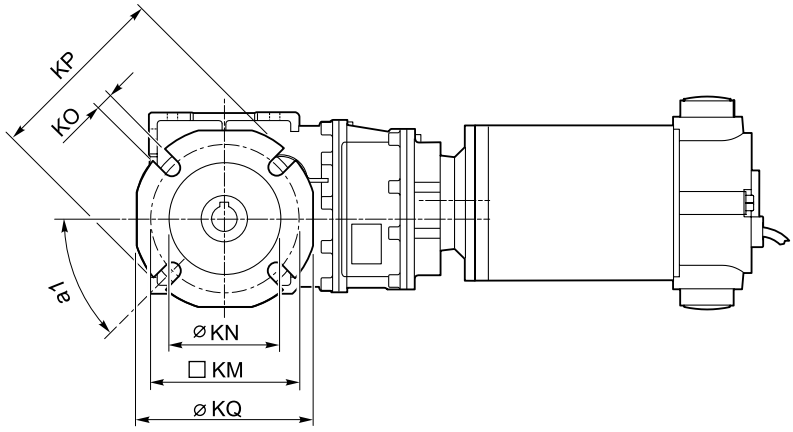


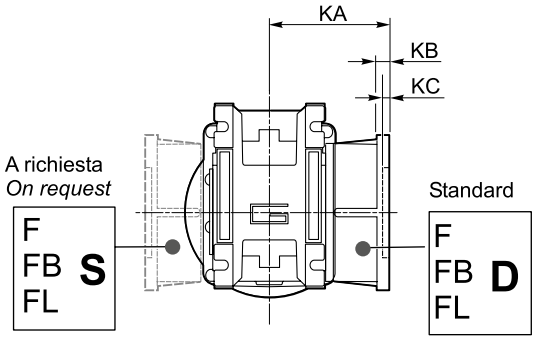




Freno / *Brake* H23

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

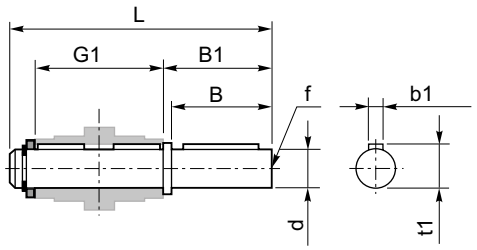




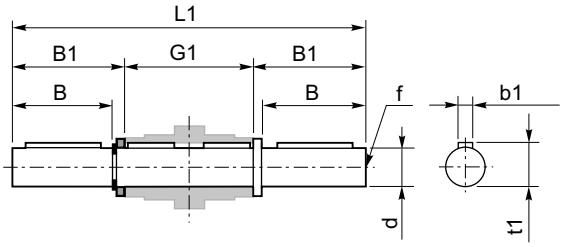
	Flange uscita / *Output flanges*																									
	F									**FL**									**FB**							
CMB	**a_1**	**KA**	**KB**	**KC**	**KM**	**KN** H8	**KO**	**KP**	**KQ**	**a_1**	**KA**	**KB**	**KC**	**KM**	**KN** H8	**KO**	**KP**	**KQ**	**a_1**	**KA**	**KB**	**KC**	**KM**	**KN** H8	**KO**	**KP**	**KQ**
402	45°	67	7.5	4.5	80-95	60	9	110	95	45°	97	7.5	4.5	80-95	60	9	110	95	45°	80	8.5	5	115-125	95	9.5	140	112
502	45°	90	9	5	90-110	70	11	125	110	45°	120	9	5	90-110	70	11	125	110	45°	89	9	5	130-145	110	9.5	160	132
633	45°	82	10	6	150 - 160	115	11	180	142	45°	112	10	8	150 - 160	115	11	180	142	45°	98	11	5	165	130	11	200	160

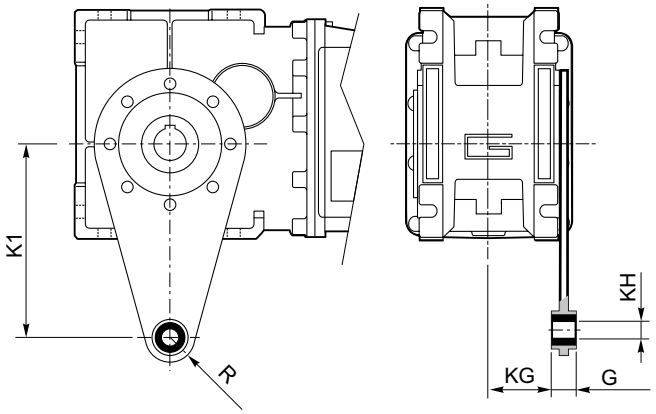
Accessori — *Accessories*

SZ



DZ





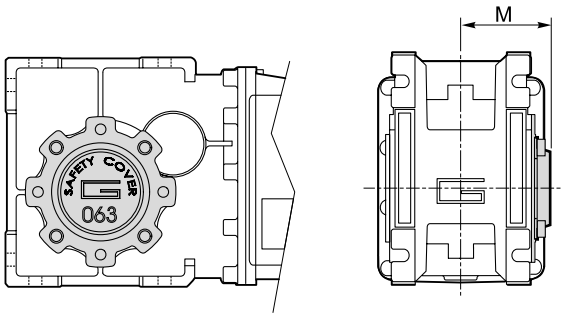
Albero lento / *Output shaft*

CMB	d h7	B	B1	G1	L	L1	f	b1	t1
402	18	40	43	78	128	164	M6	6	20.5
502	25	50	53.5	92	153	199	M10	8	28
633	25	50	53.5	112	173	219	M10	8	28

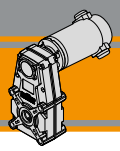
Braccio di reazione / *Torque arm*

CMB	K1	G	KG	KH	R
402	100	14	31	10	18
502	100	14	38	10	18
633	150	14	47.5	10	18

SC - *Safety cover*



CMB	M
402	54.5
502	62.5
633	73



ENERGY SAVING

Caratteristiche tecniche

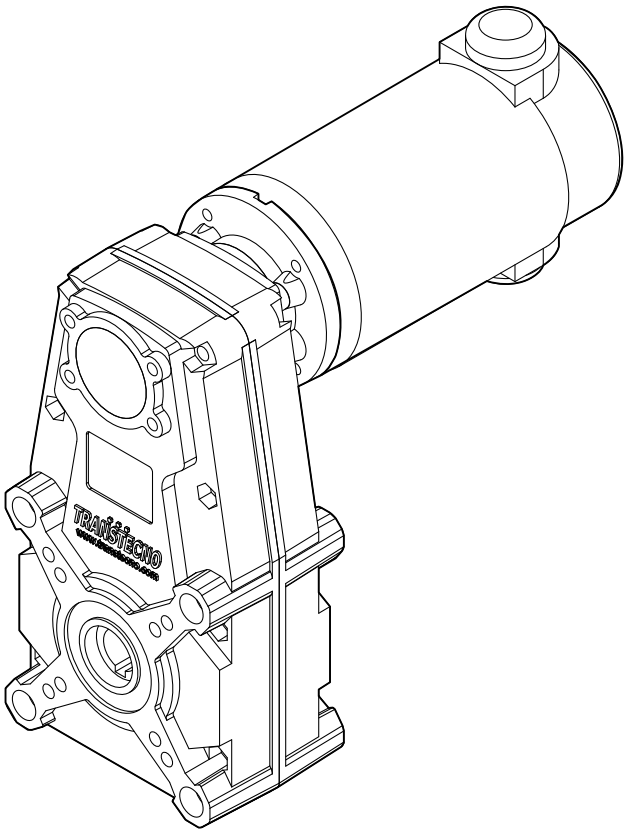
Technical features

I motoriduttori CC pendolari a magneti permanenti in ferrite ECFT hanno le seguenti caratteristiche principal:

- Alimentazione in bassa tensione 12/24 Vcc
- Possibilità di montaggio encoder
- Potenze motore disponibili da 100 a 800W S2
- Magneti in ferrite
- Carcassa pressofusione di alluminio
- Lubrificazione permanente con olio sintetico.
- Ingranaggi cilindrici a denti elicoidali.

ECFT ferrite permanent magnets DC helical parallel gearmotors range has the following main features:

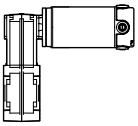
- *Low voltage power supply 12/24 Vdc*
- *Suitable for encoder assembly*
- *Motor power ratings available from 100 to 800W S2*
- *Ferrite magnets*
- *Die-cast aluminum housings*
- *Permanent synthetic oil long-life lubrication.*
- *helical gears.*



Designazione

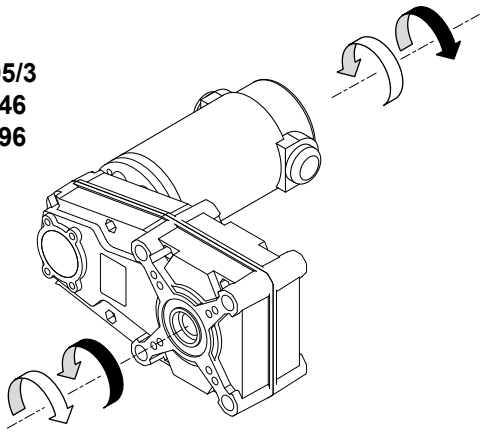
Classification

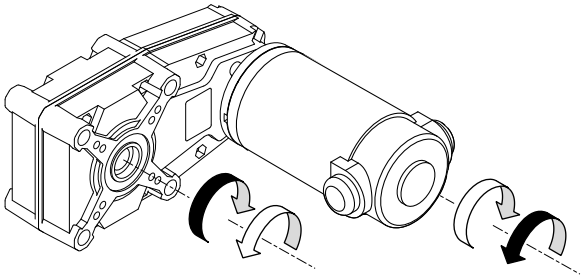
MOTORIDUTTORE / *GEARMOTORS*

ECFT	180/146						U	60.63	O20	B5
Tipo *Type*	Grandezza *Size*						Versione *Version*	Rapporto *Ratio*	Albero cavo uscita *Hollow output shaft*	Versione motore *Motor version*
ECFT 	070/105/3 070/105/4 070/146	100/105/3 100/146	180/105/3 180/146	250/146 250/196	350/146 350/196	600/196	U...	vedi tabelle *see tables*	vedi tabelle *see tables*	120 240 12E 24E

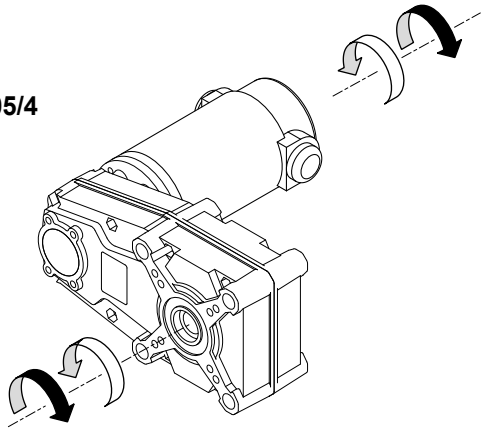
Sensi di rotazione — *Direction of rotation*

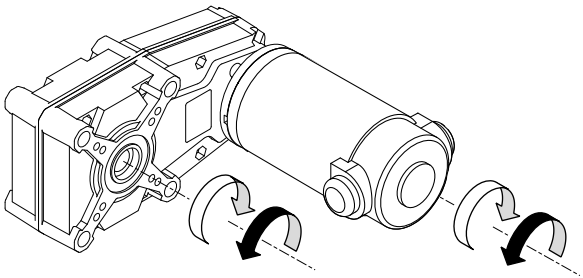
FT105/3
FT146
FT196





FT105/4





Simbologia — *Symbols*

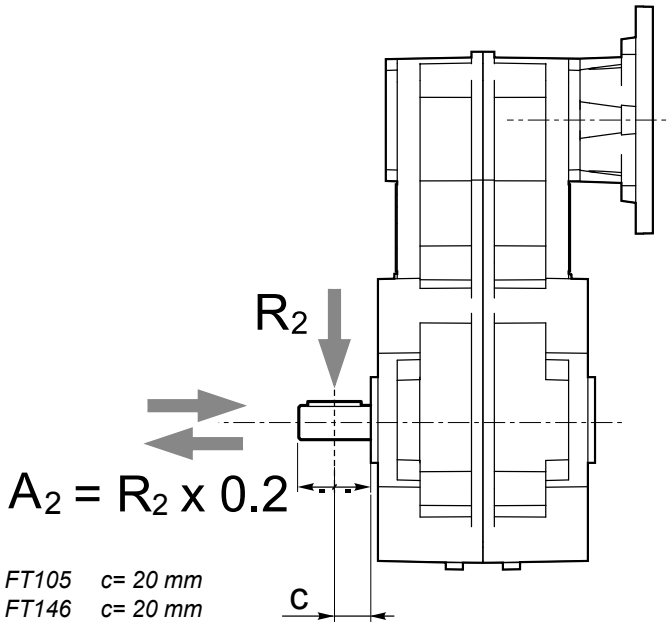
n_1	[min^{-1}]	Velocità in ingresso / *Input speed*
n_2	[min^{-1}]	Velocità in uscita / *Output speed*
i		Rapporto di riduzione / *Ratio*
P_1	[kW]	Potenza in entrata / *Input power*
M_2	[Nm]	Coppia nominale in uscita in funzione di P_1 / *Output torque referred to P_1*
Pn_1	[kW]	Potenza nominale in entrata / *Nominal input power*
Mn_2	[Nm]	Coppia nominale in uscita in funzione di Pn_1 / *Nominal output torque referred to Pn_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*

Tutti i motoriduttori sono forniti completi di lubrificante sintetico viscosità 320, pertanto possono essere installati in qualunque posizione di montaggio e non necessitano di manutenzione.

Permanent synthetic oil long-life lubrication (viscosity grade 320) makes it possible to use the gearmotors in all mounting positions; for this reason they can be installed in any assembly position and do not require maintenance.

Carichi radiali — *Radial loads*

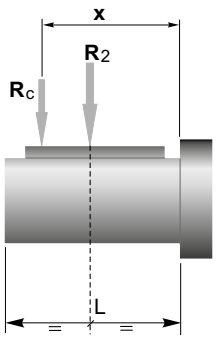


FT105 c= 20 mm
FT146 c= 20 mm
FT196 c= 30 mm

n_2 [min^{-1}]	R_2 [N]		
	FT105	FT146	FT196
70	1500	2500	3500
40	1700	2700	4000
30	1850	2850	4600
20	2000	3000	5500
10	2000	3000	7000
5	2000	3000	7000

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:

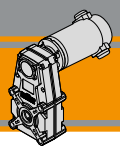


	FT105	FT146	FT196
a	82	82,5	132
b	62	62,5	102
R_{2MAX}	2000	3000	7000

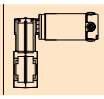
$$R_c = \frac{R_2 \cdot a}{(b+x)} \leq R_{2MAX}$$

$$R \leq R_c$$

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



Dati tecnici — *Technical data*

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
100						
(3000 min^{-1})	**146**	6	5.1	20.57	**070/105/3**	**12E/24E**
	90	10	3.9	33.32		
	68	13	3.8	44.36		
	55	16	3.1	54.87		
	42	21	2.4	71.84		
	39	23	2.2	77.07		
	34	27	1.9	88.87		
	24	37	1.4	124.81		
	17	54	0.9	181.35		
	13	67	0.8	224.32		
	9.5	86	0.6	315.05		
	11	78	0.6	262.16	**070/105/4**	**12E/24E**
	8.1	94	0.5	368.19		
	5.6	94	0.5	534.98		
	4.5	94	0.5	661.76		
	3.2	94	0.5	929.40		
	49	18	4.7	60.63	**070/146**	**12E/24E**
	35	25	3.4	84.63		
	31	29	3.0	95.61		
	26	34	2.5	113.40		
	22	40	2.1	133.45		
	20	45	1.9	150.18		
	19	48	1.9	160.43		
	17	54	1.7	178.83		
	13	67	1.4	223.92		
	13	71	1.3	236.83		
	10	90	1.0	300.07		
	7.5	119	0.8	397.38		
140						
(3000 min^{-1})	**146**	9	3.6	20.57	**100/105/3**	**120/240/24E**
	90	14	2.8	33.32		
	68	19	2.7	44.36		
	55	23	2.2	54.87		
	42	30	1.7	71.84		
	39	32	1.6	77.07		
	34	37	1.4	88.87		
	24	52	1.0	124.81		
	49	25	3.4	60.63	**100/146**	**120/240/24E**
	35	35	2.4	84.63		
	31	40	2.1	95.61		
	26	48	1.8	113.40		
	22	56	1.5	133.45		
	20	63	1.4	150.18		
	19	67	1.4	160.43		
	17	75	1.2	178.83		
	13	94	1.0	223.92		
	13	99	0.9	236.83		
	10	126	0.7	300.07		

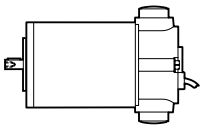
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
250						
(3000 min^{-1})	**146**	15	2.0	20.57	**180/105/3**	**120/240**
	90	25	1.6	33.32		
	68	33	1.5	44.36		
	55	41	1.2	54.87		
	42	54	0.9	71.84		
	39	58	0.9	77.07		
	34	66	0.8	88.87		
	49	45	1.9	60.63	**180/146**	**120/240/24E**
	35	63	1.4	84.63		
	31	72	1.2	95.61		
	26	85	1.0	113.40		
	22	100	0.9	133.45		
	20	112	0.8	150.18		
	19	120	0.8	160.43		
350						
(3000 min^{-1})	**49**	64	1.4	60.63	**250/146**	**120/240**
	35	89	1.0	84.63		
	31	100	0.9	95.61		
	26	119	0.7	113.40		
	147	21	12.8	20.41	**250/196**	**120/240**
	70	45	7.9	42.61		
	51	62	6.3	59.36		
	32	97	4.4	92.82		
	24	130	3.3	123.95		
	15	211	2.0	201.80		
	11	282	1.5	269.47		
500						
(3000 min^{-1})	**49**	91	0.9	60.63	**350/146**	**120/240**
	147	31	8.9	20.41	**350/196**	**120/240**
	70	64	5.5	42.61		
	51	89	4.4	59.36		
	32	139	3.1	92.82		
	24	185	2.3	123.95		
	15	302	1.4	201.80		
	11	403	1.1	269.47		
800						
(3000 min^{-1})	**147**	49	5.6	20.41	**600/196**	**120/240**
	70	102	3.4	42.61		
	51	142	2.7	59.36		
	32	222	1.9	92.82		
	24	297	1.4	123.95		
	15	483	0.9	201.80		

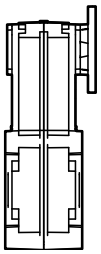
N.B.
Verificare sempre che la coppia M2 utilizzata non ecceda il valore indicato nelle caselle in grigio

N.B.
Please check that the output torque M2 does not exceed the value in the grey areas

Motori applicabili

Motor adapters

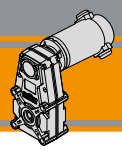




		EC						
		070.12E 070.24E	**100.120 100.240 100.24E**	**180.120 180.240**	**180.24E**	**250.120 250.240**	**350.120 350.240**	**600.120 600.240**
FT	**105/3**	20.57 - 315.05	20.57 - 315.05	20.57 - 315.05				
	105/4	262.16 - 929.4						
	146	60.63 - 397.38	60.63 - 397.38	60.63 - 397.38	60.63 - 397.38	60.63 - 397.38	60.63 - 397.38	
	196					20.41 - 269.47	20.41 - 269.47	20.41 - 269.47

20.57 - 315.05

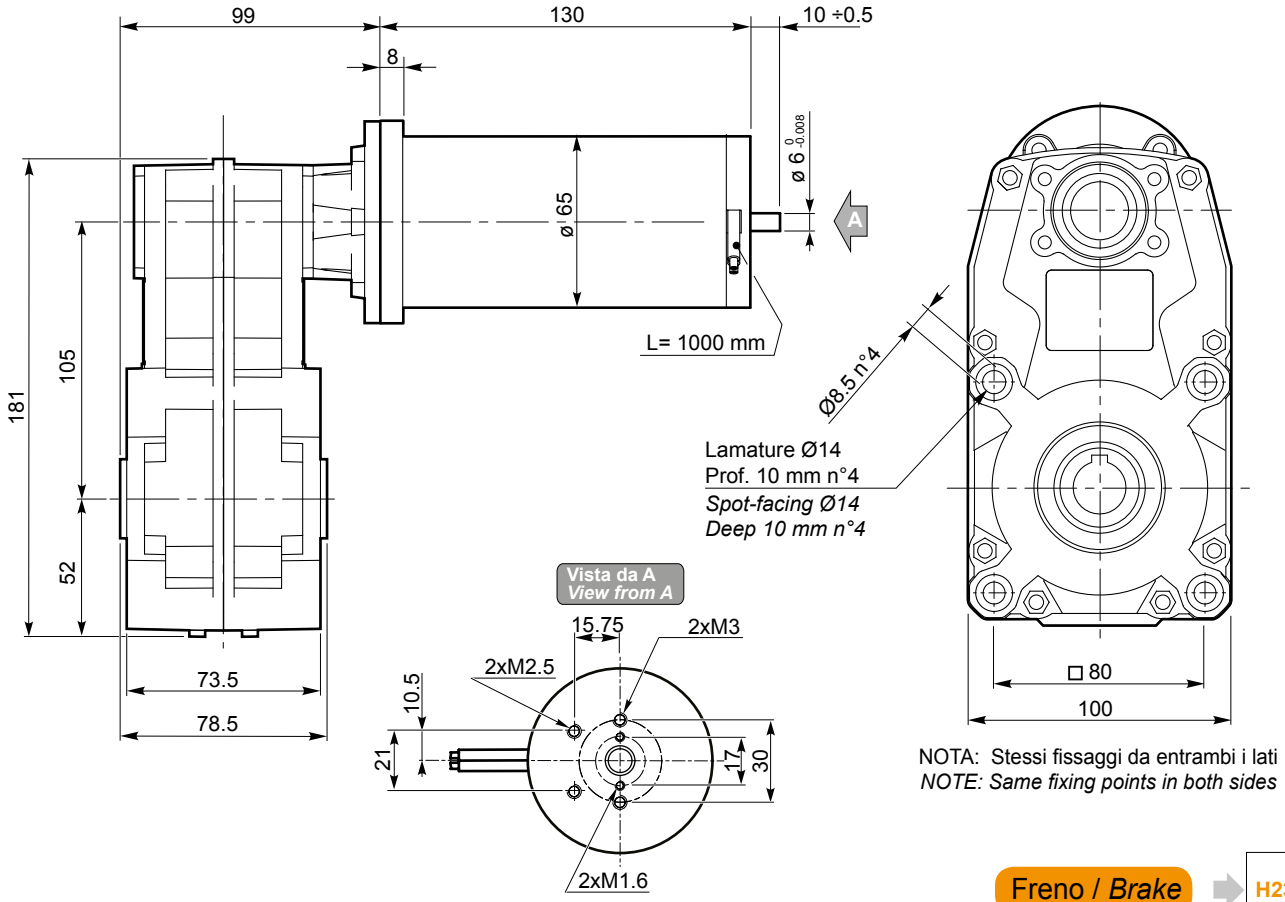
Rapporti di riduzione i
Ratio i



Dimensioni ***Dimensions***

ECFT 070/105

ECFT 070/105...U



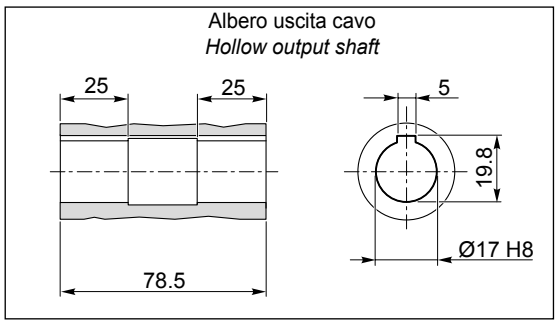
NOTA: Stessi fissaggi da entrambi i lati
NOTE: Same fixing points in both sides

Freno / *Brake* → H23

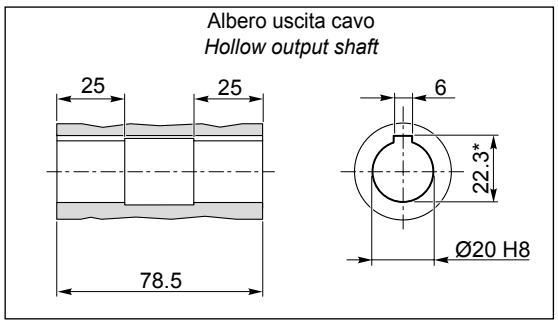
Encoder → H24

ECFT

O17



O20

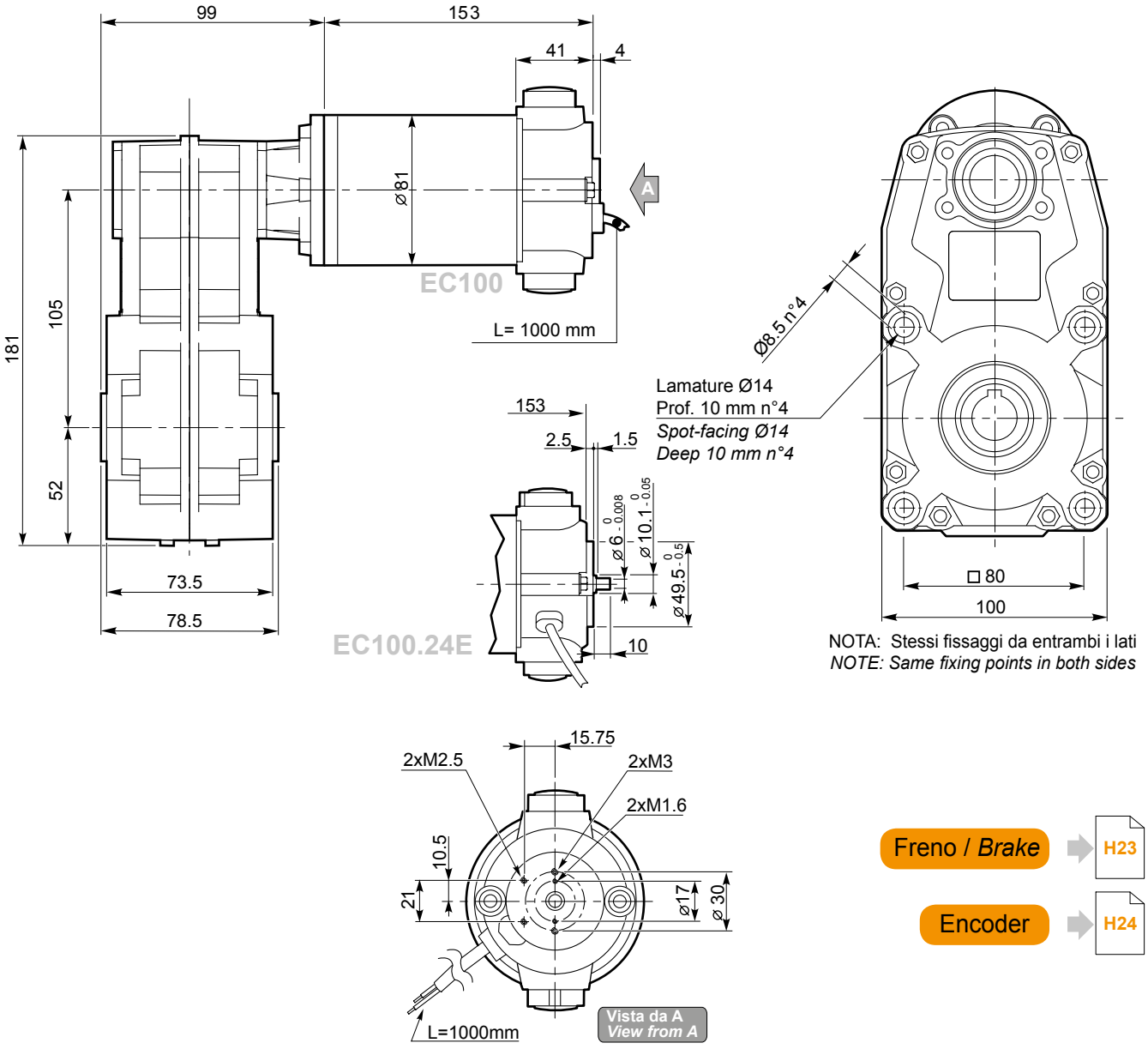


*: Sede linguetta ribassata / *Special keyway*

Dimensioni ***Dimensions***

ECFT 100/105

ECFT 100/105...U

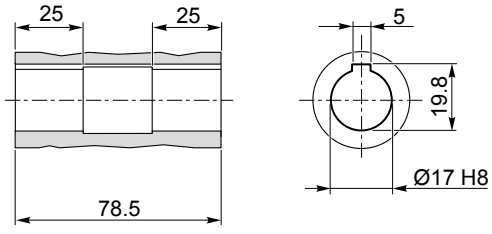


Freno / *Brake* H23

Encoder H24

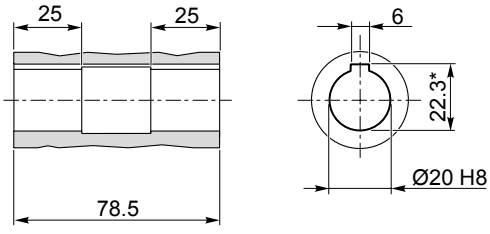
O17

Albero uscita cavo
Hollow output shaft

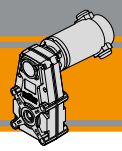


O20

Albero uscita cavo
Hollow output shaft



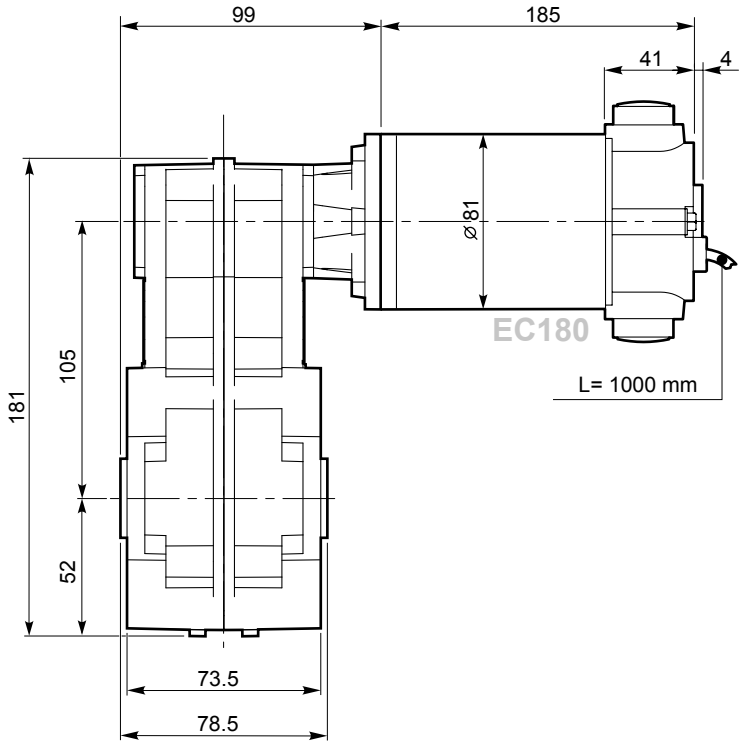
*: Sede linguetta ribassata / *Special keyway*

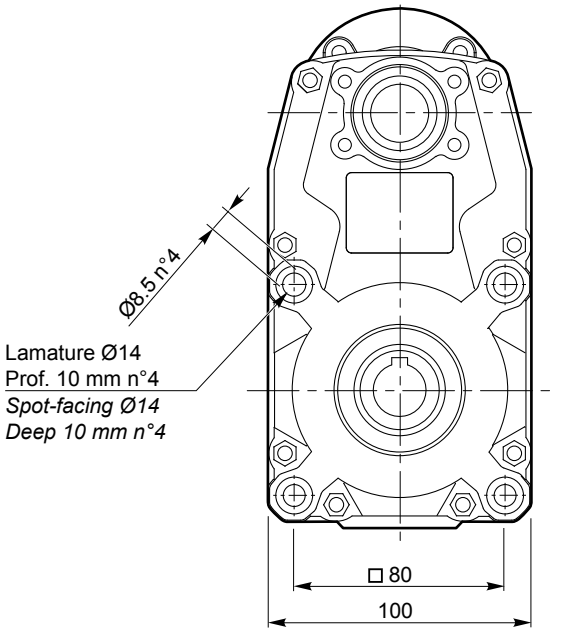


Dimensioni ***Dimensions***

ECFT 180/105

ECFT 180/105...U

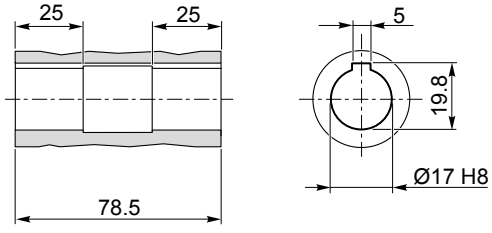




NOTA: Stessi fissaggi da entrambi i lati
NOTE: Same fixing points in both sides

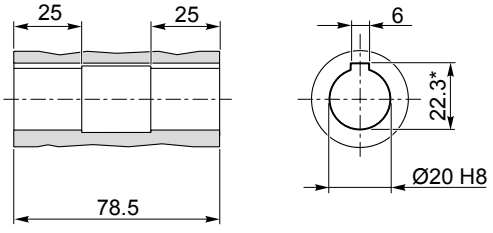
O17

Albero uscita cavo
Hollow output shaft



O20

Albero uscita cavo
Hollow output shaft

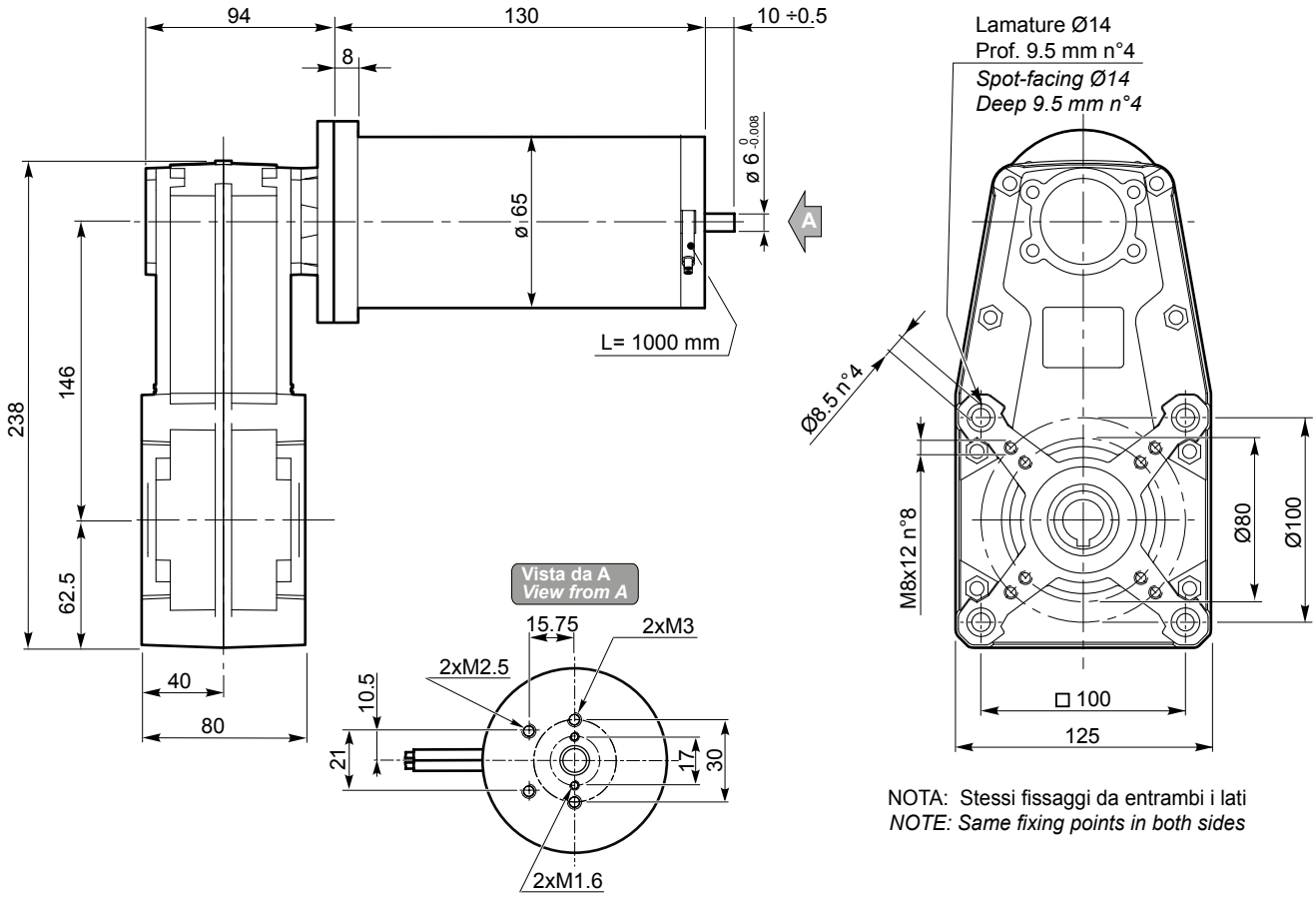


*: Sede linguetta ribassata / *Special keyway*

Dimensioni ***Dimensions***

ECFT 070/146

ECFT 070/146 U



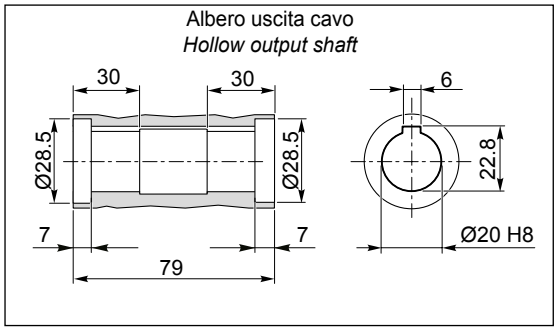
NOTA: Stessi fissaggi da entrambi i lati
NOTE: Same fixing points in both sides

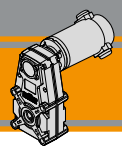
Freno / *Brake* → H23

Encoder → H24

O20

Albero uscita cavo
Hollow output shaft

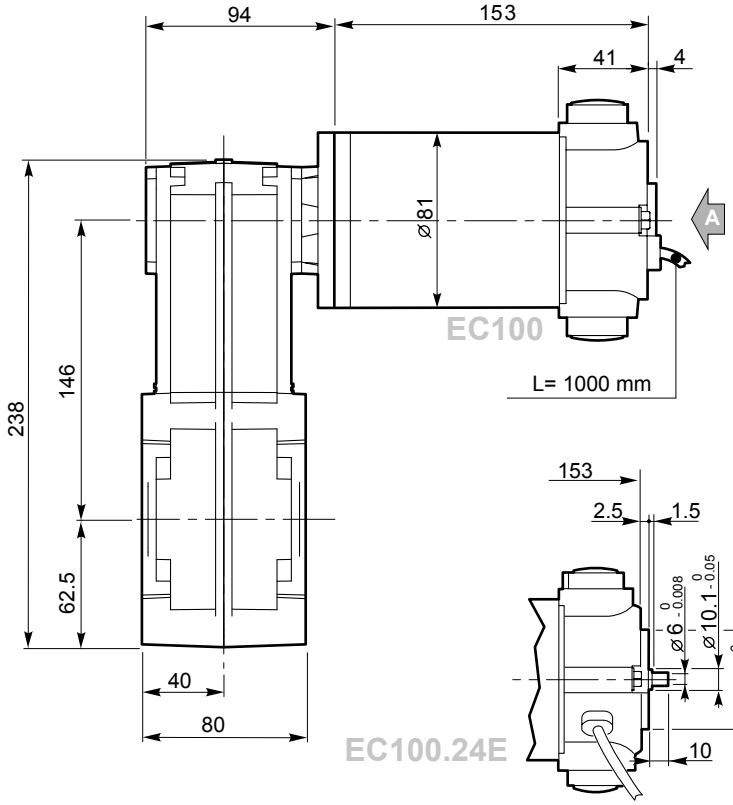


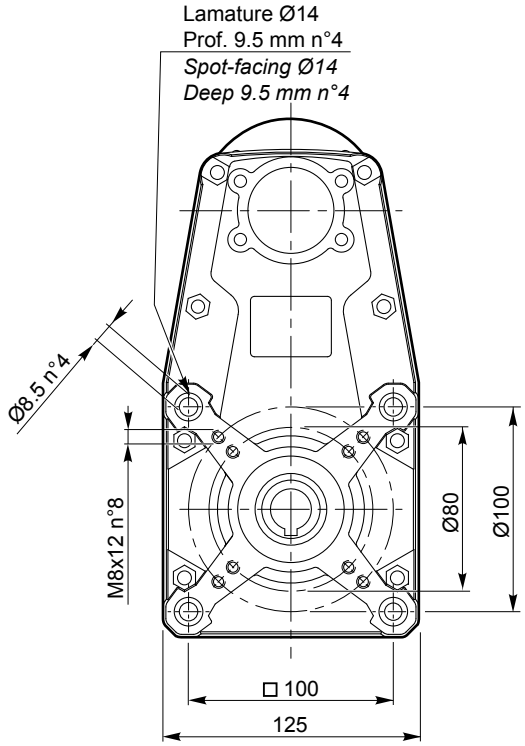


Dimensioni ***Dimensions***

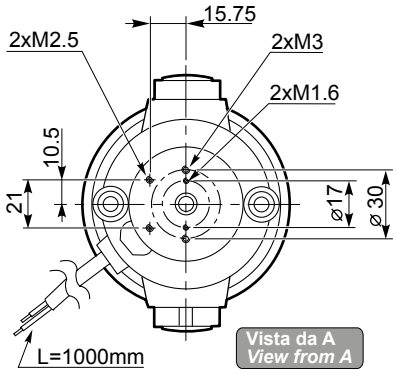
ECFT 100/146

ECFT 100/146 U





NOTA: Stessi fissaggi da entrambi i lati
NOTE: Same fixing points in both sides



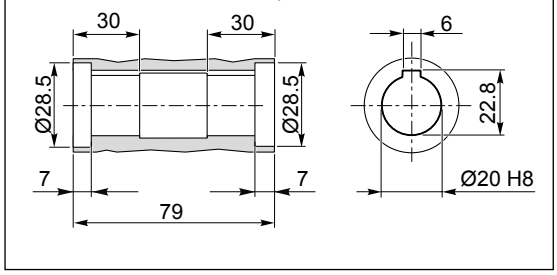
Freno / *Brake* → H23

Encoder → H24

ECFT

O20

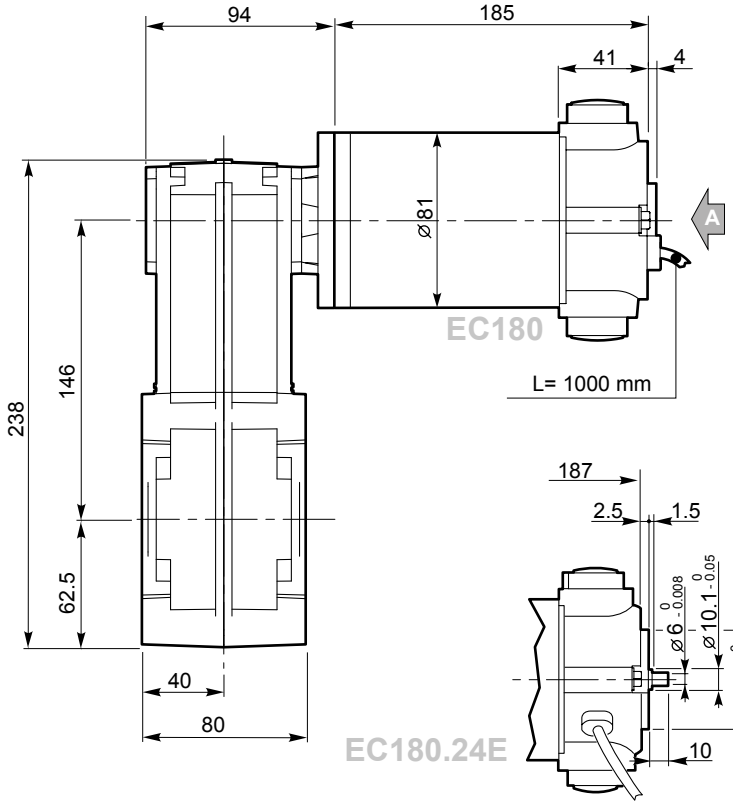
Albero uscita cavo
Hollow output shaft

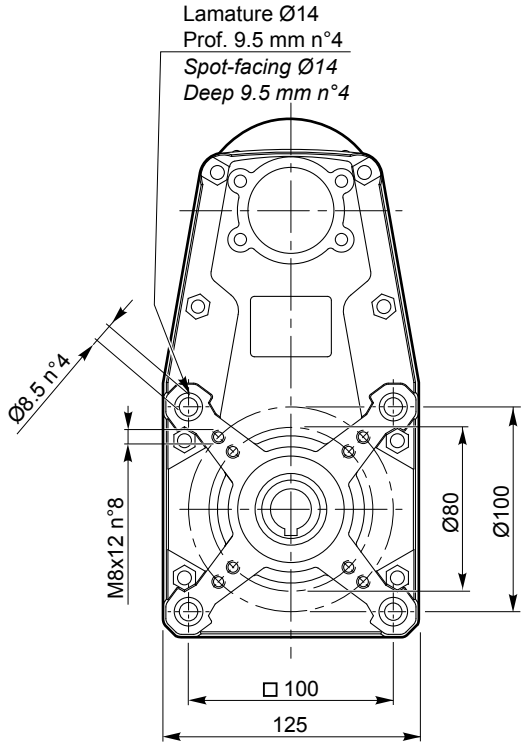


Dimensioni ***Dimensions***

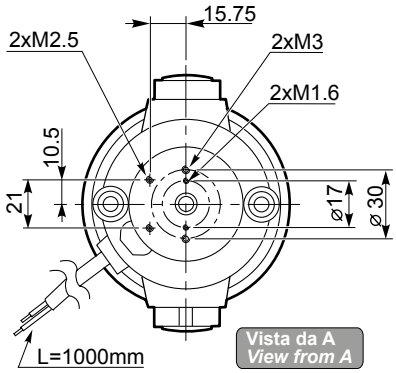
ECFT 180/146

ECFT 180/146 U





NOTA: Stessi fissaggi da entrambi i lati
NOTE: Same fixing points in both sides

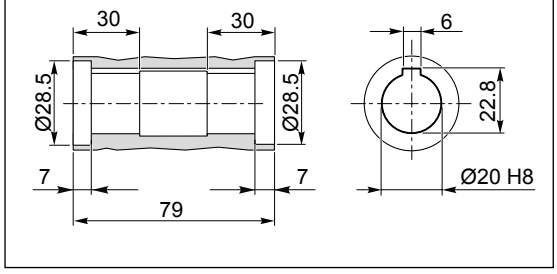


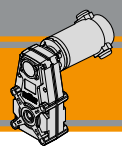
Freno / *Brake* → H23

Encoder → H24

O20

Albero uscita cavo
Hollow output shaft

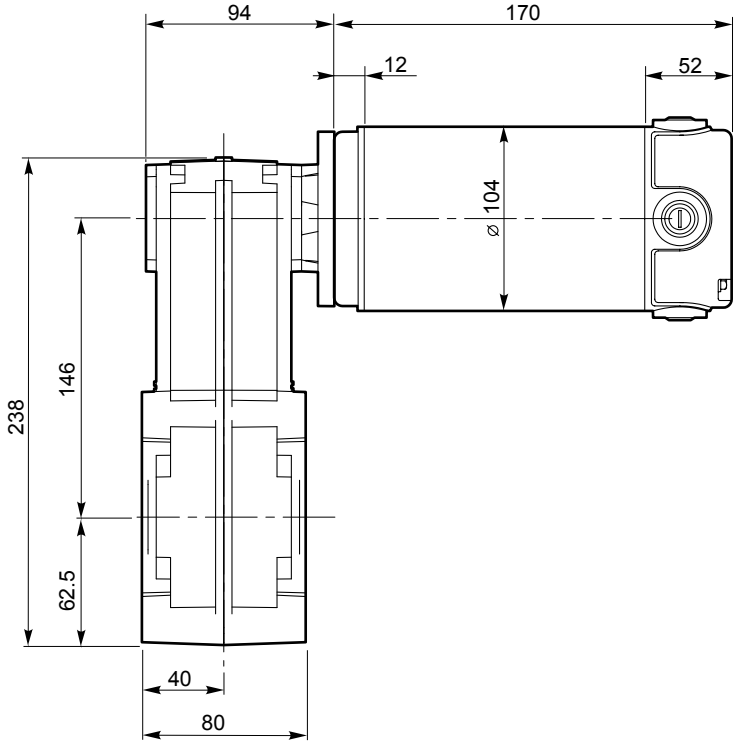


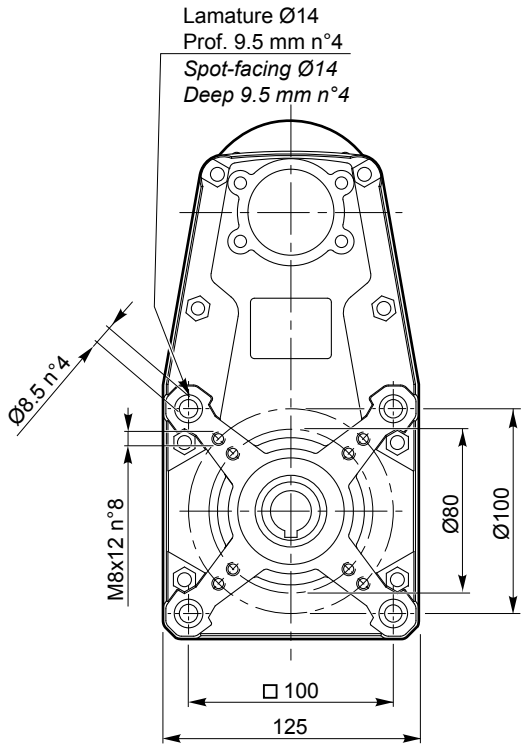


Dimensioni ***Dimensions***

ECFT 250/146

ECFT 250/146 U



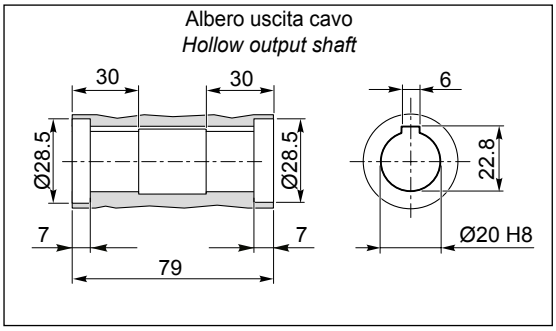


NOTA: Stessi fissaggi da entrambi i lati
NOTE: Same fixing points in both sides

ECFT

O20

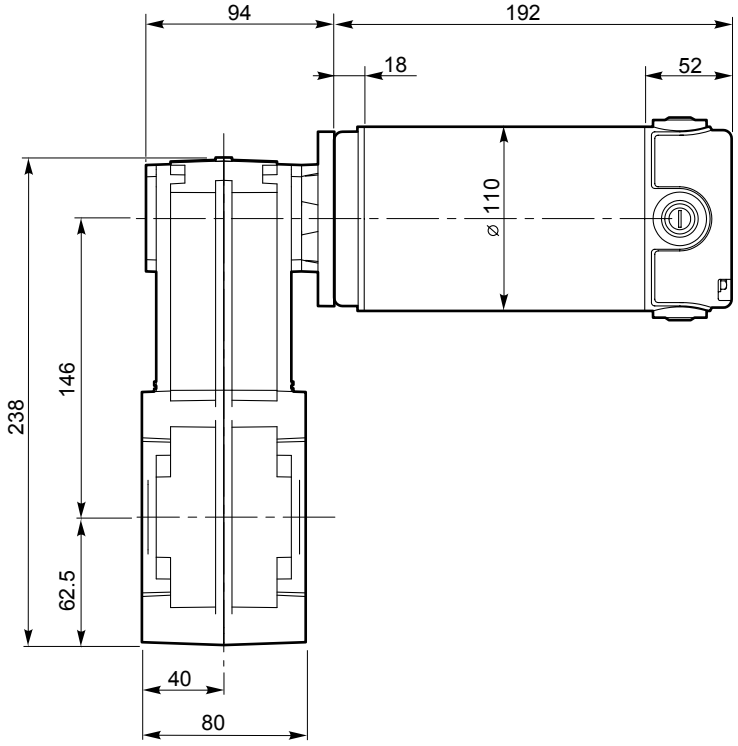
Albero uscita cavo
Hollow output shaft

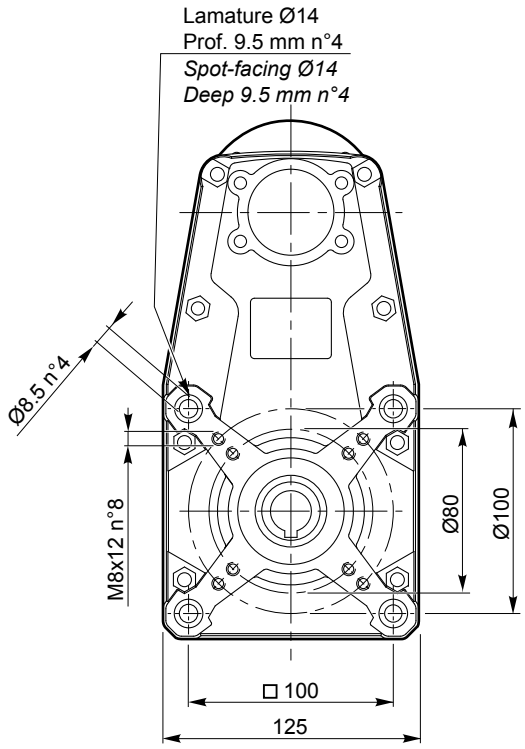


Dimensioni | *Dimensions*

ECFT 350/146

ECFT 350/146 U



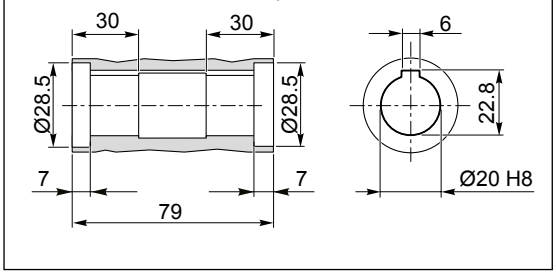


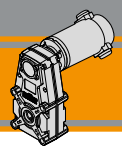
NOTA: Stessi fissaggi da entrambi i lati
NOTE: Same fixing points in both sides

Freno / *Brake* H23

O20

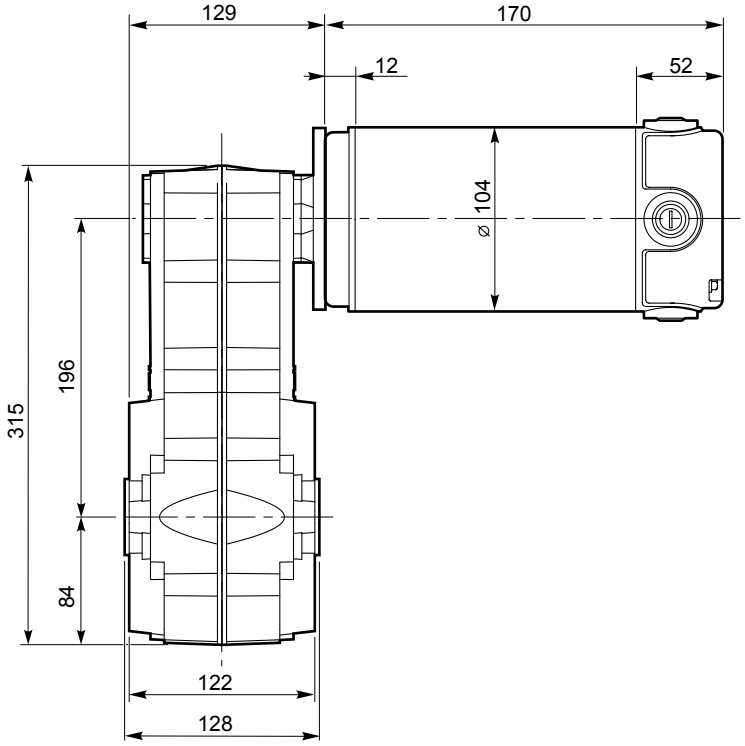
Albero uscita cavo
Hollow output shaft

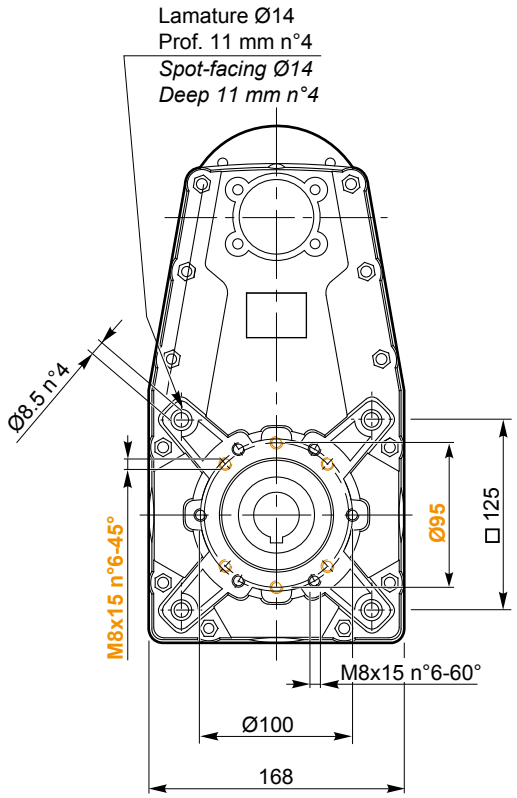




ECFT 250/196

ECFT 250/196 U



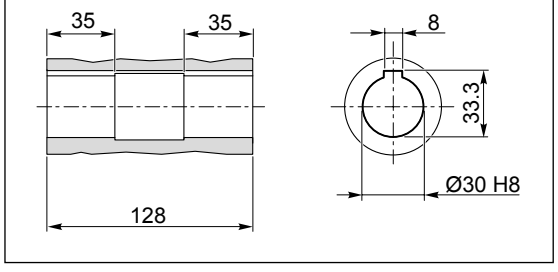


NOTA: Stessi fissaggi da entrambi i lati
NOTE: Same fixing points in both sides

ECFT

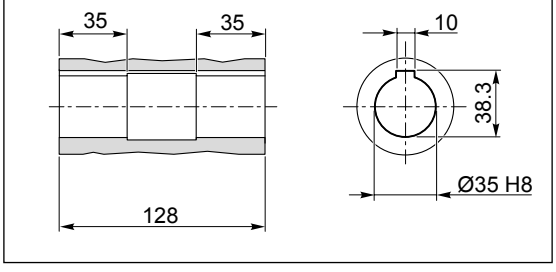
Ø30

Albero uscita cavo
Hollow output shaft



Ø35

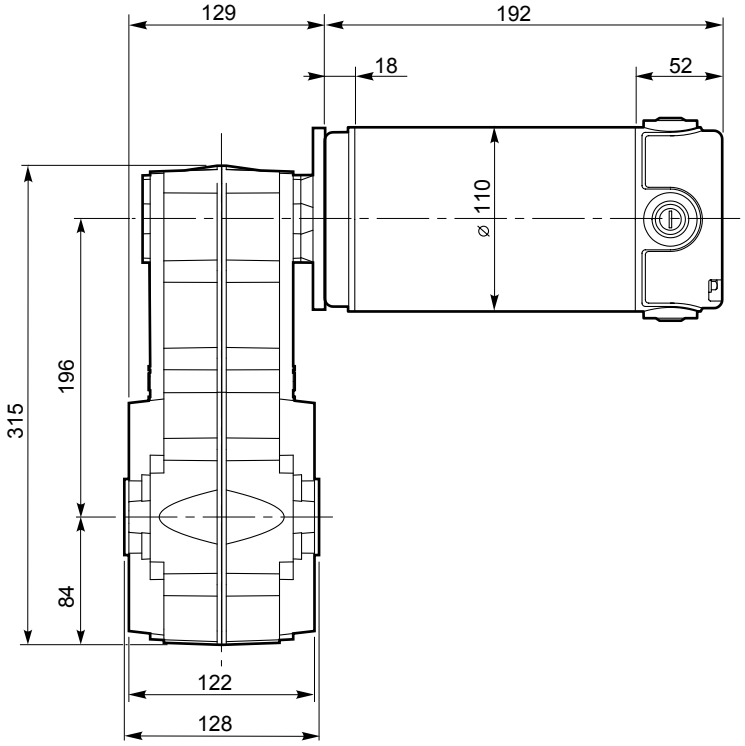
Albero uscita cavo
Hollow output shaft

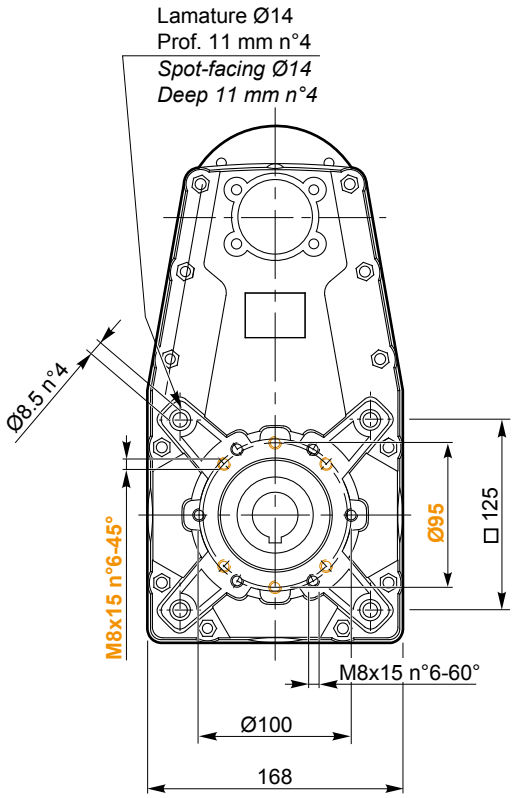


Dimensioni *Dimensions*

ECFT 350/196

ECFT 350/196 U



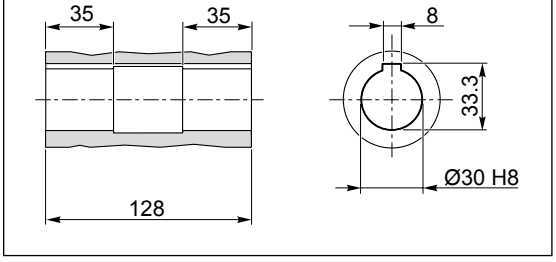


NOTA: Stessi fissaggi da entrambi i lati
NOTE: Same fixing points in both sides

Freno / *Brake* H23

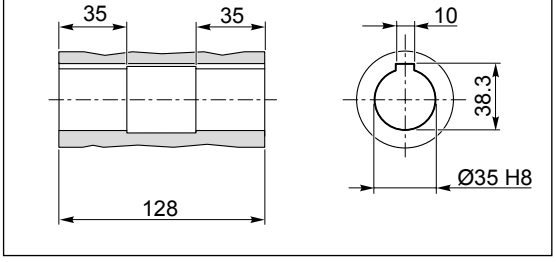
Ø30

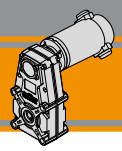
Albero uscita cavo
Hollow output shaft



Ø35

Albero uscita cavo
Hollow output shaft

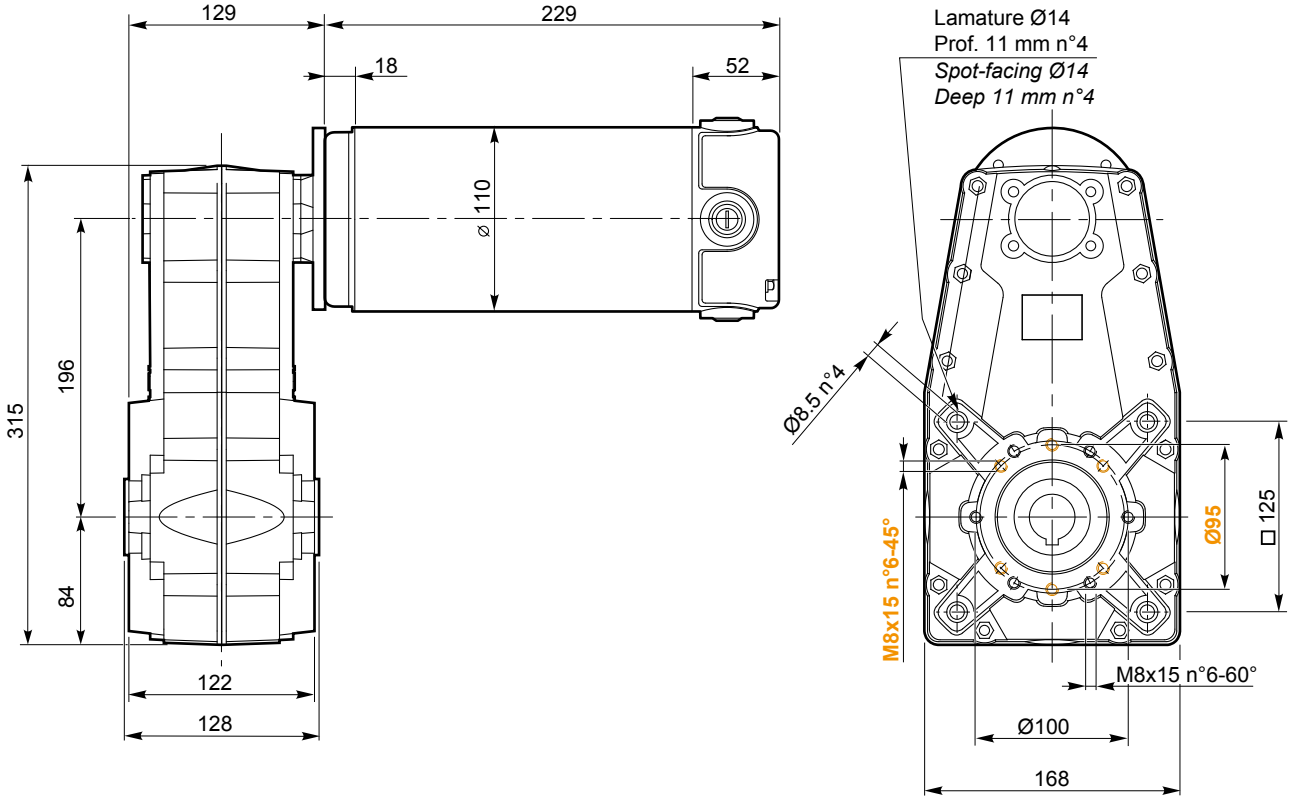




Dimensioni ***Dimensions***

ECFT 600/196

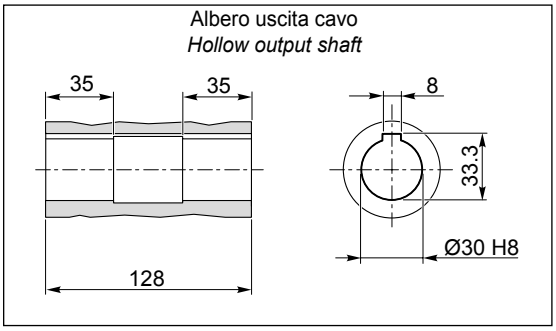
ECFT 600/196 U



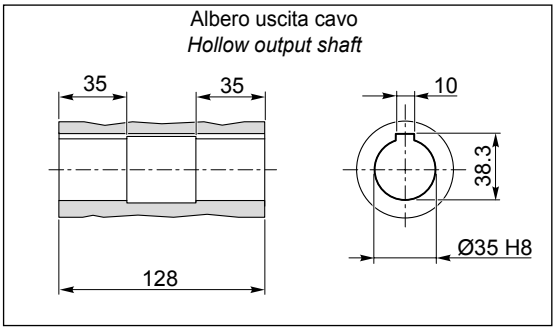
NOTA: Stessi fissaggi da entrambi i lati
NOTE: Same fixing points in both sides

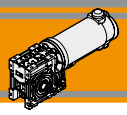
Freno / *Brake* H23

Ø30



Ø35





Caratteristiche tecniche

Technical features

Le caratteristiche principali dei motoriduttori CC a vite senza fine a magneti permanenti in ferrite serie ECM sono:

- Alimentazione in bassa tensione 12/24 Vcc
- Possibilità di montaggio encoder
- Potenze motore disponibili da 100 a 800W S2
- Magneti in ferrite
- Carcasse dei riduttori in pressofusione di alluminio
- Lubrificazione permanente con olio sintetico.

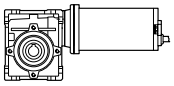
The main features of ECM ferrite permanent magnets DC wormgearmotors range are:

- *Low voltage power supply 12/24 Vdc*
- *Suitable for encoder assembly*
- *Motor power ratings available from 100 to 800W S2*
- *Ferrite magnets*
- *Die-cast aluminum housing*
- *Permanent synthetic oil long-life lubrication.*

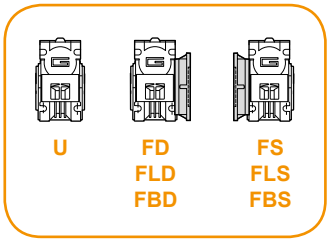
Designazione

Classification

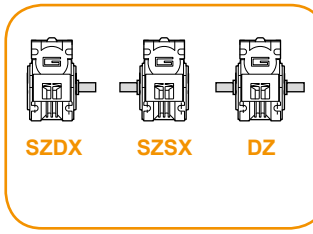
MOTORIDUTTORE / *GEARMOTOR*

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** **250/030** **250/040** **250/050** **250/063** **350/030** **350/040** **350/050** **350/063** **350/070** **600/040** **600/050** **600/063** **600/070**	**U** **FD** **FS** **FLD** **FLS** **FBD** **FBS**	Vedere tabella *See tables*	**SZDX** **SZSX** **DZ**	**BRDX** **BRSX**	**0°** **90°** **180°** **270°**	**120** **240** **24E**	**VS**

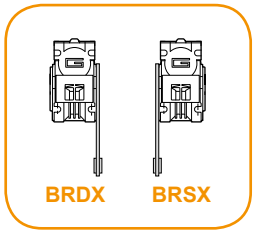
Versione Riduttore *Gearbox Version*



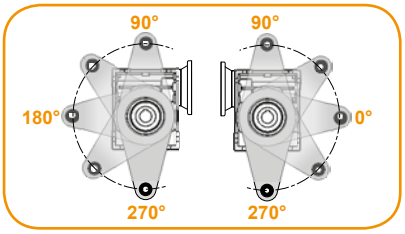
Albero di uscita *Output shaft*



Braccio di reazione *Torque arm*



Angolo *Angle*



Simbologia

Symbols

n_1	[min^{-1}]	Velocità in ingresso / *Input speed*	Rd	%	Rendimento dinamico / *Dynamic efficiency*
n_2	[min^{-1}]	Velocità in uscita / *Output speed*	A_2	N]	Carico assiale ammissibile in uscita / *Permitted output axial load*
i		Rapporto di riduzione / *Ratio*	Rs	%	Rendimento statico / *Static efficiency*
P_1	[kW]	Potenza in entrata / *Input power*	R_2	[N]	Carico radiale ammissibile in uscita / *Permitted output radial load*
M_2	[Nm]	Coppia in uscita in funzione di P_1 / *Output torque referred to* P_1	Z		Numero di principi della vite / *Worm starts*
sf		Fattore di servizio / *Service factor*	β		Angolo d'elica / *Helix angle*

Lubrificazione

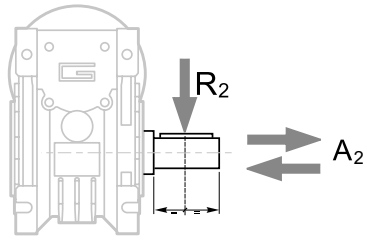
I riduttori a vite senza fine della serie CM sono lubrificati a vita con olio sintetico di viscosità 320 e possono essere installati in qualunque posizione di montaggio.

Lubrication

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

Carichi radiali

Radial loads

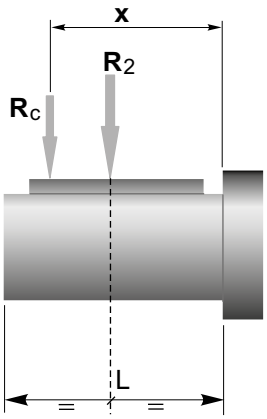


$A_2 = R_2 \times 0.2$

n_2 [min^{-1}]	R_2 [N]					
	CM026	CM030	CM040	CM050	CM063	CM070
187	400	674	1264	1770	2445	2613
140	490	743	1392	1949	2692	2878
93	580	851	1596	2234	3085	3298
70	610	936	1754	2456	3392	3626
56	610	1008	1890	2646	3654	3906
47	610	1069	2004	2805	3874	4141
35	610	1179	2210	3095	4273	4568
28	610	1270	2381	3334	4603	4921
23	610	1356	2542	3559	4915	5254
18	610	1471	2759	3862	5334	5702
14	610	1600	3000	4200	5800	6200

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	070
a	56	65	84	101	120	122
b	43	50	64	76	95	92
R_{2MAX}	610	1600	3000	4200	5800	6200

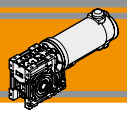
Dati di dentatura — *Toothing data*

	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	6	4	3	2	2	2	1	1	1	1	1	1
	β	33° 37'	23° 54'	18° 23'	12° 29'	10° 6'	8° 28'	6° 19'	5° 5'	4° 15'	3° 39'	2°51'	2° 20'
CM063	Z	6	4	3	2	2	2	1	1	1	1	1	1
	β	34° 23'	24° 31'	18° 53'	12° 50'	10° 24'	8° 44'	6° 30'	5° 14'	4° 23'	3° 47'	2° 57'	2° 25'
CM070	Z		4	3	2	2	2	1	1	1	1	1	1
	β		26°12'	20°15'	13°49'	11°15'	9°29'	7°0'	5°41'	4°46'	4°7'	3°13'	2°39'

Rendimento — *Efficiency*

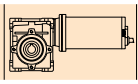
	n_1 [min^{-1}]	Rendimento Efficiency	Rapporto / *Ratio*											
			5	7.5	10	15	20	25	30	40	50	60	80	100
CM026	2800	Rd	89	87	85	83	80		73	68	64	60		
	1400		87	84	83	78	74		66	61	57	53		
	900		84	83	80	75	71		61	57	52	48		
		Rs	72	71	68	61	56		46	41	36	34		
CM030	2800	Rd	89	88	86	84	81	78	74	70	65	62	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	91	90	88	86	84	82	78	74	71	68	62	58
	1400		89	87	85	82	79	76	72	67	63	60	54	49
	900		87	85	84	79	75	72	68	62	59	55	48	43
		Rs	73	70	66	59	55	51	44	39	35	32	27	23
CM063	2800	Rd	91	90	88	86	84	83	79	76	73	70	65	60
	1400		90	88	86	84	81	78	75	70	66	63	57	52
	900		89	86	84	81	78	75	70	65	61	58	52	47
		Rs	73	71	67	60	55	51	45	40	36	33	28	24
CM070	2800	Rd		90	89	87	85	84	80	77	74	72	67	62
	1400			89	87	84	82	80	76	72	68	65	60	53
	900			87	85	82	79	77	72	67	63	60	54	49
		Rs		72	69	62	60	55	48	43	38	36	31	26

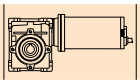
Rendimento teorico del riduttore dopo il rodaggio
Theoretical efficiency of the gearbox after the first running period



Dati tecnici per servizio S2

Technical data for S2 duty

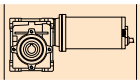
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
100						
(3000 min^{-1})	**600**	1.4	7.1	5	**ECM070/026**	12E/24E
	400	2.1	5.3	7.5		
	300	2.7	4.1	10		
	200	4.0	2.8	15		
	150	5.1	2.2	20		
	100	7.0	1.7	30		
	75	8.7	1.3	40		
	60	10	1.0	50		
	50	11	0.8	60		
	600	1.4	9.2	5	**ECM070/030**	12E/24E
	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	17	0.7	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		120/240
	38	17	0.7	80		
	30	16	0.7	100		

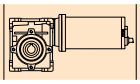
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
250						
(3000 min^{-1})	**200**	10	3.5	15	**ECM180/040**	120/240/24E
	150	13	2.3	20		
	120	16	1.8	25		
	100	18	2.1	30		
	75	23	1.5	40		
	60	27	1.2	50		
	50	32	0.9	60		
	38	38	0.7	80		
	30	34	0.7	100		
	75	24	2.5	40	**ECM180/050**	120/240/24E
	60	28	2.0	50		
	50	32	1.6	60		
	38	39	1.2	80		
	30	46	0.9	100		
350						
(3000 min^{-1})	**600**	5.0	2.6	5	**ECM250/030**	120/240
	400	7.4	2.0	7.5		
	300	10	1.7	10		
	200	14	1.1	15		
	150	18	0.8	20		
	120	22	0.7	25		
	100	25	0.7	30		
	75	22	0.7	40		
	60	21	0.7	50		
	200	14	2.5	15	**ECM250/040**	120/240
	150	18	1.7	20		
	120	22	1.3	25		
	100	26	1.5	30		
	75	33	1.0	40		
	60	38	0.8	50		
	50	44	0.7	60		
	38	38	0.7	80		
	30	35	0.7	100		
	150	19	2.9	20	**ECM250/050**	120/240
	120	23	2.2	25		
	100	26	2.6	30		
	75	33	1.8	40		
	60	40	1.4	50		
	50	45	1.1	60		
	38	55	0.8	80		
	30	65	0.7	100		
	75	34	3.3	40	**ECM250/063**	120/240
	60	41	2.5	50		
	50	47	2.1	60		
	38	58	1.5	80		
	30	67	1.2	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		

N.B.
Verificare sempre che la coppia M2 utilizzata non ecceda il valore indicato nelle caselle in grigio
N.B.
Please check that the output torque M2 does not exceed the value in the grey areas

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*
500						
(3000 min^{-1})	**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		
	150	27	3.8	20	**ECM350/063**	120/240
	120	33	2.8	25		
	100	38	3.4	30		
	75	48	2.3	40		
	60	58	1.8	50		
	50	67	1.5	60		
	38	83	1.1	80		
	30	96	0.8	100		
	75	49	3.4	40	**ECM350/070**	120/240
	60	59	2.5	50		
	50	69	2.1	60		
	38	85	1.5	80		
	30	99	1.2	100		

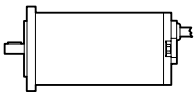
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
800						
(3000 min^{-1})	**600**	11	2.5	5	**ECM600/040**	120/240
	400	17	1.8	7.5		
	300	22	1.5	10		
	200	32	1.1	15		
	150	42	0.7	20		
	120	40	0.7	25		
	100	54	0.7	30		
	75	49	0.7	40		
	600	12	4.7	5	**ECM600/050**	120/240
	400	17	3.3	7.5		
	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		
	150	43	3.5	20	**ECM600/070**	120/240
	120	53	2.6	25		
	100	61	3.0	30		
	75	78	2.1	40		
	60	94	1.6	50		
	50	110	1.3	60		
	38	137	0.9	80		
	30	158	0.7	100		

N.B.
Verificare sempre che la coppia M2 utilizzata non ecceda il valore indicato nelle caselle in grigio

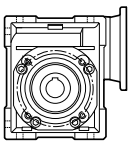
N.B.
Please check that the output torque M2 does not exceed the value in the grey areas

Motori applicabili

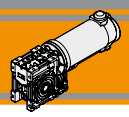
Motor adapters



		EC						
		070.12E 070.24E	**100.120 100.240 100.24E**	**180.120 180.240**	**180.24E**	**250.120 250.240**	**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	5-50	
	040		5-100	5-100	5-100	5-100	5-100	5-40
	050			40-100	5-100	5-100	15-100	5-80
	063					40-100	20-100	15-100
	070						40-100	20-100

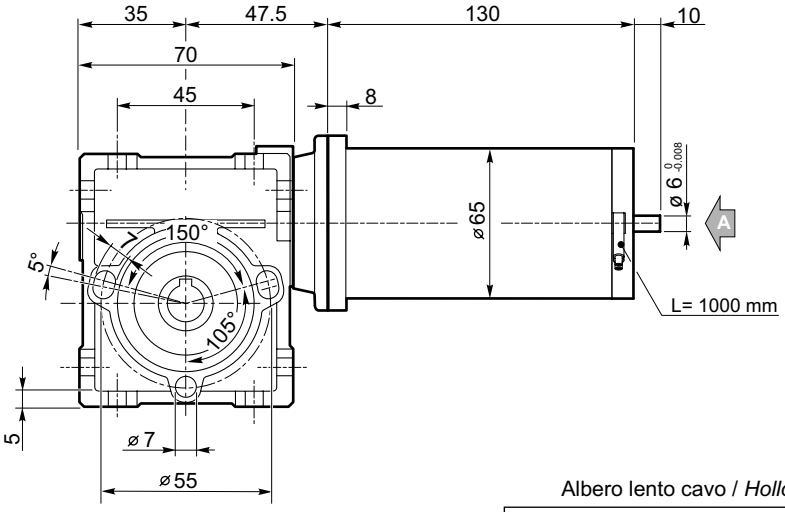


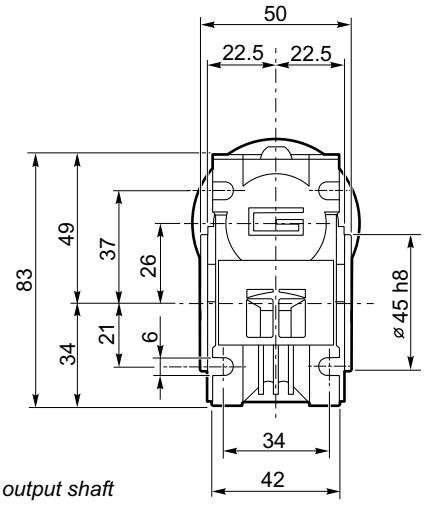
5-100 Rapporti di riduzione i
Ratio i

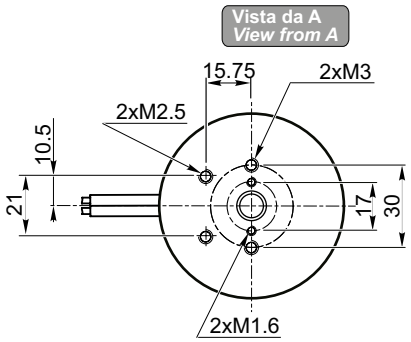


Dimensioni — *Dimensions*

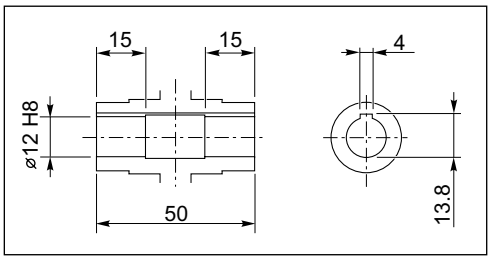
ECM070/026 U

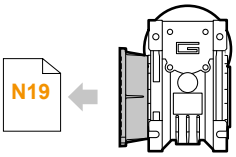






Albero lento cavo / *Hollow output shaft*



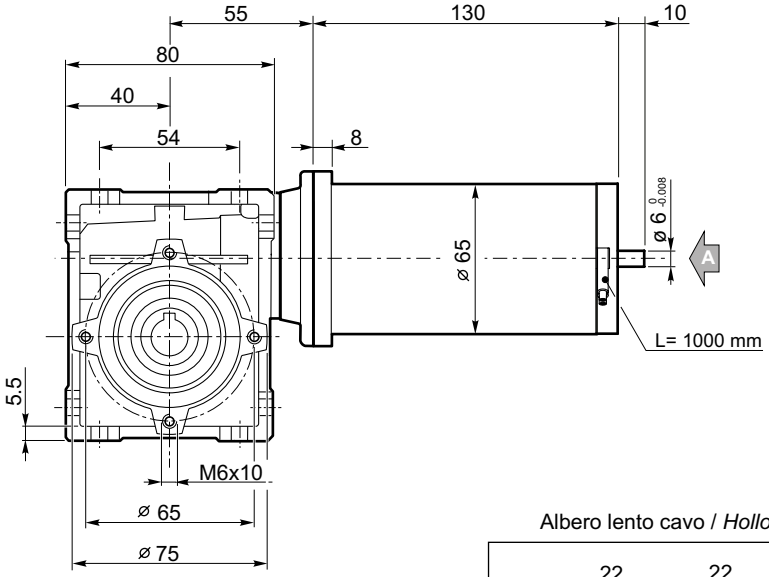


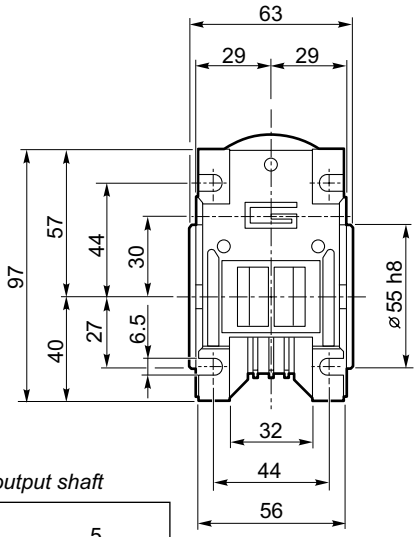
ECM070/026 F

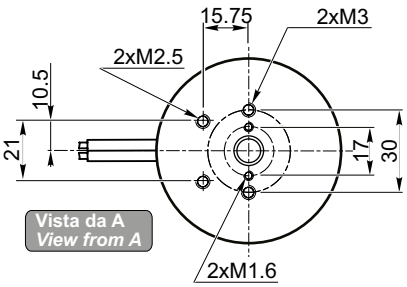
Freno / *Brake* → H23

Encoder → H24

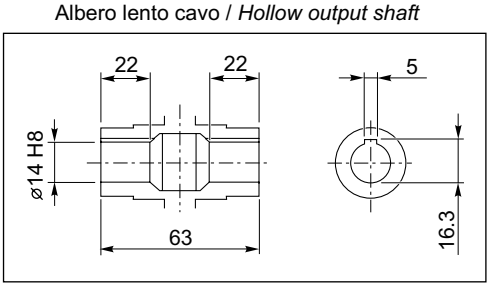
ECM070/030 U

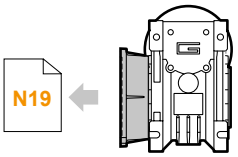






Albero lento cavo / *Hollow output shaft*





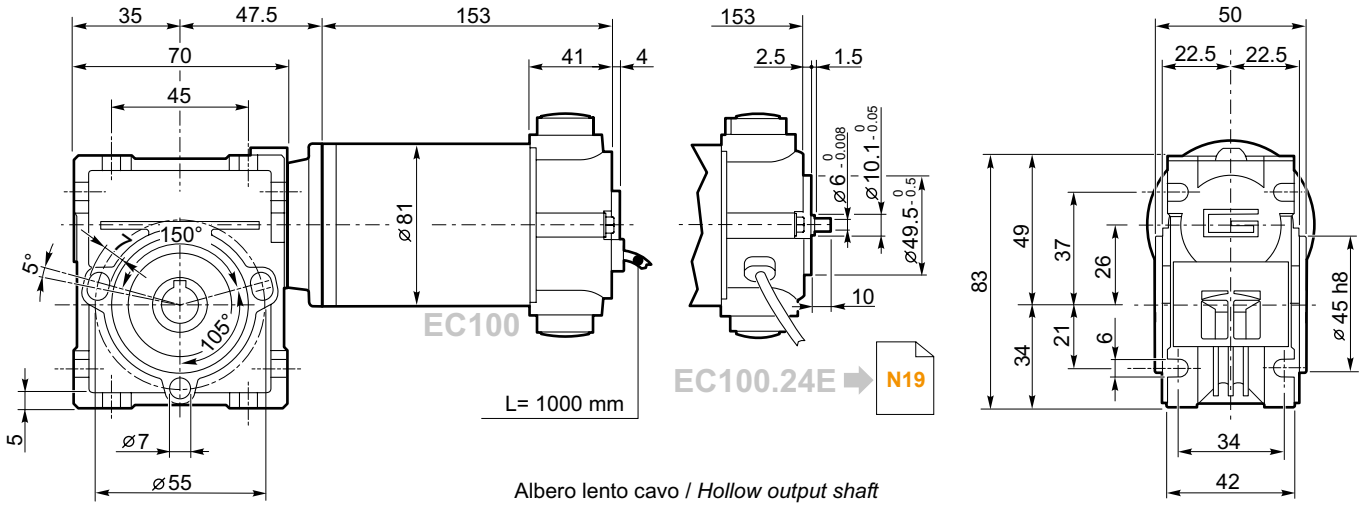
ECM070/030 F

Freno / *Brake* → H23

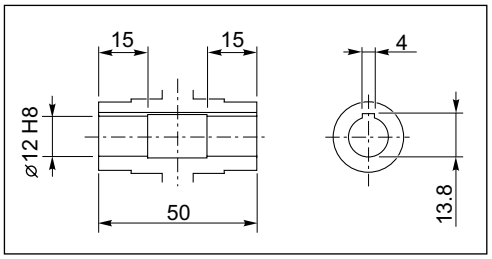
Encoder → H24

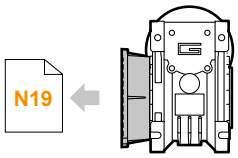
Dimensioni *Dimensions*

ECM100/026 U



Albero lento cavo / *Hollow output shaft*

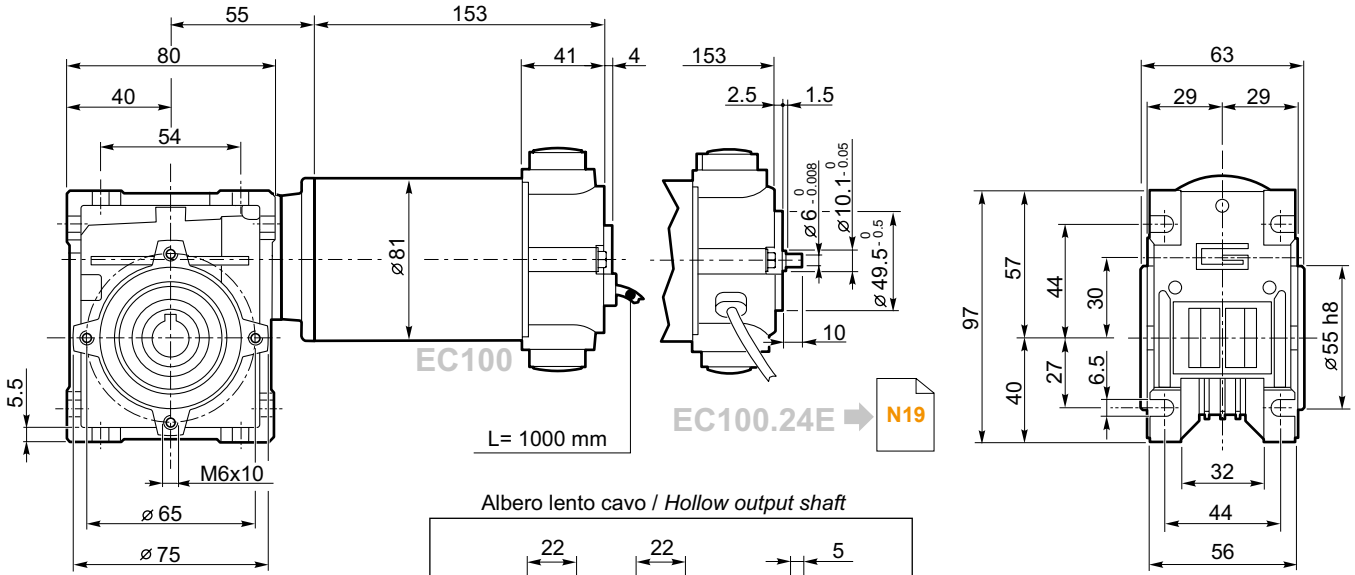




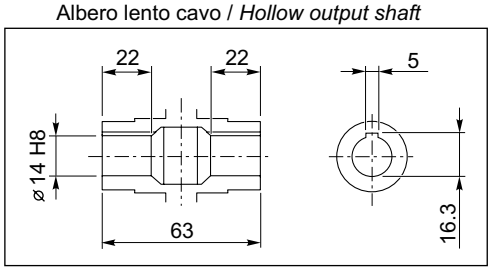
ECM100/026 F

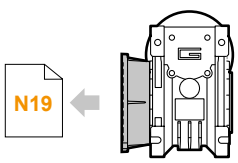
Freno / *Brake* H23 Encoder H24

ECM100/030 U



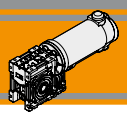
Albero lento cavo / *Hollow output shaft*





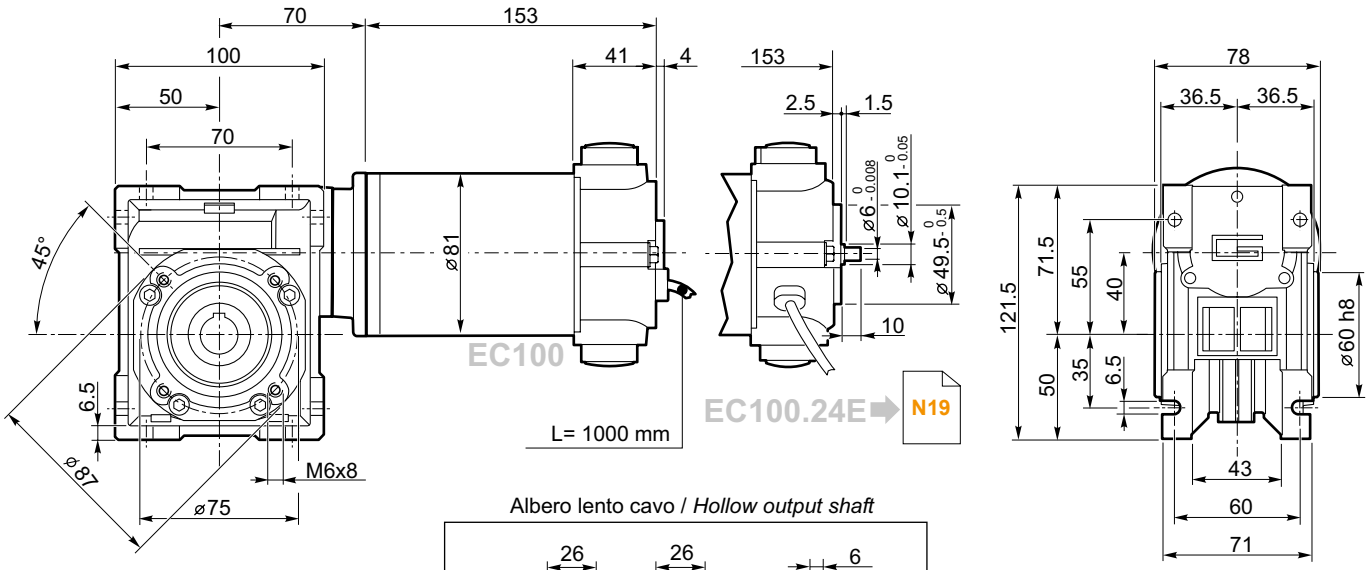
ECM100/030 F

Freno / *Brake* H23 Encoder H24

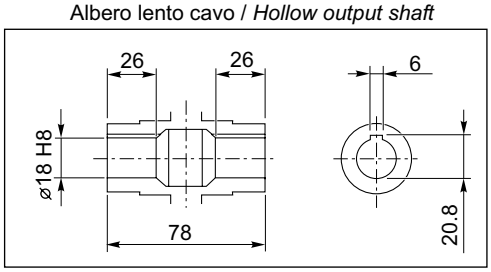


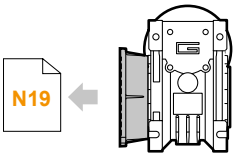
Dimensioni ***Dimensions***

ECM100/040 U



Albero lento cavo / *Hollow output shaft*





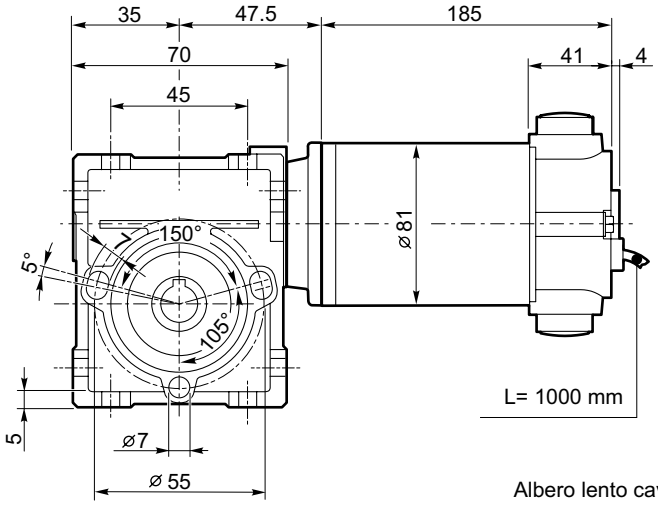
ECM100/040 F
ECM100/040 FL
ECM100/040 FB

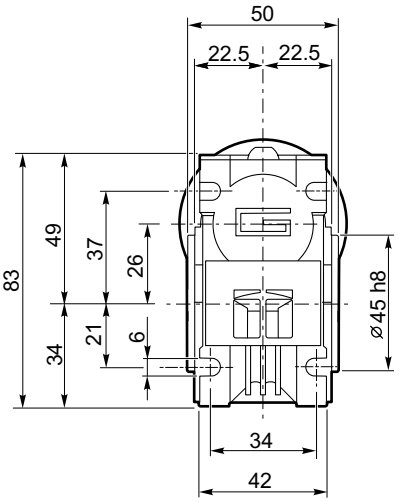
Freno / *Brake* → H23

Encoder → H24

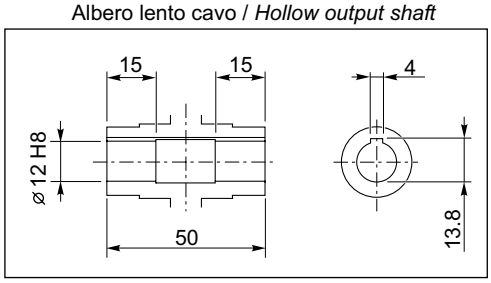
Dimensioni | ***Dimensions***

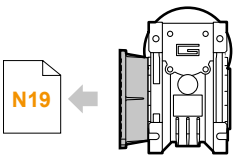
ECM180/026 U





Albero lento cavo / *Hollow output shaft*

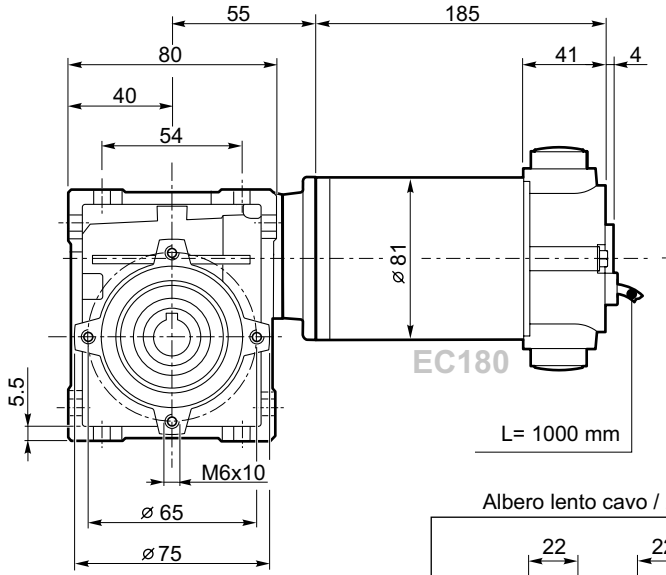


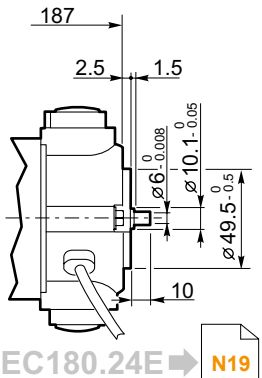


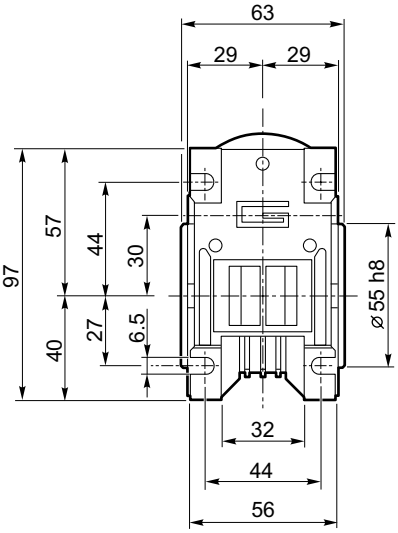
ECM180/026 F

Freno / *Brake* H23 Encoder H24

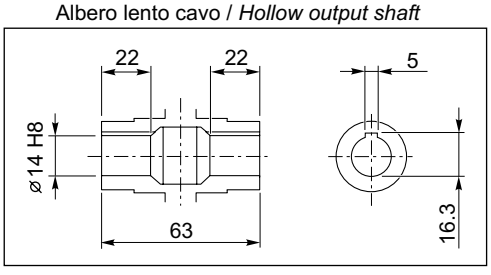
ECM180/030 U

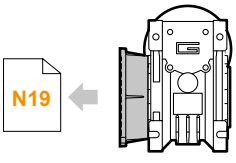






Albero lento cavo / *Hollow output shaft*



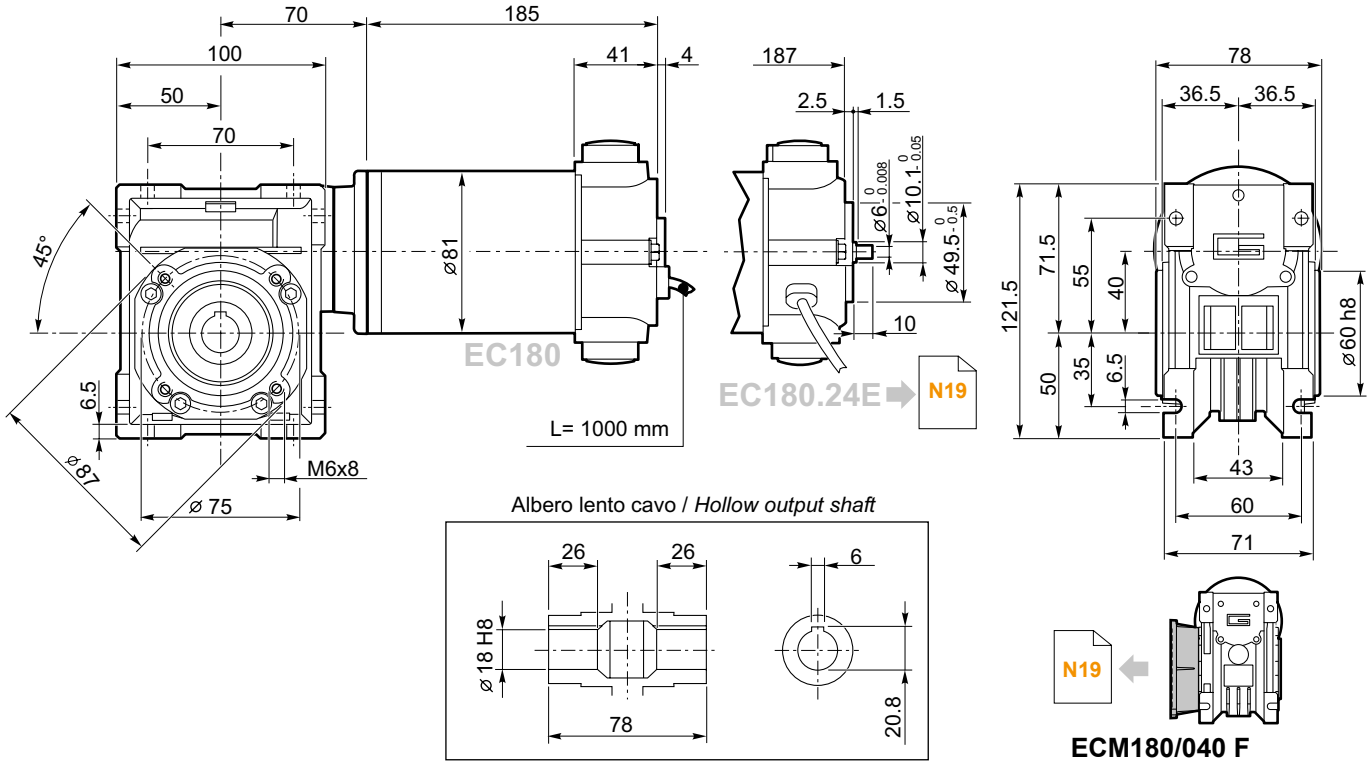


ECM180/030 F

Freno / *Brake* H23 Encoder H24

Dimensioni | ***Dimensions***

ECM180/040 U

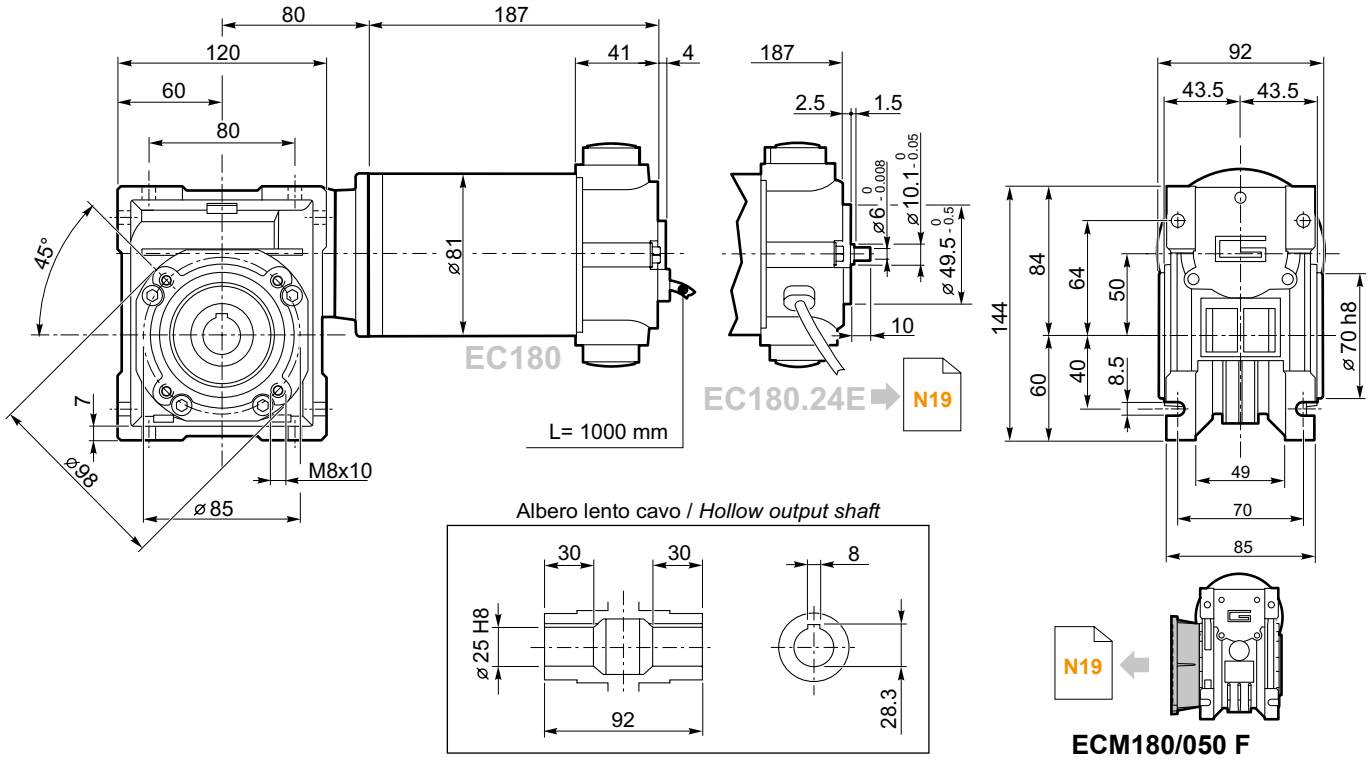


N19

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

Freno / *Brake* → H23 | Encoder → H24

ECM180/050 U



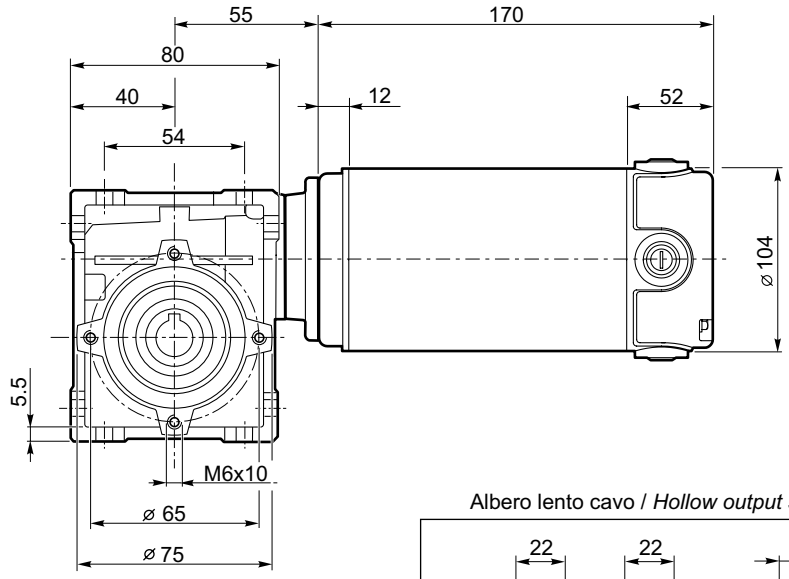
N19

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

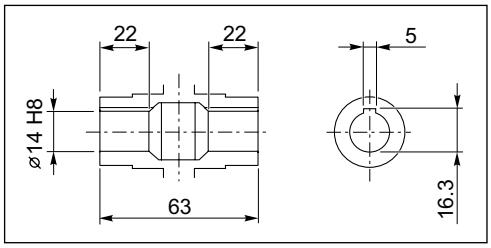
Freno / *Brake* → H23 | Encoder → H24

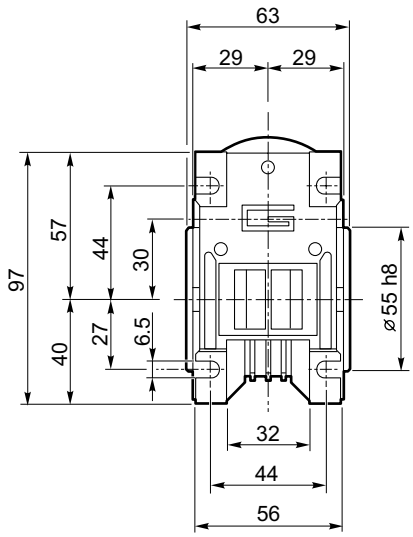
Dimensioni *Dimensions*

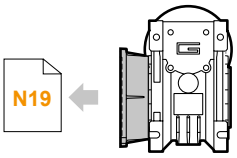
ECM250/030 U



Albero lento cavo / *Hollow output shaft*

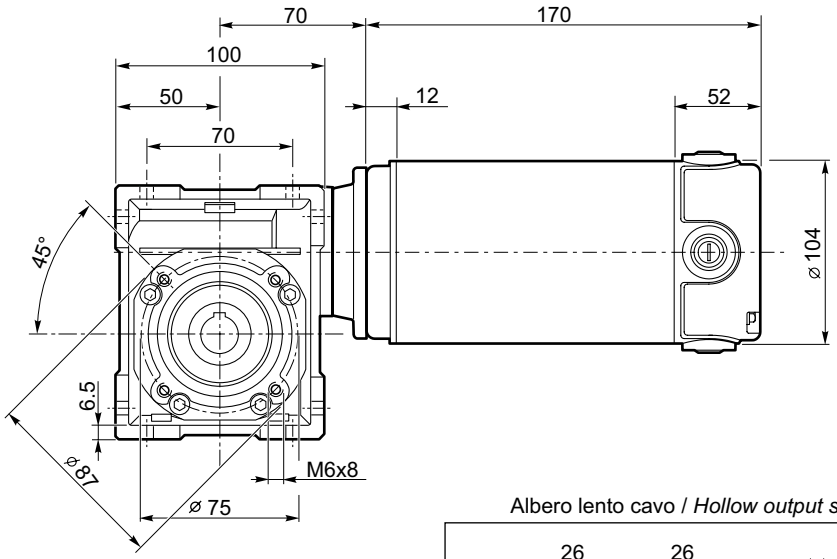




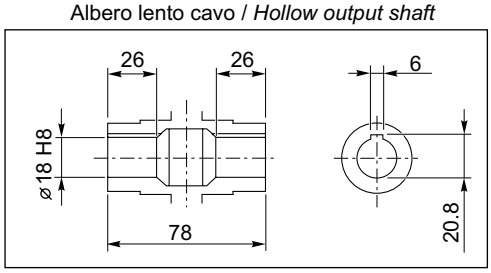


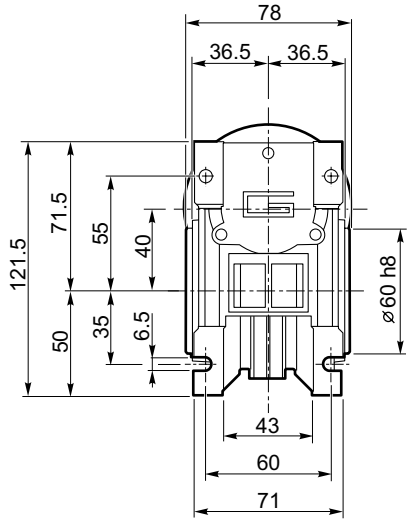
ECM250/030 F

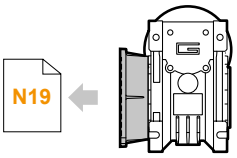
ECM250/040 U



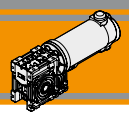
Albero lento cavo / *Hollow output shaft*





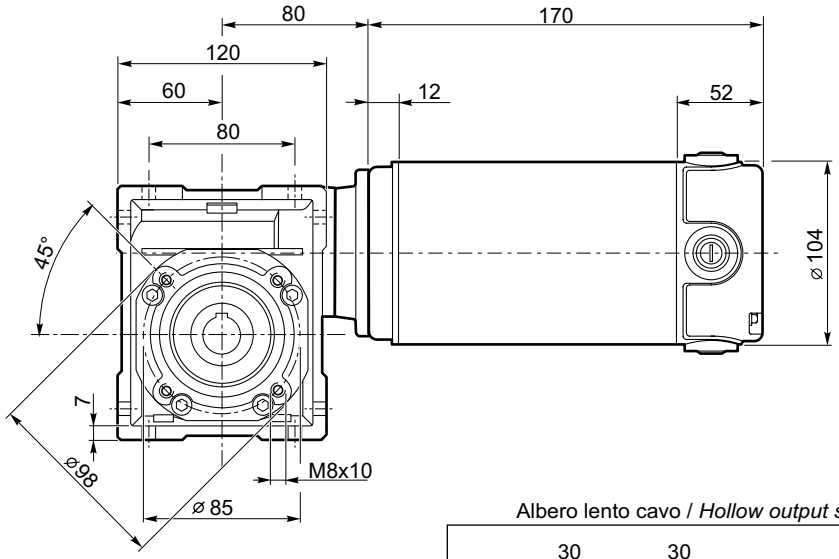


ECM250/040 F
ECM250/040 FL
ECM250/040 FB

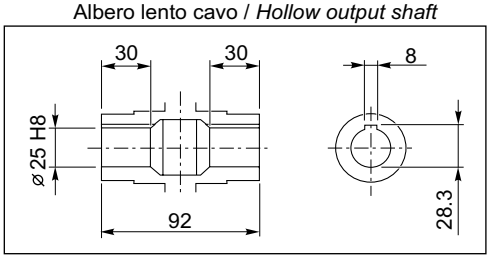


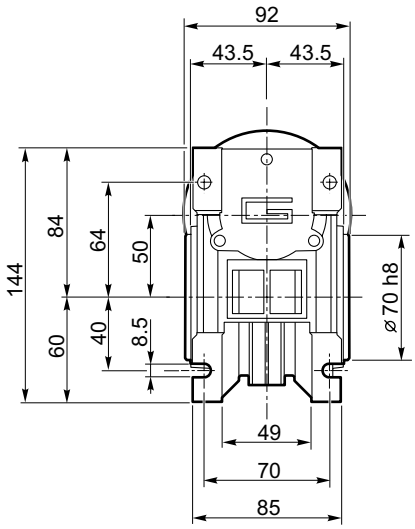
Dimensioni ***Dimensions***

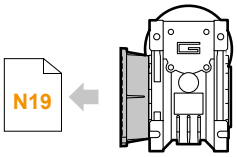
ECM250/050 U



Albero lento cavo / *Hollow output shaft*

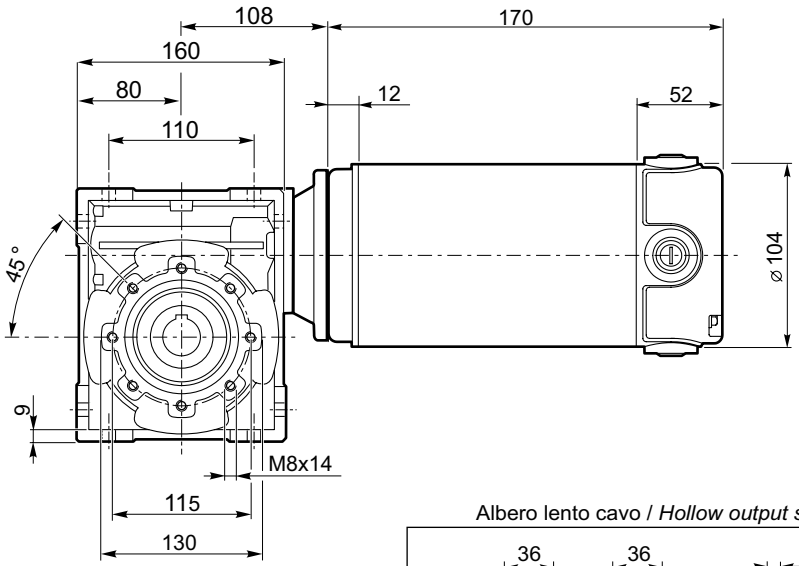




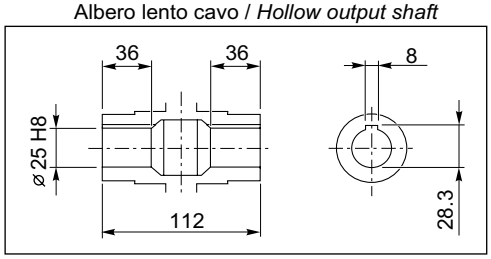


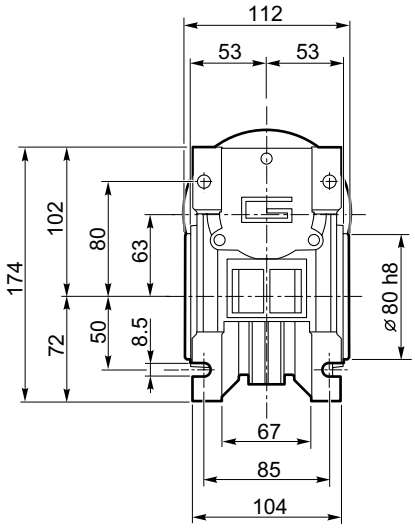
ECM250/050 F
ECM250/050 FL
ECM250/050 FB

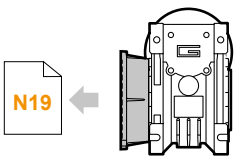
ECM250/063 U



Albero lento cavo / *Hollow output shaft*



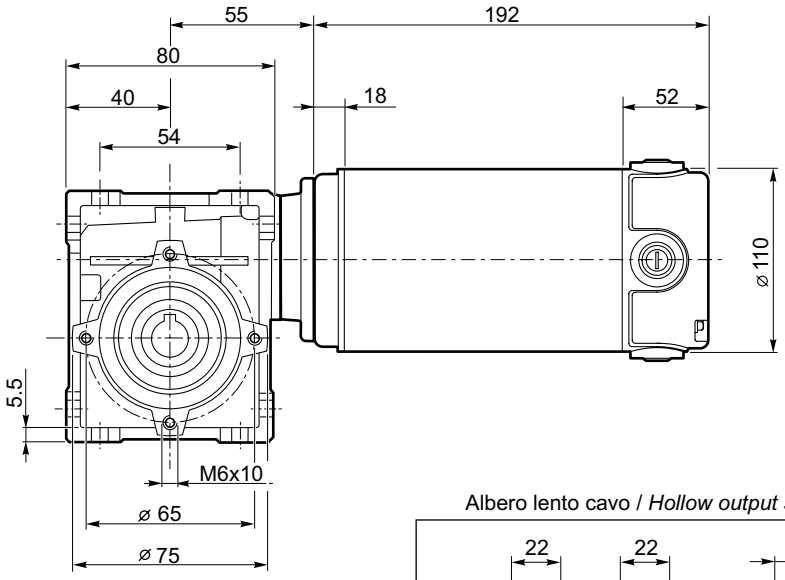


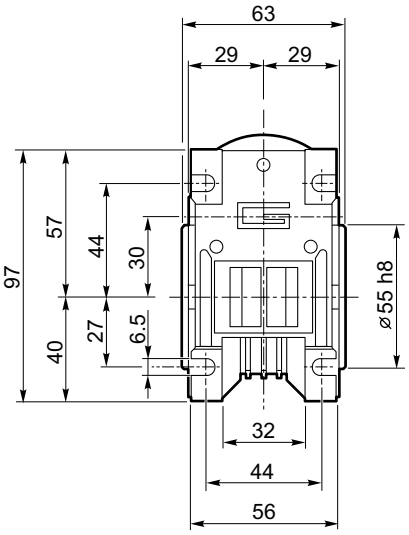


ECM250/063 F
ECM250/063 FL
ECM250/063 FB

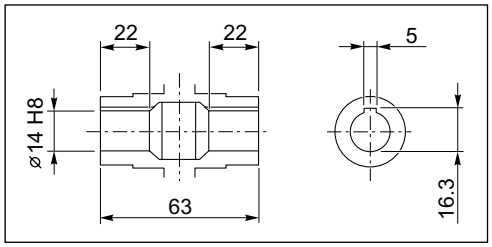
Dimensioni | ***Dimensions***

ECM350/030 U

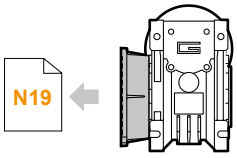




Albero lento cavo / *Hollow output shaft*

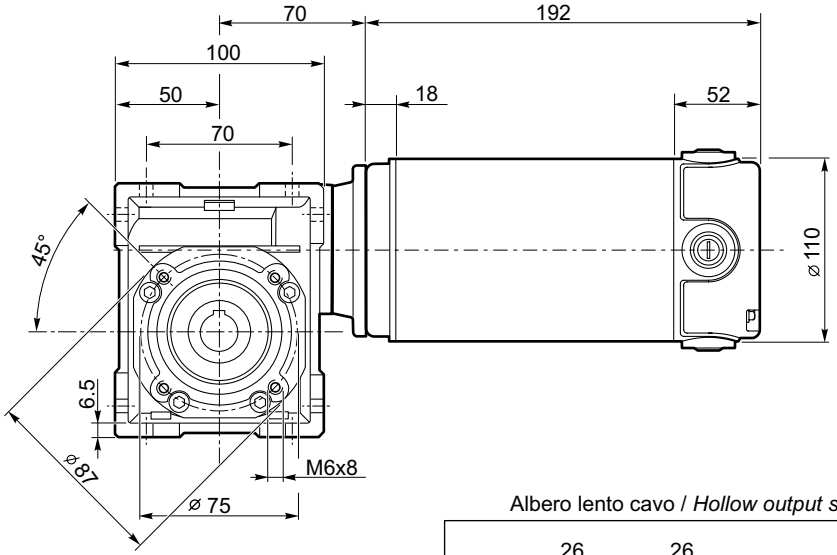


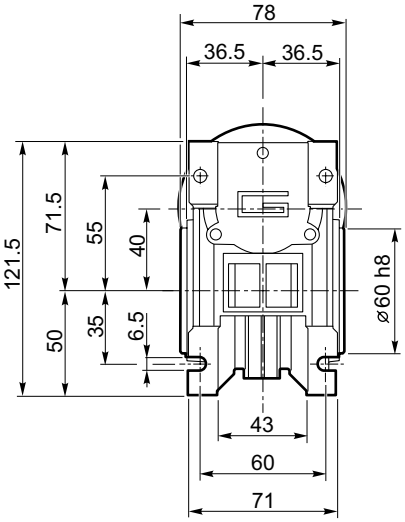
Freno / *Brake* → H23



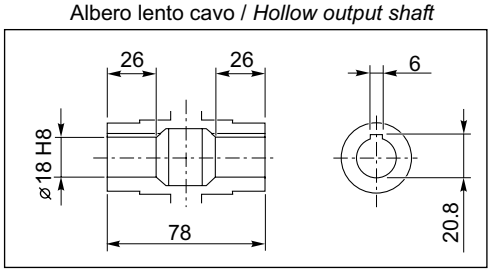
ECM350/030 F

ECM350/040 U

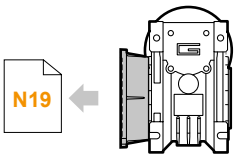




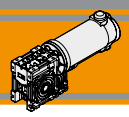
Albero lento cavo / *Hollow output shaft*



Freno / *Brake* → H23

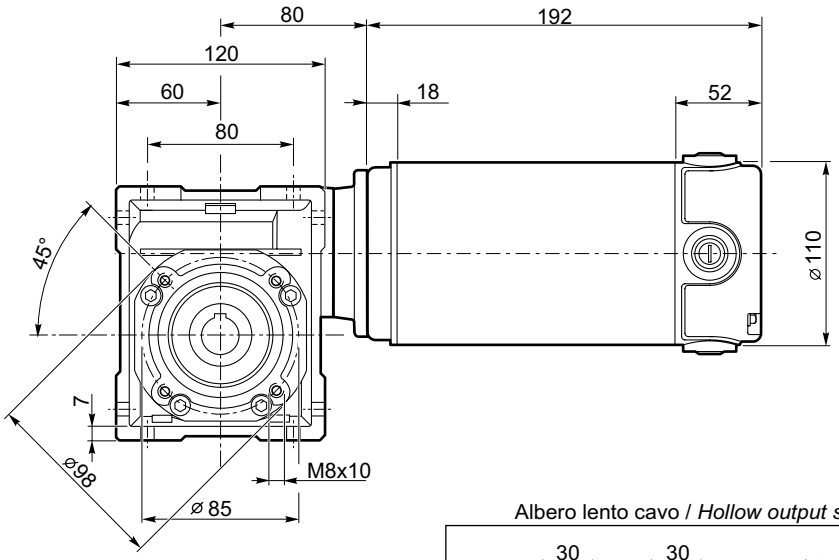


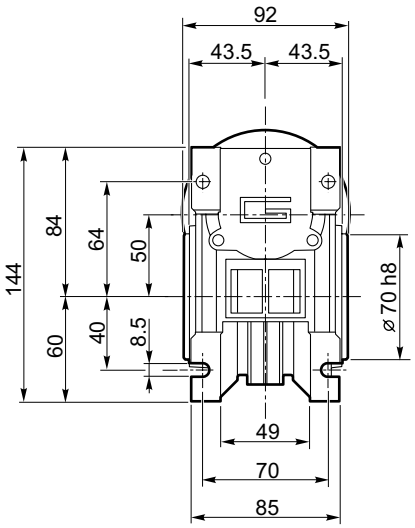
ECM350/040 F
ECM350/040 FL
ECM350/040 FB



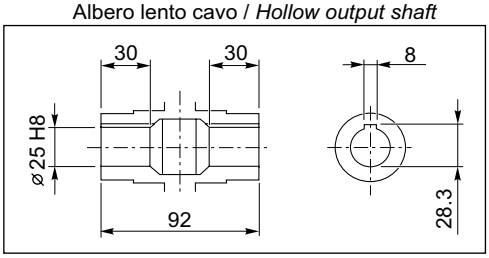
Dimensioni ***Dimensions***

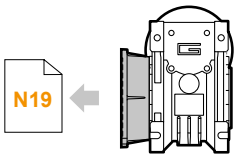
ECM350/050 U





Albero lento cavo / *Hollow output shaft*

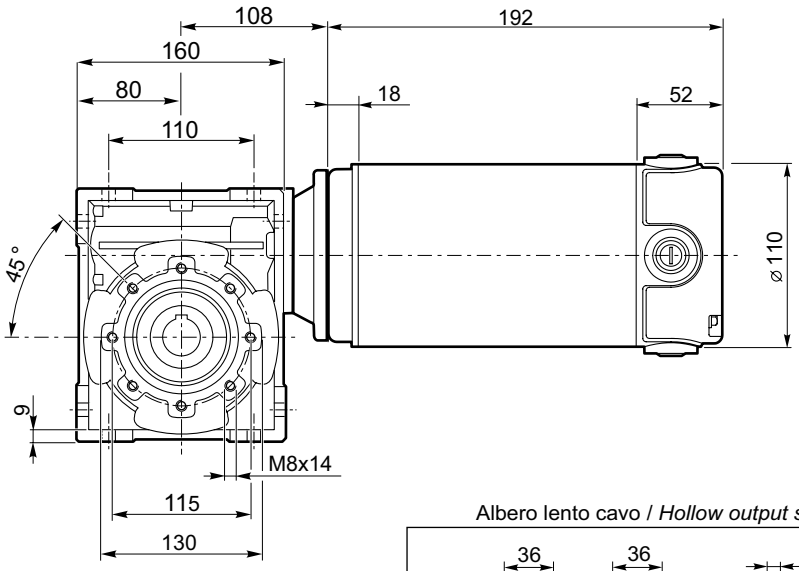


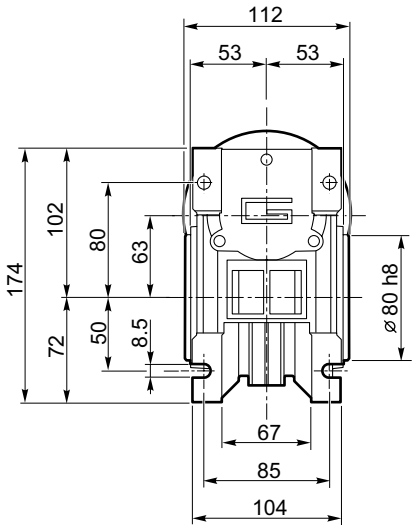


Freno / *Brake* 

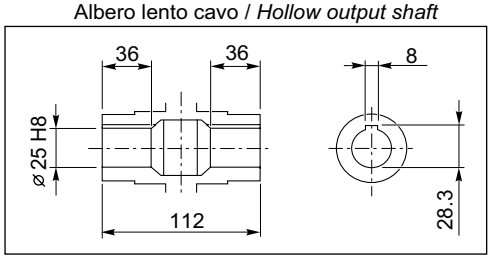
ECM350/050 F
ECM350/050 FL
ECM350/050 FB

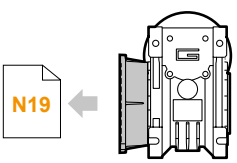
ECM350/063 U





Albero lento cavo / *Hollow output shaft*



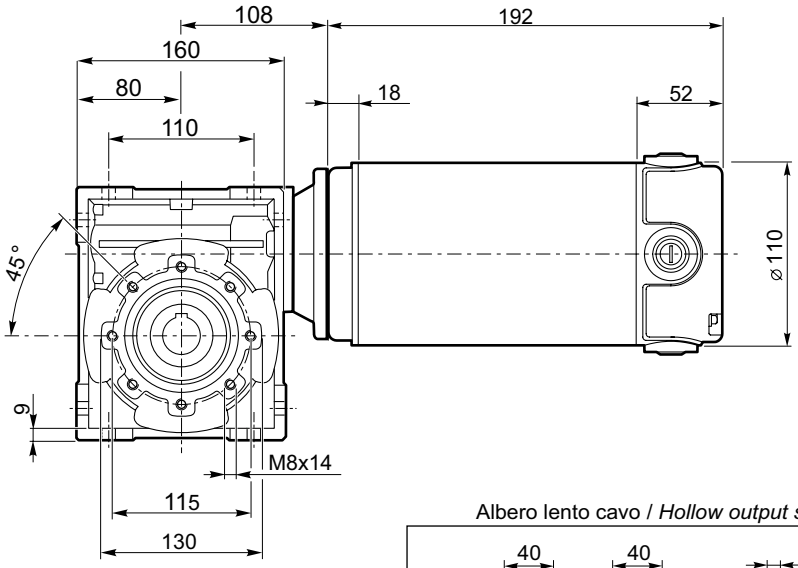


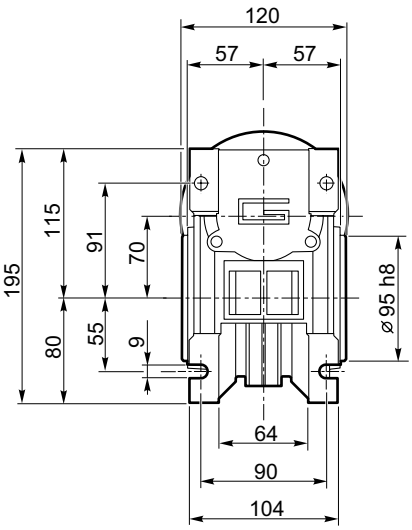
Freno / *Brake* 

ECM350/063 F
ECM350/063 FL
ECM350/063 FB

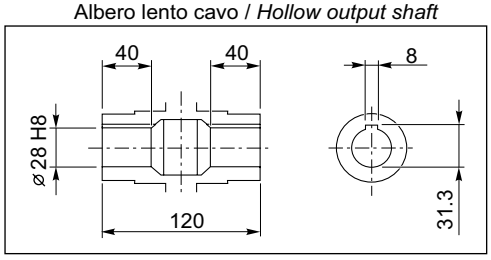
Dimensioni ***Dimensions***

ECM350/070 U

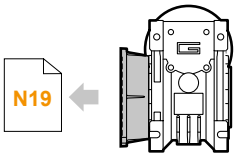




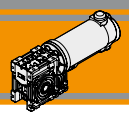
Albero lento cavo / *Hollow output shaft*



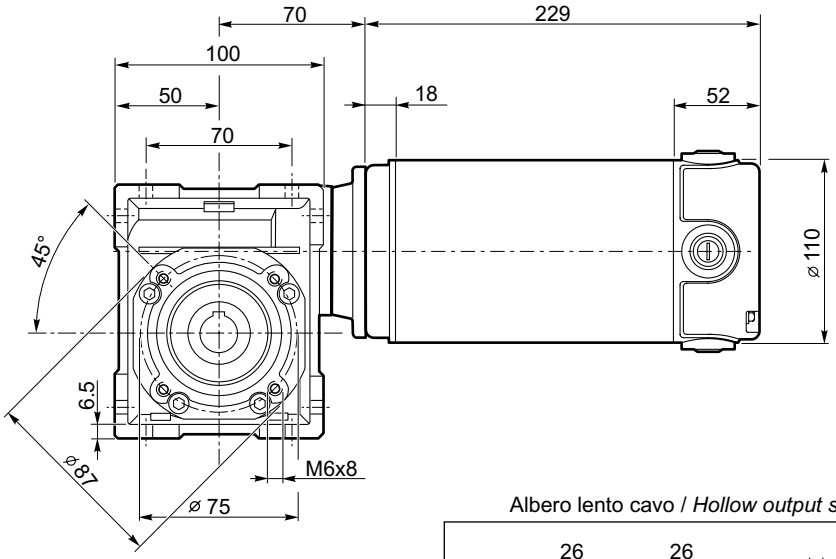
Freno / *Brake* → H23

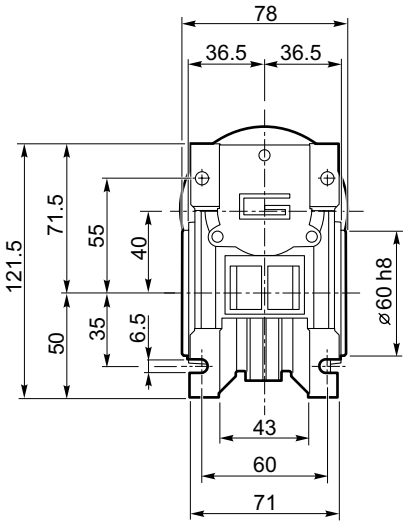


ECM350/070 F

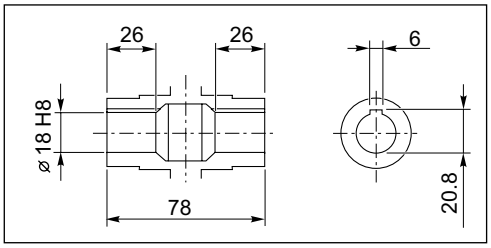


ECM600/040 U

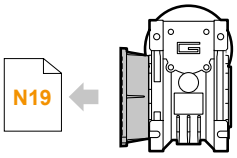




Albero lento cavo / *Hollow output shaft*



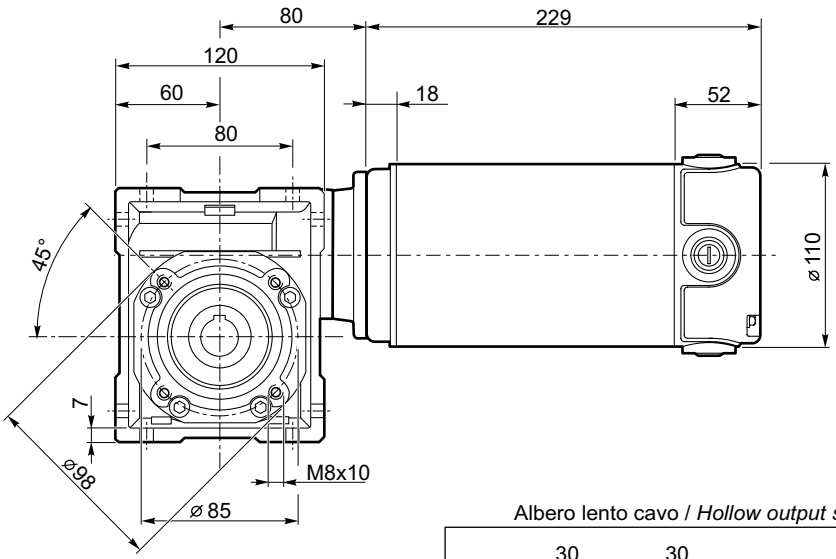
Freno / *Brake* → H23

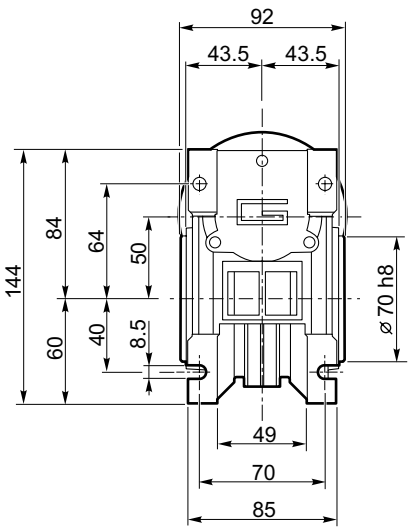


N19

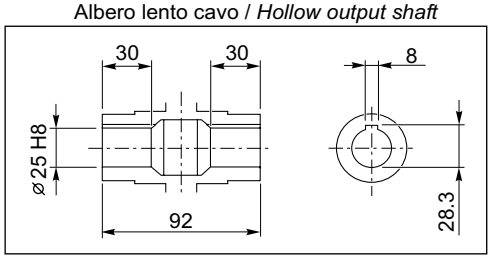
ECM600/040 F
ECM600/040 FL
ECM600/040 FB

ECM600/050 U

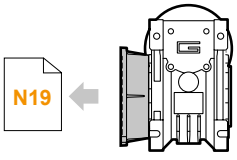




Albero lento cavo / *Hollow output shaft*



Freno / *Brake* → H23

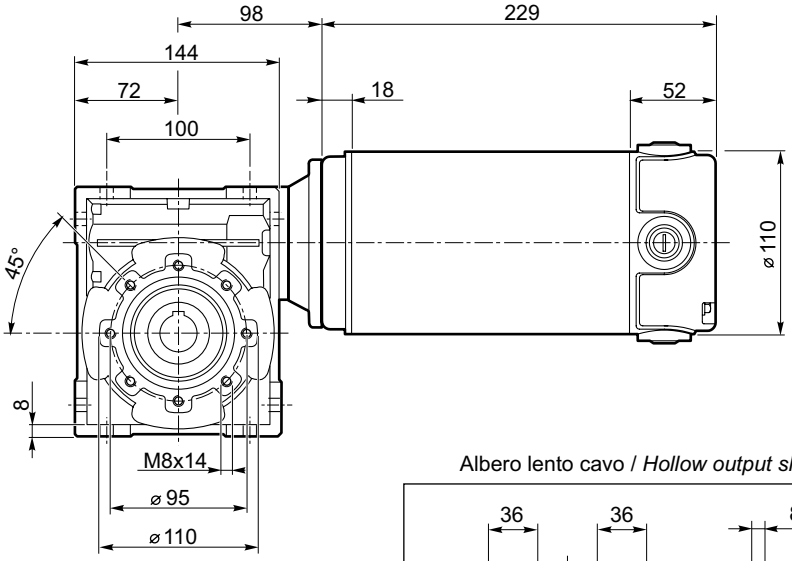


N19

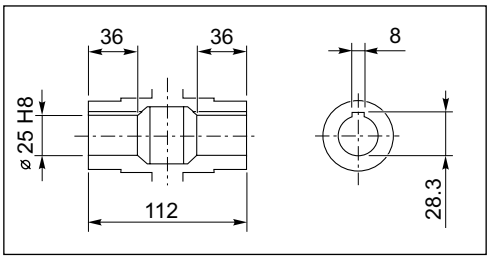
ECM600/050 F
ECM600/050 FL
ECM600/050 FB

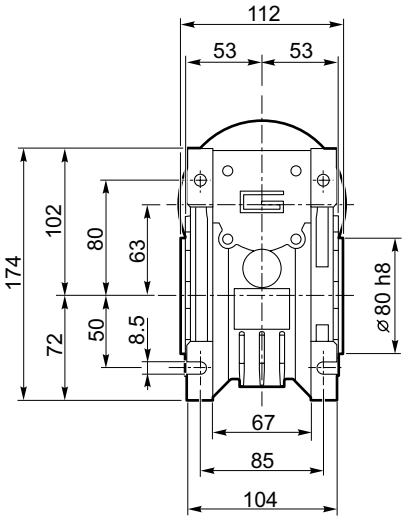
Dimensioni | ***Dimensions***

ECM600/063 U



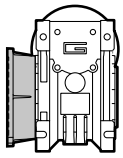
Albero lento cavo / *Hollow output shaft*





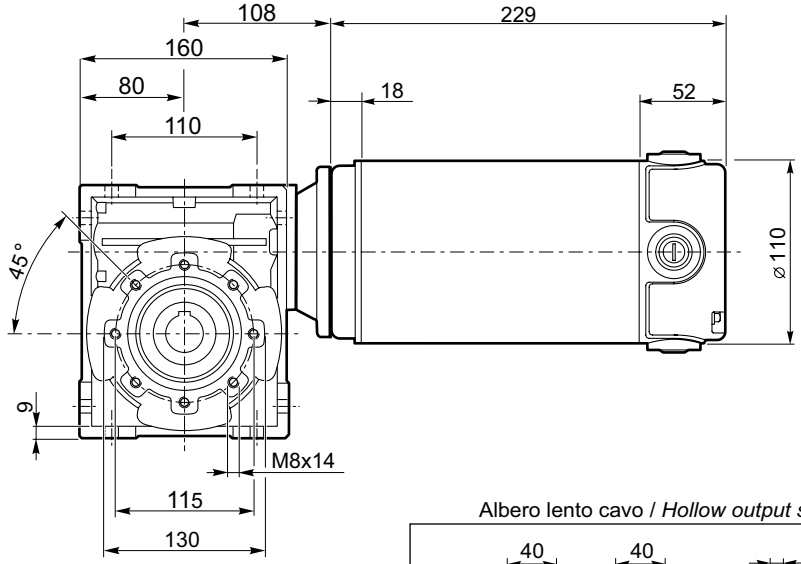
Freno / *Brake* → H23

N19

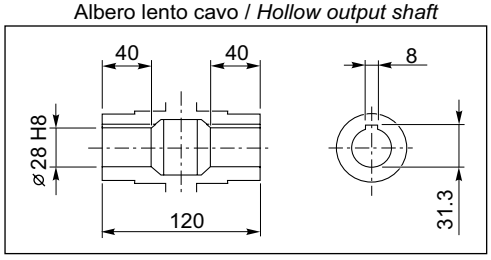


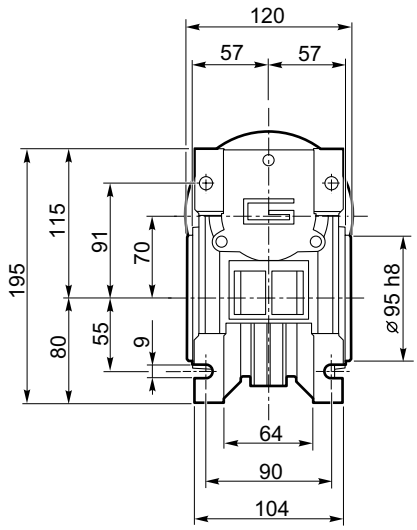
ECM600/063 F
ECM600/063 FL
ECM600/063 FB

ECM600/070 U



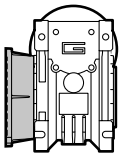
Albero lento cavo / *Hollow output shaft*



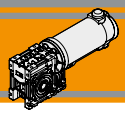


Freno / *Brake* → H23

N19

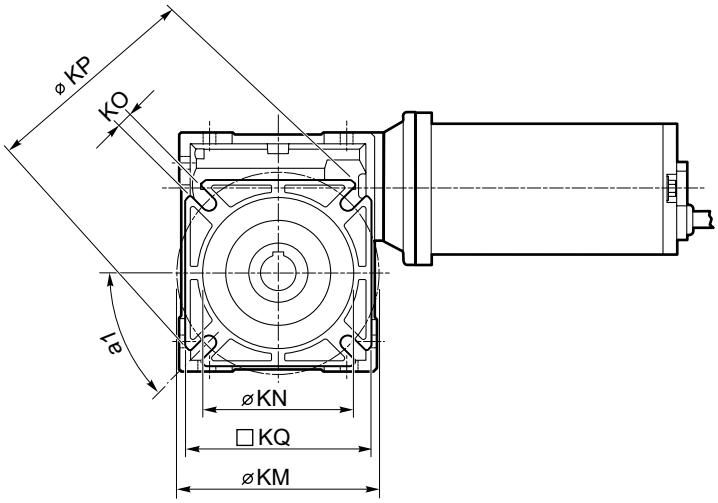


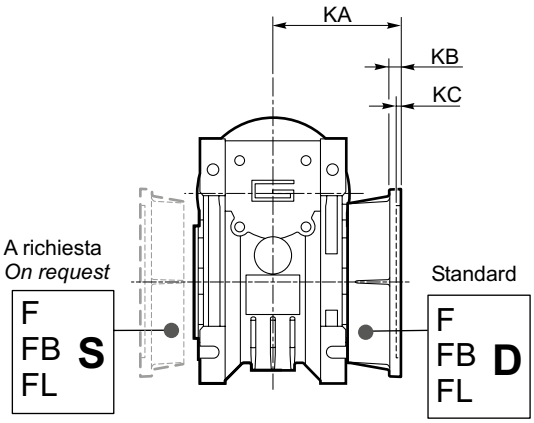
ECM600/070 F



Dimensioni — *Dimensions*

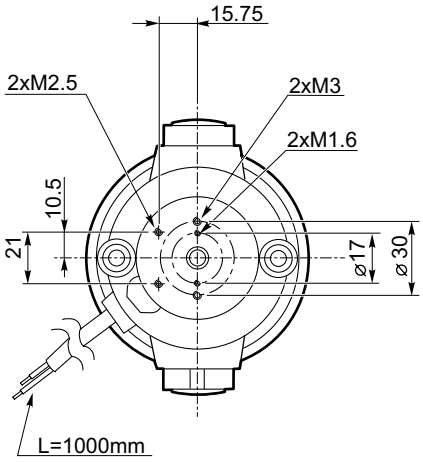
ECM.../... F... Flange uscita / *Output flanges*

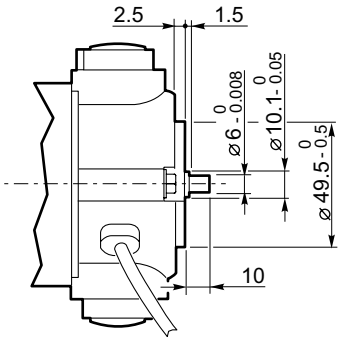




CM		CM..F								CM..FB								CM..FL							
	a1	KA	KB	KC	KM	KN H8	KO	KP	KQ	KA	KB	KC	KM	KN H8	KO	KP	KQ	KA	KB	KC	KM	KN H8	KO	KP	KQ
026	45°	45	6	4.5	55-69	40	6.5(n.4)	75	70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
030	45°	54.5	6	4	68	50	6.5(n.4)	80	70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
040	45°	67	7.5	4	80-95	60	9(n.4)	110	95	80	8.5	5	115-125	95	9.5(n.4)	140	112	97	7.5	4.5	80-95	60	9(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
070	45°	107	13	6	165-180	130	14(n.4)	200	170	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

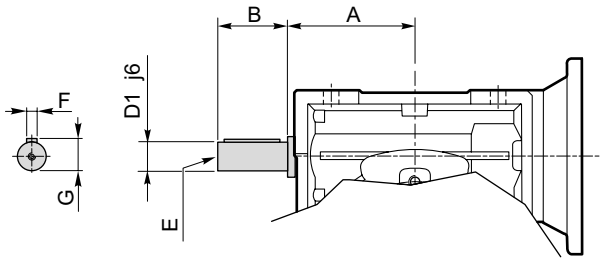
EC100.24E
EC180.24E





Opzioni — *Options*

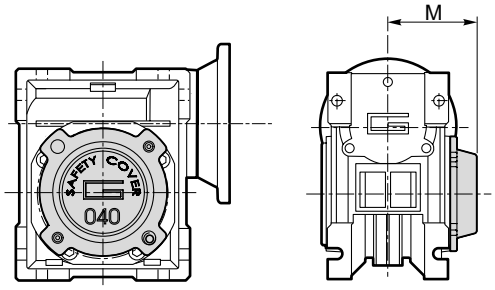
VS - Vite sporgente / *Extended input shaft*



	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
CM 070	84	40	19	M6	6	21.5

Costruito su richiesta
Built on request

SC - *Safety cover*



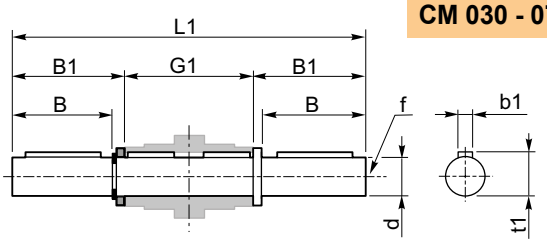
	M
CM 030	47
CM 040	54.5
CM 050	62.5
CM 063	73
CM 070	75

Accessori — *Accessories*

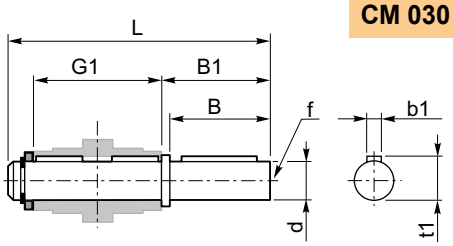
Albero lento — *Output shaft*

CM 030 - 070

DZ

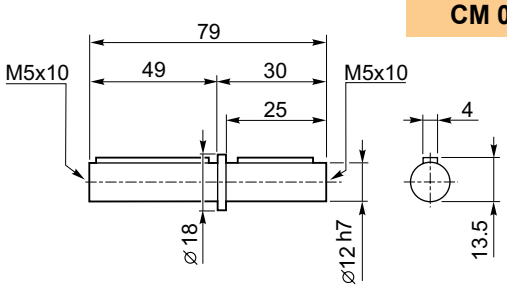


SZ



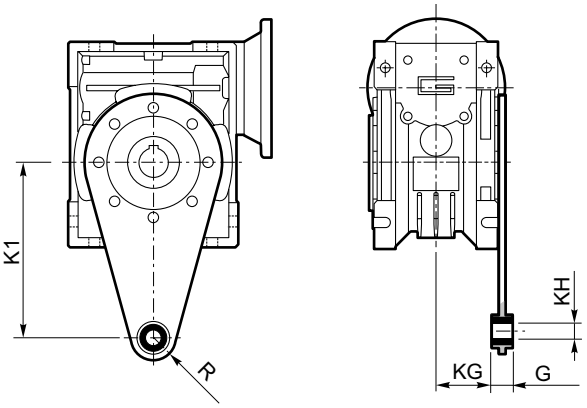
	d h7	B	B1	G1	L	L1	f	b1	t1
CM 030	14	30	32.5	63	102	128	M6	5	16
CM 040	18	40	43	78	128	164	M6	6	20.5
CM 050	25	50	53.5	92	153	199	M10	8	28
CM 063	25	50	53.5	112	173	219	M10	8	28
CM 070	28	60	63.5	120	192	247	M10	8	31

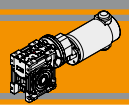
CM 026



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
CM 070	200	25	46.5	20	30





ENERGY SAVING

Caratteristiche tecniche

Technical features

Le caratteristiche principali dei motoriduttori CC a vite senza fine con precoppia a magneti permanenti in ferrite serie ECMP sono:

- Alimentazione in bassa tensione 12/24 Vcc
- Possibilità di montaggio encoder
- Potenze motore disponibili da 100 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 ferrite permanent magnets DC pre stage wormgearmotors range are:

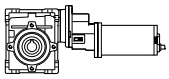
- *Low voltage power supply 12/24 Vdc*
- *Suitable for encoder assembly*
- *Motor power ratings available from 100 up to 800W S2*
- *Ferrite magnets*
- *Die-cast aluminum housing on pre-stage and wormgearboxes*
- *Permanent synthetic oil long-life lubrication.*

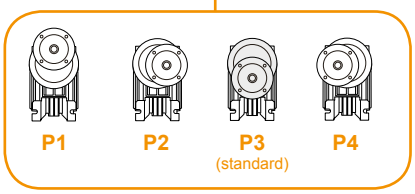
Designazione

Classification

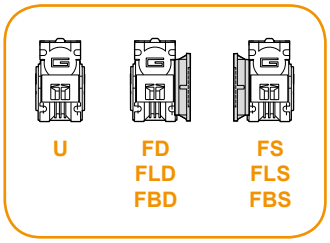
MOTORIDUTTORE / *GEARMOTOR*

ECMP	070/056/030	U	90	SZDX	BRSX	90	P4	240	VS
Tipo *Type*	Grandezza *Size*	Versione Riduttore *Gearbox Version*	Rapporto *Ratio*	Albero di uscita *Output shaft*	Braccio di reazione *Torque arm*	Angolo *Angle*	Pos. di montaggio precoppia *Pre stage mounting position*	Versione Motore *Motor Version*	Opzioni *Options*
ECMP	**070/056/030** **070/056/040** **100/056/030** **100/056/040** **100/063/050** **180/056/030** **180/056/040** **180/063/050** **180/063/063** **250/063/040** **250/063/050** **250/063/063** **350/063/050** **350/063/063** **350/071/063** **350/071/070** **350/071/075** **600/071/050** **600/071/063** **600/071/070** **600/071/075**	**U** **FD** **FS** **FLD** **FLS** **FBD** **FBS**	Vedere tabella *See tables*	**SZDX** **SZSX** **DZ**	**BRDX** **BRSX**	**0°** **90°** **180°** **270°**	**P1** **P2** **P3** (standard) **P4**	**120** **240** **24E**	**VS**

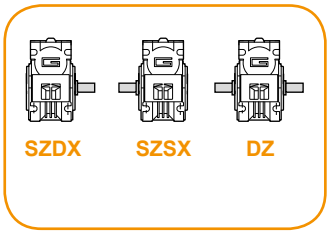




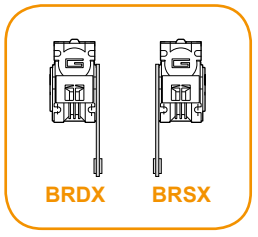
Versione Riduttore *Gearbox Version*



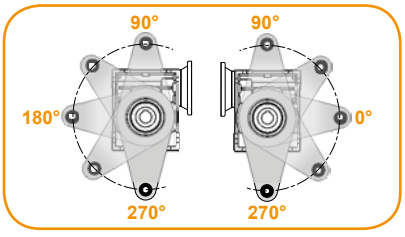
Albero di uscita *Output shaft*



Braccio di reazione *Torque arm*



Angolo *Angle*



Simbologia — *Symbols*

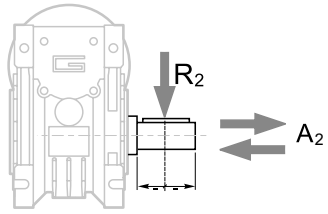
n_1	[min^{-1}]	Velocità in ingresso / *Input speed*	M_2	[Nm]	Coppia in uscita in funzione di P_1 / *Output torque referred to P_1*
n_2	[min^{-1}]	Velocità in uscita / *Output speed*	sf		Fattore di servizio / *Service factor*
i		Rapporto di riduzione / *Ratio*	R_2	[N]	Carico radiale ammissibile in uscita / *Permitted output radial load*
P_1	[kW]	Potenza in entrata / *Input power*	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.

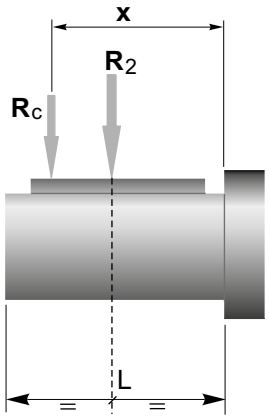
Carichi radiali — *Radial loads*



n_2 [min^{-1}]	R_2 [N]					
	CM030	CM040	CM050	CM063	CM070	CM075
35	1179	2210	3095	4273	4568	4937
28	1270	2381	3334	4603	4921	5318
23	1356	2542	3559	4915	5254	5678
18	1471	2759	3862	5334	5702	6162
14	1600	3000	4200	5800	6200	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:



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

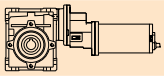
$$R \leq R_c$$

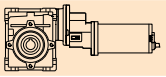
a, b = valori riportati nella tabella
a, b = values given in the table

	CM					
	030	040	050	063	070	075
a	65	84	101	120	122	131
b	50	64	76	95	92	101
R_{2MAX}	1600	3000	4200	5800	6200	6700

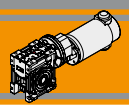
Dati tecnici per servizio S2

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**	12E/24E
	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**	12E/24E
	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	**ECMP100/063/050**	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		

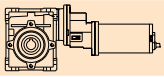
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
350						
(3000 min^{-1})	**50**	48	0.9	60	**ECMP250/063/040**	120/240
	40	57	0.8	75		
	33	65	0.9	90		
	25	69	0.7	120		
	50	49	1.6	60	**ECMP250/063/050**	120/240
	40	59	1.3	75		
	33	67	1.5	90		
	25	81	1.0	120		
	20	97	0.8	150		
	17	108	0.7	180		
	13	99	0.7	240		
	50	51	3.0	60	**ECMP250/063/063**	120/240
	40	61	2.2	75		
	33	69	2.7	90		
	25	85	1.9	120		
	20	100	1.5	150		
	17	114	1.2	180		
	13	136	0.9	240		
	10	154	0.8	300		
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	73	2.1	60	**ECMP350/071/063**	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		
	50	74	3.1	60	**ECMP350/071/070**	120/240
	40	90	2.2	75		
	33	101	2.7	90		
	25	125	1.9	120		
	20	147	1.5	150		
	17	168	1.3	180		
	13	202	0.9	240		
	10	229	0.7	300		
	50	75	3.7	60	**ECMP350/071/075**	120/240
	40	90	2.7	75		
	33	102	3.2	90		
	25	127	2.3	120		
	20	150	1.7	150		
	17	168	1.5	180		
	13	206	1.1	240		
	10	234	0.9	300		

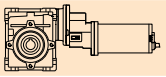
N.B.
Verificare sempre che la coppia M2 utilizzata non ecceda il valore indicato nelle caselle in grigio
N.B.
Please check that the output torque M2 does not exceed the value in the grey areas



Dati tecnici per servizio S2

Technical data for S2 duty

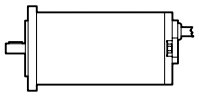
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
800						
(3000 min^{-1})	**50**	112	0.7	60	**ECMP600/071/050**	120/240
	40	107	0.7	75		
	33	141	0.7	90		
	50	117	1.3	60	**ECMP600/071/063**	120/240
	40	140	1.0	75		
	33	157	1.2	90		
	25	195	0.8	120		
	20	228	0.7	150		
	17	203	0.7	180		

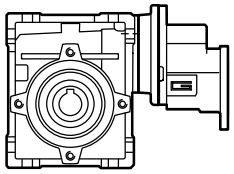
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
800						
(3000 min^{-1})	**50**	118	1.9	60	**ECMP600/071/070**	120/240
	40	144	1.4	75		
	33	162	1.7	90		
	25	201	1.2	120		
	20	236	0.9	150		
	17	270	0.8	180		
	50	118	2.3	60	**ECMP600/071/075**	120/240
	40	144	1.7	75		
	33	164	2.0	90		
	25	204	1.4	120		
	20	240	1.1	150		
	17	270	0.9	180		
	13	329	0.7	240		
	10	293	0.7	300		

N.B.
Verificare sempre che la coppia M2 utilizzata non ecceda il valore indicato nelle caselle in grigio
N.B.
Please check that the output torque M2 does not exceed the value in the grey areas

Motori applicabili

Motor adapters



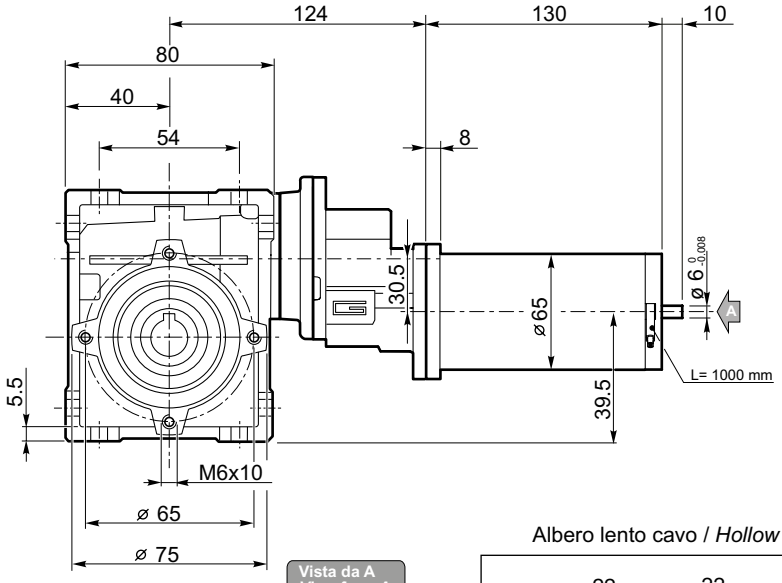


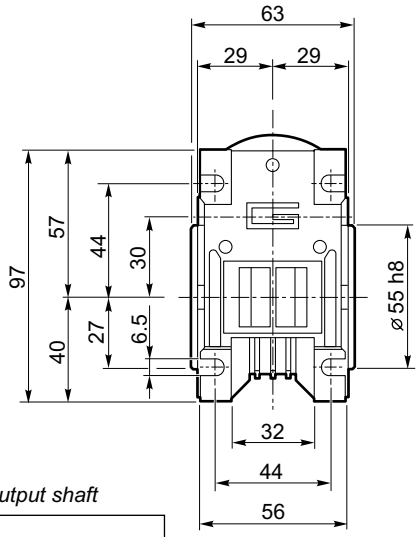
		EC						
		070.12E 070.24E	**100.120 100.240 100.24E**	**180.120 180.240**	**180.24E**	**250.120 250.240**	**350.120 350.240**	**600.120 600.240**
CMP	**056/030**	150	150	150				
	056/040	300	300	300				
	063/040					120		
	063/050		240	240	240	240	240	
	063/063			300	300	300	300	
	071/050							90
	071/063						180	180
	071/070						300	180
	071/075						300	300

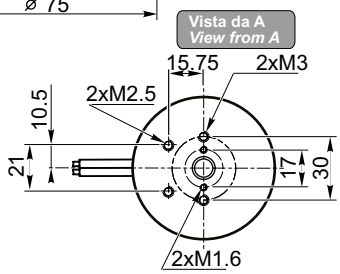
150 Rapporto di riduzione massimo i_{max}
Maximum ratio i_{max}

Dimensioni ***Dimensions***

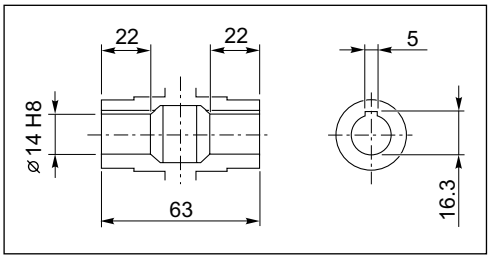
ECMP070/056/030 U

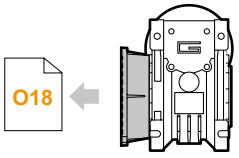






Albero lento cavo / *Hollow output shaft*

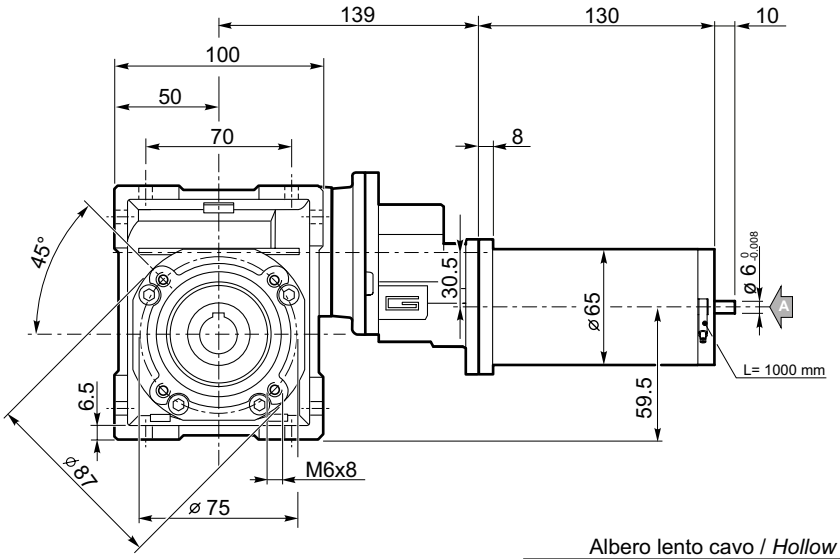


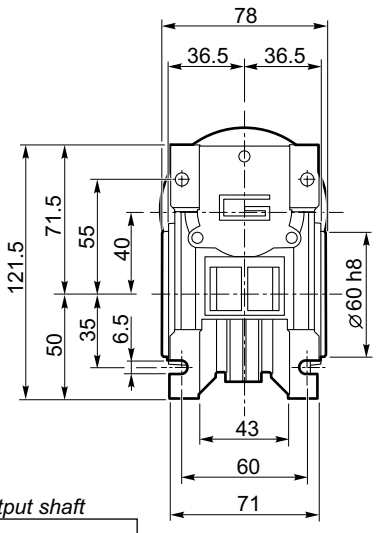


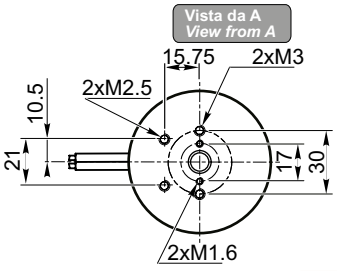
ECMP070/056/030 F

Freno / *Brake* → H23 Encoder → H24

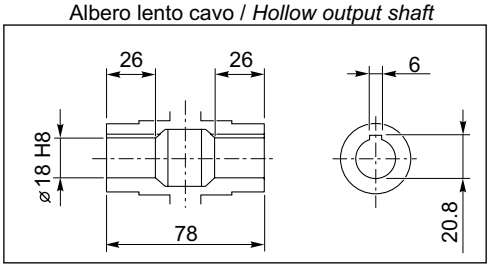
ECMP070/056/040 U

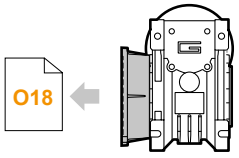






Albero lento cavo / *Hollow output shaft*



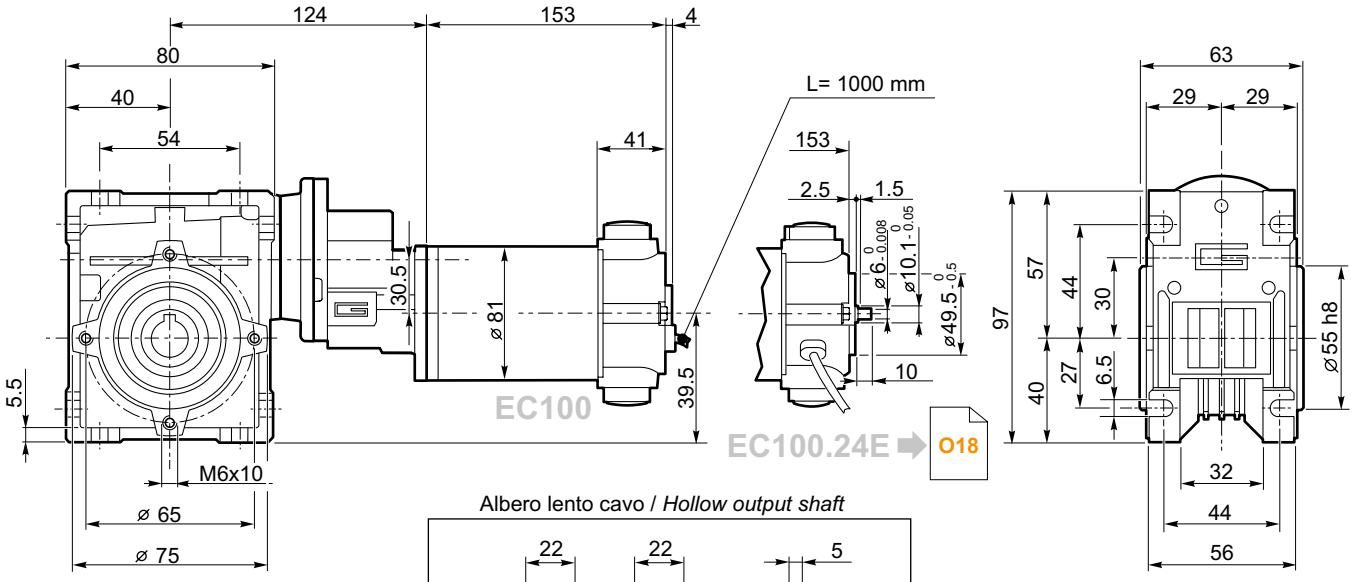


ECMP070/056/040 F
ECMP070/056/040 FL
ECMP070/056/040 FB

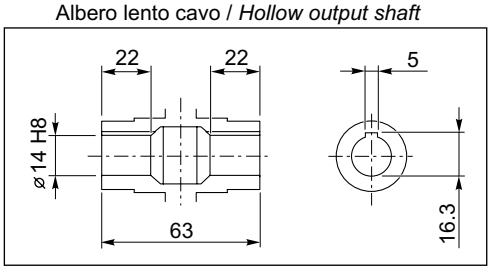
Freno / *Brake* → H23 Encoder → H24

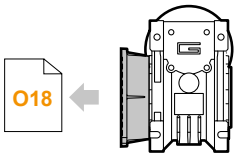
Dimensioni | ***Dimensions***

ECMP100/056/030 U



Albero lento cavo / *Hollow output shaft*

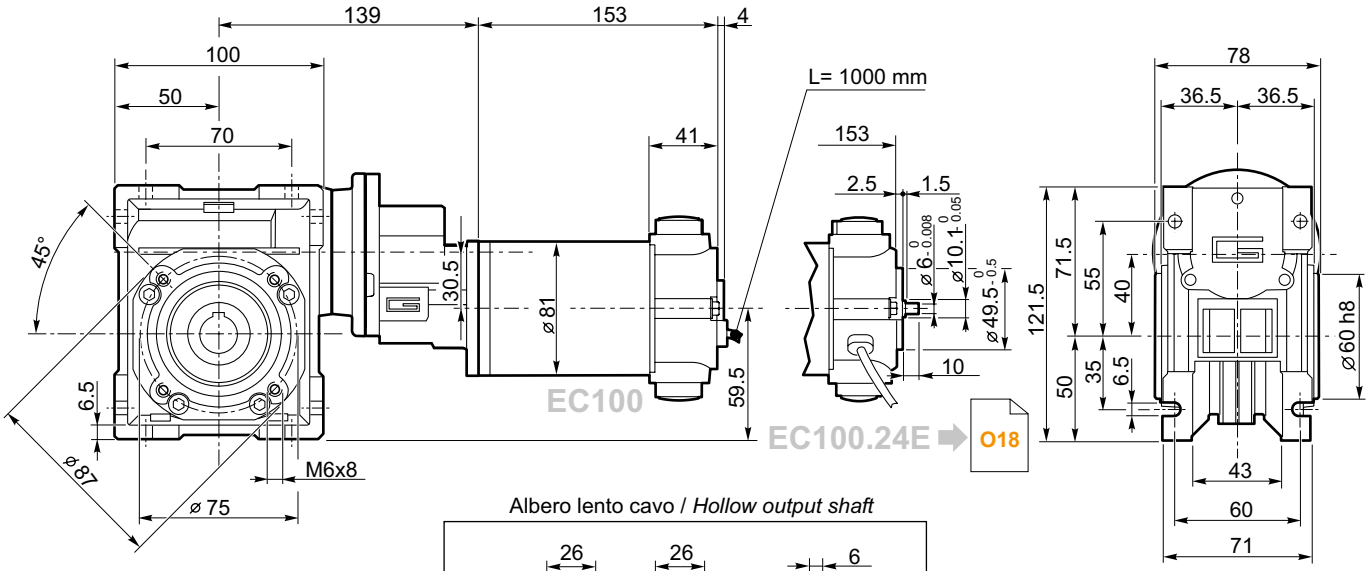




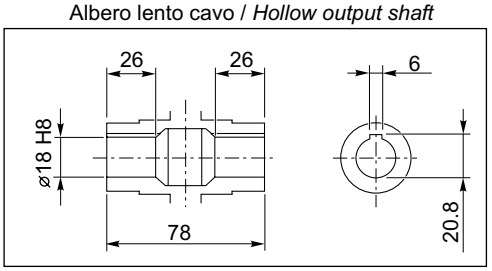
Freno / *Brake* → H23 | Encoder → H24

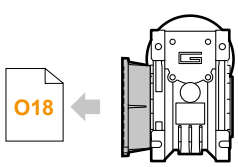
ECMP100/056/030 F

ECMP100/056/040 U



Albero lento cavo / *Hollow output shaft*



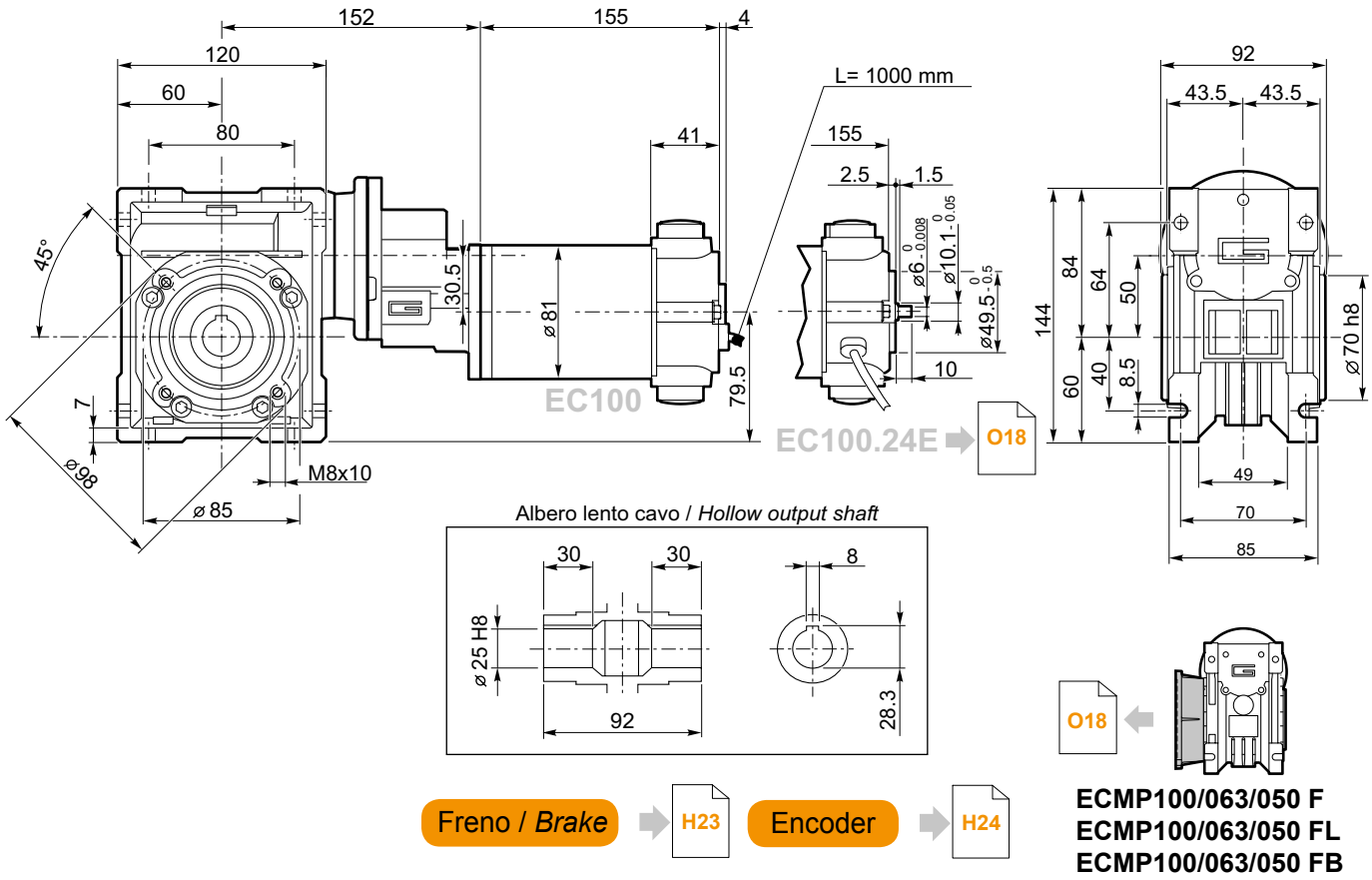


Freno / *Brake* → H23 | Encoder → H24

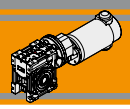
ECMP100/056/040 F
ECMP100/05/040 FL
ECMP100/05/040 FB

Dimensioni ***Dimensions***

ECMP100/063/050 U

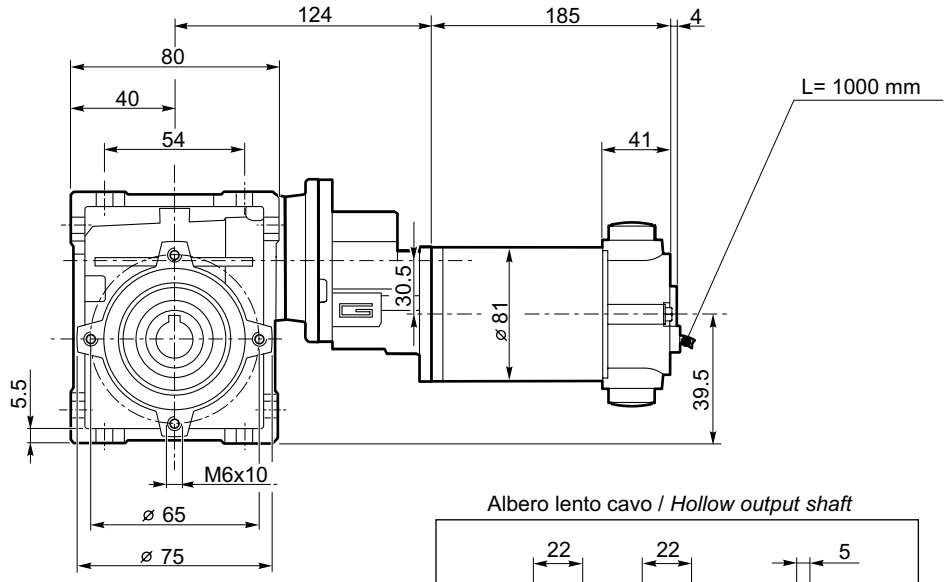


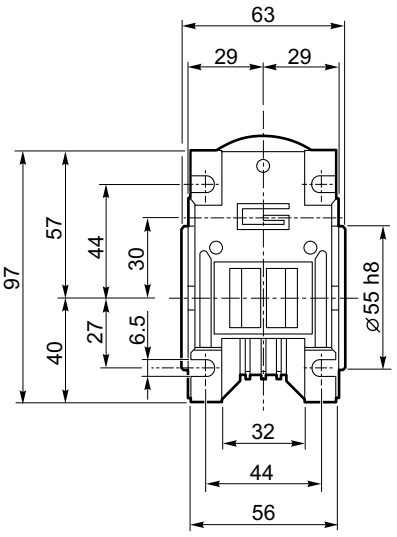
ECMP100/063/050 F
ECMP100/063/050 FL
ECMP100/063/050 FB



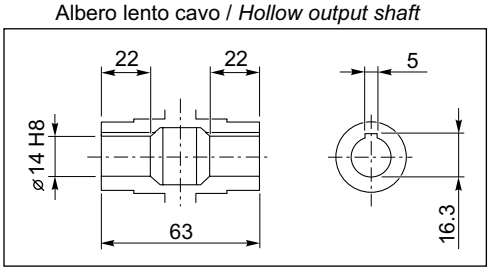
Dimensioni ***Dimensions***

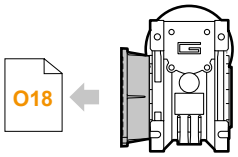
ECMP180/056/030 U





Albero lento cavo / *Hollow output shaft*

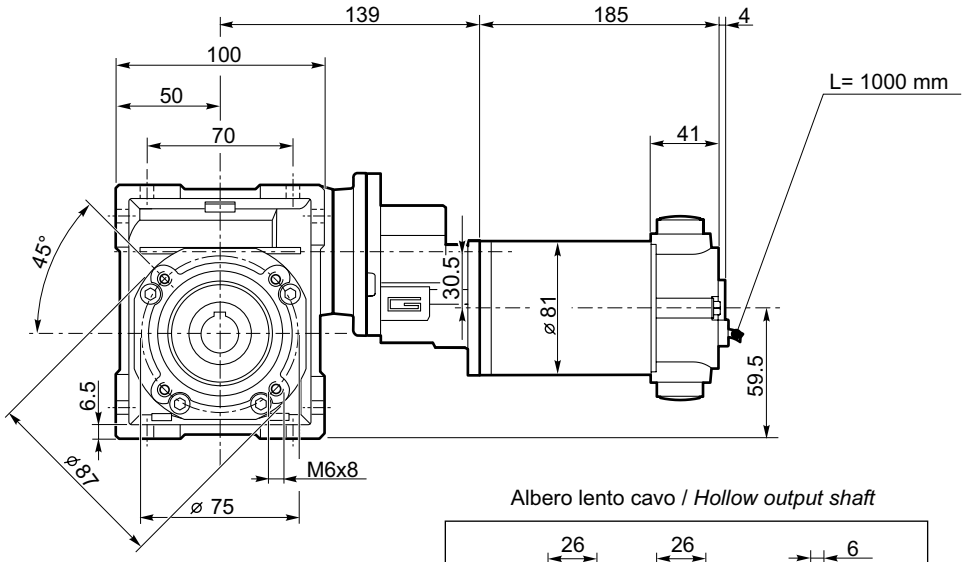


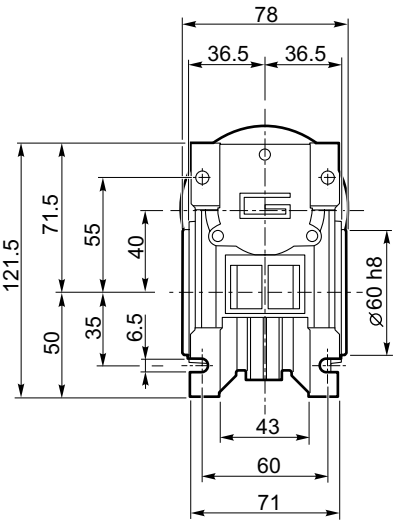


ECMP180/056/030 F

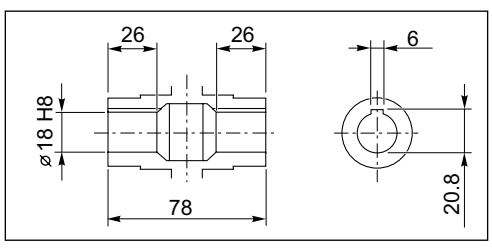
Freno / *Brake* H23 Encoder H24

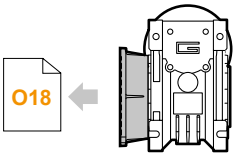
ECMP180/056/040 U





Albero lento cavo / *Hollow output shaft*



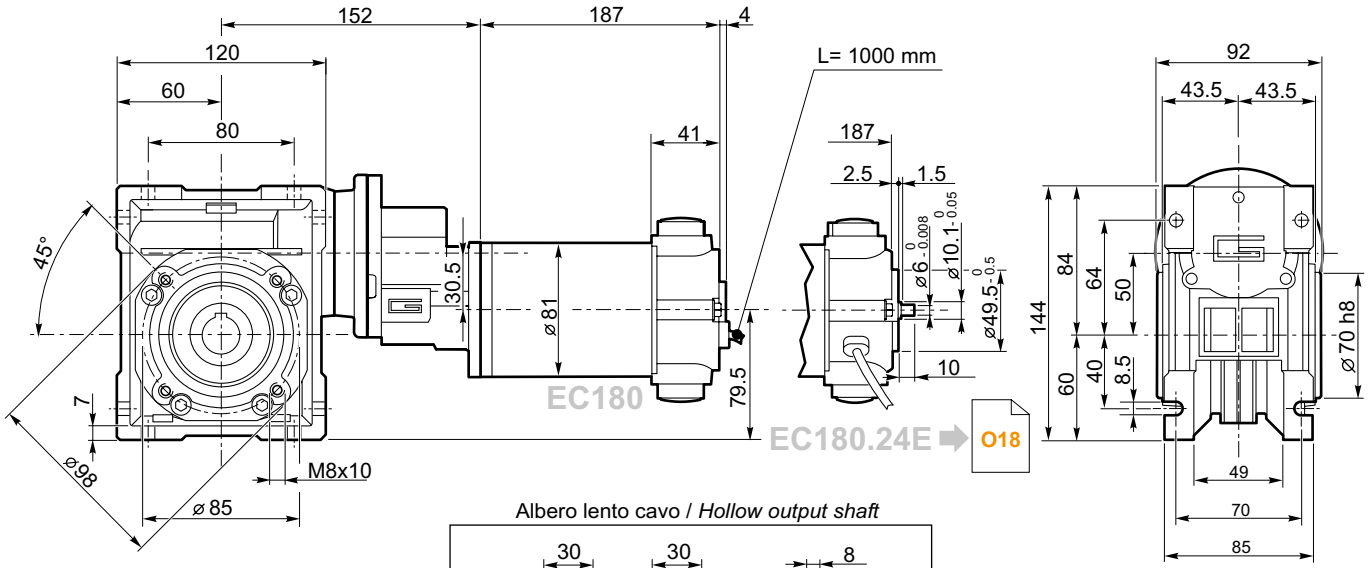


ECMP180/056/040 F
ECMP180/056/040 FL
ECMP180/056/040 FB

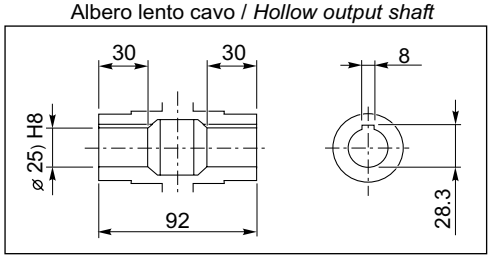
Freno / *Brake* H23 Encoder H24

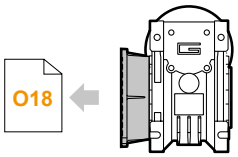
Dimensioni ***Dimensions***

ECMP180/063/050 U



Albero lento cavo / *Hollow output shaft*

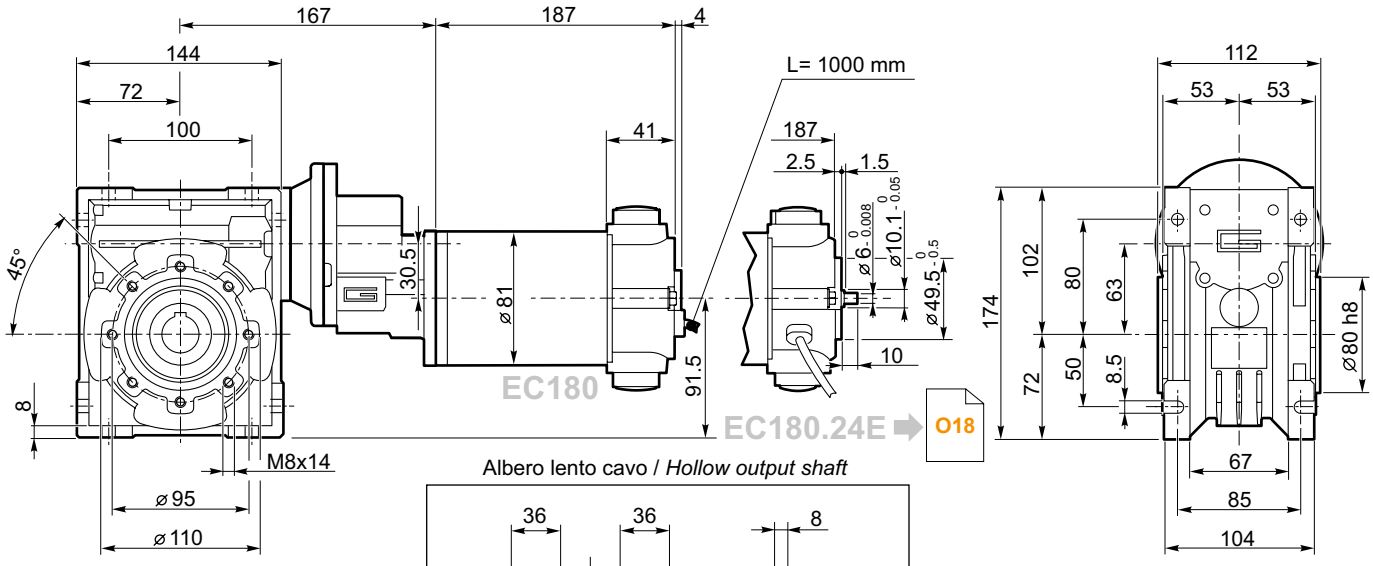




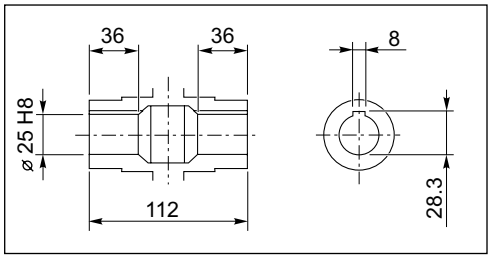
Freno / *Brake* → H23 Encoder → H24

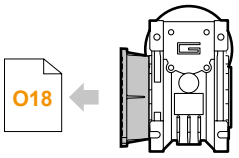
ECMP180/063/050 F
ECMP180/063/050 FL
ECMP180/063/050 FB

ECMP180/063/063 U



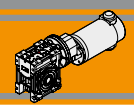
Albero lento cavo / *Hollow output shaft*





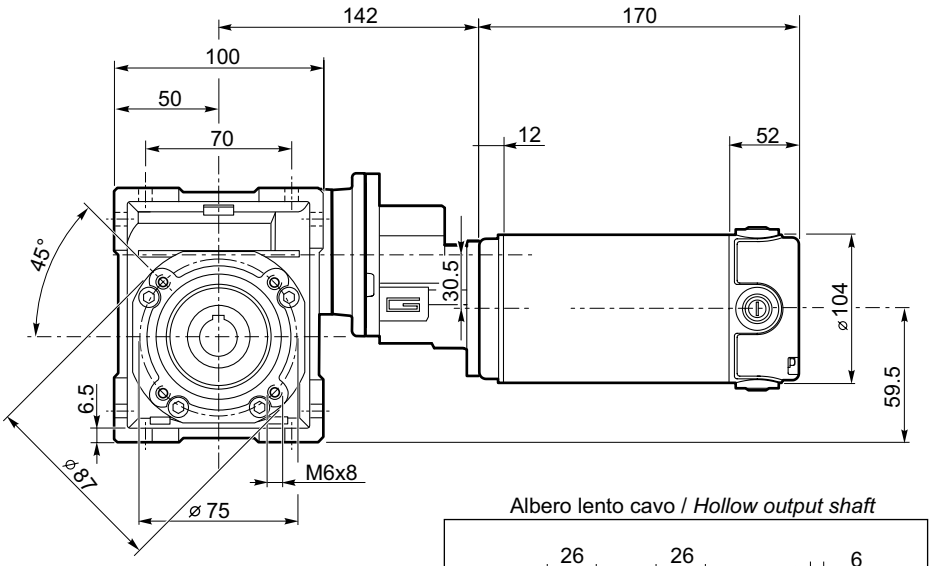
Freno / *Brake* → H23 Encoder → H24

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

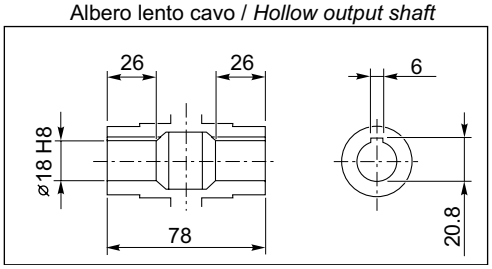


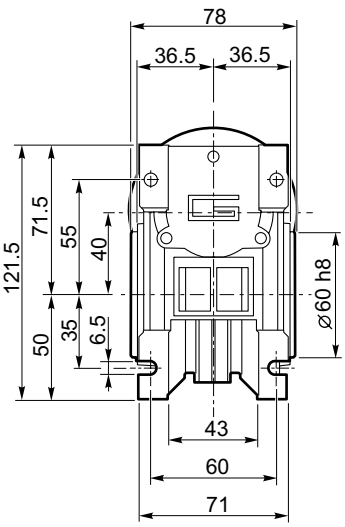
Dimensioni *Dimensions*

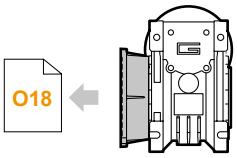
ECMP250/063/040 U



Albero lento cavo / *Hollow output shaft*

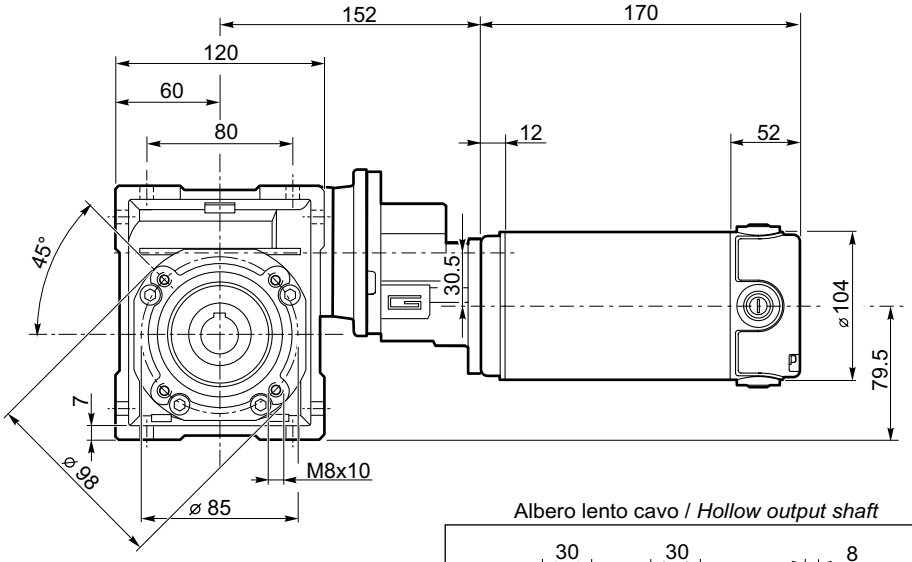




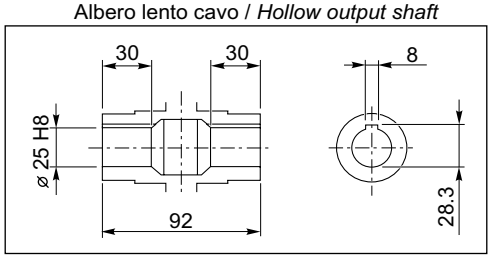


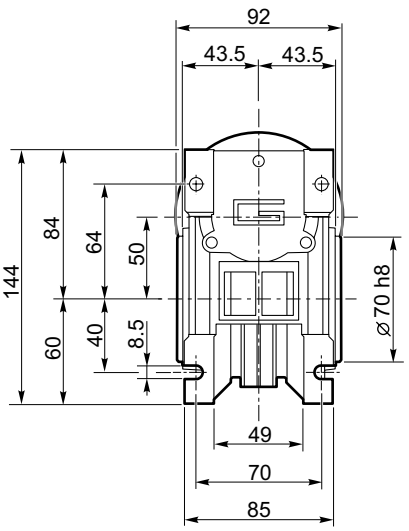
ECMP250/063/040 F
ECMP250/063/040 FL
ECMP250/063/040 FB

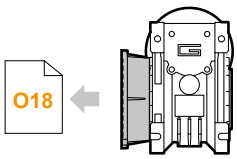
ECMP250/063/050 U



Albero lento cavo / *Hollow output shaft*



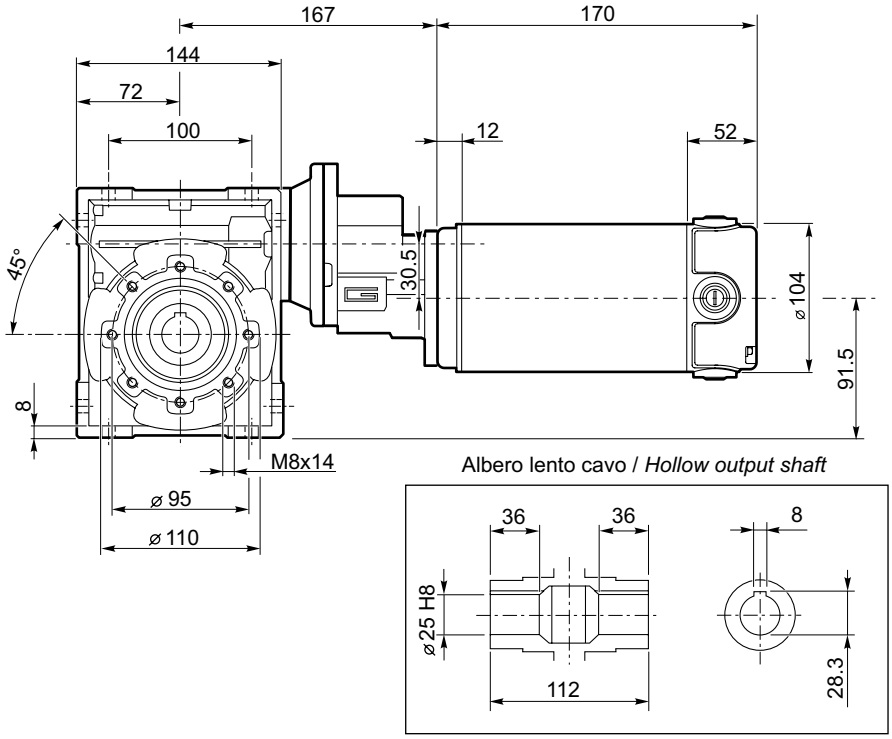




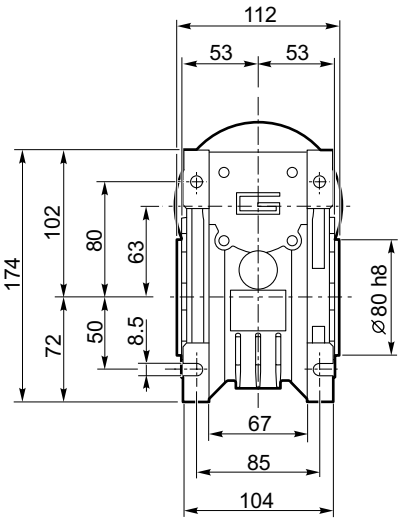
ECMP250/063/050 F
ECMP250/063/050 FL
ECMP250/063/050 FB

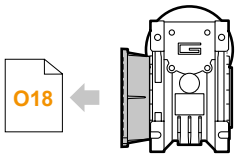
Dimensioni ***Dimensions***

ECMP250/063/063 U



Albero lento cavo / *Hollow output shaft*





ECMP250/063/063 F
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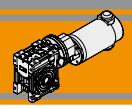
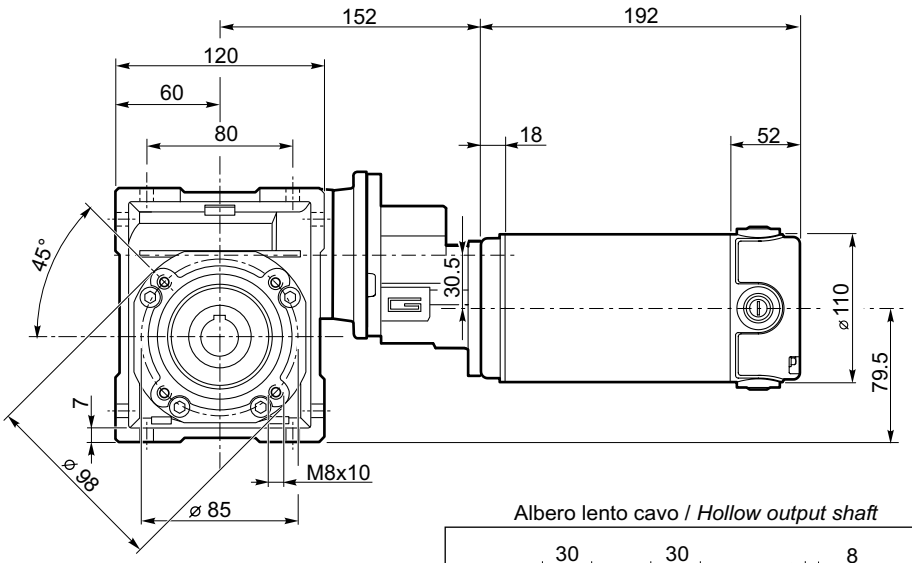
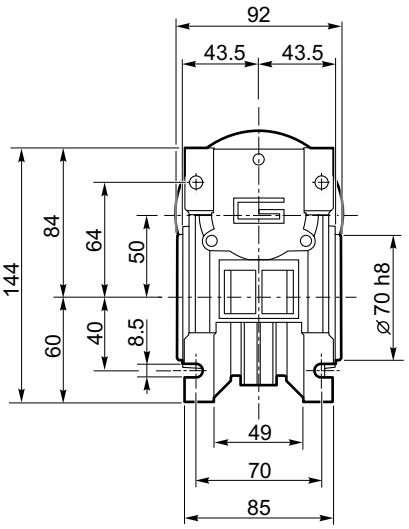
ECMP250/063/063 FB



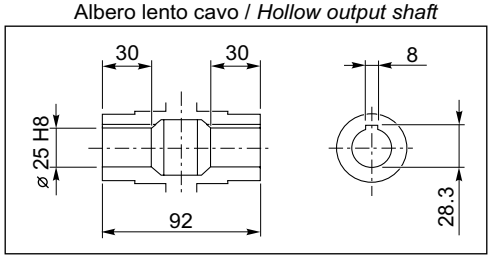
Dimensioni ***Dimensions***

ECMP350/063/050 U

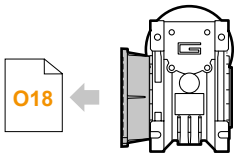




Albero lento cavo / *Hollow output shaft*



Freno / *Brake* → H23



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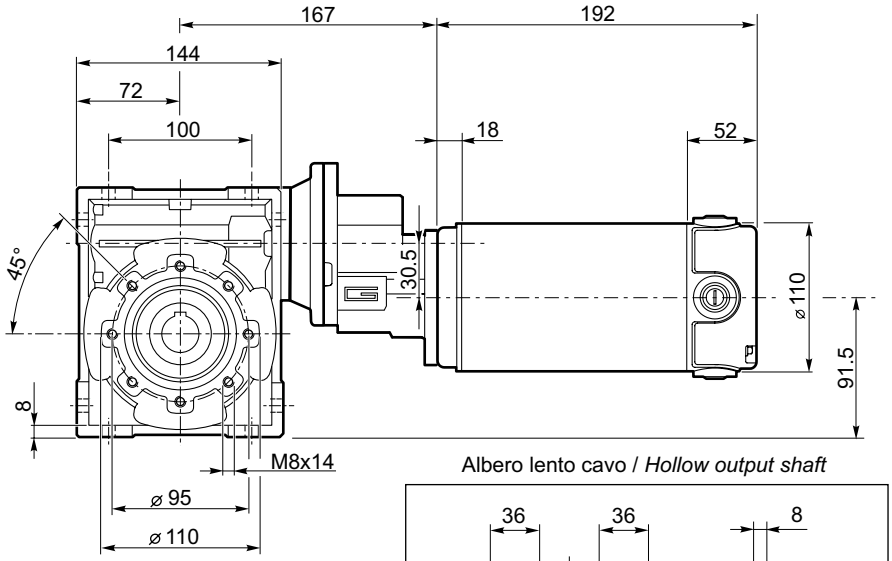
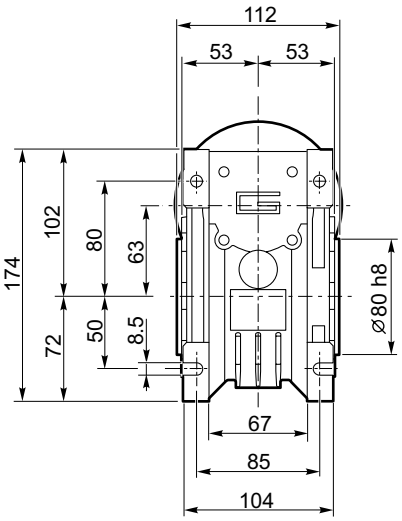
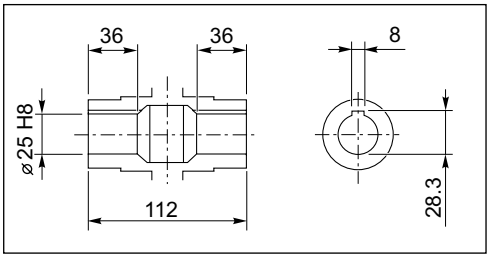
ECMP350/063/050 FL
ECMP350/063/050 FB

ECMP350/063/063 U

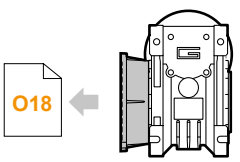




Albero lento cavo / *Hollow output shaft*



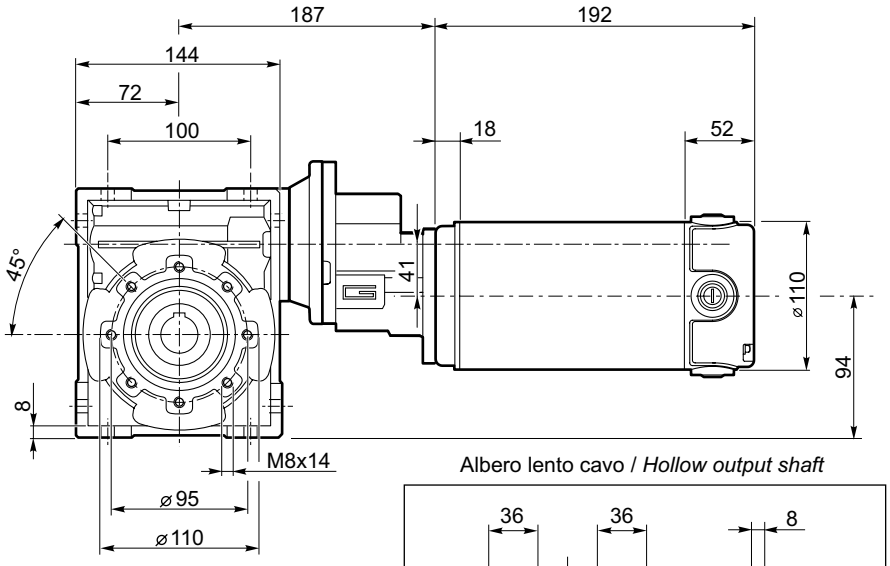
Freno / *Brake* → H23



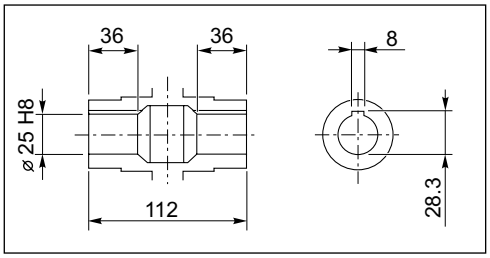
ECMP350/063/063 F
ECMP350/063/063 FL
ECMP350/063/063 FB

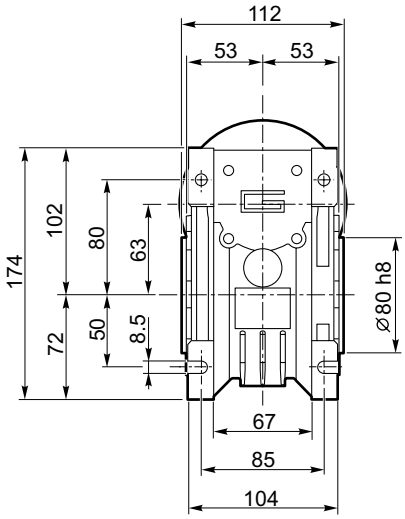
Dimensioni ***Dimensions***

ECMP350/071/063 U

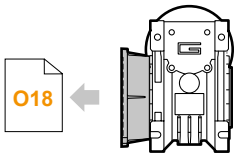


Albero lento cavo / *Hollow output shaft*



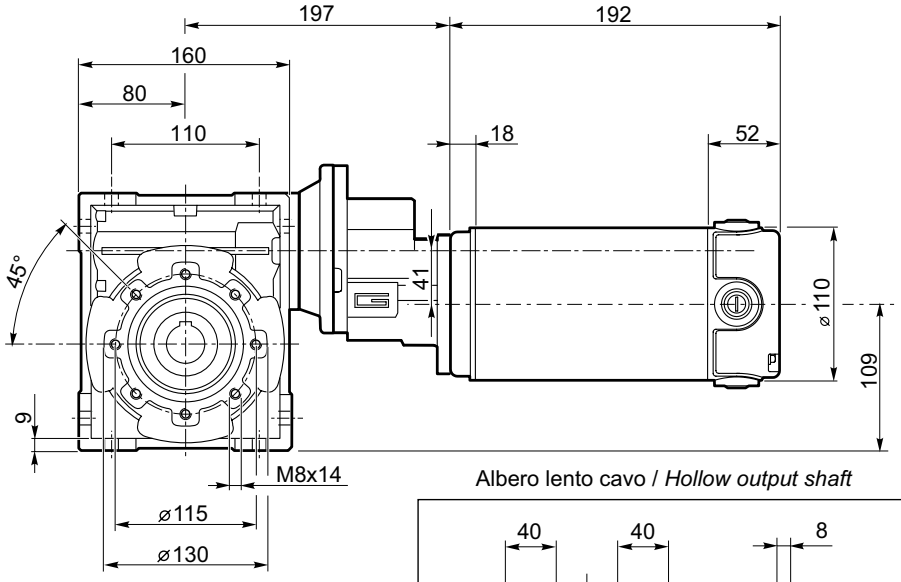


Freno / *Brake* H23

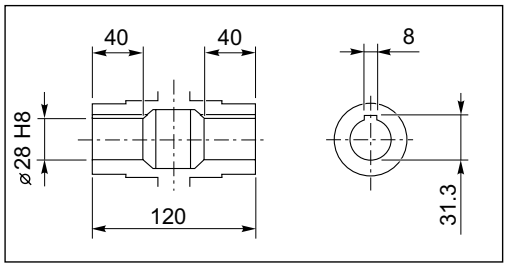


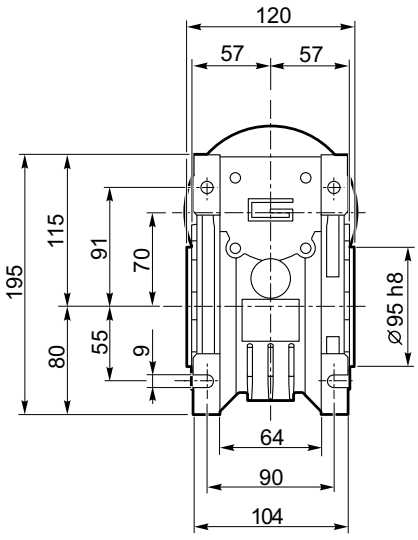
ECMP350/071/063 F
ECMP350/071/063 FL
ECMP350/071/063 FB

ECMP350/071/070 U

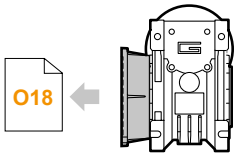


Albero lento cavo / *Hollow output shaft*





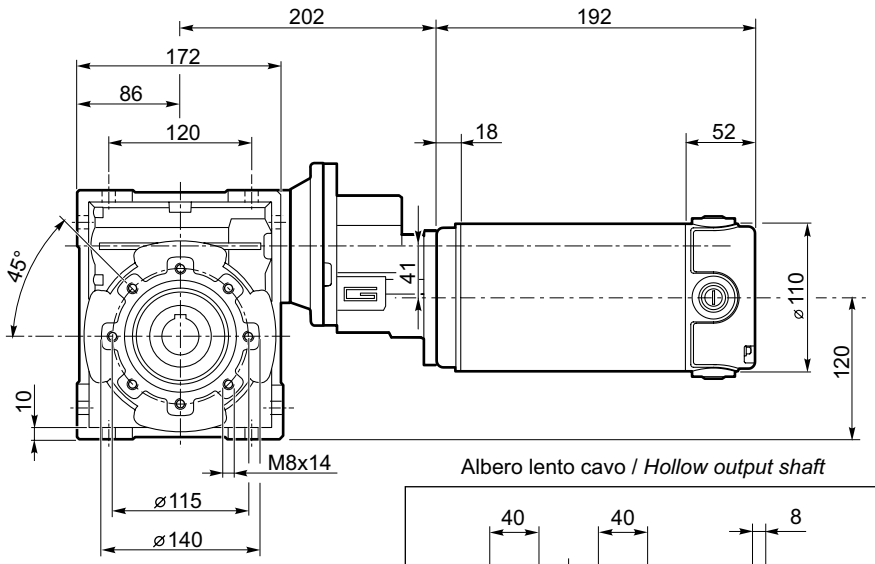
Freno / *Brake* H23



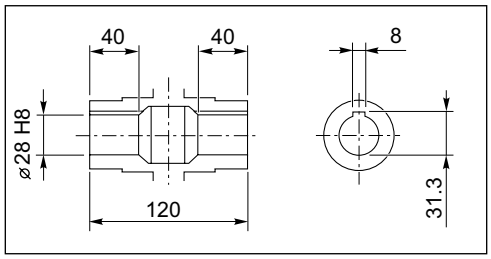
ECMP350/071/070 F

Dimensioni ***Dimensions***

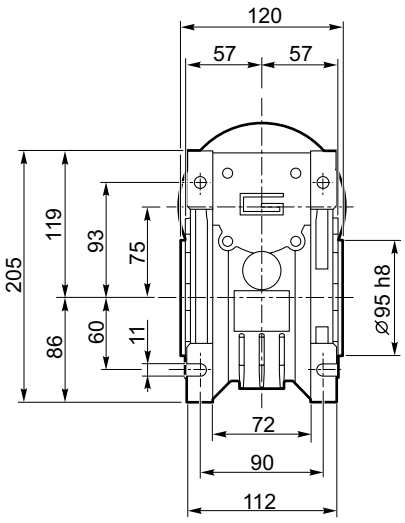
ECMP350/071/075 U

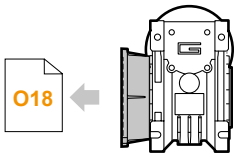


Albero lento cavo / *Hollow output shaft*



Freno / *Brake* → H23

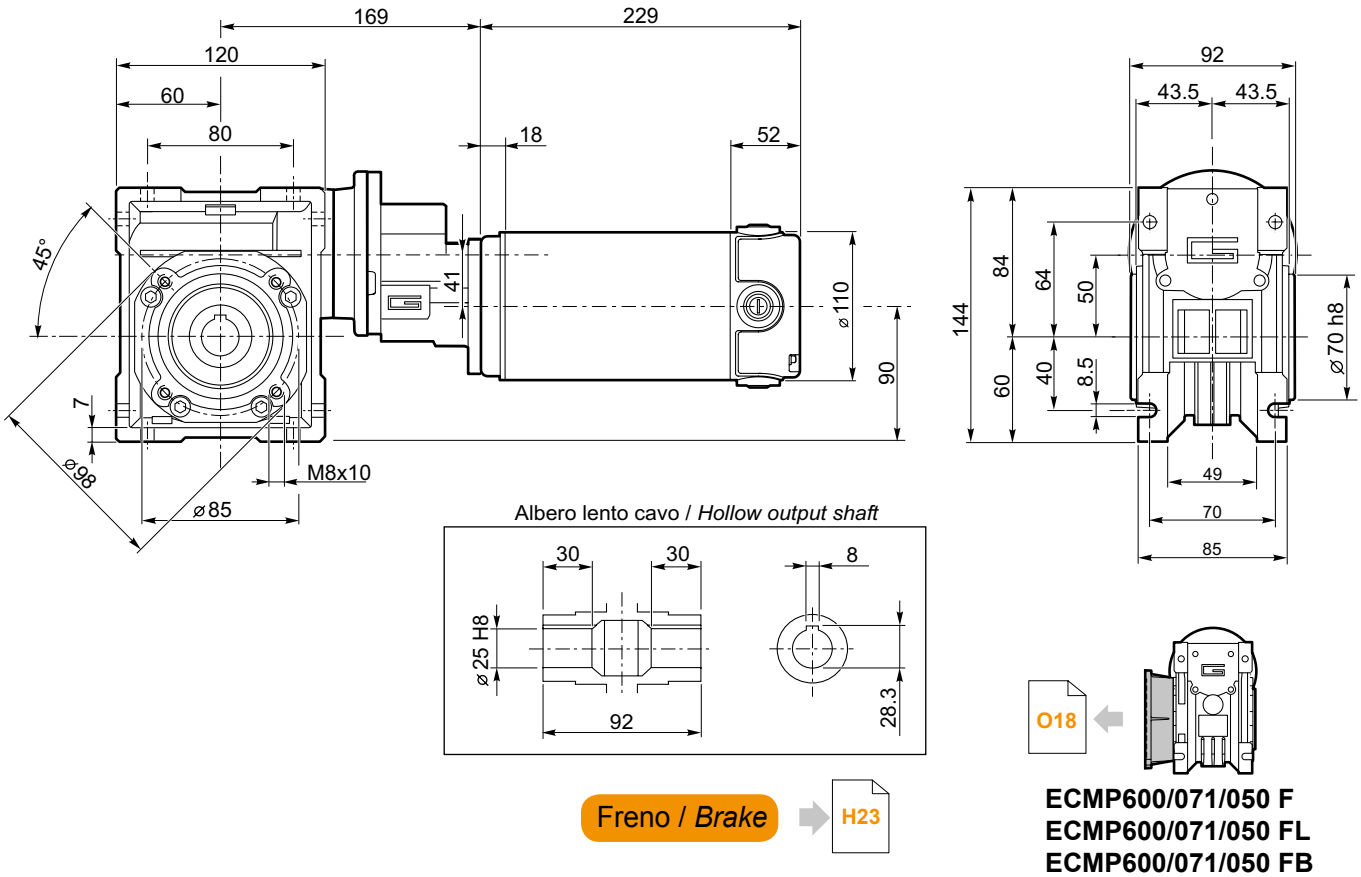




ECMP350/071/075 F

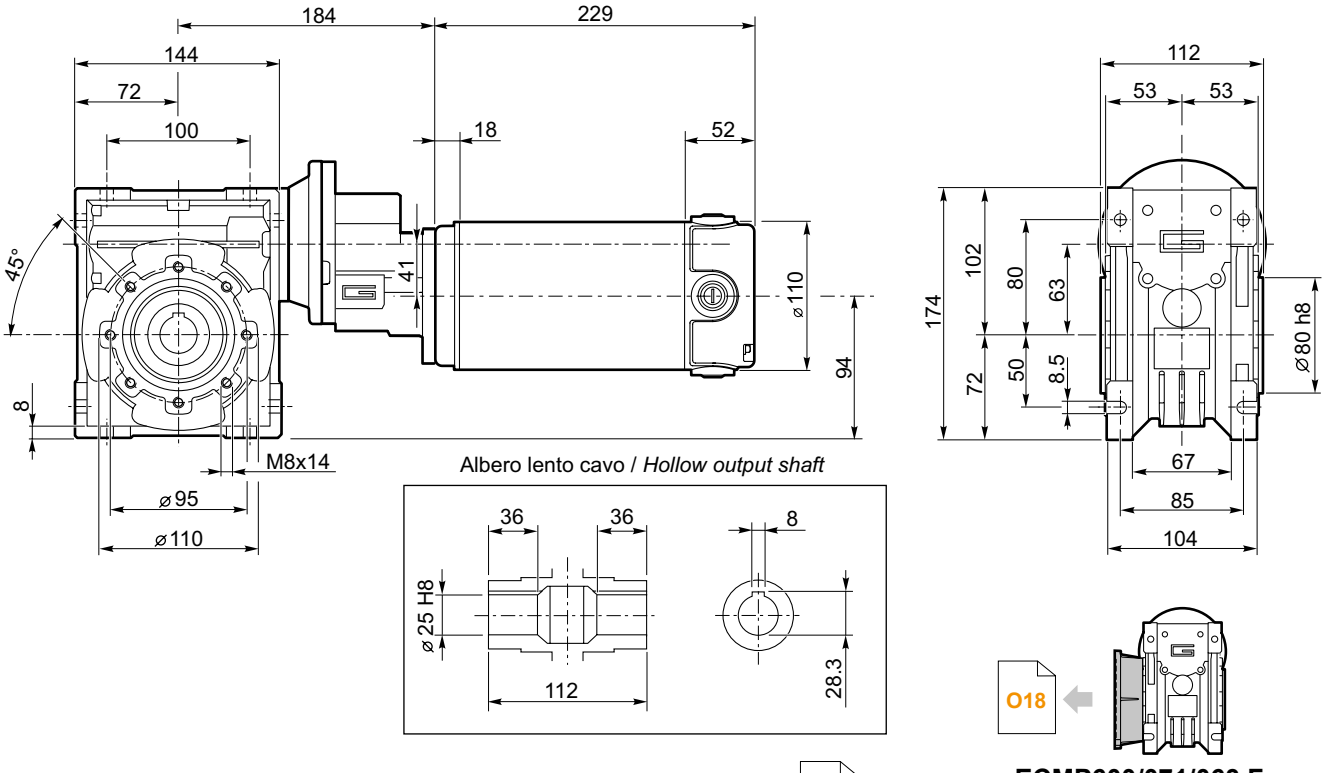
Dimensioni | ***Dimensions***

ECMP600/071/050 U

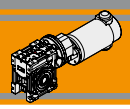


ECMP600/071/050 F
ECMP600/071/050 FL
ECMP600/071/050 FB

ECMP600/071/063 U

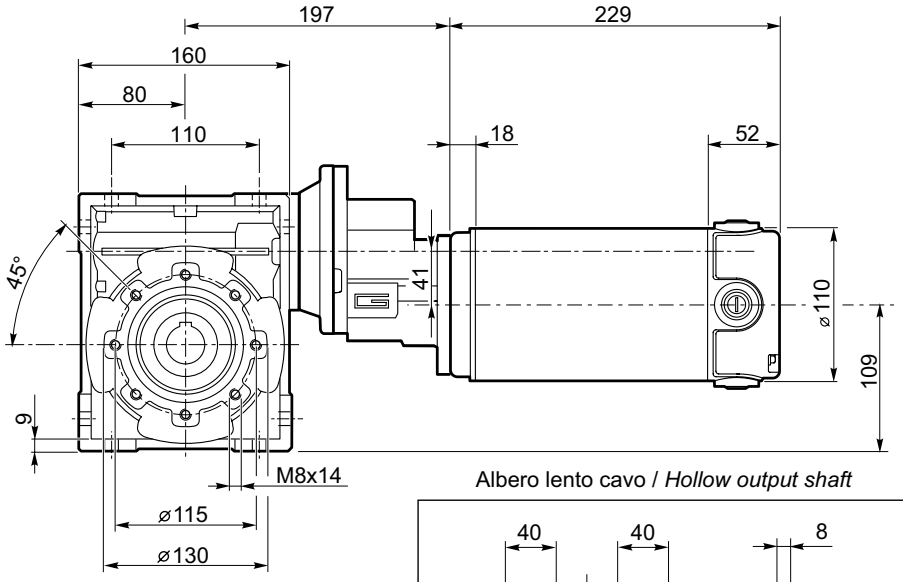


ECMP600/071/063 F
ECMP600/071/063 FL
ECMP600/071/063 FB

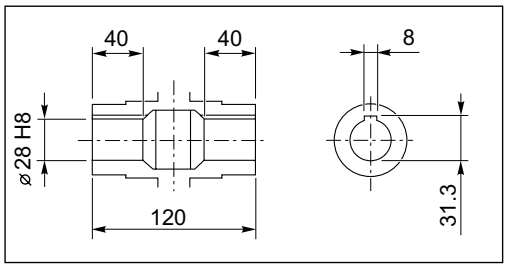


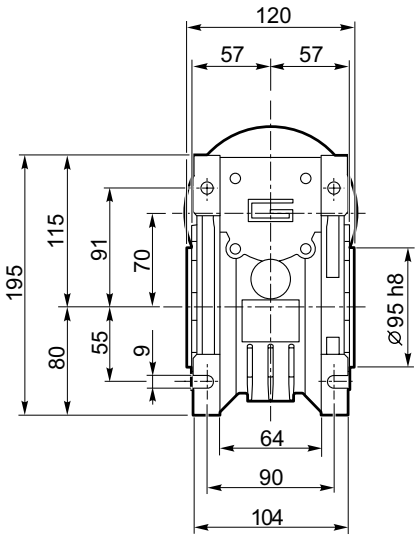
Dimensioni ***Dimensions***

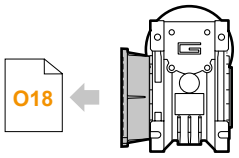
ECMP600/071/070 U



Albero lento cavo / *Hollow output shaft*



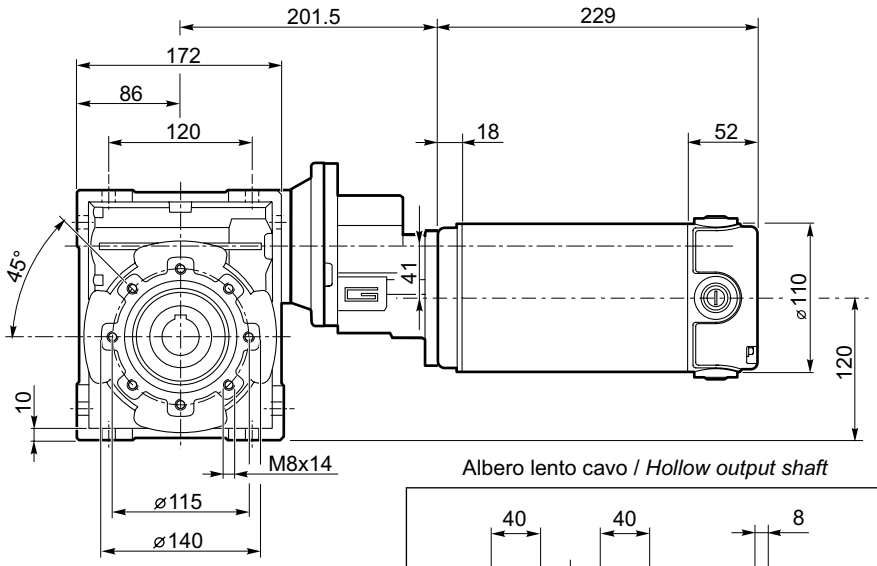




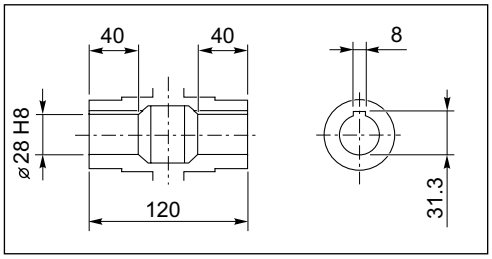
ECMP600/071/070 F

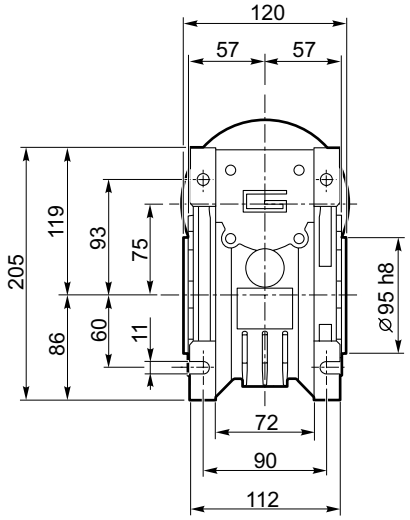
Freno / *Brake* → H23

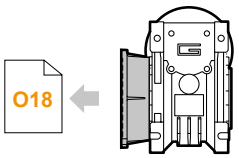
ECMP600/071/075 U



Albero lento cavo / *Hollow output shaft*





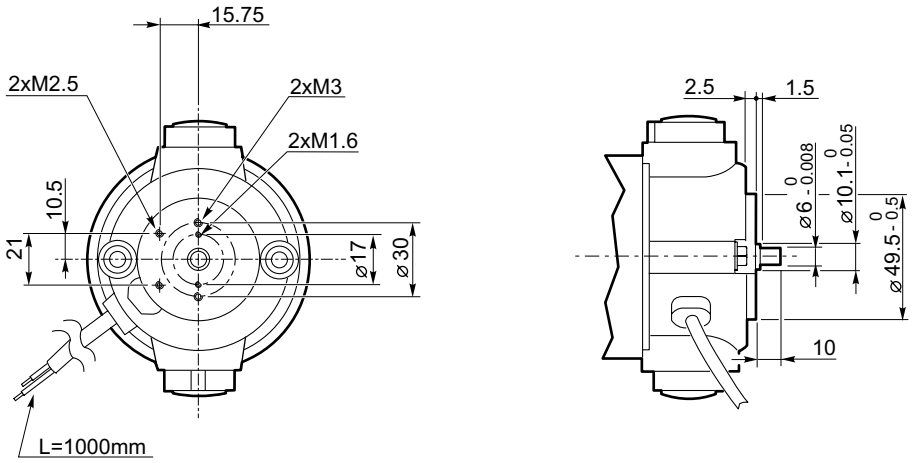


ECMP600/071/075 F

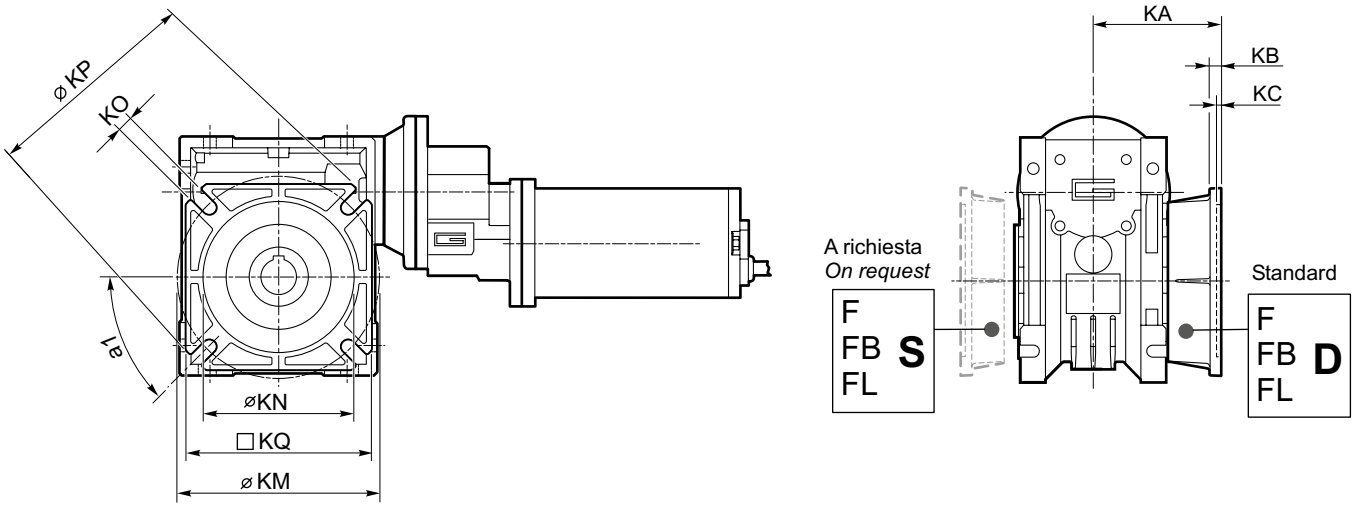
Freno / *Brake* → H23

Dimensioni — *Dimensions*

EC100.24E
EC180.24E



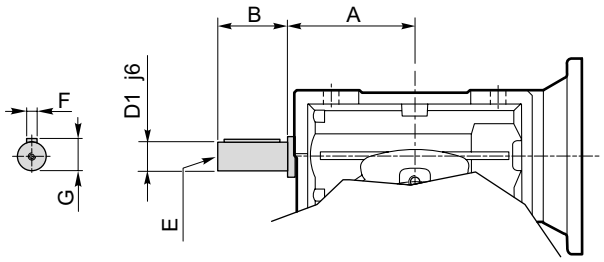
ECMP.../... F... Flange uscita / *Output flanges*



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	9(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
071/070	45°	107	13	6	165-180	130	14(n.4)	200	170	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
071/075	45°	111	13	6	165-180	130	14(n.4)	200	170	—	—	—	—	—	—	—		—	—	—	—	—	—	—	—

Opzioni *Options*

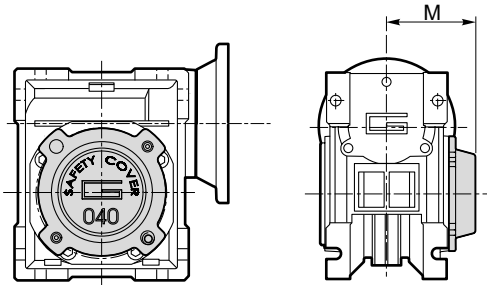
VS - Vite sporgente / *Extended input shaft*



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
071/070	84	40	19	M6	6	21.5
071/075	90	50	24	M8	8	27

Costruito su richiesta
Built on request

SC - *Safety cover*



	M
CM 030	47
CM 040	54.5
CM 050	62.5
CM 063	73
CM 070	75
CM 075	79

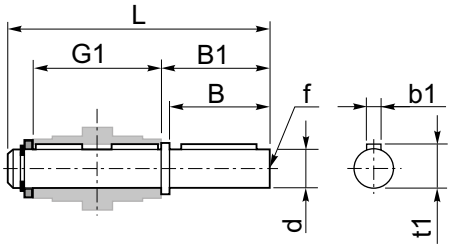
Accessori *Accessories*

Albero lento semplice e doppio

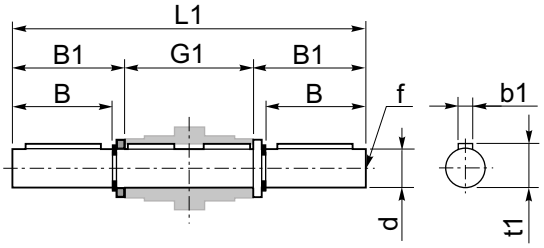
CMP	d h7	B	B1	G1	L	L1	f	b1	t1
056/030	14	30	32.5	63	102	128	M6	5	16
056/040 063/040	18	40	43	78	128	164	M6	6	20.5
063/050	25	50	53.5	92	153	199	M10	8	28
063/063 071/063 080/063	25	50	53.5	112	173	219	M10	8	28
071/070	28	60	63.5	120	192	247	M10	8	31
071/075	28	60	63.5	120	192	247	M10	8	31

Single and double output shaft

SZ



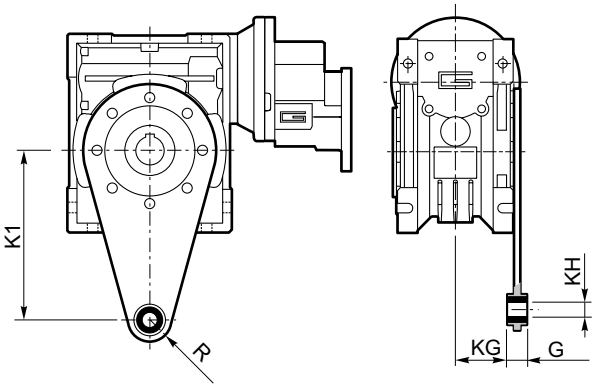
DZ

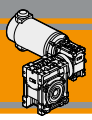


Braccio di reazione

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
071/070	200	25	46.5	20	30
071/075	200	25	46.5	20	30

Torque arm





Caratteristiche tecniche — *Technical features*

Le caratteristiche principali dei motoriduttori CC a vite senza fine combinati a magneti permanenti in ferrite serie ECMM sono:

- Alimentazione in bassa tensione 12/24Vcc
- Possibilità di montaggio encoder
- Potenze motore disponibili da 100 a 800W S2
- Magneti in ferrite
- Carcassa in pressofusione di alluminio nelle grandezze 026, 030, 040, 050, 063, 075, 090 e 110. La grandezza 130 è costruita con carcassa in ghisa
- Lubrificazione permanente con olio sintetico

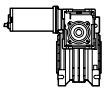
The main features of ECMM ferrite permanent magnets DC reduction wormgearmotors range are:

- Low voltage power supply 12/24Vdc
- Suitable for encoder assembly
- Motor power ratings available from 100 up to 800W S2
- Ferrite magnets
- Die cast aluminium housing on sizes 026, 030, 040, 050, 063, 075, 090 and 110. Cast iron housing on size 130
- Permanent synthetic oil long life lubrication

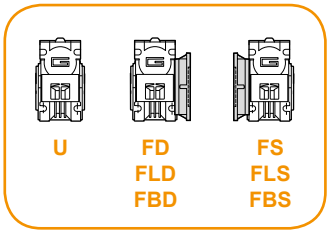
Designazione — *Classification*

MOTORIDUTTORE / *GEARMOTOR*

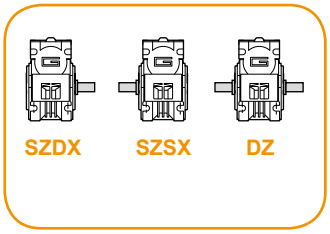
ECMM	100/026/026	U	150	SZDX	BRSX	90	B3	UB1	120	VS1
Tipo *Type*	Grandezza *Size*	Versione *Version*	Rapporto *Ratio*	Albero di uscita *Output shaft*	Braccio di reazione *Torque arm*	Angolo *Angle*	Pos. di montaggio Mounting position	*Esecuzione di montaggio Mounting execution*	Versione motore *Motor version*	Opzioni *Options*
ECMM	070/026/026 070/026/030 070/026/040 070/026/050 070/030/040 070/030/050 070/030/063 070/040/070 070/040/075 070/040/090 100/026/026 100/026/030 100/026/040 100/026/050 100/030/040 100/030/050 100/030/063 100/040/075 100/040/090 180/026/040 180/026/050 180/030/040 180/030/050 180/030/063 180/040/070 180/040/075 180/040/090 180/050/110 250/030/040 250/030/050 250/030/063 250/040/070 250/040/075 250/040/090 250/050/110 350/030/040 350/030/050 350/030/063 350/040/070 350/040/075 350/040/090 350/050/110 350/063/130 600/040/070 600/040/075 600/040/090 600/050/110 600/063/130	U FD FS FLD FLS FBD FBS	vedi tabelle *see tables*	SZDX SZSX DZ	BRDX BRSX	0° 90° 180° 270°	B3 B8 B6 B7 V5 V6	UB1 UB2 US1 US2 UV1 UV2 UC1 UC2	120 240 24E	VS1 VS2



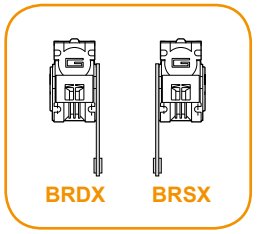
Versione Riduttore *Gearbox Version*



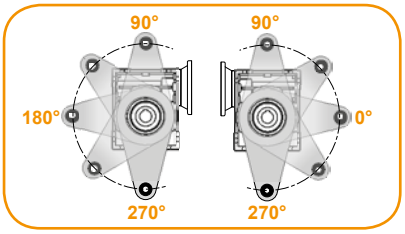
Albero di uscita *Output shaft*



Braccio di reazione *Torque arm*



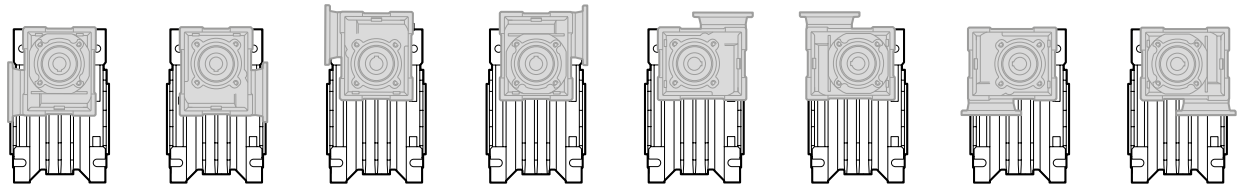
Angolo *Angle*



Simbologia — *Symbols*

n_1	[min^{-1}]	Velocità in ingresso / *Input speed*	M_2	[Nm]	Coppia in uscita in funzione di P_1 / *Output torque referred to P_1*
n_2	[min^{-1}]	Velocità in uscita / *Output speed*	sf		Fattore di servizio / *Service factor*
i		Rapporto di riduzione / *Ratio*	R_2	[N]	Carico radiale ammissibile in uscita / *Permitted output radial load*
P_1	[kW]	Potenza in entrata / *Input power*	A_2	N]	Carico assiale ammissibile in uscita / *Permitted output axial load*

Esecuzioni di montaggio — *Mounting executions*



UB1 UB2 US1 US2 UV1 UV2 UC1 UC2

Combinazioni rapporti — *Combination ratio*

CMM 026/026 - CMM 026/030 - CMM 026/040 - CMM 026/050												
	i (i_1 x i_2)											
	150	**225**	**300**	**450**	**600**	**900**	**1200**	**1500**	**1800**	**2400**	**3000**	**3600**
i_1	10	15	10	15	20	30	40	50	60	60	60	60
i_2	15	15	30	30	30	30	30	30	30	40	50	60

CMM 030/040 - CMM 030/050 - CMM 030/063 - CMM 040/070 - CMM 040/075 - CMM 040/090 - CMM 050/110 - CMM 063/130															
	i (i_1 x i_2)														
	75	**100**	**150**	**200**	**250**	**300**	**400**	**500**	**600**	**750**	**900**	**1200**	**1500**	**1800**	**2400**	**3000**
i_1	7.5	10	10	10	10	10	10	10	20	25	30	40	50	60	60	60
i_2	10	10	15	20	25	30	40	50	30	30	30	30	30	30	40	50

Lubrificazione — *Lubrication*

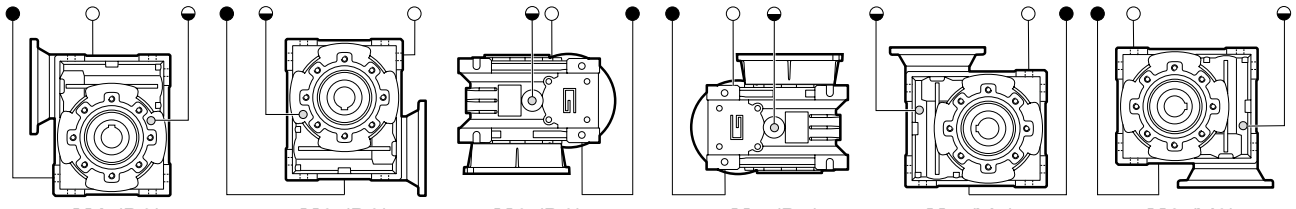
Tutti i motoriduttori nelle taglie 26, 30, 40, 50, 63, 70, 75, 90, 110 sono forniti completi di lubrificante sintetico viscosità 320, pertanto possono essere installati in qualunque posizione di monatggio e non necessitano di manutenzione. Per la taglia 130 la lubrificazione dipende dalla posizione di montaggio

Permanent synthetic oil long-life lubrication (viscosity grade 320) makes it possible to use the gearmotors size 26, 30, 40, 50, 63, 70, 75, 90, 110 in all mounting positions; for this reason they can be installed in any assembly position and do not require maintenance. Only for size 130, the lubrication depended of mounting positions

	Quantità di olio (litri) / ***Oil quantity*** *(litres)*					
	M1 (B3)	**M3** (B8)	**M6** (B6)	**M5** (B7)	**M4** (V5)	**M2** (V6)
CM130	4.5	3.3	3.5	3.5	4.5	3.3

Lubrificato a vita
Life lubrication

Posizioni di montaggio / *Mounting positions*

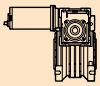


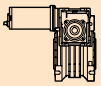
M1 (B3) (standard) | **M3** (B8) | **M6** (B6) | **M5** (B7) | **M4** (V5) | **M2** (V6)

◯ Sfiato e tappo di riempimento / *Breather and filling plug*
◒ Livello olio / *Oil level plug*
● Tappo di scarico / *Oil drain plug*

Dati tecnici per servizio S2

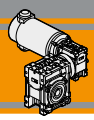
Technical data for S2 duty

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
100						
(3000 min^{-1})	**20.0**	26	1.0	150	**ECMM 070/026/026**	**12E/24E**
	13.3	26	1.0	225		
	10.0	27	1.0	300		
	6.7	27	1.0	450		
	5.0	27	1.0	600		
	3.3	27	1.0	900		
	2.5	27	1.0	1200		
	2.0	27	1.0	1500		
	1.7	27	1.0	1800		
	1.3	22	1.0	2400		
	1.0	20	1.0	3000		
	0.8	18	1.0	3600		
	20.0	26	1.5	150	**ECMM 070/026/030**	**12E/24E**
	13.3	39	1.0	225		
	10.0	40	1.0	300		
	6.7	40	1.0	450		
	5.0	40	1.0	600		
	3.3	40	1.0	900		
	2.5	40	1.0	1200		
	2.0	40	1.0	1500		
	1.7	40	1.0	1800		
	1.3	34	1.0	2400		
	1.0	30	1.0	3000		
	0.8	27	1.0	3600		
	20.0	27	3.2	150	**ECMM 070/026/040**	**12E/24E**
	13.3	40	2.2	225		
	10.0	45	2.0	300		
	6.7	66	1.4	450		
	5.0	85	1.1	600		
	3.3	90	1.0	900		
	2.5	90	1.0	1200		
	2.0	90	1.0	1500		
	1.7	90	1.0	1800		
	1.3	74	1.0	2400		
	1.0	68	1.0	3000		
	0.8	62	1.0	3600		
	20.0	28	5.7	150	**ECMM 070/026/050**	**12E/24E**
	13.3	42	3.9	225		
	10.0	46	3.5	300		
	6.7	67	2.4	450		
	5.0	86	1.9	600		
	3.3	118	1.4	900		
	2.5	147	1.1	1200		
	2.0	162	1.0	1500		
	1.7	162	1.0	1800		
	1.3	135	1.0	2400		
	1.0	125	1.0	3000		
	0.8	113	1.0	3600		

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
100						
(3000 min^{-1})	**40.0**	15	5.5	75	**ECMM 070/030/040**	**12E/24E**
	30.0	20	4.2	100		
	20.0	28	3.2	150		
	15.0	36	2.1	200		
	12.0	43	1.6	250		
	10.0	46	2.0	300		
	7.5	55	1.3	400		
	6.0	63	1.1	500		
	5.0	86	1.0	600		
	4.0	103	0.9	750		
	3.3	118	0.8	900		
	2.5	74	1.0	1200		
	2.0	90	1.0	1500		
	1.7	90	1.0	1800		
	1.3	74	1.0	2400		
	1.0	68	1.0	3000		
	15.0	36	3.8	200	**ECMM 070/030/050**	**12E/24E**
	12.0	43	2.9	250		
	10.0	46	3.5	300		
	7.5	57	2.4	400		
	6.0	64	2.0	500		
	5.0	87	1.9	600		
	4.0	105	1.5	750		
	3.3	120	1.4	900		
	2.5	146	0.9	1200		
	2.0	175	0.9	1500		
	1.7	201	0.8	1800		
	1.3	135	1.0	2400		
	1.0	125	1.0	3000		
	4.0	109	2.8	750	**ECMM 070/030/063**	**12E/24E**
	3.3	124	2.5	900		
	2.5	149	1.7	1200		
	2.0	181	1.7	1500		
	1.7	208	1.5	1800		
	1.3	249	1.0	2400		
	1.0	288	0.8	3000		
	2.5	155	2.5	1200	**ECMM 070/040/070**	**12E/24E**
	2.0	193	2.4	1500		
	1.7	221	2.1	1800		
	1.3	265	1.4	2400		
	1.0	307	1.1	3000		
	2.5	158	3.0	1200	**ECMM 070/040/075**	**12E/24E**
	2.0	193	2.8	1500		
	1.7	221	2.5	1800		
	1.3	270	1.7	2400		
	1.0	307	1.3	3000		
	1.3	285	2.9	2400	**ECMM 070/040/090**	**12E/24E**
	1.0	331	2.1	3000		

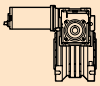
Nota: Verificare sempre che la coppia M2 utilizzata non ecceda il valore indicato nelle caselle in grigio

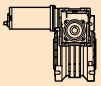
Note: *Please check that the output torque M2 does not exceed the value into the grey areas*



Dati tecnici per servizio S2

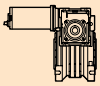
Technical data for S2 duty

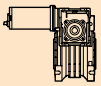
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
140						
(3000 min^{-1})	**20.0**	26	1.0	150	**ECMM 100/026/026**	**120/240/24E**
	13.3	26	1.0	225		
	10.0	27	1.0	300		
	6.7	27	1.0	450		
	5.0	27	1.0	600		
	3.3	27	1.0	900		
	2.5	27	1.0	1200		
	2.0	27	1.0	1500		
	1.7	27	1.0	1800		
	1.3	22	1.0	2400		
	1.0	20	1.0	3000		
	0.8	18	1.0	3600		
	20.0	37	1.1	150	**ECMM 100/026/030**	**120/240/24E**
	13.3	39	1.0	225		
	10.0	40	1.0	300		
	6.7	40	1.0	450		
	5.0	40	1.0	600		
	3.3	40	1.0	900		
	2.5	40	1.0	1200		
	2.0	40	1.0	1500		
	1.7	40	1.0	1800		
	1.3	34	1.0	2400		
	1.0	30	1.0	3000		
	0.8	27	1.0	3600		
	20.0	38	2.3	150	**ECMM 100/026/040**	**120/240/24E**
	13.3	55	1.6	225		
	10.0	63	1.4	300		
	6.7	92	1.0	450		
	5.0	90	1.0	600		
	3.3	90	1.0	900		
	2.5	90	1.0	1200		
	2.0	90	1.0	1500		
	1.7	90	1.0	1800		
	1.3	74	1.0	2400		
	1.0	68	1.0	3000		
	0.8	62	1.0	3600		
	20.0	39	4.1	150	**ECMM 100/026/050**	**120/240/24E**
	13.3	58	2.8	225		
	10.0	64	2.5	300		
	6.7	93	1.7	450		
	5.0	120	1.4	600		
	3.3	164	1.0	900		
	2.5	162	1.0	1200		
	2.0	162	1.0	1500		
	1.7	162	1.0	1800		
	1.3	135	1.0	2400		
	1.0	125	1.0	3000		
	0.8	113	1.0	3600		

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
140						
(3000 min^{-1})	**40.0**	21	3.9	75	**ECMM 100/030/040**	**120/240/24E**
	30.0	28	3.0	100		
	20.0	38	2.3	150		
	15.0	50	1.5	200		
	12.0	59	1.1	250		
	10.0	63	1.4	300		
	7.5	77	1.0	400		
	6.0	87	0.8	500		
	5.0	119	0.8	600		
	4.0	90	1.0	750		
	3.3	90	1.0	900		
	2.5	74	1.0	1200		
	2.0	90	1.0	1500		
	1.7	90	1.0	1800		
	1.3	74	1.0	2400		
	1.0	68	1.0	3000		
	15.0	50	2.7	200	**ECMM 100/030/050**	**120/240/24E**
	12.0	59	2.1	250		
	10.0	64	2.5	300		
	7.5	78	1.7	400		
	6.0	89	1.4	500		
	5.0	121	1.3	600		
	4.0	146	1.1	750		
	3.3	166	1.0	900		
	2.5	202	0.7	1200		
	2.0	243	0.7	1500		
	1.7	162	1.0	1800		
	1.3	135	1.0	2400		
	1.0	125	1.0	3000		
	6.0	92	2.5	500	**ECMM 100/030/063**	**120/240/24E**
	5.0	125	2.5	600		
	4.0	151	2.1	750		
	3.3	172	1.8	900		
	2.5	206	1.3	1200		
	2.0	252	1.2	1500		
	1.7	288	1.1	1800		
	1.3	346	0.8	2400		
	1.0	232	1.0	3000		
	3.3	179	2.5	900	**ECMM 100/040/070**	**120/240/24E**
	2.5	215	1.8	1200		
	2.0	267	1.7	1500		
	1.7	307	1.5	1800		
	1.3	368	1.0	2400		
	1.0	426	0.8	3000		
	3.3	179	3.1	900	**ECMM 100/040/075**	**120/240/24E**
	2.5	219	2.2	1200		
	2.0	267	2.0	1500		
	1.7	307	1.8	1800		
	1.3	375	1.3	2400		
	1.0	426	0.9	3000		
	1.7	322	2.9	1800	**ECMM 100/040/090**	**120/240/24E**
	1.3	395	2.1	2400		
	1.0	460	1.5	3000		

Dati tecnici per servizio S2

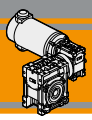
Technical data for S2 duty

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
250						
(3000 min^{-1})	**20.0**	70	1.2	150	**ECMM 180/026/040**	**120/240**
	13.3	103	0.8	225		
	10.0	116	0.8	300		
	20.0	73	2.2	150	**ECMM 180/026/050**	**120/240**
	13.3	108	1.5	225		
	10.0	118	1.4	300		
	6.7	173	0.9	450		
	5.0	223	0.7	600		
	40.0	40	2.1	75	**ECMM 180/030/040**	**120/240/24E**
	30.0	52	1.6	100		
	20.0	71	1.2	150		
	15.0	92	0.8	200		
	12.0	67	1.0	250		
	10.0	90	1.0	300		
	7.5	74	1.0	400		
	6.0	68	1.0	500		
	5.0	90	1.0	600		
	4.0	90	1.0	750		
	3.3	90	1.0	900		
	40.0	40	3.9	75	**ECMM 180/030/050**	**120/240/24E**
	30.0	52	3.0	100		
	20.0	74	2.2	150		
	15.0	94	1.5	200		
	12.0	110	1.1	250		
	10.0	120	1.4	300		
	7.5	146	0.9	400		
	6.0	165	0.8	500		
	5.0	226	0.7	600		
	4.0	162	1.0	750		
	3.3	162	1.0	900		
	2.5	135	1.0	1200		
	2.0	162	1.0	1500		
	1.7	162	1.0	1800		**120/240**
	15.0	92	2.8	200	**ECMM 180/030/063**	**120/240/24E**
	12.0	108	2.1	250		
	10.0	124	2.5	300		
	7.5	149	1.7	400		
	6.0	172	1.3	500		
	5.0	233	1.3	600		
	4.0	281	1.1	750		
	3.3	320	1.0	900		
	2.5	384	0.7	1200		
	2.0	468	0.7	1500		
	1.7	310	1.0	1800		**120/240**
	1.3	260	1.0	2400		
	1.0	232	1.0	3000		
	12.0	113	3.0	250	**ECMM 180/040/070**	**120/240/24E**
	10.0	125	3.6	300		
	7.5	150	2.5	400		
	6.0	174	1.9	500		
	5.0	239	1.9	600		
	4.0	288	1.6	750		
	3.3	333	1.4	900		
	2.5	399	0.9	1200		
	2.00	497	0.9	1500		
	1.67	570	0.8	1800		
	1.25	379	1.0	2400		
	1.00	336	1.0	3000		

P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
250						
(3000 min^{-1})	**12.0**	113	3.6	250	**ECMM 180/040/075**	**120/240/24E**
	10.0	125	4.4	300		
	7.5	153	3.1	400		
	6.0	174	2.3	500		
	5.0	239	2.3	600		
	4.0	288	1.9	750		
	3.3	333	1.6	900		
	2.5	407	1.2	1200		
	2.0	497	1.1	1500		
	1.7	570	1.0	1800		
	1.3	470	1.0	2400		
	1.0	403	1.0	3000		
	5.0	251	3.8	600	**ECMM 180/040/090**	**120/240/24E**
	4.0	302	3.1	750		
	3.3	349	2.7	900		
	2.5	429	1.9	1200		
	2.0	522	1.8	1500		
	1.7	599	1.6	1800		
	1.3	735	1.1	2400		
	1.0	855	0.8	3000		
	3.3	359	4.4	900	**ECMM 180/050/110**	**24E**
	2.5	457	3.2	1200		**120/240/24E**
	2.0	545	2.9	1500		
	1.7	627	2.5	1800		
	1.3	796	1.8	2400		
	1.0	947	1.3	3000		
350						
(3000 min^{-1})	40.0	55	1.5	75	**ECMM 250/030/040**	**120/240**
	30.0	72	1.2	100		
	20.0	100	0.9	150		
	15.0	74	1.0	200		
	12.0	67	1.0	250		
	10.0	90	1.0	300		
	7.5	74	1.0	400		
	6.0	68	1.0	500		
	5.0	90	1.0	600		
	4.0	90	1.0	750		
	3.3	90	1.0	900		
	2.5	74	1.0	1200		
	2.0	90	1.0	1500		
	40.0	56	2.8	75	**ECMM 250/030/050**	**120/240**
	30.0	73	2.1	100		
	20.0	104	1.5	150		
	15.0	131	1.0	200		
	12.0	154	0.8	250		
	10.0	168	1.0	300		
	7.5	204	*0.7*	400		
	6.0	125	*1.0*	500		
	5.0	162	*1.0*	600		
	4.0	162	*1.0*	750		
	3.3	162	*1.0*	900		
	2.5	135	*1.0*	1200		
	2.00	162	*1.0*	1500		

Nota: Verificare sempre che la coppia M2 utilizzata non ecceda il valore indicato nelle caselle in grigio

Note: *Please check that the output torque M2 does not exceed the value into the grey areas*



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*
350						
(3000 min^{-1})	30.0	74	3.9	100	**ECMM 250/030/063**	**120/240**
	20.0	103	3.0	150		
	15.0	129	2.0	200		
	12.0	152	1.5	250		
	10.0	173	1.8	300		
	7.5	208	1.2	400		
	6.0	241	1.0	500		
	5.0	327	0.9	600		
	4.0	393	0.8	750		
	3.3	448	0.7	900		
	2.5	260	1.0	1200		
	2.00	310	1.0	1500		
	15.0	133	2.9	200	**ECMM 250/040/070**	**120/240**
	12.0	158	2.2	250		
	10.0	175	2.6	300		
	7.5	210	1.8	400		
	6.0	244	1.4	500		
	5.0	335	1.4	600		
	4.0	403	1.1	750		
	3.3	466	1.0	900		
	2.5	379	1.0	1200		
	2.00	453	1.0	1500		
	1.67	453	1.0	1800		
	1.25	379	1.0	2400		
	1.00	336	1.0	3000		
	15.0	134	3.5	200	**ECMM 250/040/075**	**120/240**
	12.0	158	2.6	250		
	10.0	175	3.1	300		
	7.5	214	2.2	400		
	6.0	244	1.7	500		
	5.0	335	1.6	600		
	4.0	403	1.4	750		
	3.3	466	1.2	900		
	2.5	569	0.8	1200		
	2.00	696	0.8	1500		
	1.67	547	1.0	1800		
	1.25	470	1.0	2400		
	1.00	403	1.0	3000		
	12.0	168	4.2	250	**ECMM 250/040/090**	**120/240**
	10.0	184	5.1	300		
	7.5	226	3.6	400		
	6.0	263	2.6	500		
	5.0	351	2.7	600		
	4.0	423	2.2	750		
	3.3	489	1.9	900		
	2.5	600	1.4	1200		
	2.00	730	1.3	1500		
	1.67	838	1.1	1800		
	1.25	1029	0.8	2400		
	1.00	689	1.0	3000		

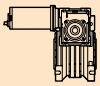
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
350						
(3000 min^{-1})	6.0	286	4.5	500	**ECMM 250/050/110**	**120/240**
	5.0	361	4.4	600		
	4.0	441	3.6	750		
	3.3	503	3.2	900		
	2.5	639	2.3	1200		
	2.00	763	2.1	1500		
	1.67	877	1.8	1800		
	1.25	1115	1.3	2400		
	1.00	1325	1.0	3000		
500						
(3000 min^{-1})	**40.0**	78	1.1	75	**ECMM 350/030/040**	**120/240**
	30.0	101	0.8	100		
	20.0	87	1.0	150		
	15.0	74	1.0	200		
	12.0	67	1.0	250		
	10.0	90	1.0	300		
	7.5	74	1.0	400		
	40.0	79	2.0	75	**ECMM 350/030/050**	**120/240**
	30.0	103	1.5	100		
	20.0	146	1.1	150		
	15.0	184	0.7	200		
	12.0	216	0.6	250		
	10.0	235	0.7	300		
	7.5	135	1.0	400		
	6.0	125	1.0	500		
	5.0	162	1.0	600		
	4.0	162	1.0	750		
	3.3	162	1.0	900		
	40.0	80	3.6	75	**ECMM 350/030/063**	**120/240**
	30.0	104	2.8	100		
	20.0	144	2.1	150		
	15.0	181	1.4	200		
	12.0	213	1.1	250		
	10.0	243	1.3	300		
	7.5	292	0.9	400		
	6.0	338	0.7	500		
	5.0	458	0.7	600		
	4.0	310	1.0	750		
	3.3	310	1.0	900		
	2.5	260	1.0	1200		
	2.0	310	1.0	1500		

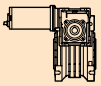
Nota: Verificare sempre che la coppia M2 utilizzata non ecceda il valore indicato nelle caselle in grigio

Note: *Please check that the output torque M2 does not exceed the value into the grey areas*

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*
500						
(3000 min^{-1})	**20.0**	148	3.0	150	**ECMM 350/040/070**	**120/240**
	15.0	186	2.1	200		
	12.0	222	1.5	250		
	10.0	246	1.8	300		
	7.5	295	1.3	400		
	6.0	341	1.0	500		
	5.0	469	1.0	600		
	4.0	565	0.8	750		
	3.3	653	0.7	900		
	2.5	379	1.0	1200		
	2.00	453	1.0	1500		
	1.67	453	1.0	1800		
	1.25	379	1.0	2400		
	20.0	150	3.5	150	**ECMM 350/040/075**	**120/240**
	15.0	188	2.5	200		
	12.0	222	1.8	250		
	10.0	246	2.2	300		
	7.5	300	1.6	400		
	6.0	341	1.2	500		
	5.0	469	1.2	600		
	4.0	565	1.0	750		
	3.3	653	0.8	900		
	2.5	470	1.0	1200		
	2.0	547	1.0	1500		
	1.7	547	1.0	1800		
	1.3	470	1.0	2400		
	12.0	236	3.0	250	**ECMM 350/040/090**	**120/240**
	10.0	258	3.7	300		
	7.5	317	2.6	400		
	6.0	369	1.9	500		
	5.0	493	1.9	600		
	4.0	593	1.6	750		
	3.3	685	1.4	900		
	2.5	841	1.0	1200		
	2.0	1024	0.9	1500		
	1.7	1175	0.8	1800		
	1.3	813	1.0	2400		
	1.0	689	1.0	3000		
	6.0	401	3.2	500	**ECMM 350/050/110**	**120/240**
	5.0	506	3.1	600		
	4.0	618	2.6	750		
	3.3	705	2.3	900		
	2.5	896	1.6	1200		
	2.0	1070	1.5	1500		
	1.7	1230	1.3	1800		
	1.3	1563	0.9	2400		
	1.0	1272	1.0	3000		
	4.0	645	2.6	750	**ECMM 350/063/130**	**120/240**
	3.3	737	2.3	900		
	2.5	938	1.7	1200		
	2.0	1135	1.5	1500		
	1.7	1306	1.3	1800		
	1.3	1662	1.0	2400		
	1.0	2011	0.7	3000		

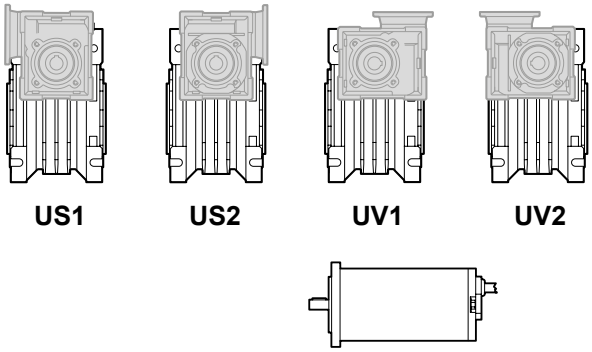
P_1 [W]	n_2 [min^{-1}]	M_2 [Nm]	sf	i		Versione motore *Motor version*
800						
(3000 min^{-1})	**40.0**	132	3.2	75	**ECMM 600/040/070**	**120/240**
	30.0	172	2.4	100		
	20.0	239	1.8	150		
	15.0	301	1.3	200		
	12.0	359	0.9	250		
	10.0	398	1.1	300		
	7.5	477	0.8	400		
	6.0	336	1.0	500		
	5.0	453	1.0	600		
	4.0	453	1.0	750		
	3.3	453	1.0	900		
	2.5	379	1.0	1200		
	40.0	132	3.8	75	**ECMM 600/040/075**	**120/240**
	30.0	172	2.9	100		
	20.0	242	2.2	150		
	15.0	305	1.5	200		
	12.0	359	1.1	250		
	10.0	398	1.4	300		
	7.5	486	1.0	400		
	6.0	403	1.0	500		
	5.0	547	1.0	600		
	4.0	547	1.0	750		
	3.3	547	1.0	900		
	2.5	470	1.0	1200		
	20.0	249	3.5	150	**ECMM 600/040/090**	**120/240**
	15.0	318	2.5	200		
	12.0	381	1.9	250		
	10.0	418	2.3	300		
	7.5	513	1.6	400		
	6.0	597	1.2	500		
	5.0	797	1.2	600		
	4.0	960	1.0	750		
	3.3	1109	0.9	900		
	2.5	813	1.0	1200		
	12.0	402	3.2	250	**ECMM 600/050/110**	**120/240**
	10.0	429	3.7	300		
	7.5	545	2.6	400		
	6.0	648	2.0	500		
	5.0	819	1.9	600		
	4.0	1000	1.6	750		
	3.3	1141	1.4	900		
	2.5	1450	1.0	1200		
	2.0	1731	0.9	1500		
	1.7	1990	0.8	1800		
	1.3	1443	1.0	2400		
	1.0	1272	1.0	3000		
	7.5	563	2.8	400	**ECMM 600/063/130**	**120/240**
	6.0	682	2.2	500		
	5.0	845	2.0	600		
	4.0	1044	1.6	750		
	3.3	1192	1.4	900		
	2.5	1517	1.1	1200		
	2.0	1836	0.9	1500		
	1.7	2112	0.8	1800		
	1.3	1600	1.0	2400		
	1.0	1500	1.0	3000		

Nota: Verificare sempre che la coppia M2 utilizzata non ecceda il valore indicato nelle caselle in grigio

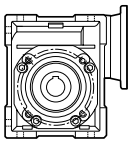
Note: *Please check that the output torque M2 does not exceed the value into the grey areas*

Motori applicabili

Motor adapters

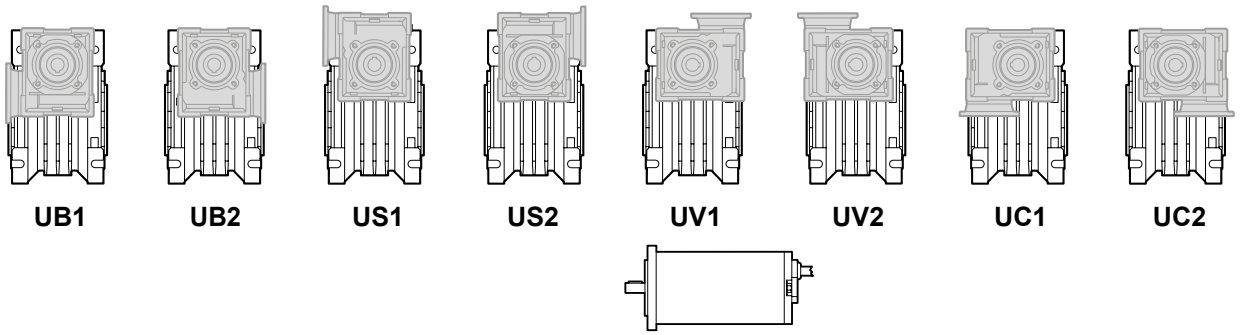


US1 US2 UV1 UV2

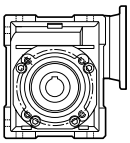


		EC			
		070.12E 070.24E	**100.120 100.240**	**100.24E**	**180.120 180.240**
CMM	**026/026**	150 - 3600	150 - 3600	150 - 3600	150 - 3600

150 - 3600 Rapporti di riduzione i
Ratio i



UB1 UB2 US1 US2 UV1 UV2 UC1 UC2



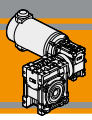
		EC							
		070.12E 070.24E	**100.120 100.240**	**100.24E**	**180.120 180.240**	**180.24E**	**250.120 250.240**	**350.120 350.240**	**600.120 600.240**
CMM	**026/030**	150 - 3600	150 - 3600	150 - 3600	150 - 3600				
	026/040	150 - 3600	150 - 3600	150 - 3600	150 - 3600				
	026/050	150 - 3600	150 - 3600	150 - 3600	150 - 3600				
	030/040	75 - 3000	75 - 3000	75 - 3000	75 - 3000	75 - 1500	75 - 1500	75 - 1500	
	030/050	75 - 3000	75 - 3000	75 - 3000	75 - 3000	75 - 1500	75 - 1500	75 - 1500	
	030/063	75 - 3000	75 - 3000	75 - 3000	75 - 3000	75 - 1500	100 - 1500	75 - 1500	
	040/070	75 - 3000	75 - 3000	75 - 3000	75 - 3000	75 - 3000	200 - 3000	75 - 3000	75 - 1200
	040/075	75 - 3000	75 - 3000	75 - 3000	75 - 3000	75 - 3000	200 - 3000	75 - 3000	75 - 1200
	040/090	75 - 3000	75 - 3000	75 - 3000	75 - 3000	75 - 3000	250 - 3000	75 - 3000	75 - 1200
	050/110				1200 - 3000	75 - 3000	500 - 3000	75 - 3000	75 - 3000
	063/130							75 - 3000	75 - 3000

150 - 3600 Rapporti di riduzione i
Ratio i

Dimensioni — *Dimensions*

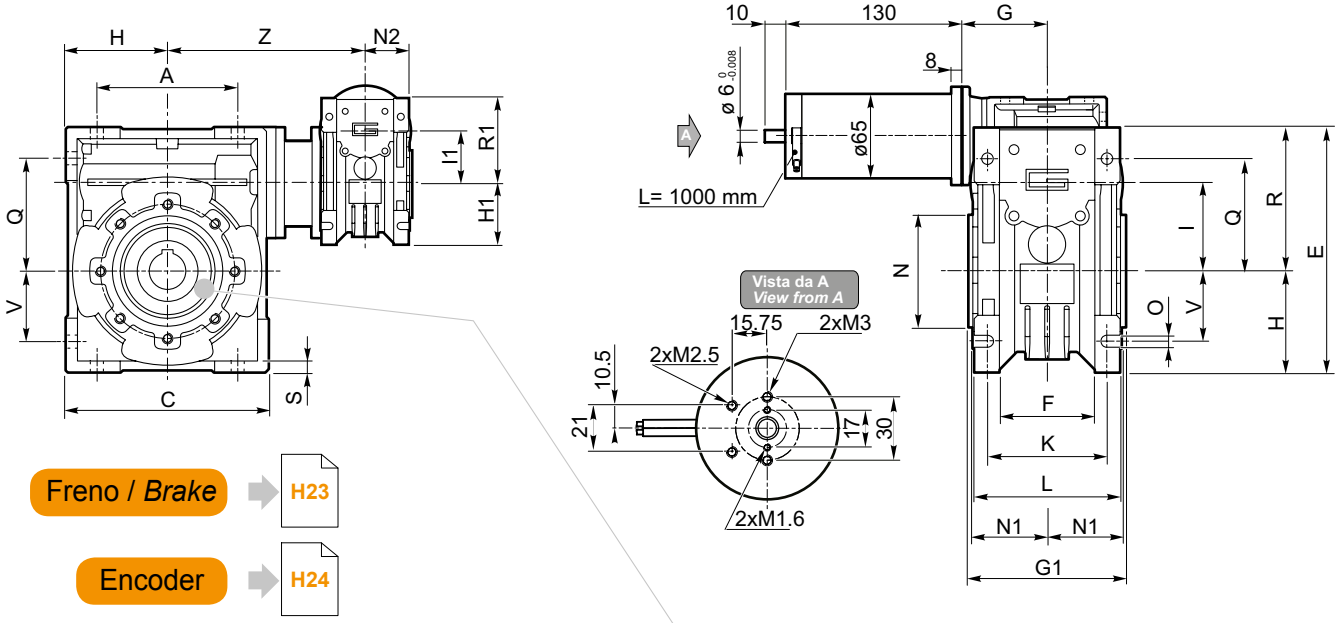
	CMM..U - CMM..F - CMM..FB - CMM..FL																
	A	C	D H8	E	F	G	G1	H	H1	I	I1	K	L	M	N h8	N1	N2
026/026	45	70	12	83	22	47.5	50	35	34	26	26	34	42	55	45	22.5	21
026/030	54	80	14	97	32	47.5	63	40	34	30	26	44	56	65	55	29	21
026/040	70	100	18	121.5	43	47.5	78	50	34	40	26	60	71	75	60	36.5	21
026/050	80	120	25	144	49	47.5	92	60	34	50	26	70	85	85	70	43.5	21
030/040	70	100	18	121.5	43	55	78	50	40	40	30	60	71	75	60	36.5	29
030/050	80	120	25	144	49	55	92	60	40	50	30	70	85	85	70	43.5	29
030/063	100	144	25	174	67	55	112	72	40	63	30	85	104	95	80	53	29
040/070	110	160	28	195	64	70	120	80	50	70	40	90	104	115	95	57	35.5
040/075	120	172	28	205	72	70	120	86	50	75	40	90	112	115	95	57	36.5
040/090	140	208	35	238	74	70	140	103	50	90	40	100	130	130	110	67	36.5

	CMM..U - CMM..F - CMM..FB - CMM..FL													
	O	P	Q	R	R1	S	T	V	Z	KE	a	b	t	Kg
026/026	6	—	37	49	49	5	15	21	76	7	—	4	13.8	3.3
026/030	6.5	75	44	57	49	5.5	22	27	81	M6x10(n.4)	90°	5	16.3	4.1
026/040	6.5	87	55	71.5	49	6.5	26	35	91.5	M6x8(n.4)	45°	6	20.8	5.2
026/050	8.5	98	64	84	49	7	30	40	100.5	M8x10(n.4)	45°	8	28.3	6.7
030/040	6.5	87	55	71.5	57	6.5	26	35	122	M6x8(n.4)	45°	6	20.8	5.6
030/050	8.5	98	64	84	57	7	30	40	132	M8x10(n.4)	45°	8	28.3	6.7
030/063	8.5	110	80	102	57	8	36	50	145	M8x14(n.8)	45°	8	28.3	8.7
040/070	9	130	91	115	71.5	9	40	55	160	M8x14(n.8)	45°	8	31.3	10
040/075	11	140	93	119	71.5	10	40	60	165	M8x14(n.8)	45°	8	31.3	13.7
040/090	13	160	102	135	71.5	11	45	70	182	M10x18(n.8)	45°	10	38.3	17.3



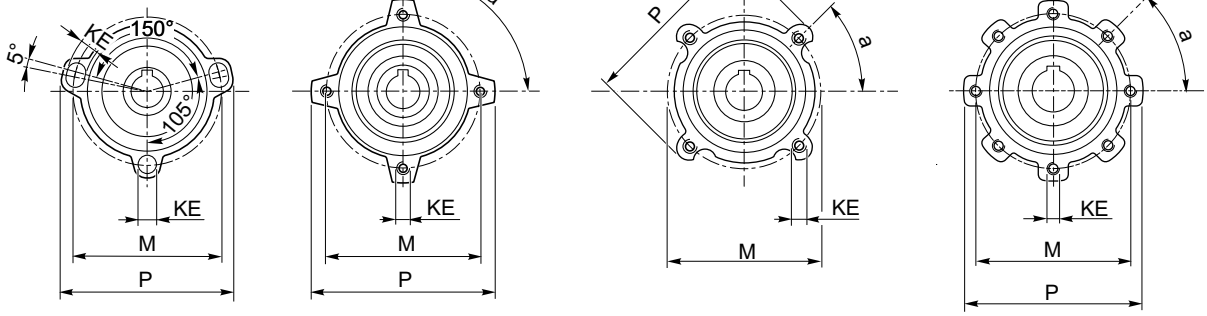
Dimensioni ***Dimensions***

ECMM070/../..U

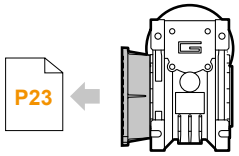


Freno / *Brake* → H23

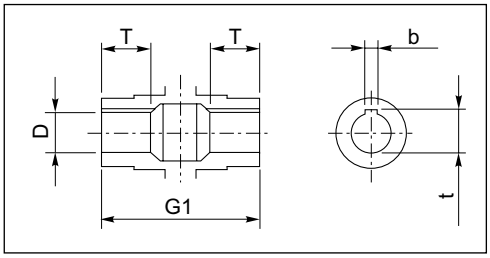
Encoder → H24



..026/026 **..026/030** **..026/040 ..026/050 ..030/040 ..030/050** **..030/063 ..040/070 ..040/075 ..040/090**



ECMM070/../.. F
ECMM070/../.. FL
ECMM070/../.. FB



Albero lento cavo / *Hollow output shaft*

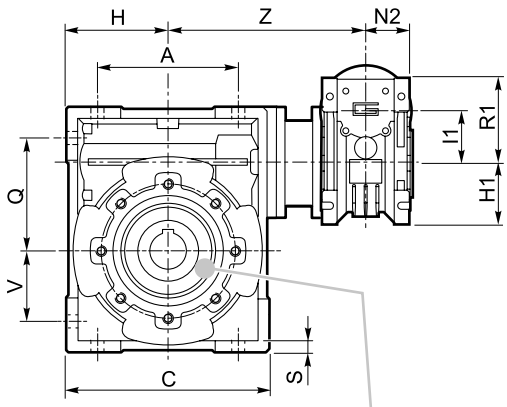
Dimensioni — *Dimensions*

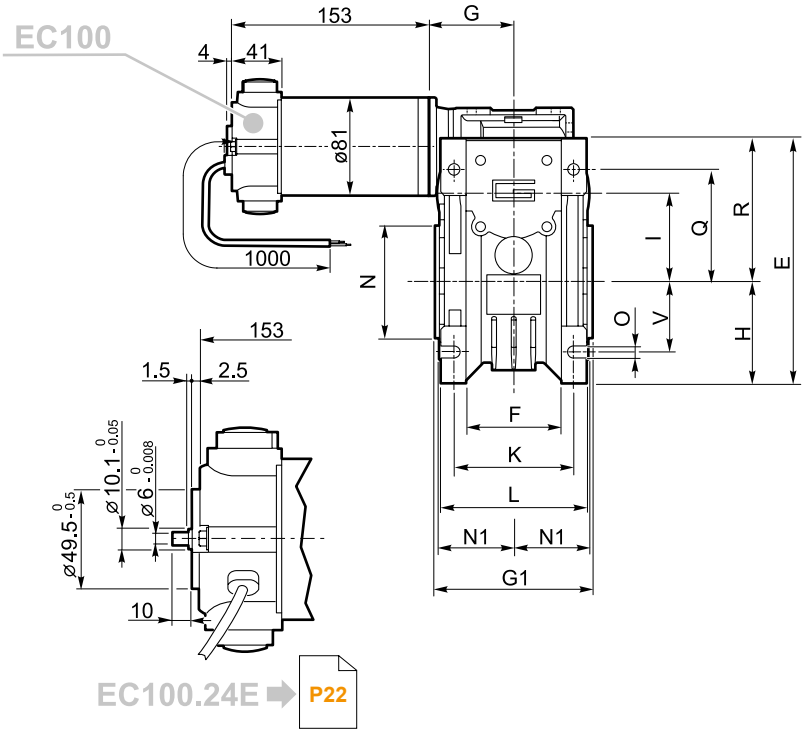
	CMM..U - CMM..F - CMM..FB - CMM..FL															
	A	C	D H8	E	F	G	G1	H	H1	I	I1	K	L	M	N h8	N1	N2
026/026	45	70	12	83	22	47.5	50	35	34	26	26	34	42	55	45	22.5	21
026/030	54	80	14	97	32	47.5	63	40	34	30	26	44	56	65	55	29	21
026/040	70	100	18	121.5	43	47.5	78	50	34	40	26	60	71	75	60	36.5	21
026/050	80	120	25	144	49	47.5	92	60	34	50	26	70	85	85	70	43.5	21
030/040	70	100	18	121.5	43	55	78	50	40	40	30	60	71	75	60	36.5	29
030/050	80	120	25	144	49	55	92	60	40	50	30	70	85	85	70	43.5	29
030/063	100	144	25	174	67	55	112	72	40	63	30	85	104	95	80	53	29
040/070	110	160	28	195	64	70	120	80	50	70	40	90	104	115	95	57	35.5
040/075	120	172	28	205	72	70	120	86	50	75	40	90	112	115	95	57	36.5
040/090	140	208	35	238	74	70	140	103	50	90	40	100	130	130	110	67	36.5

	CMM..U - CMM..F - CMM..FB - CMM..FL													
	O	P	Q	R	R1	S	T	V	Z	KE	a	b	t	Kg
026/026	6	—	37	49	49	5	15	21	76	7	—	4	13.8	4.3
026/030	6.5	75	44	57	49	5.5	22	27	81	M6x10(n.4)	90°	5	16.3	5.1
026/040	6.5	87	55	71.5	49	6.5	26	35	91.5	M6x8(n.4)	45°	6	20.8	6.2
026/050	8.5	98	64	84	49	7	30	40	100.5	M8x10(n.4)	45°	8	28.3	7.7
030/040	6.5	87	55	71.5	57	6.5	26	35	122	M6x8(n.4)	45°	6	20.8	6.6
030/050	8.5	98	64	84	57	7	30	40	132	M8x10(n.4)	45°	8	28.3	7.7
030/063	8.5	110	80	102	57	8	36	50	145	M8x14(n.8)	45°	8	28.3	9.7
040/070	9	130	91	115	71.5	9	40	55	160	M8x14(n.8)	45°	8	31.3	10
040/075	11	140	93	119	71.5	10	40	60	165	M8x14(n.8)	45°	8	31.3	14.7
040/090	13	160	102	135	71.5	11	45	70	182	M10x18(n.8)	45°	10	38.3	18.3

Dimensioni ***Dimensions***

ECMM100/../..U

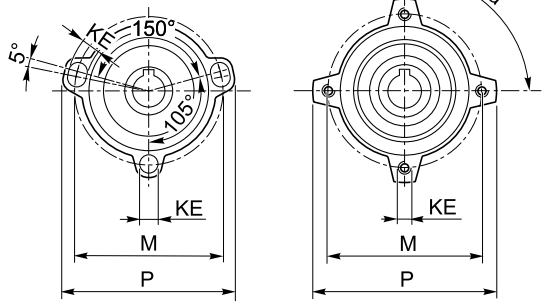




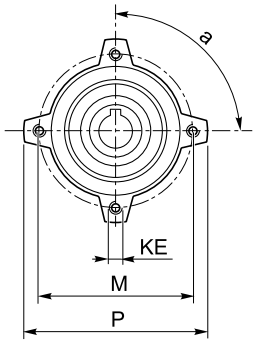
Freno / *Brake* → H23

Encoder → H24

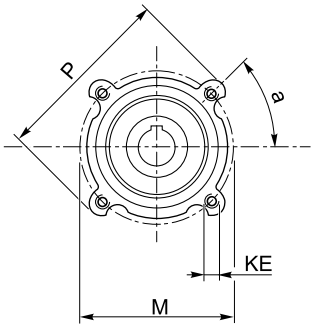
EC100.24E → P22



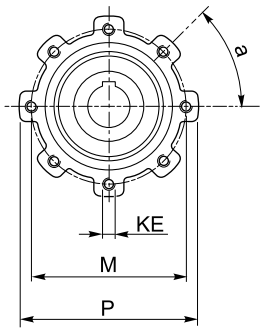
..026/026



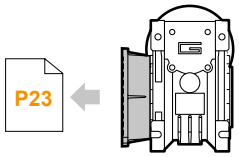
..026/030



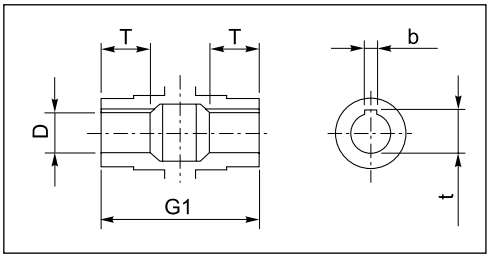
..026/040 ..026/050
..030/040 ..030/050



..030/063 ..040/075
..040/090



ECMM100/../.. F
ECMM100/../.. FL
ECMM100/../.. FB



Albero lento cavo / *Hollow output shaft*

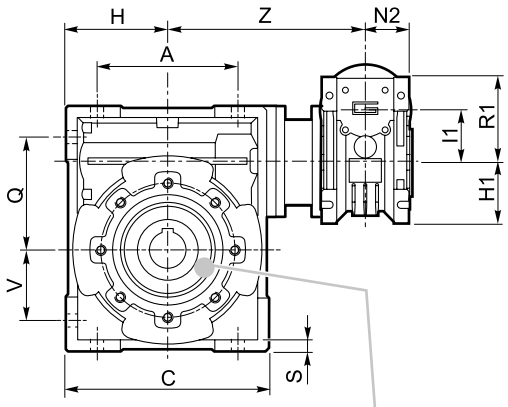
Dimensioni — *Dimensions*

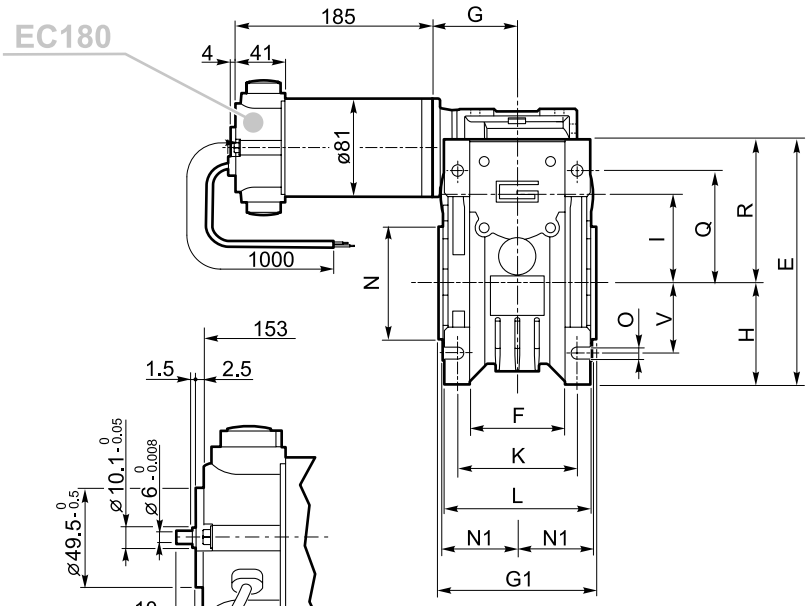
	CMM..U - CMM..F - CMM..FB - CMM..FL															
	A	C	D H8	E	F	G	G1	H	H1	I	I1	K	L	M	N h8	N1	N2
026/040	70	100	18	121.5	43	47.5	78	50	34	40	26	60	71	75	60	36.5	21
026/050	80	120	25	144	49	47.5	92	60	34	50	26	70	85	85	70	43.5	21
030/040	70	100	18	121.5	43	55	78	50	40	40	30	60	71	75	60	36.5	29
030/050	80	120	25	144	49	55	92	60	40	50	30	70	85	85	70	43.5	29
030/063	100	144	25	174	67	55	112	72	40	63	30	85	104	95	80	53	29
040/070	110	160	28	195	64	70	120	80	50	70	40	90	104	115	95	57	35.5
040/075	120	172	28	205	72	70	120	86	50	75	40	90	112	115	95	57	36.5
040/090	140	208	35	238	74	70	140	103	50	90	40	100	130	130	110	67	36.5
050/110	170	252.5	42	295	—	80	155	127.5	60	110	50	115	144	165	130	74	43.5

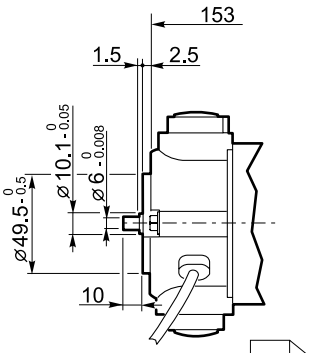
	CMM..U - CMM..F - CMM..FB - CMM..FL													
	O	P	Q	R	R1	S	T	V	Z	KE	a	b	t	Kg
026/040	6.5	87	55	71.5	49	6.5	26	35	91.5	M6x8(n.4)	45°	6	20.8	6.9
026/050	8.5	98	64	84	49	7	30	40	100.5	M8x10(n.4)	45°	8	28.3	8.4
030/040	6.5	87	55	71.5	57	6.5	26	35	122	M6x8(n.4)	45°	6	20.8	7.3
030/050	8.5	98	64	84	57	7	30	40	132	M8x10(n.4)	45°	8	28.3	8.4
030/063	8.5	110	80	102	57	8	36	50	145	M8x14(n.8)	45°	8	28.3	10.4
040/070	9	130	91	115	71.5	9	40	55	160	M8x14(n.8)	45°	8	31.3	10
040/075	11	140	93	119	71.5	10	40	60	165	M8x14(n.8)	45°	8	31.3	15.4
040/090	13	160	102	135	71.5	11	45	70	182	M10x18(n.8)	45°	10	38.3	19
050/110	14	200	125	167.5	84	14	50	85	225	M10x18(n.8)	45°	12	45.3	33.6

Dimensioni ***Dimensions***

ECMM180/../..U



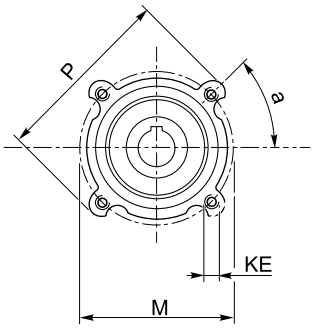




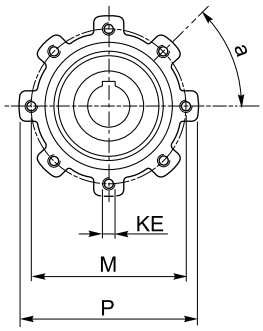
EC180.24E → P22

Freno / *Brake* → H23

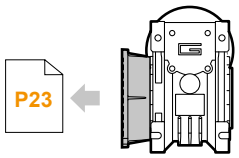
Encoder → H24



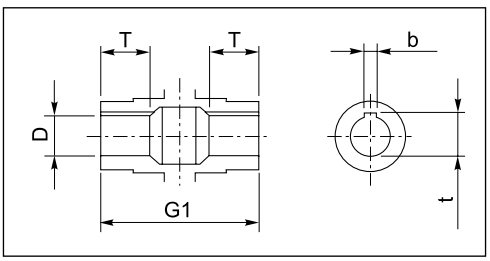
..026/040 ..026/050
..030/040 ..030/050



..030/063 ..040/075
..040/090 ..050/110



ECMM180/../.. F
ECMM180/../.. FL
ECMM180/../.. FB

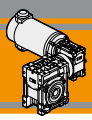


Albero lento cavo / *Hollow output shaft*

Dimensioni — *Dimensions*

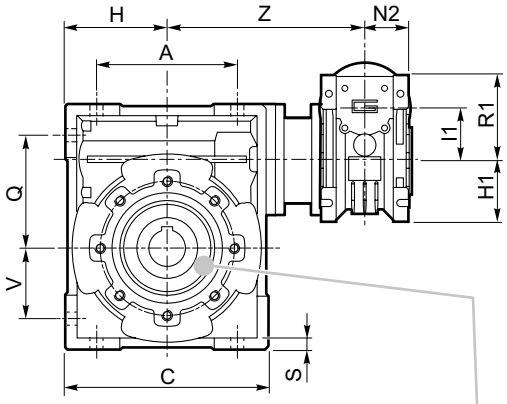
	CMM..U - CMM..F - CMM..FB - CMM..FL															
	A	C	D H8	E	F	G	G1	H	H1	I	I1	K	L	M	N h8	N1	N2
030/040	70	100	18	121.5	43	55	78	50	40	40	30	60	71	75	60	36.5	29
030/050	80	120	25	144	49	55	92	60	40	50	30	70	85	85	70	43.5	29
030/063	100	144	25	174	67	55	112	72	40	63	30	85	104	95	80	53	29
040/070	110	160	28	195	64	70	120	80	50	70	40	90	104	115	95	57	35.5
040/075	120	172	28	205	72	70	120	86	50	75	40	90	112	115	95	57	36.5
040/090	140	208	35	238	74	70	140	103	50	90	40	100	130	130	110	67	36.5
050/110	170	252.5	42	295	—	80	155	127.5	60	110	50	115	144	165	130	74	43.5

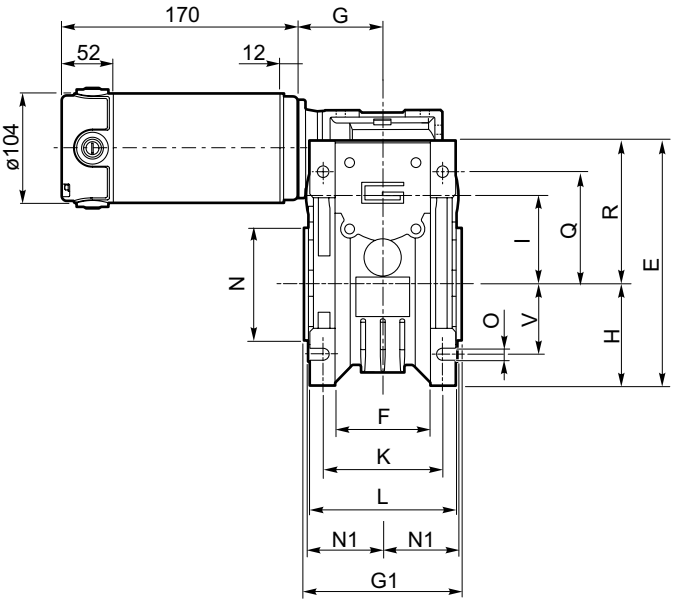
	CMM..U - CMM..F - CMM..FB - CMM..FL													
	O	P	Q	R	R1	S	T	V	Z	KE	a	b	t	Kg
030/040	6.5	87	55	71.5	57	6.5	26	35	122	M6x8(n.4)	45°	6	20.8	9.2
030/050	8.5	98	64	84	57	7	30	40	132	M8x10(n.4)	45°	8	28.3	10.3
030/063	8.5	110	80	102	57	8	36	50	145	M8x14(n.8)	45°	8	28.3	12.3
040/070	9	130	91	115	71.5	9	40	55	160	M8x14(n.8)	45°	8	31.3	10
040/075	11	140	93	119	71.5	10	40	60	165	M8x14(n.8)	45°	8	31.3	17.3
040/090	13	160	102	135	71.5	11	45	70	182	M10x18(n.8)	45°	10	38.3	20.9
050/110	14	200	125	167.5	84	14	50	85	225	M10x18(n.8)	45°	12	45.3	35.5

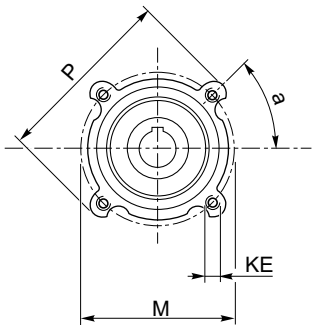


Dimensioni ***Dimensions***

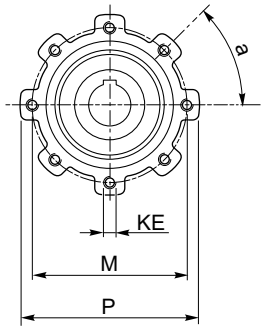
ECMM250/../..U



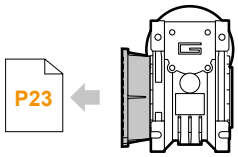




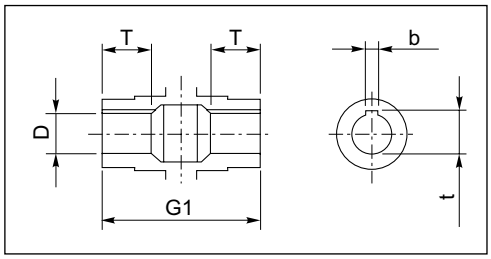
..030/040 ..030/050



..030/063 ..040/075
..040/090 ..050/110



ECMM250/../.. F
ECMM250/../.. FL
ECMM250/../.. FB

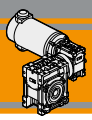


Albero lento cavo / *Hollow output shaft*

Dimensioni — *Dimensions*

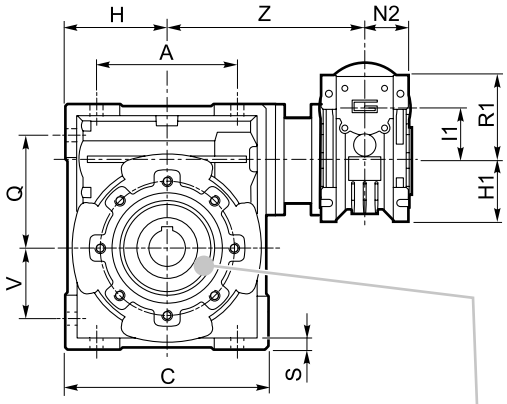
	CMM..U - CMM..F - CMM..FB - CMM..FL															
	A	C	D H8	E	F	G	G1	H	H1	I	I1	K	L	M	N h8	N1	N2
030/040	70	100	18	121.5	43	55	78	50	40	40	30	60	71	75	60	36.5	29
030/050	80	120	25	144	49	55	92	60	40	50	30	70	85	85	70	43.5	29
030/063	100	144	25	174	67	55	112	72	40	63	30	85	104	95	80	53	29
040/070	110	160	28	195	64	70	120	80	50	70	40	90	104	115	95	57	35.5
040/075	120	172	28	205	72	70	120	86	50	75	40	90	112	115	95	57	36.5
040/090	140	208	35	238	74	70	140	103	50	90	40	100	130	130	110	67	36.5
050/110	170	252.5	42	295	—	80	155	127.5	60	110	50	115	144	165	130	74	43.5
063/130	200	292.5	45	335	—	95	170	147.5	72	130	63	120	155	215	180	81	53

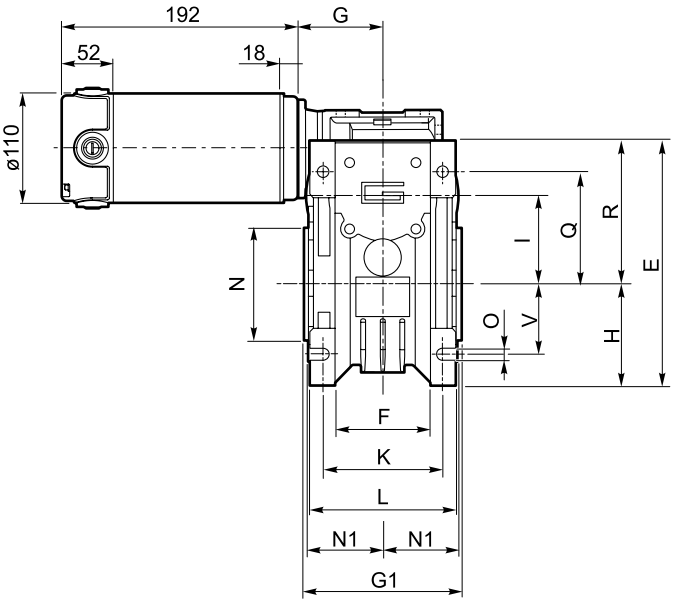
	CMM..U - CMM..F - CMM..FB - CMM..FL													
	O	P	Q	R	R1	S	T	V	Z	KE	a	b	t	Kg
030/040	6.5	87	55	71.5	57	6.5	26	35	122	M6x8(n.4)	45°	6	20.8	9.2
030/050	8.5	98	64	84	57	7	30	40	132	M8x10(n.4)	45°	8	28.3	10.3
030/063	8.5	110	80	102	57	8	36	50	145	M8x10(n.8)	45°	8	28.3	12.3
040/070	9	130	91	115	71.5	9	40	55	160	M8x14(n.8)	45°	8	31.3	10
040/075	11	140	93	119	71.5	10	40	60	165	M8x14(n.8)	45°	8	31.3	17.3
040/090	13	160	102	135	71.5	11	45	70	182	M10x18(n.8)	45°	10	38.3	20.9
050/110	14	200	125	167.5	84	14	50	85	225	M10x18(n.8)	45°	12	45.3	35.5
063/130	16	250	140	187.5	102	15	60	100	245	M12x21(n.8)	45°	14	48.8	60.3



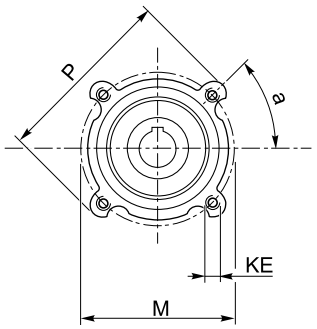
Dimensioni ***Dimensions***

ECMM350/../..U

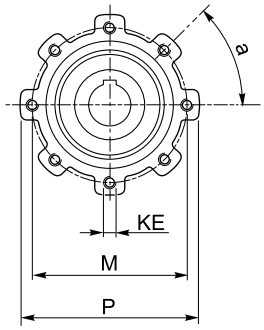




Freno / *Brake* → H23

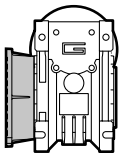


..030/040 ..030/050

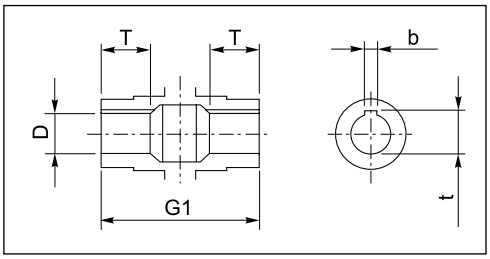


..030/063 ..040/075
..040/090 ..050/110
..063/130

P23 →



ECMM350/../.. F
ECMM350/../.. FL
ECMM350/../.. FB

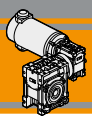


Albero lento cavo / *Hollow output shaft*

Dimensioni — *Dimensions*

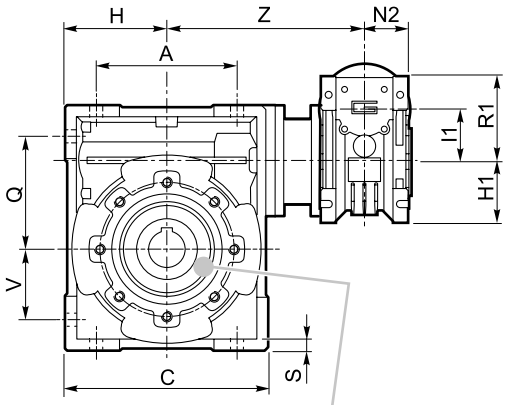
	CMM..U - CMM..F - CMM..FB - CMM..FL															
	A	C	D H8	E	F	G	G1	H	H1	I	I1	K	L	M	N h8	N1	N2
040/070	110	160	28	195	64	70	120	80	50	70	40	90	104	115	95	57	35.5
040/075	120	172	28	205	72	70	120	86	50	75	40	90	112	115	95	57	36.5
040/090	140	208	35	238	74	70	140	103	50	90	40	100	130	130	110	67	36.5
050/110	170	252.5	42	295	—	80	155	127.5	60	110	50	115	144	165	130	74	43.5
063/130	200	292.5	45	335	—	95	170	147.5	72	130	63	120	155	215	180	81	53

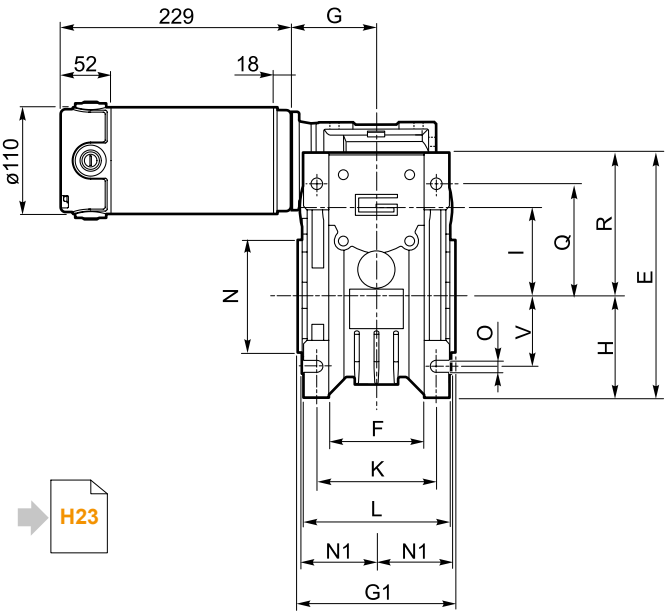
	CMM..U - CMM..F - CMM..FB - CMM..FL													
	O	P	Q	R	R1	S	T	V	Z	KE	a	b	t	Kg
040/070	9	130	91	115	71.5	9	40	55	160	M8x14(n.8)	45°	8	31.3	10
040/075	11	140	93	119	71.5	10	40	60	165	M8x14(n.8)	45°	8	31.3	19.1
040/090	13	160	102	135	71.5	11	45	70	182	M10x18(n.8)	45°	10	38.3	22.7
050/110	14	200	125	167.5	84	14	50	85	225	M10x18(n.8)	45°	12	45.3	37.3
063/130	16	250	140	187.5	102	15	60	100	245	M12x21(n.8)	45°	14	48.8	62.1



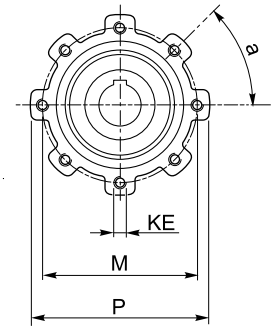
Dimensioni ***Dimensions***

ECMM600/../..U

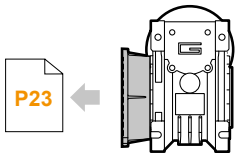




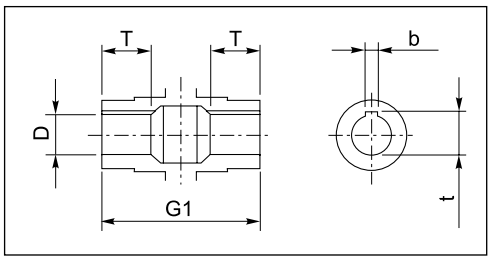
Freno / *Brake* → H23



..040/075 ..040/090
..050/110 ..063/130



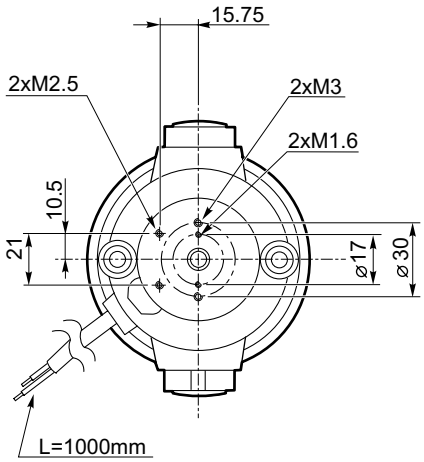
ECMM600/../.. F
ECMM600/../.. FL
ECMM600/../.. FB

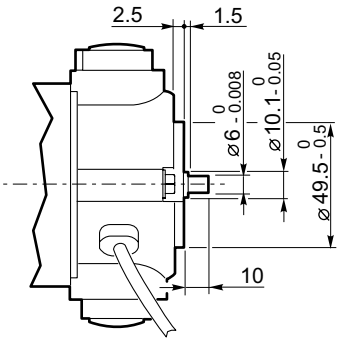


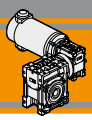
Albero lento cavo / *Hollow output shaft*

Dimensioni ***Dimensions***

EC100.24E
EC180.24E

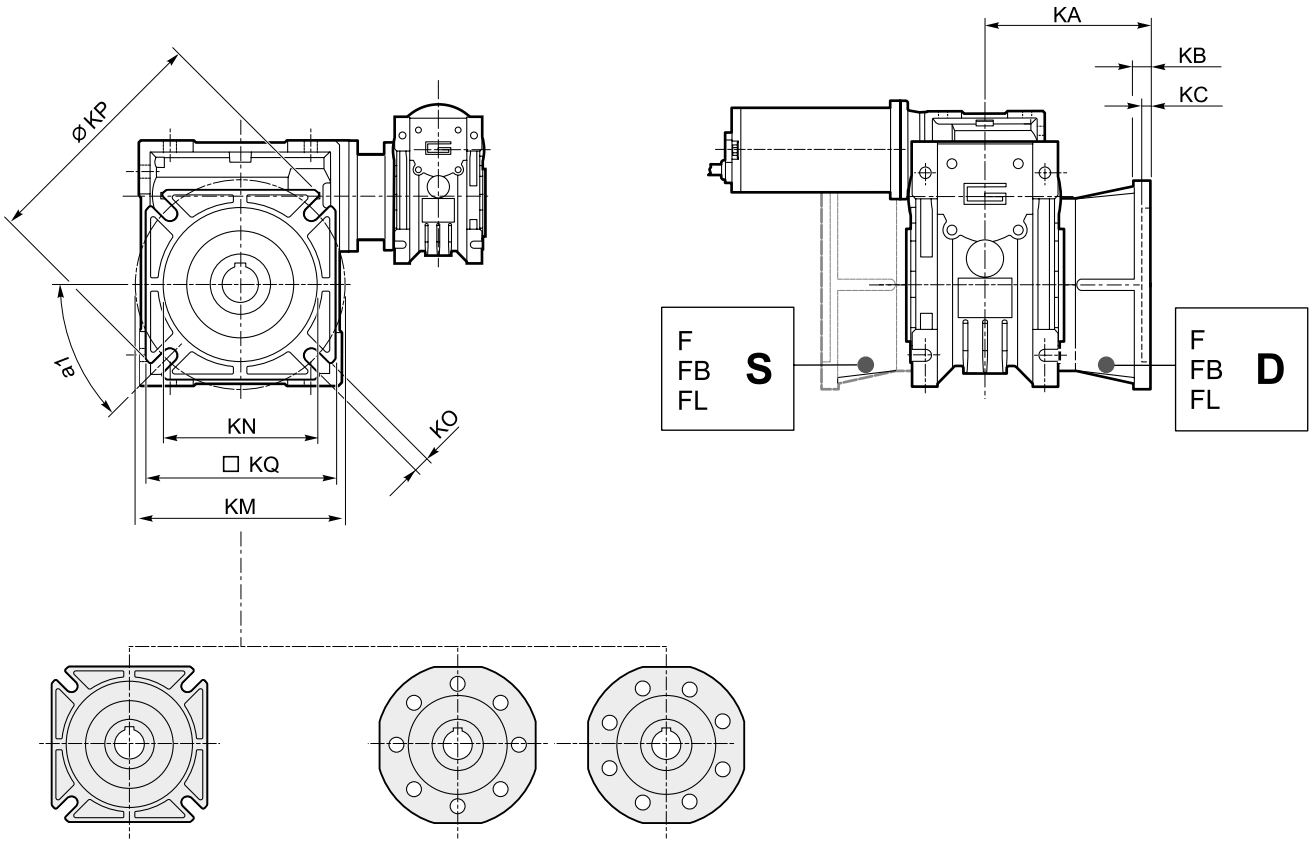






Dimensioni *Dimensions*

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



CMM..F
(../26 - ../030 - ../070 - ../090)
CMM..FB
(../040 - ../063)
CMM..FL
(../040 - ../063)

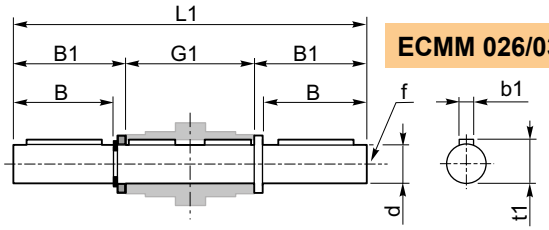
CMM..F
(../110) **(../130)**

		CMM..F								CMM..FB								CMM..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
026/026	45°	45	6	4.5	55-69	40	6.5(n.4)	75	70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
026/030	45°	54.5	6	4	68	50	6.5(n.4)	80	70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
026/040 030/040	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	9(n.4)	110	95
026/050 030/050	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
030/063	45°	82	10	6	150-160	115	11(n.4)	180	142	98	10	5	165-180	130	11(n.4)	200	112	112	10	6	150-160	115	11(n.4)	180	142
040/070	45°	107	13	6	165-180	130	14(n.4)	200	170	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
040/075	45°	111	13	6	165-180	130	14(n.4)	200	170	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
040/090	45°	111	13	6	175-190	152	14(n.4)	210	200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
050/110	45°	131	15	6	230	170	14(n.8)	280	260	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
063/130	22.5°	140	15	6	255	180	16(n.8)	320	290	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Accessori — *Accessories*

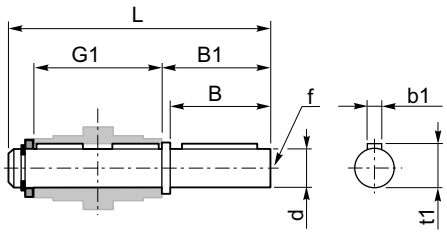
Albero lento semplice e doppio — *Single and double output shaft*

DZ

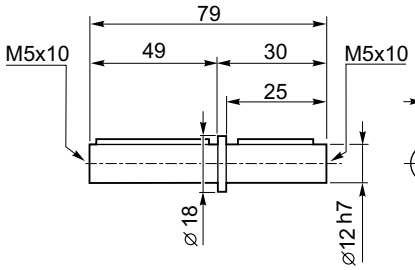


ECMM 026/030 - ECMM 063/130

SZ



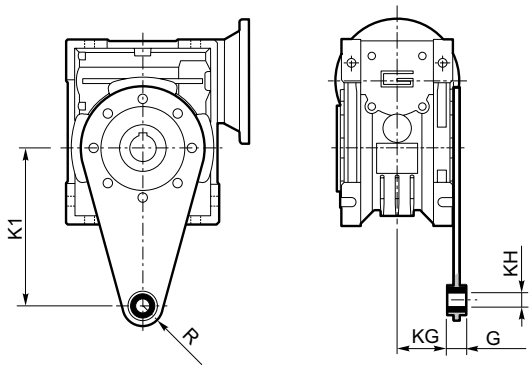
ECMM	d h7	B	B1	G1	L	L1	f	b1	t1
026/030	14	30	32.5	63	102	128	M6	5	16
026/040 030/040	18	40	43	78	128	164	M6	6	20.5
026/050 030/050	25	50	53.5	92	153	199	M10	8	28
030/063	25	50	53.5	112	173	219	M10	8	28
040/070	28	60	63.5	120	192	247	M10	8	31
040/075	28	60	63.5	120	192	247	M10	8	31
040/090	35	80	84.5	140	234	309	M12	10	38
050/110	42	80	84.5	155	249	324	M16	12	45
063/130	45	80	85	170	265	340	M16	14	48.5



ECMM 026/026

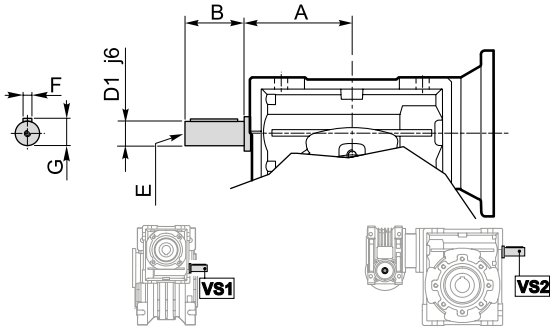
Braccio di reazione — *Torque arm*

ECMM	K1	G	KG	KH	R
026/030	85	14	23	8	15
026/040 030/040	100	14	31	10	18
026/050 030/050	100	14	38	10	18
030/063	150	14	47.5	10	18
040/070	200	25	46.5	20	30
040/075	200	25	46.5	20	30
040/090	200	25	56.5	20	30
050/110	250	30	62	25	35
063/130	250	30	69	25	35



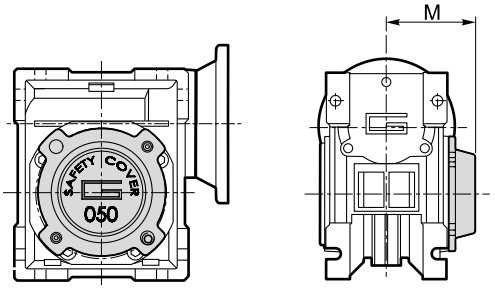
Opzioni — *Options*

VS1 - VS2 - Vite sporgente / *Extended input shaft*



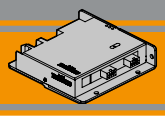
CMM	VS1						VS2					
	A	B	D_1 j6	E	F	G	A	B	D_1 j6	E	F	G
026/030	—	—	—	—	—	—	45	20	9	M4	3	10.2
026/040	—	—	—	—	—	—	53	23	11	M5	4	12.5
026/050	—	—	—	—	—	—	64	30	14	M6	5	16
030/040	45	20	9	M4	3	10.2	53	23	11	M5	4	12.5
030/050	45	20	9	M4	3	10.2	64	30	14	M6	5	16
030/063	45	20	9	M4	3	10.2	75	40	19	M6	6	21.5
040/070	53	23	11	M5	4	12.5	84	40	19	M6	6	21.5
040/075	53	23	11	M5	4	12.5	90	50	24	M8	8	27
040/090	53	23	11	M5	4	12.5	108	50	24	M8	8	27
050/110	64	30	14	M6	5	16	135	60	28	M10	8	31
063/130	75	40	19	M6	6	21.5	—	—	—	—	—	—

SC - *Safety cover*



	CM								
	30	40	50	63	70	75	90	110	130
M	47	54.5	62.5	73	79	79	94	102	117

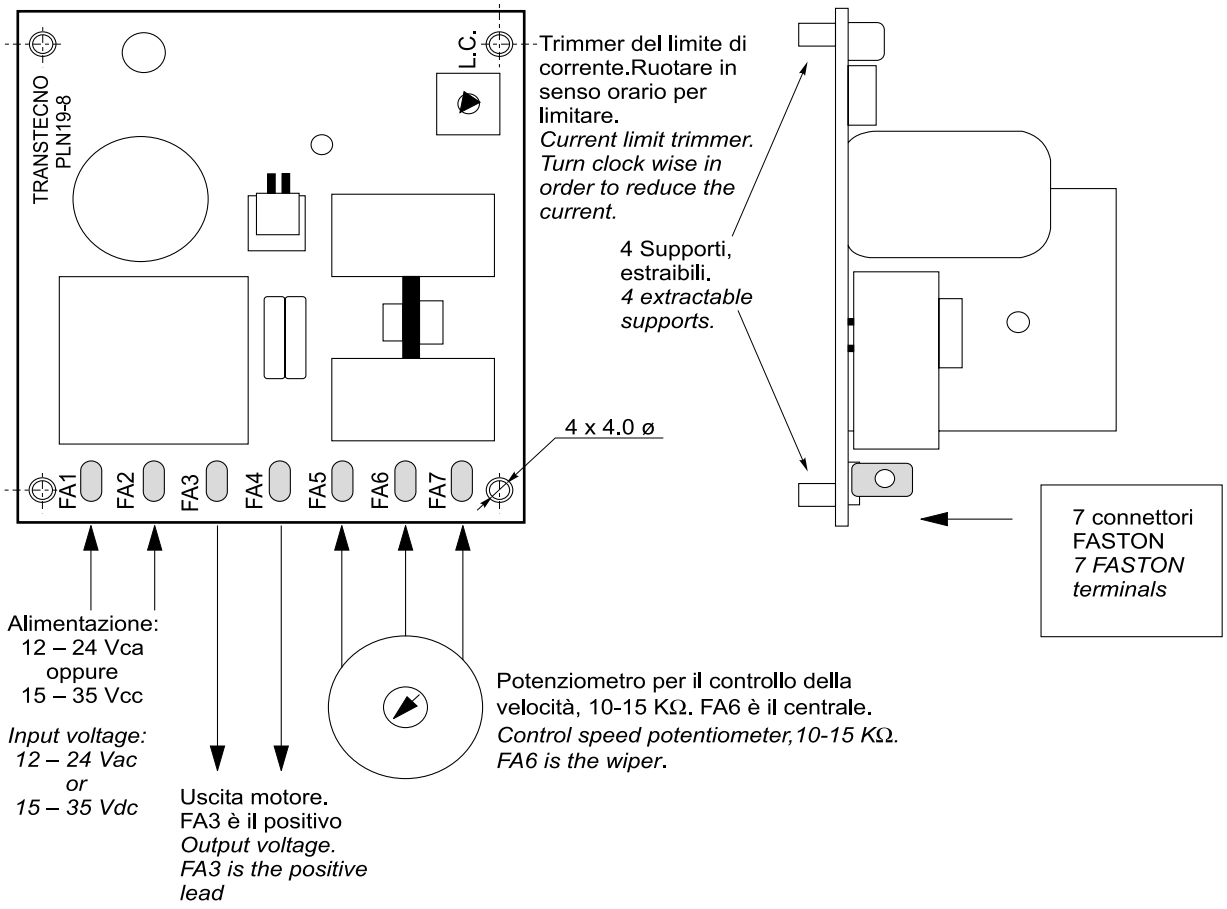
Costruito su richiesta
Built on request



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

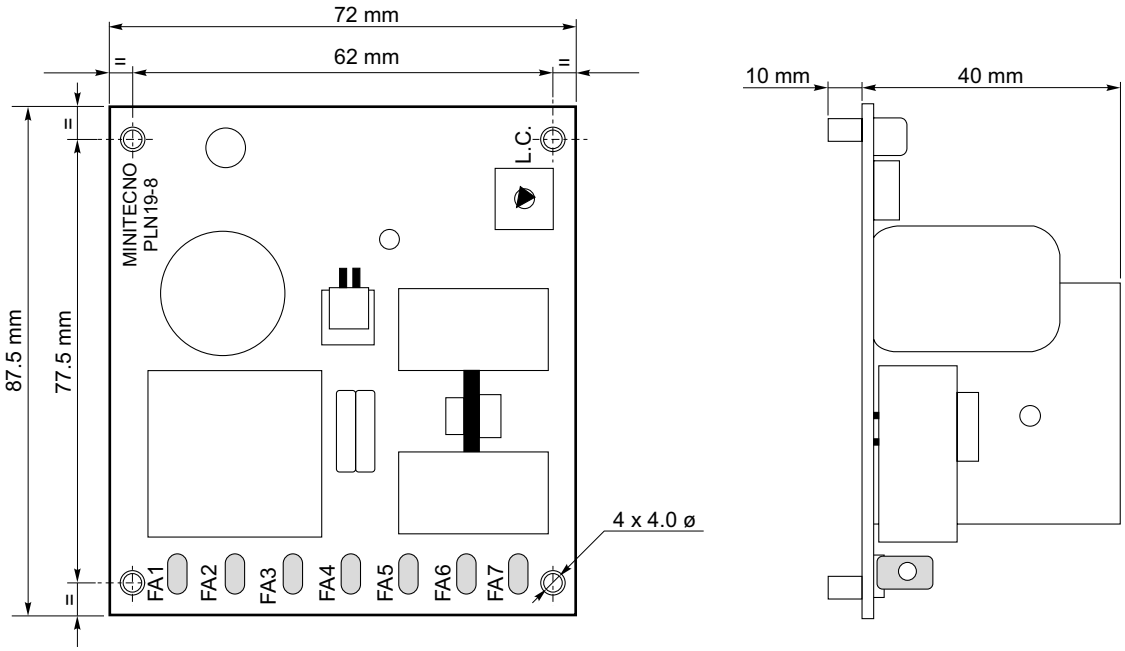
Technical features

- Alimentazione ai terminali FA1 e FA2:
  12 - 24 Vca oppure 15 - 35 Vcc.
- Regolazione della velocità mediante potenziometro 10-15 KΩ.
- 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.

- *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, 10-15 KΩ.*
- *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.

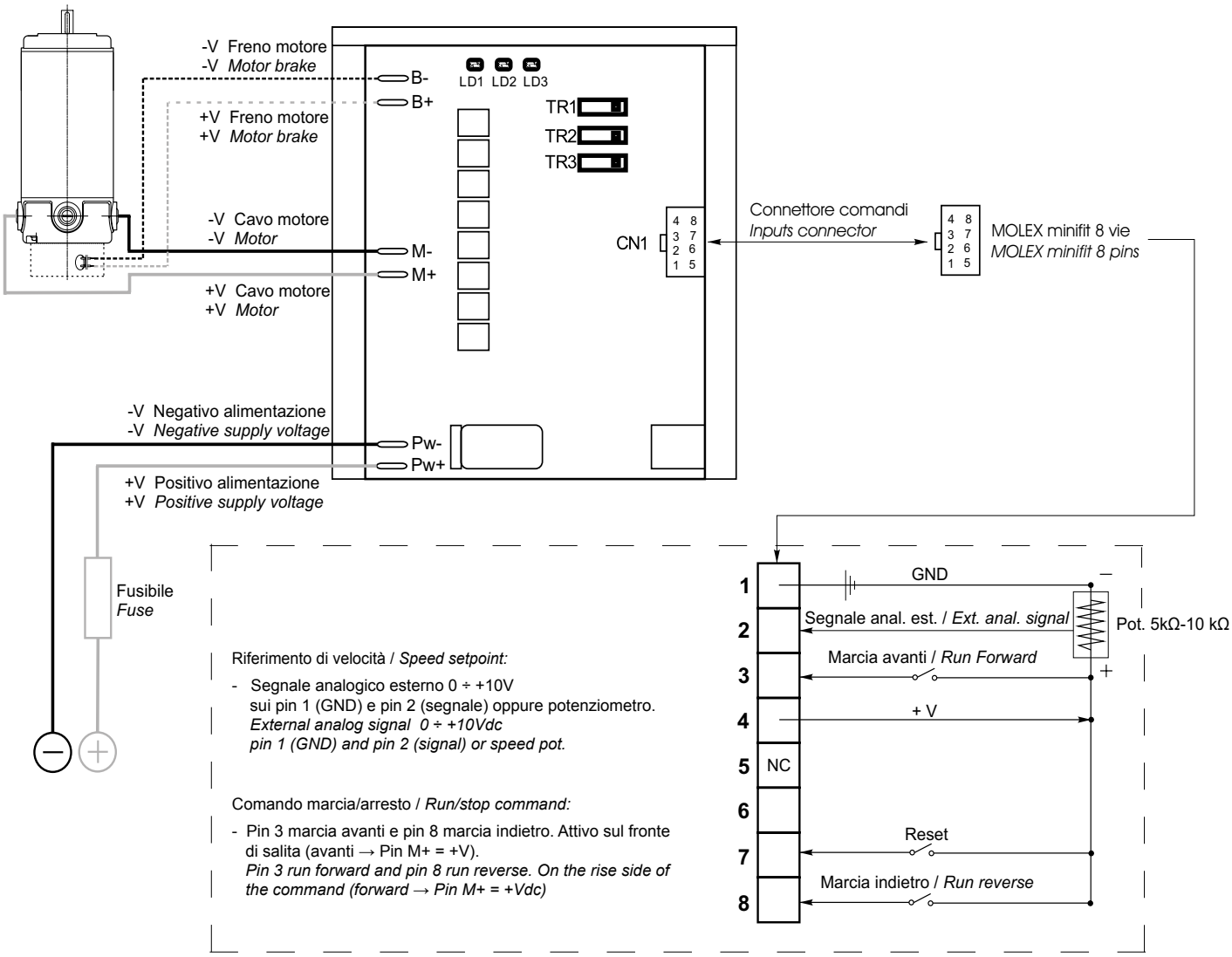
(*) *the maximum output current value must be used **in a ventilated environment.** Derate the maximum output current down to 4 A if the environment is not ventilated and the temperature is about 45 °C; continuous duty.*

PLN

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



Fusibile:
150-200% della corrente motore. Max 3 volte la corrente nominale della scheda, con intervento entro pochi secondi.

Fuse:
150-200 % rated motor current. Max 3 times rated current of the drive (trip time in few seconds).

Trimmer multigiro:

TR1: Accelerazione: selezione da 0.5 a 10 sec.

TR2: Limite di corrente: riduce il limite di corrente nominale da 100% a circa 30% (corrente di picco 3 volte la corrente selezionata).

TR3: Decelerazione: selezione da 0.5 a 10 sec.

Multiturn trimmers:

TR1: Acceleration time: from 0.5 to 10 sec.

TR2: Current limitation: rated current limited from 100% to about 30% (peak current 3 times the selected limited current).

TR3: Deceleration time: from 0.5 to 10 sec.

LED:

LD1: Visualizza lo stato di funzionamento con limite di corrente attivo (il motore assorbe più della corrente selezionata e l'azionamento opera in limitazione).

LD2: Stato dell'azionamento: lampeggio veloce e continuo = funzionamento normale, lampeggio lento e codificato = presenza di un allarme

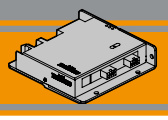
LD3: Segnalazione presenza alimentazione.

LED:

LD1: ON when the drive runs under current limitation (motor requires more than the rated current and drive supplies only limited current).

LD2: Status: quick continuous flash = drive ok, slow coded flash = fault).

LD3: Power ON



Caratteristiche tecniche

Technical features

- Scheda bidirezionale a transistor a ricircolo di corrente.
- Selezionabili i seguenti parametri (mediante trimmer):
  - rampa di accelerazione: 0.5 - 10 sec
  - rampa di decelerazione: 0.5 - 10 sec
  - limite corrente 100%-30% circa
- Temperatura di lavoro: 0°C / +40°C (allarme sotto zero)
- Diagnostica tramite LED
- Frequenza di commutazione: 16kHz
- Dotata di coperchio
- Velocità regolabile con potenziometro 5-10 kΩ o con segnale 0-10 Vcc
- Limitazione della corrente regolabile
- Sensore termico di protezione

- *Transistor bidirectional drive with regenerative current system.*
- *Following settings can be adjusted (by built in trimmers):*
  - *acceleration ramp: 0.5 - 10 sec*
  - *deceleration ramp: 0.5 - 10 sec*
  - *current limit 100% - about 30%*
- *Room temperature: 0°C / +40°C (alarm below zero)*
- *LED for system diagnosis*
- *Switching frequency: 16kHz*
- *Covered*
- *5-10 kΩ Speed pot. or 0-10 Vdc external signal for speed regulation*
- *Variable current limit*
- *Thermal sensor for protection*

Modello *Model number*	Tensione di alimentazione *DC input voltage* [Vdc]	Tensione di uscita *Motor voltage* [Vdc]*	Corrente di uscita nominale *DC load current* [A]	Corrente di picco motore *Maximum load current* [A]**	Campo di alimentazione *Power supply range* [Vdc]
PLN20	12 ÷ 24	0 ÷ Vin	20	60 (4 sec)	10 ÷ 30
PLN40	12 ÷24	0 ÷ Vin	40	120 (4 sec)	10 ÷ 30

* L'azionamento riduce la tensione nominale di 1-2 Vcc. Il fenomeno è normale e fisiologico. Se serve ottenere 24 ÷ 12 Vcc in uscita sotto ogni condizione di carico, si suggerisce di sovralimentare di un paio di volt.

** Un timer impone il limite con un andamento temporale iperbolico, cioè quanta più corrente eroga e tanto meno è il tempo per il quale ciò è ammesso, prima che appunto la scheda vada in limitazione. Alla corrente di picco (x 3 volte quella nominale) la scheda funziona per pochi secondi.

** The drive reduces the rated voltage of 1-2 Vdc. This is normal and physiological. If 24 ÷12 VDC output is required under all load conditions, it is advisable to supercharge a couple of volts.*

*** A timer imposes a limit with a temporary hyperbolic performance, which means the more current is requested, the less time is permitted with this current before the drive is limited. When the current reaches its peak (3 times the rated value) the drive will work for a few seconds.*

Dotazioni

Equipment

	PLN20 PLN40
Trimmer di selezione ACCEL, DECEL e LIMITE di CORRENTE / *Selection Trimmer ACCEL, DECEL, CURRENT LIMIT*	■
2 contatti: marcia avanti e marcia indietro / *2 contacts : forward and reverse*	■
Riferimento di velocità / *Speed setpoint reference*	■
3 LEDs di segnalazione / *3 LEDs signals*	■
Segnale di comando di eventuale freno negativo di stazionamento / *Command signal for possible negative electromagnetic brake*	■
Predisposizione per montaggio a libro e a zoccolo / *Arranged for 2 different ways of mounting*	■
Memorizzazione e segnalazione degli allarmi / *Memory storage and report of allarm*	■
2 ingressi digitali ausiliari / *2 auxiliary digital inputs*	■#

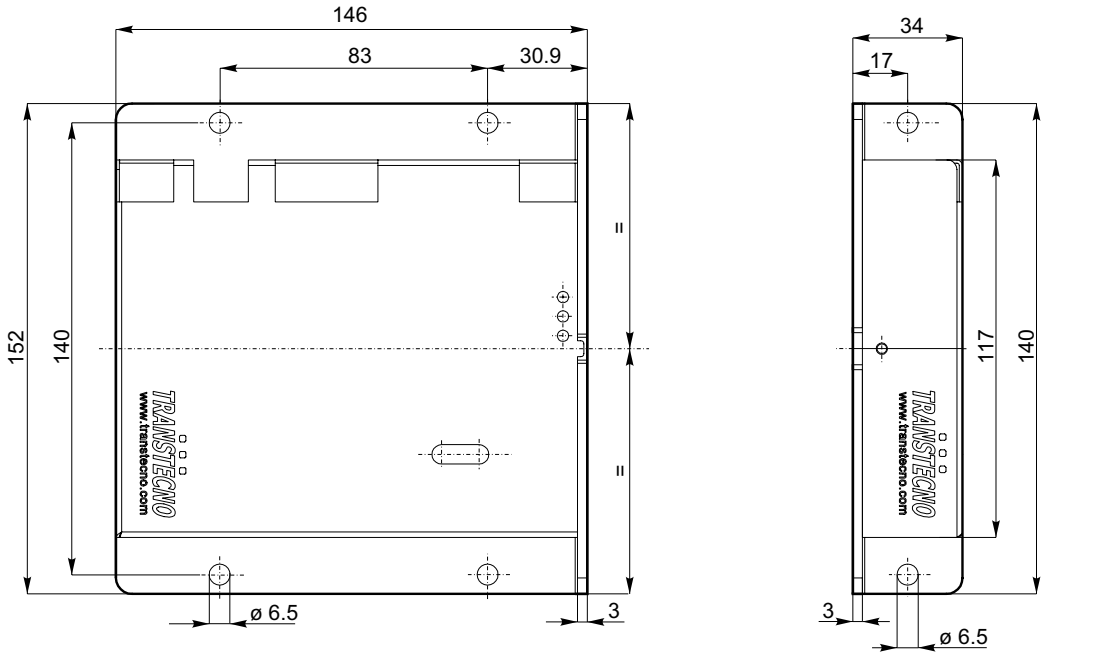
uno impegnato dal reset / *one comitted by reset*

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

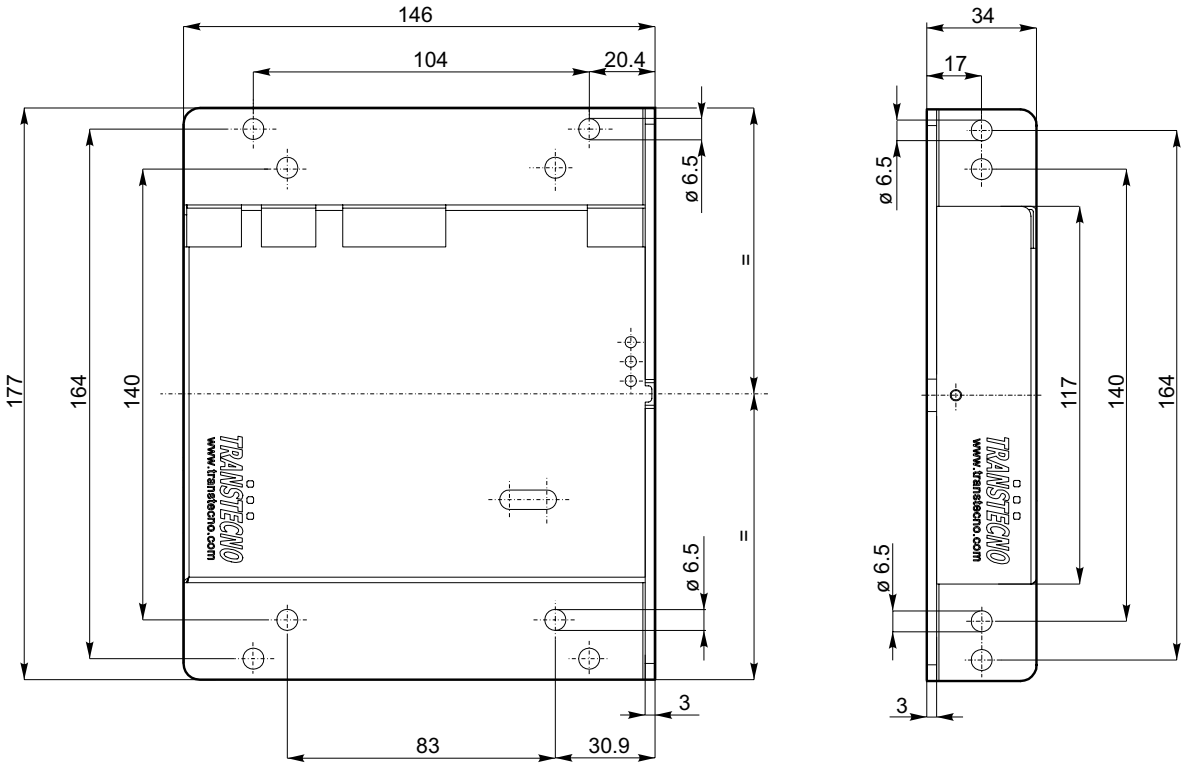
LOW VOLTAGE BIDIRECTIONAL PWM DC MOTORS CONTROL

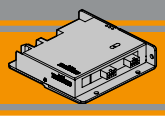
Dimensioni / *Dimensions*

PLN20



PLN40





GUIDA alla selezione dell'azionamento

Drive selection GUIDE

Corrente di uso del motore	≤	Corrente nominale dell'azionamento

Real motor current	≤	*Rated current of the drive*

Attenzione: la reale corrente assorbita dal motore può essere diversa da quella indicata in targhetta.

PLN19-8 = max 6 A

PLN20 = max 22 A

PLN40 = max 44 A

Vedere sotto la tabella per esemplificazioni

Warning: the real absorbed current by the motor can be different from the one written on the nameplate.

PLN19-8 = max 6 A

PLN20 = max 22 A

PLN40 = max 44 A

See the table below for quick reference

Codice motore *Motor code*	Corrente motore *Motor current* S1	Scheda-Drive (servizio motore-motor duty) S1	Corrente motore *Motor current* S2	Scheda-Drive (servizio motore-motor duty) S2
EC020.120	3.2	PLN19-8 – PLN20	4	PLN19-8 – PLN20
EC020.240	1.5	PLN19-8 – PLN20	2	PLN19-8 - PLN20
EC035.120	5.2	PLN19-8 – PLN20	8	PLN20
EC035.240	2.6	PLN19-8 - PLN20	4	PLN19-8 - PLN20
EC050.120	6.8	PLN20	9.4	PLN20
EC050.240	3.4	PLN19-8 - PLN20	4.7	PLN19-8 - PLN20
EC070.12E	8.4	PLN20	11.8	PLN20
EC070.24E	4.2	PLN19-8 - PLN20	5.9	PLN19-8 - PLN20
EC100.120	12	PLN20	16.8	PLN20
EC100.240	6	PLN19-8 - PLN20	8.4	PLN20
EC100.24E	6	PLN19-8 - PLN20	8.4	PLN20
ND120.120	13.9	PLN20	19	PLN20
ND120.240	6.9	PLN20	9.0	PLN20
EC180.120	21.5	PLN20	30	PLN40
EC180.240	10.8	PLN20	15	PLN20
EC180.24E	10.8	PLN20	15	PLN20
ND180.120	20	PLN20	30	PLN40
ND180.240	10	PLN20	14	PLN20
EC250.120	30	PLN40	39	PLN40
EC250.240	15	PLN20	19.5	PLN20
EC350.120	42	PLN40	58.8	----
EC350.120BR				
EC350.240	21	PLN20	29.4	PLN40
EC350.240BR				
EC600.240	35.5	PLN40	47	PLN40
EC600.240BR				

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Единый адрес для всех регионов: ton@nt-rt.ru || www.transtecno.nt-rt.ru