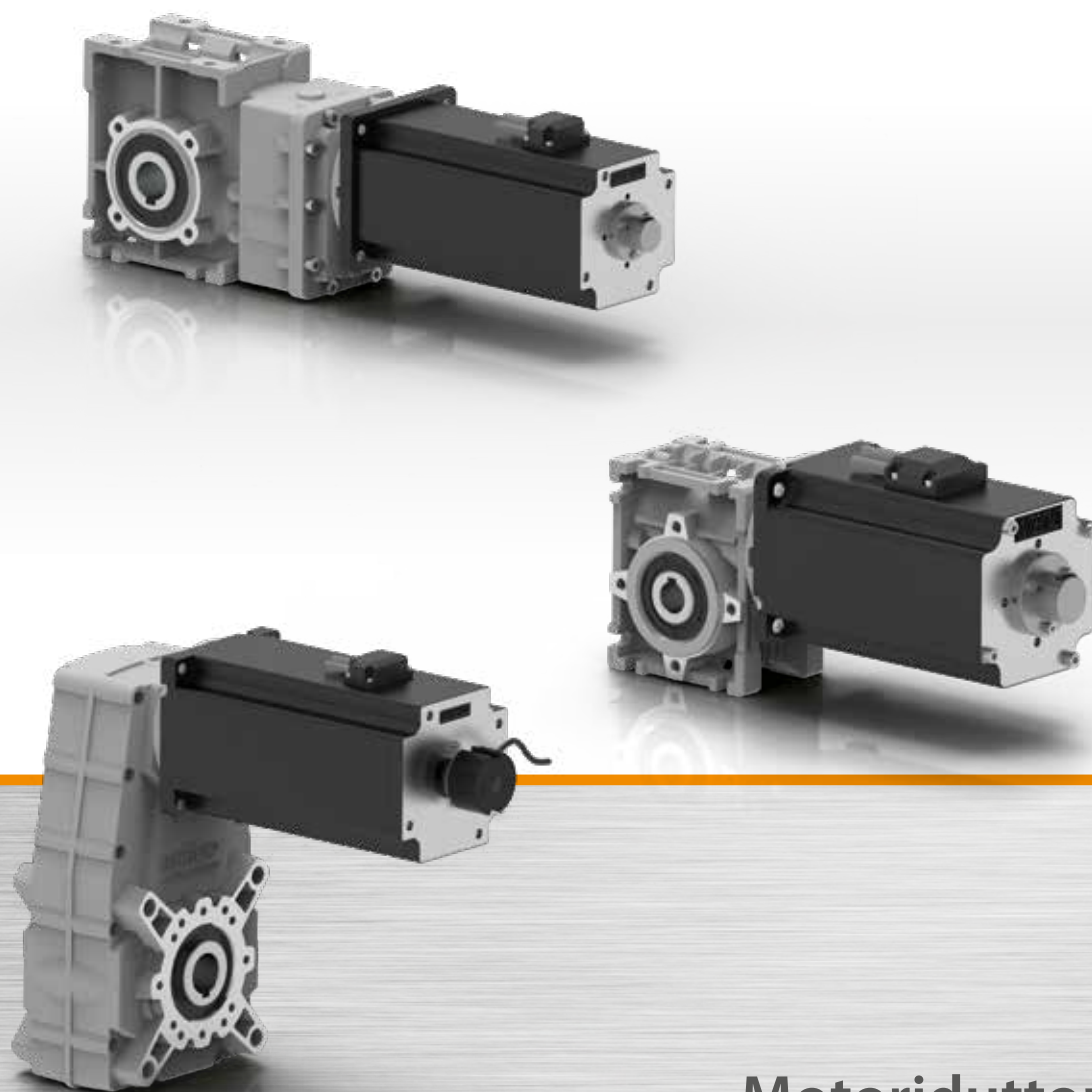
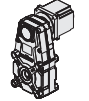
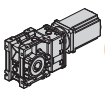
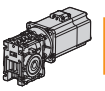
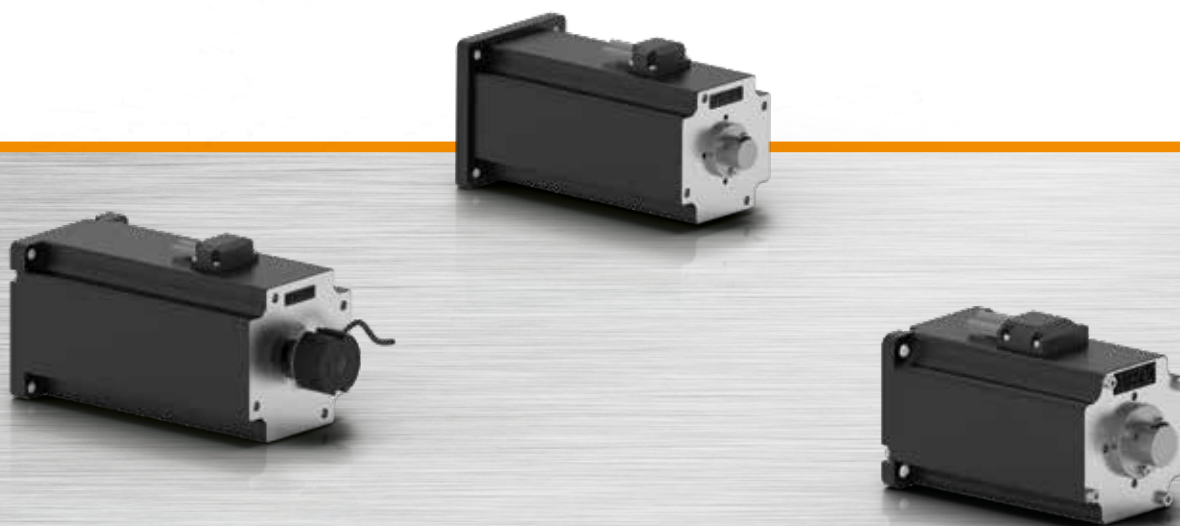


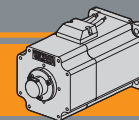


Motoriduttori BLDC
BLDC Gearmotors

Indice	Index	Pag. Page
  A	BLDC motors with brake and encoder BLDC	A1
  B	BLDC helical parallel gearmotors FT	B1
  C	BLDC helical bevel gearmotors CMB	C1
  D	BLDC wormgearmotors CM	D1

Motori BLDC con freno ed encoder BLDC motors with brake and encoder

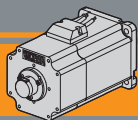




	Indice	Index	Pag. Page
	Caratteristiche tecniche	<i>Technical features</i>	A2
	Grado di protezione IP	<i>IP enclosures protection indexes</i>	A2
	Classe di isolamento termico	<i>Insulation class</i>	A3
	Tipi di servizio IEC	<i>IEC duty cycle ratings</i>	A3
	MOTORI	MOTORS	
BL070.48.80	Specifiche costruttive	<i>General features</i>	A4
	Prestazioni	<i>Performances</i>	A4
	Dimensioni	<i>Dimensions</i>	A5
	Diagramma dei collegamenti	<i>Connection diagram</i>	A5
BL200.48.95	Specifiche costruttive	<i>General features</i>	A6
	Prestazioni	<i>Performances</i>	A6
	Dimensioni	<i>Dimensions</i>	A7
	Diagramma dei collegamenti	<i>Connection diagram</i>	A7
BL400.48.120	Specifiche costruttive	<i>General features</i>	A8
	Prestazioni	<i>Performances</i>	A8
	Dimensioni	<i>Dimensions</i>	A9
	Diagramma dei collegamenti	<i>Connection diagram</i>	A9
	ENCODER	ENCODER	
MEHR22	Descrizione encoder	<i>Description encoder</i>	A10
	Caratteristiche principali	<i>Main specifications</i>	A10
	Interfaccia elettrica	<i>Electrical interface</i>	A11
	Condizioni di funzionamento raccomandate	<i>Recommended operating conditions</i>	A12
	Caratteristiche meccaniche	<i>Mechanical Notes</i>	A13
HREA 48	Descrizione encoder	<i>Description encoder</i>	A14
	Caratteristiche principali	<i>Main specifications</i>	A14
	Interfaccia elettrica	<i>Electrical interface</i>	A15
	Condizioni di funzionamento raccomandate	<i>Recommended operating conditions</i>	A16
	Caratteristiche meccaniche	<i>Mechanical Notes</i>	A17

Questa sezione annulla e sostituisce ogni precedente edizione o revisione. Qualora questa sezione non Vi sia giunta in distribuzione controllata, l'aggiornamento dei dati ivi contenuto non è assicurato. **In tal caso la versione più aggiornata è disponibile sul nostro sito internet www.intecno-srl.com**

This section replaces any previous edition and revision. If you obtained this catalogue other than through controlled distribution channels, the most up to date content is not guaranteed. In this case the latest version is available on our web site www.intecno-srl.com



Caratteristiche tecniche

Technical features

I motori brushless CC della serie BL Traction vengono realizzati in 3 grandezze: 80 - 95 - 120 mm ed hanno le seguenti caratteristiche:

- Trifase BLDC sensorless
- Doppia tensione di alimentazione 48Vcc/ 24Vcc
- Potenze motore 320W -650W -1320W
- Albero e flangia per accoppiamento metrico IEC
- Classe di isolamento F
- Classe di protezione IP65
- Completati di freno 48Vdc/24Vdc
- Completati di encoder ad alta risoluzione

Questi motori sono stati progettati per avere standard il freno elettromeccanico incluso all'interno della carcassa del motore, e grazie agli anelli di tenuta posti sull'albero di uscita e sul lato posteriore, oltre ad avere i fori ciechi sulla flangia e lo scudo posteriore, motore e freno sono protetti da qualsiasi agente esterno, garantendo una classe di protezione IP65.

The brushless DC motors of the BL Traction series are made in 3 sizes: 80 - 95 - 120 mm and have the following characteristics:

- 3ph BLDC sensorless
- dual voltage 48Vdc/ 24Vdc
- Motor power 320W-650W-1320W
- IEC metric flange and shaft
- Insulation class F
- Protection class IP65
- Safety brake 48Vdc/24Vdc
- Encoder high resolution

These motors have been designed to have the electromechanical brake as standard included inside the motor casing, and thanks to the seals placed on the output shaft and on the rear cover, as well as having blind holes on the flange and the rear side, motor and brake are protected from any external agent, guaranteeing an IP65 protection class.

Grado di protezione IP

IP enclosures protection indexes

Indica il grado di isolamento meccanico del corpo motore.

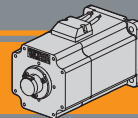
1^a cifra protezione alla penetrazione di corpi solidi.

2^a 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.

6	A tenuta da polvere Dust proof	5	Protetto contro i getti Water jet proof
----------	-----------------------------------	----------	--



Classe di isolamento termico

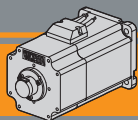
Insulation class

Classe / Class	Δt °C Temp. ambiente: 40°C Ambient temperature: 40°C
F	100°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.



Motori BLDC con freno ed encoder BLDC motors with brake and encoder



BL070.48.80

Specifiche costruttive

Tipologia di avvolgimento <i>Winding type</i>	delta
Gioco radiale <i>Radial play</i>	0.02 mm @ 450 g
Gioco assiale <i>End play</i>	0.08 mm @ 450 g
Scentratura albero <i>Shaft run out</i>	0.05 mm
Grado di protezione <i>Degree of protection</i>	IP 65

General features

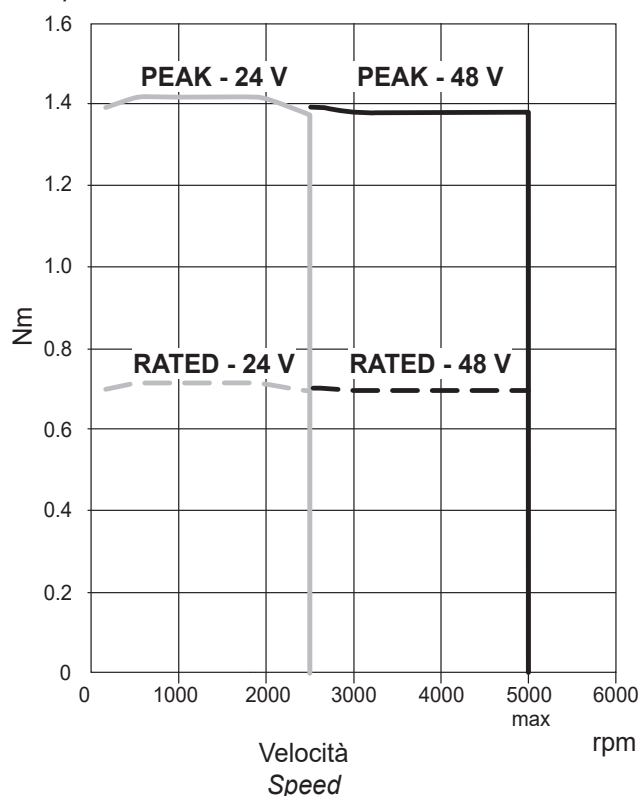
Max forza radiale <i>Max radial force</i>	115 N
Max forza assiale <i>Max axial force</i>	45 N
Classe di isolamento termico <i>Insulation class</i>	Classe F <i>Class F</i>
Isolamento dielettrico <i>Dielectric strength</i>	500Vac x 1 minuto <i>500 Vac 1 minute</i>
Resistenza isolamento <i>Insulation resistance</i>	100MΩ minimo, 500Vcc <i>100MΩ min, 500 Vdc</i>

Modello <i>Model</i>	Poli <i>Poles</i>	Fasi <i>Phases</i>	Tensione nominale <i>Rated voltage</i>	Velocità nominale <i>Rated speed</i>	Coppia nominale <i>Rated torque</i>	Potenza nominale <i>Rated power</i>	Coppia di picco <i>Peak torque</i>	Corrente nominale <i>Rated current</i>	Corrente di picco <i>Peak current</i>	Resistenza fase-fase <i>Line to line resistance</i>	Induttanza fase-fase <i>Line to line inductance</i>	Costante di coppia <i>Torque constant</i>	Costante CEM <i>Back EMF</i>	Inerzia rotore <i>Rotor inertia</i>	Peso <i>Weight</i>
			[V]	[min ⁻¹]	[Nm]	[W]	[Nm]	[A]	[A]	[Ω]	[mH]	[Nm/A]	[V/kRPM]	[gcm ²]	[kg]
BL070.48.80	8	3	48	4350	0.7	320	2.1	12	36	0.072	0.304	0.059	6.15	1000	1.8
			24	2500		185									

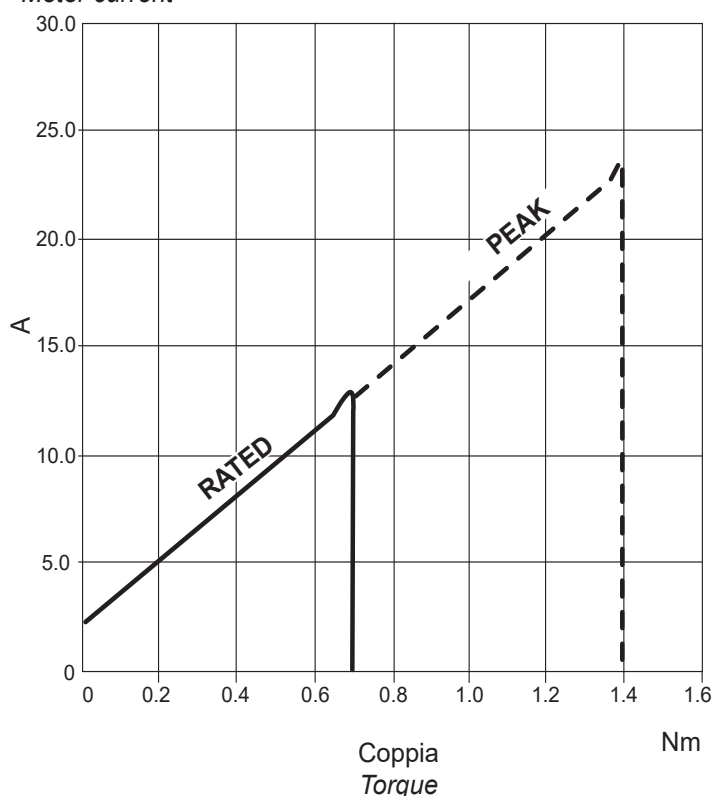
Prestazioni

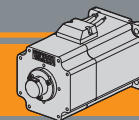
Performances

Coppia
Torque



Corrente motore
Motor current

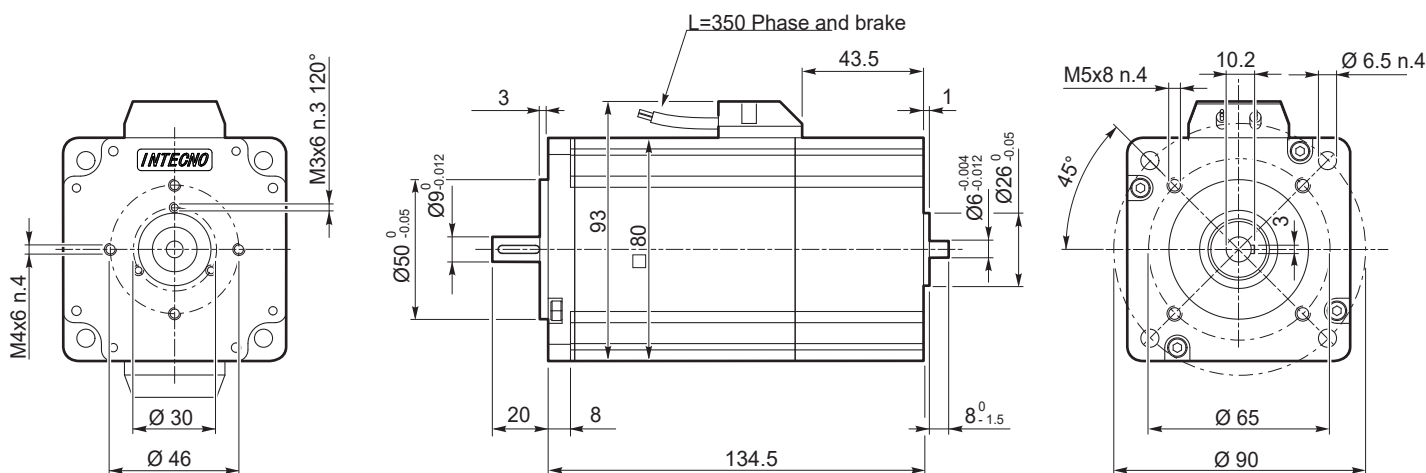




BL070.48.80

Dimensioni

Dimensions



BL070.48.80 + ENCODER HREA 48

BL070.48.80 + ENCODER MEHR 22

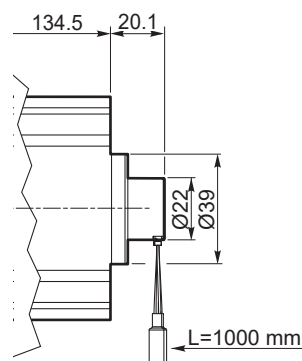
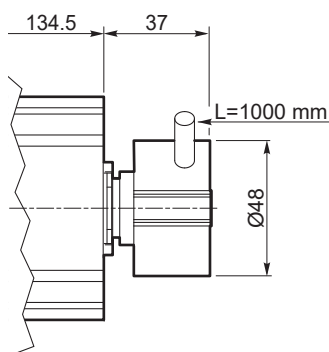


Diagramma dei collegamenti

Connection diagram

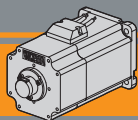
Cavi di potenza Power leads	Descrizione Description
Rosso / Red	Fase U / U motor Phase
Giallo / Yellow	Fase V / V motor Phase
Nero / Black	Fase W / W motor Phase

Dati tecnici del freno Brake features	Descrizione Description
Tensione Voltage	24 V / 48 V
Coppia Torque	2 Nm
Potenza Power	9.6 W

Nota: Si raccomanda di seguire fedelmente gli schemi di collegamento qui riportati, pericolo di danneggiamento del motore o dell'elettronica.

Note: Pls, follow strictly the above connection diagrams, danger for the motor and the electric control

Caratteristiche Encoder Encoder specifications	
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)



Motori BLDC con freno ed encoder BLDC motors with brake and encoder



BL200.48.95

Specifiche costruttive

General features

Tipologia di avvolgimento <i>Winding type</i>	delta
Gioco radiale <i>Radial play</i>	≤ 0.005 mm @ 68N
Gioco assiale <i>End play</i>	≤ 0.013 mm @ 113N
Scentratura albero <i>Shaft run out</i>	≤ 0.025 mm
Grado di protezione <i>Degree of protection</i>	IP 65

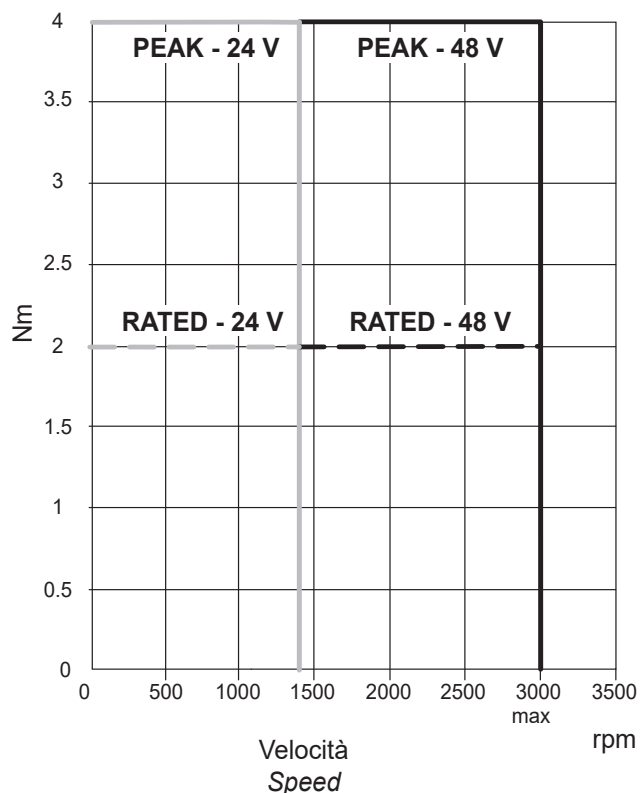
Max forza radiale <i>Max radial force</i>	≤ 1.883 kN at 10 mm
Max forza assiale <i>Max axial force</i>	≤ 4.999 kN
Classe di isolamento termico <i>Insulation class</i>	Classe F Class F
Isolamento dielettrico <i>Dielectric strength</i>	600 Vdc 1S 2mA
Resistenza isolamento <i>Insulation resistance</i>	600 V ≥ 50 M Ω

Modello <i>Model</i>	Poli <i>Poles</i>	Fasi <i>Phases</i>	Servizio <i>Service</i>	Tensione nominale <i>Rated voltage</i>	Velocità nominale <i>Rated speed</i>	Coppia nominale <i>Rated torque</i>	Potenza nominale <i>Rated power</i>	Coppia di picco <i>Peak torque</i>	Corrente nominale <i>Rated current</i>	Corrente di picco <i>Peak current</i>	Resistenza fase-fase <i>Line to line resistance</i>	Induttanza fase-fase <i>Line to line inductance</i>	Costante di coppia <i>Torque constant</i>	Costante FCEM <i>Back EMF</i>	Inerzia rotore <i>Rotor inertia</i>	Peso <i>Weight</i>
				[V]	[min ⁻¹]	[Nm]	[W]	[Nm]	[A]	[A]	[Ω]	[mH]	[Nm/A]	[V/kRPM]	[gcm ²]	[kg]
BL200.48.95	8	3	S1	48	3000	2.0	650	6	23	69	0.077 +/- 15%	0.228	0.091	6.7 +/- 10%	2820	6
				24	1500		300									

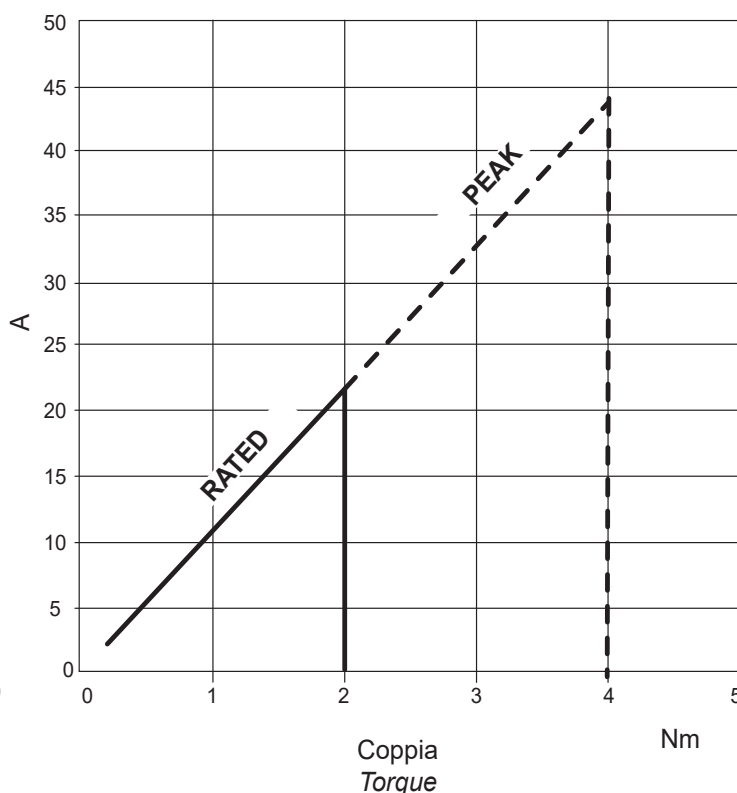
Prestazioni

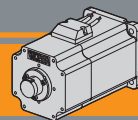
Performances

Coppia
Torque



Corrente motore
Motor current

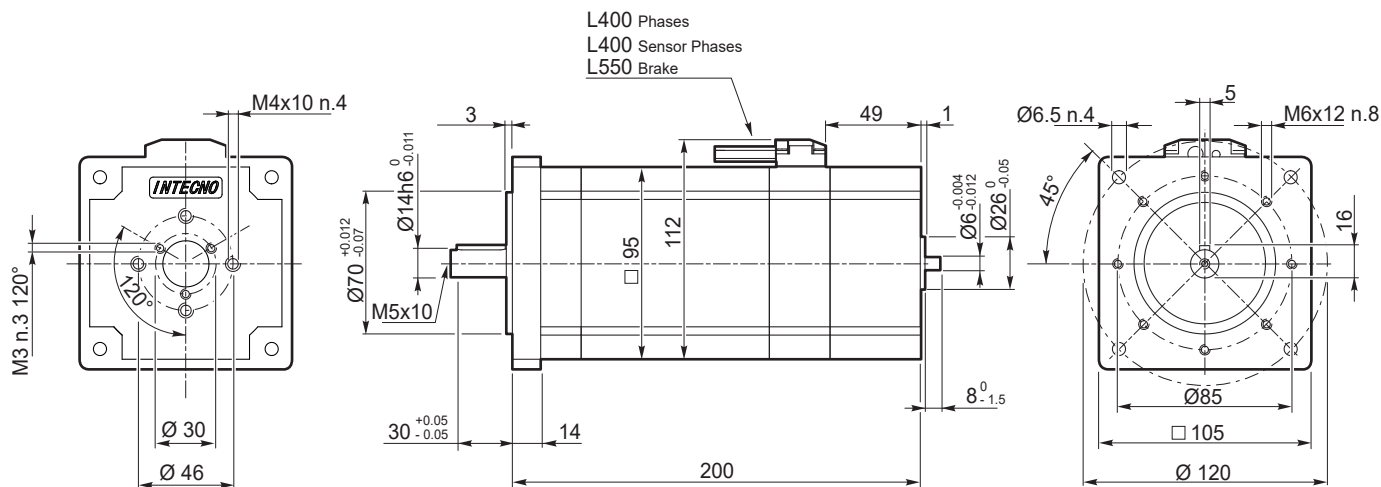




BL200.48.95

Dimensioni

Dimensions



BL200.48.95 + ENCODER HREA 48

BL200.48.95 + ENCODER MEHR 22

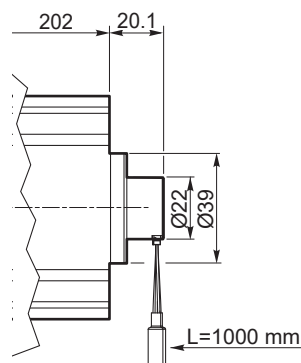
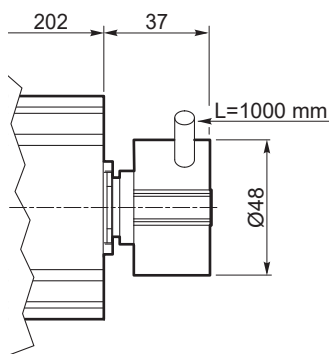


Diagramma dei collegamenti

Connection diagram

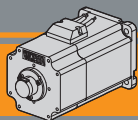
Cavi di potenza Power leads	Descrizione Description
Rosso / Red	Fase U / U motor Phase
Bianco / White	Fase V / V motor Phase
Nero / Black	Fase W / W motor Phase

Nota: Si raccomanda di seguire fedelmente gli schemi di collegamento qui riportati, pericolo di danneggiamento del motore o dell'elettronica.

Dati tecnici del freno Brake features	Descrizione Description
Tensione Voltage	48 V / 24 V
Coppia Torque	6 Nm
Potenza Power	13.8 W

Note: Pls, follow strictly the above connection diagrams, danger for the motor and the electric control

Caratteristiche Encoder Encoder specifications	
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)



Motori BLDC con freno ed encoder BLDC motors with brake and encoder



BL400.48.120

Specifiche costruttive

General features

Tipologia di avvolgimento <i>Winding type</i>	delta
Gioco radiale <i>Radial play</i>	0.05 mm @ 68N
Gioco assiale <i>End play</i>	0.13 mm @ 113N
Scentatura albero <i>Shaft run out</i>	0.004 mm
Grado di protezione <i>Degree of protection</i>	IP 65

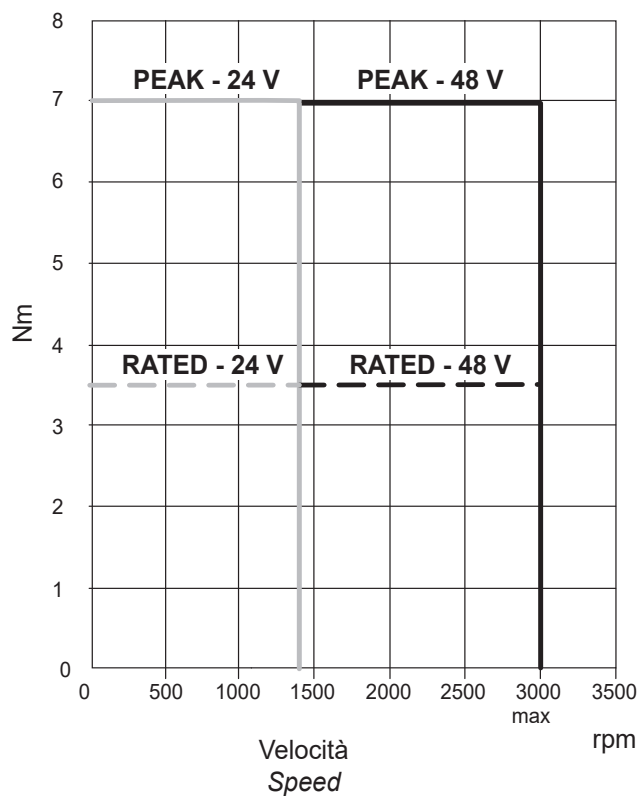
Max forza radiale <i>Max radial force</i>	490 N at 20 mm
Max forza assiale <i>Max axial force</i>	196 N
Classe di isolamento termico <i>Insulation class</i>	Classe F Class F
Isolamento dielettrico <i>Dielectric strength</i>	600 Vdc 1S 2mA
Resistenza isolamento <i>Insulation resistance</i>	500 V $\geq$ 50 M Ω

Modello <i>Model</i>	Poli <i>Poles</i>	Fasi <i>Phases</i>	Servizio <i>Service</i>	Tensione nominale <i>Rated voltage</i>	Velocità nominale <i>Rated speed</i>	Coppia nominale <i>Rated torque</i>	Potenza nominale <i>Rated power</i>	Coppia di picco <i>Peak torque</i>	Corrente nominale <i>Rated current</i>	Corrente di picco <i>Peak current</i>	Resistenza fase-fase <i>Line to line resistance</i>	Induttanza fase-fase <i>Line to line inductance</i>	Costante di coppia <i>Torque constant</i>	Costante FCEM <i>Back EMF</i>	Inerzia rotore <i>Rotor inertia</i>	Peso <i>Weight</i>
				[V]	[min ⁻¹]	[Nm]	[W]	[Nm]	[A]	[A]	[Ω]	[mH]	[Nm/A]	[V/kRPM]	[gcm ²]	[kg]
BL400.48.120	8	3	S3	48	3000	4.2	1320	12.6	33	99	0.064	0.31	0.120	12.6	21380	11
			S1			3.5	1100	10.5	28	84						
			S3	24	1400	4.2	615	12.6	33	99						
			S1			3.5	615	10.5	28	84						

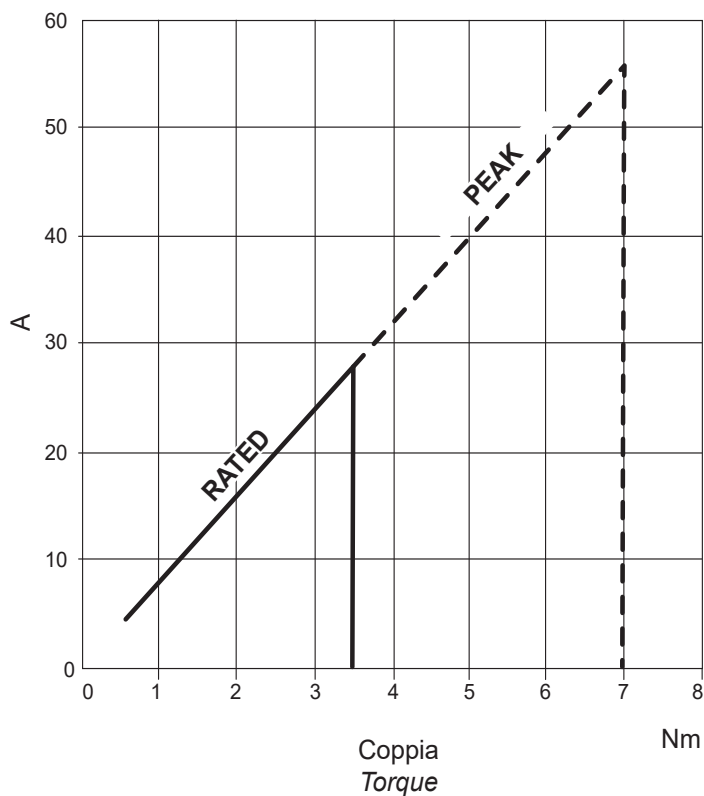
Prestazioni

Performances

Coppia
Torque



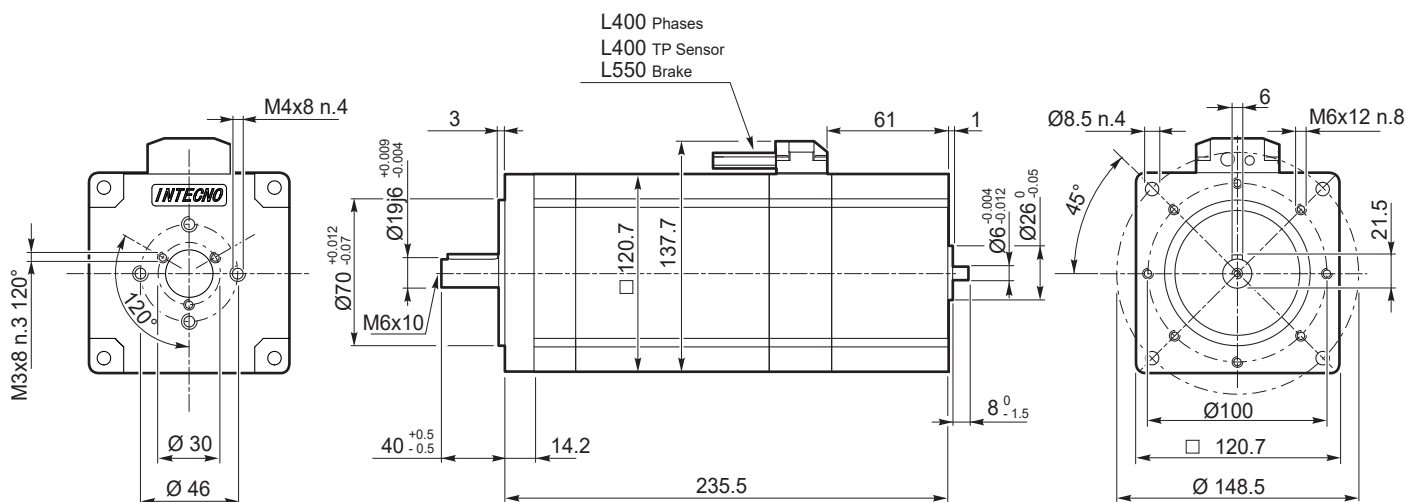
Corrente motore
Motor current



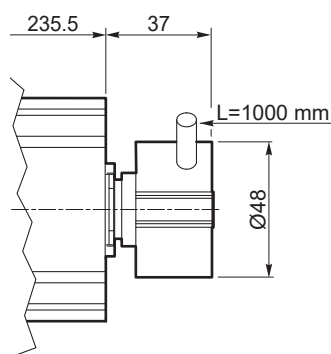
BL400.48.120

Dimensioni

Dimensions



BL400.48.120 + ENCODER HREA 48



BL400.48.120 + ENCODER MEHR 22

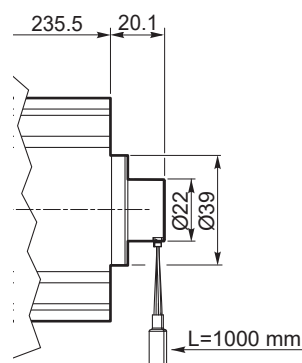


Diagramma dei collegamenti

Connection diagram

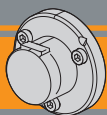
Cavi di potenza <i>Power leads</i>	Descrizione <i>Description</i>
Rosso / Red	Fase U / <i>U motor Phase</i>
Bianco / White	Fase V / <i>V motor Phase</i>
Nero / Black	Fase W / <i>W motor Phase</i>

<i>Dati tecnici del freno</i> <i>Brake features</i>	<i>Descrizione</i> <i>Description</i>
Tensione <i>Voltage</i>	48 V / 24 V
Coppia <i>Torque</i>	8 Nm
Potenza <i>Power</i>	22 W

Nota: Si raccomanda di seguire fedelmente gli schemi di collegamento qui riportati, pericolo di danneggiamento del motore o dell'elettronica.

Note: Pls, follow strictly the above connection diagrams, danger for the motor and the electric control

Caratteristiche Encoder <i>Encoder specifications</i>	
Potenza alimentazione e tipo di uscita <i>Power supply and output type</i>	5 V
Circuito di uscita <i>Output circuit</i>	Line - driver / TTL / RS-422
Risoluzione <i>Resolution</i>	2000 CPR
Numero di canali <i>Number channels</i>	ABI - (/A/B/I) - UVW - (/U/V/W)



Descrizione encoder

MEHR 22 è un encoder ottico e magnetico incrementale; è dotato di un albero cavo e può essere fissato in differenti taglie di motori elettrici.

Questo encoder è stato specificatamente sviluppato per lavorare con motori Brushless, in applicazioni retroazionate e per il controllo della velocità di rotazione.

L'encoder MEHR 22 ha un sistema di controllo in tempo reale per le applicazioni in velocità e posizione.

Questo encoder fornisce in uscita due onde quadre in quadratura (A-B sfasate di 90°) per le informazioni di conteggio e di direzione ed un terzo canale con un impulso giro (tacca di zero).

In aggiunta c'è un encoder magnetico integrato che fornisce un segnale UVW di commutazione. La risoluzione dell'encoder è determinata dal numero di cicli per rotazione (CPR). L'alimentazione e il segnale sono forniti da un connettore JAE a 11 pin.

Description Encoder

The MEHR 22 is a optical magnetic incremental encoder; he is a reliable hollow shaft encoder and can be fixed in a different sizes of electric motor.

This encoder is developed for brushless motor, motor feedback and the rotazional speed control. The encoder MEHR 22 is a real time system for speed and position application.

This encoder provide two square wave outputs in quadrature (A-B 90° degrees) for the direction and counting information and a third channel with lap pulse (zero mark). Additional there is a magnetic encoder integrated which provide UVW signal as commutation. The resolution of encoder is determined by the number of cycles for revolution (CPR).

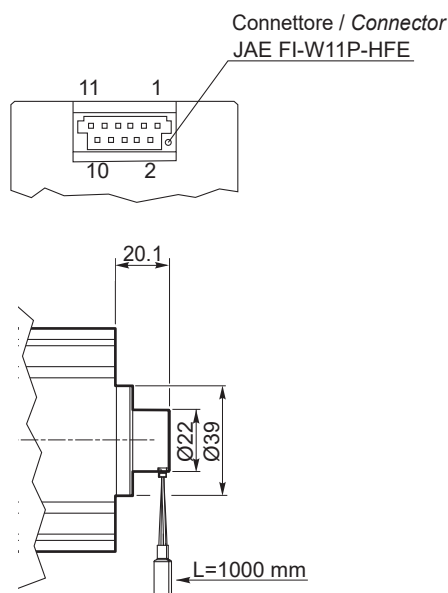
Power supply and signals are provided by a 11 pin JAE connector.

Caratteristiche principali

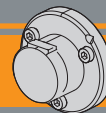
- Canali di uscita encoder: A-B-I e /A-/B-/I
- Canali di uscita sensore Hall: U-V-W e /U-/V-/W
- Tipo di uscita: Line Driver/TTL/RS-422
- Risoluzione encoder: 2000 CPR (Cycles Per Revolution)
- Risoluzione sensore Hall: 8 poli
- Frequenza: 400kHz cavo corto (<1m), tipica 180kHz @2.000cpr -> 5.400 min-1
- Alimentazione: 5 VDC
- Dimensioni compatte: 39.0 mm (diametro) x 20.1 mm (lunghezza)
- Temperatura di funzionamento: da -40°C a +100°C
- Conforme alla direttiva 2011/65/65/EU e 2015/863/EU

Main specifications

- Output channels encoder: A-B-I and /A-/B-/I
- Optional channels hall sensor: U-V-W and /U-/V-/W
- Output type: Line Driver/TTL/RS-422
- Resolution encoder: 2000 CPR (Cycles Per Revolution)
- Resolution hall sensor: 8 pole
- Frequency: 400kHz short cable (<1m), typical 180kHz @2.000cpr -> 5.400 min-1
- Power supply: 5 VDC
- Small size: 39.0 mm (diameter) x 20.1 mm (lenght)
- Operating temperature: -40°C to +100°C
- Compliant EU-directive 2011/65/65/EU and 2015/863/EU

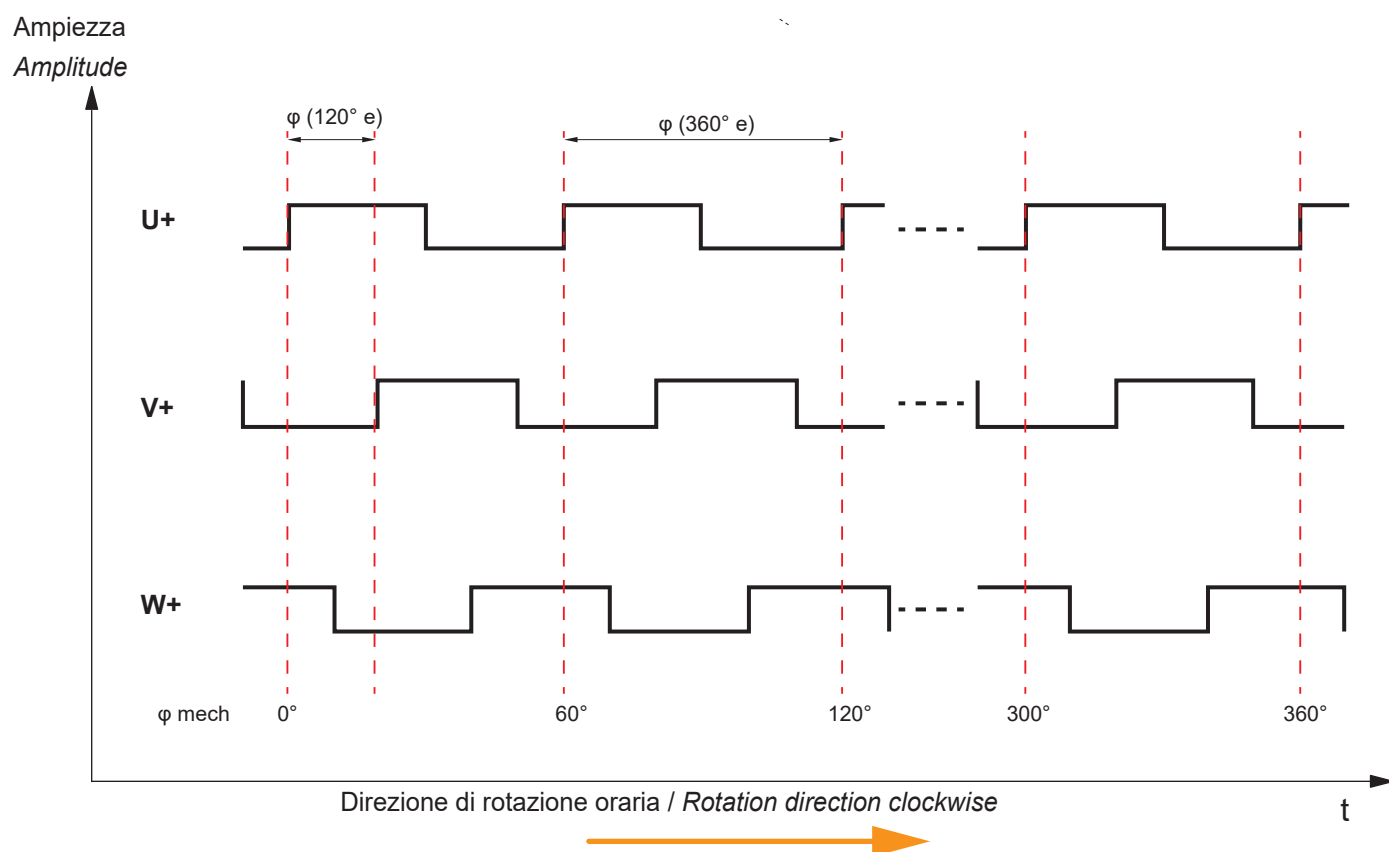
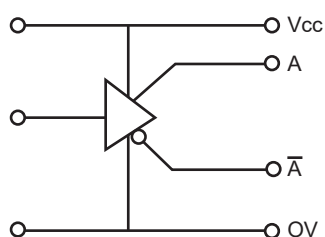
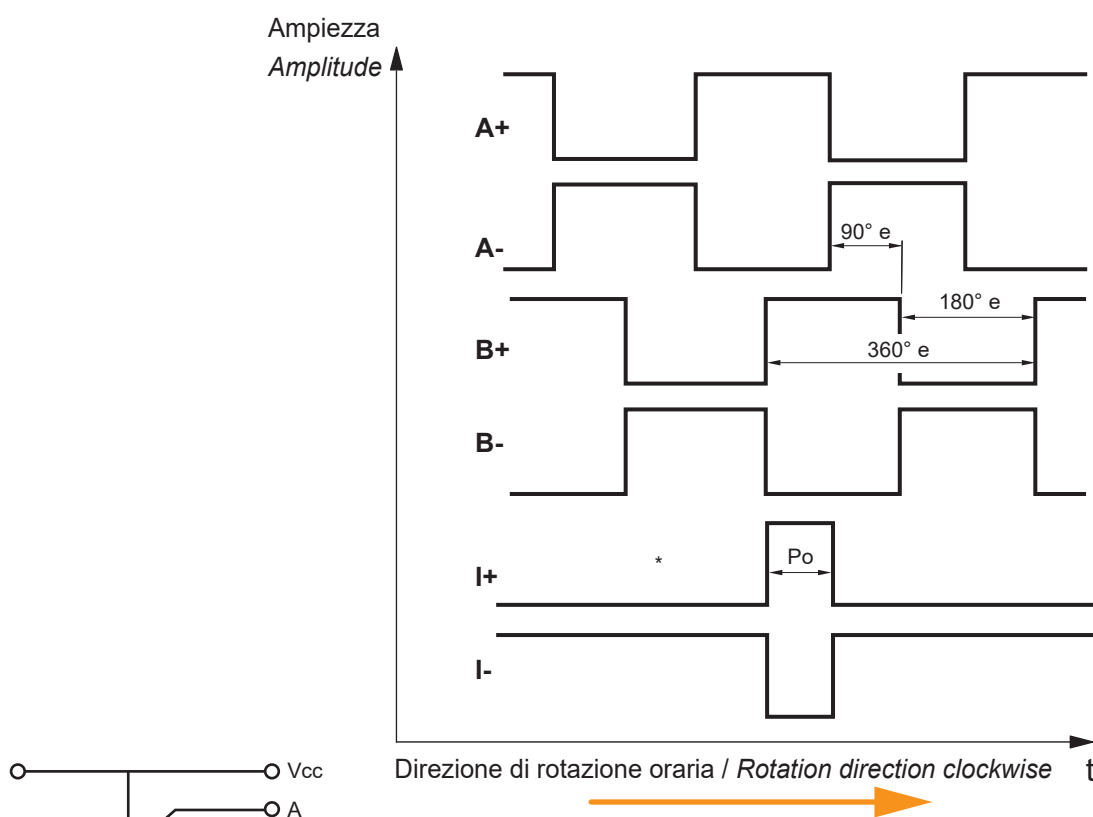


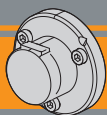
PIN	Connettore / Output pin	Colore filo / Color
1	UB	rosso / red
2	A+	bianco / white
3	A-	marrone / brown
4	B+	verde / green
5	B-	giallo / yellow
6	I+	grigio / grey
7	I-	rosa / pink
8	U/H1	viola / purple
9	V/H2	grigio/rosa / grey/pink
10	W/H3	nero / black
11	GND	blu / blue



Interfaccia elettrica

Electrical interface





Condizioni di funzionamento raccomandate

Le specifiche elettriche sono valide solo quando l'encoder opera nell'intervallo di temperatura di funzionamento.
Le misure sono riferite alla temperatura di 25 °C, con alimentazione $V_{CC} = 5\text{ V} \pm 5\%$.

Recommended operating conditions

Electrical characteristics are only effective for the range of the operating temperatures.
Standard values at 25 °C and $V_{DC} = 5\text{ V}$.

Parametri Parameter	Simbolo Symbol	Min.	Standard	Max.	Unità Unit	Note Notes
Tensione di alimentazione Supply voltage	U_B	4.5	5.0	5.5	V_{CC}	versione 5 V version 5 V
Corrente di alimentazione Supply current	I_{UB}	40	45	50	mA	senza carico no load
Corrente di uscita per canale Output current per channel	I_{out}			20	mA	
Tensione di uscita livello alto High level output voltage	V_{OH}			2.5	V_{CC}	
Tensione di uscita livello basso Low level output voltage	V_{OL}			0.5	V_{CC}	
Tempo di salita Rise time	T_r		500		ns	
Tempo di discesa Fall time	T_f		500		ns	
Ampiezza di impulso Pulsewidth			180°		° e	
Errore di fase Phaseshift			90°		° e	
Ciclo di lavoro Duty Cycle			1 : 1			
Precisione angolare Relative angular accuracy				<50	%	$0,32 \cdot e^{(0,4 \cdot n)}$ [n = bit]
Frequenza di conteggio Count frequency	f			400	kHz	rpm* N/ 60 x 10^{-3}
Tempo di avvio Start up time	T_T			<2	ms	
Tensione ESD ESD voltage	U_{ESD}			>1KV	kV	
Coppie di poli Pole-pair	p	1		4		per commutazione for commutation

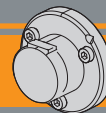
Ambiente Environment	Simbolo Symbol	Min.	Standard	Max.	Unità Unit	Note Notes
Temperatura di funzionamento Operating temperature	T_A	- 20	+25	+ 85	°C	
Temperatura di stoccaggio Storage temperature	T_S	-40		+ 85	°C	
Umidità Humidity exposure				90	% RH	senza condensa not condensing
Vibrazione Vibration				2000	Hz	120 g
Scostamento asse magneti Magnetaxis displacement				0.2	mm	vs. centro del sensore vs. center of sensor

Avvertenza ESD (scariche elettrostatiche):

maneggiare con cura per evitare di danneggiare il sensore con scariche elettrostatiche.

ATTENTION ESD Warning:

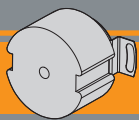
Normal handling precautions should be taken to avoid static discharge damage to the sensor.



Caratteristiche meccaniche

Mechanical Notes

Parametri Parameters	Simbolo Symbol	Valore Value	Tolleranza Tolerance	Unità Unit
Dimensioni esterne Outer dimensions		Ø 39,0 x 20,1	-	mm
Diametro albero Shaft diameter	Øw	6.0	± 0.01	mm
Lunghezza albero richiesta Required shaft length	Lw	5	+ 2.0	mm
Gioco assiale max. ammissibile albero motore Max. allowable axial shaft play of motor		+/-0.2	-	mm
Gioco radiale max. ammissibile albero motore Max. allowable radial shaft play of motor		+/-0.1	-	mm
Viti di montaggio (DIN 84) Mounting screw size (DIN 84)		M3	-	-
Coppia di serraggio delle viti Tightening torque of the screws		1:1	- 5	Ncm
Interasse fori di montaggio Pitch circle diameter	Øc	30	± 1.0	mm
Foro interno della flangia Flange inside bore diameter	Øz	19	+ 0.03	mm
Diametro centraggio Mounting boss diameter	Øm	13	- 0.03	mm
Altezza max. centraggio Max. mounting boss height	hz	1.5	- 0.1	mm
Contro connettore (Cable) Mating connector Cable		11 pin	-	
Peso totale Total weight		25	-	g
Momento d'inerzia del mozzo con disco encoder Moment of inertia of the hub with the magnet		<40	± 1.0	g·mm ²
Grado di protezione secondo DIN 40500 Protection grade according to DIN 40500		IP50	-	-



Descrizione encoder

HREA 48 è un encoder + sensori di hall ottico ad albero cavo. Questo encoder è stato specificatamente sviluppato per avere un basso costo e lavorare in applicazioni AGV, nelle quali precisione e velocità sono fondamentali. L'encoder fornisce due uscite ad onda quadra A e B ed il loro negato /A-/B, Il segnale I ed il suo negato /I rappresenta la tacca di "ZERO", l'utilizzo dei sensori di hall ad 8 poli U-V-W ed i suoi negati /U-/V-/W permette un'elevata precisione e controllo. L'alimentazione dei segnali sono forniti da un cavo intrecciato 14Pin 100cm.

Description Encoder

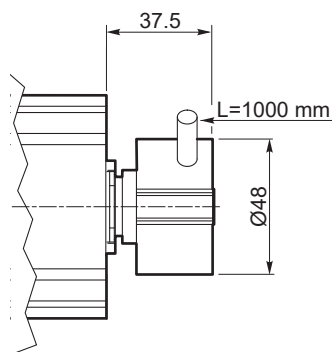
HREA 48 is an encoder optical hall sensor with hollow shaft. This encoder is specially developed to have a low cost and to work for AGV applications, where precision and speed are essential. The encoder provides two square wave outputs A and B and their negative outputs /A-/B. The signal I and its negative /I represent the "ZERO" notch, the use of the hall sensors with 8 pole U-V-W and its negative /U-/V-/W allows a high precision and control. Power supply and signals are provided by the braided cable 14Pin 100cm.

Caratteristiche principali encoder

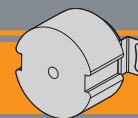
- Canali di uscita encoder: A-B-I e /A-/B-/I
- Canali di uscita sensore Hall: U-V-W e /U-/V-/W
- Tipo di uscita: Line Driver/TTL/RS-422
- Risoluzione encoder: 2000 CPR (Cycles Per Revolution)
- Risoluzione sensore Hall: 8 poli
- Frequenza 300 KHz
- Alimentazione: 5 VDC
- Dimensioni compatte: 48,0 mm (diametro) x 37,0mm (lunghezza)
- Temperatura di funzionamento: da -40 °C a +85 °C.
- Conforme alla direttiva 2011/65/65/EU and 2015/863/EU

Main specifications

- Output channels encoder: A-B-I and /A-/B-/I
- Optional channels hall sensor: U-V-W and /U-/V-/W
- Output type: Line Driver/TTL/RS-422
- Resolution encoder: 2000 CPR (Cycles Per Revolution)
- Resolution hall sensor: 8 pole
- Frequency: 300 KHz
- Power supply: 5 VDC
- Small size: 48,0 mm (diameter) x 37,0mm (length)
- Operating temperature: -40 °C to +85 °C.
- Compliant EU-directive 2011/65/65/EU and 2015/863/EU

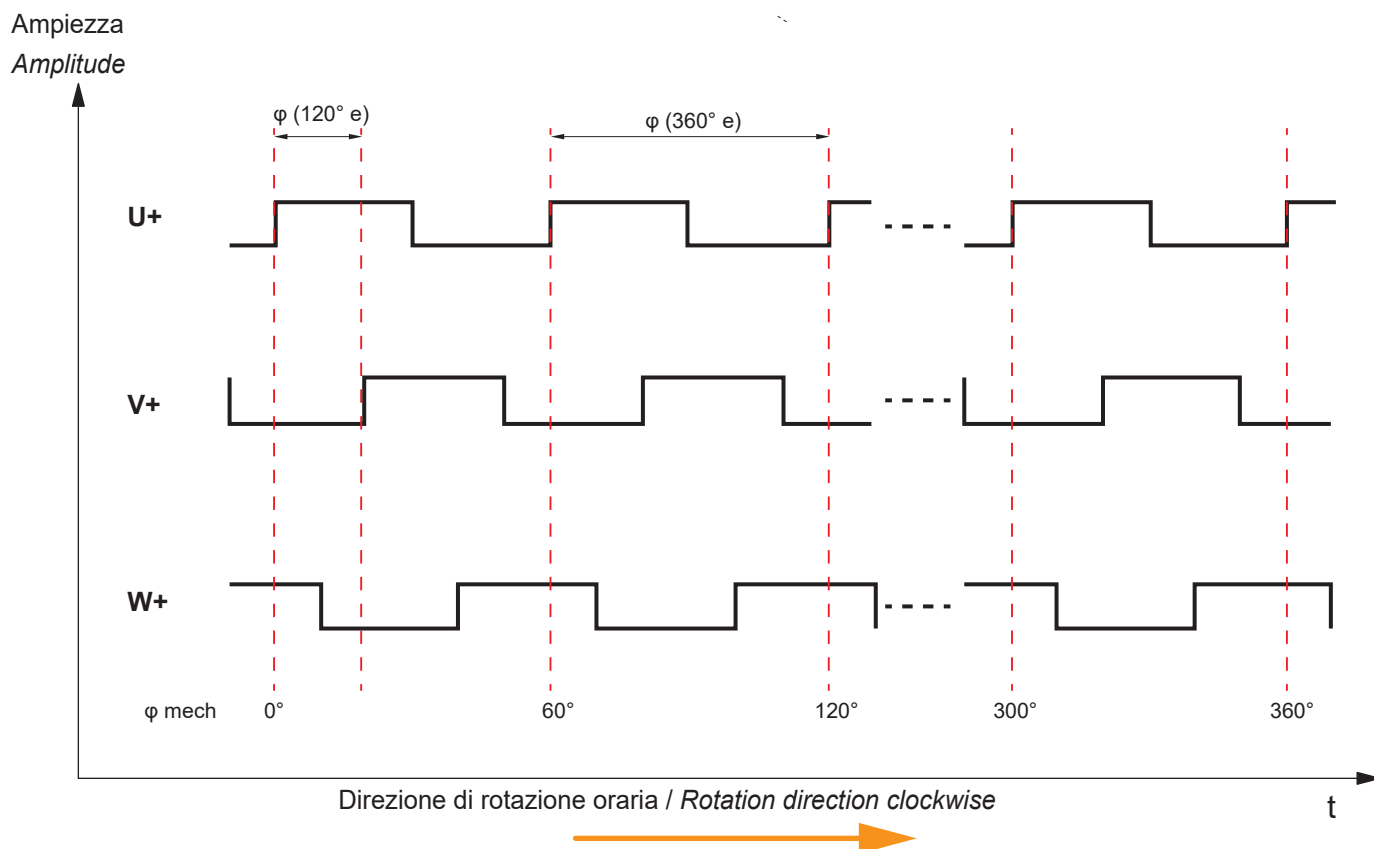
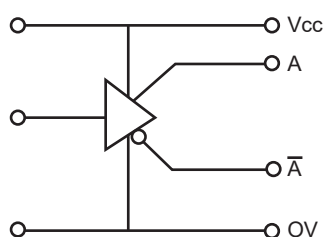
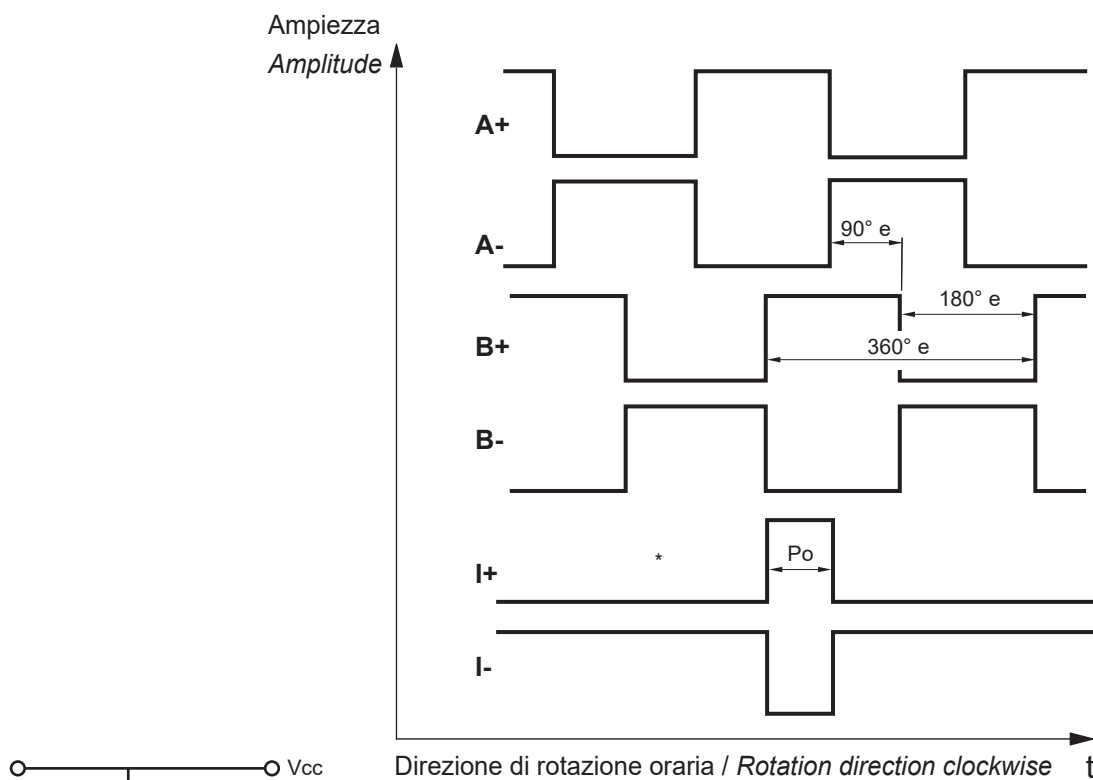


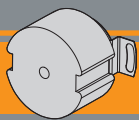
Segnali	Colore filo - Color
A	Verde - Green
B	Bianco - White
I	Giallo - Yellow
A/	Verde/Nero - Green/Black
B/	Bianco/Nero - White/Black
I/	Giallo/Nero - Yellow/Black
H2	Marrone - Brown
H3	Grigio - Gray
H1	Arancione - Orange
U/	Marrone/Nero - Brown/Black
V/	Grigio/Nero - Gray/Black
W/	Arancione/Nero - Orange/Black
Vcc	Rosso - Red
GND	Nero - Black



Interfaccia elettrica

Description Encoder





Condizioni di funzionamento raccomandate

Recommended operating conditions

Le specifiche elettriche sono valide solo quando l'encoder opera nell'intervallo di temperatura di funzionamento.

Le misure sono riferite alla temperatura di 25 °C, con alimentazione $V_{CC} = 5\text{ V} \pm 5\%$.

Electrical characteristics are only effective for the range of the operating temperatures.

Standard values at 25 °C and $V_{DC} = 5\text{ V}$.

Parametri Parameter	Simbolo Symbol	Min.	Standard	Max.	Unità Unit	Note Notes
Tensione di alimentazione Supply voltage	U_B	4.5	5.0	5.5	V_{CC}	versione 5 V version 5 V
Corrente di alimentazione Supply current	I_{UB}		60		mA	senza carico no load
Tensione di uscita livello alto High level output voltage	V_{OH}			3.4	V_{CC}	
Tensione di uscita livello basso Low level output voltage	V_{OL}			0.4	V_{CC}	
Tempo di salita Rise time	T_r		200		ns	
Tempo di discesa Fall time	T_f		200		ns	
Ampiezza di impulso Pulsewidth			180°		° e	
Errore di fase Phaseshift			90°		° e	
Ciclo di lavoro Duty Cycle			1 : 1			
Frequenza di conteggio Count frequency	f			500	kHz	rpm* N/ 60 x 10 ⁻³
Tempo di avvio Start up time	T_T			2	ms	
Tensione ESD ESD voltage	U_{ESD}			2	kV	scaricata su 1.5 kΩ
Coppie di poli Pole-pair	p	1		4		per commutazione for commutation

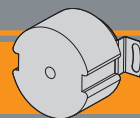
Ambiente Environment	Simbolo Symbol	Min.	Standard	Max.	Unità Unit	Note Notes
Temperatura di funzionamento Operating temperature	T_A	- 20	+25	+ 85	°C	
Temperatura di stoccaggio Storage temperature	T_S	-40		+ 85	°C	
Umidità Humidity exposure				90	% RH	senza condensa not condensing
Vibrazione Vibration				2000	Hz	120 g
Scostamento asse magnete Magnetaxis displacement				0.2	mm	vs. centro del sensore vs. center of sensor

Avvertenza ESD (scariche elettrostatiche):

maneggiare con cura per evitare di danneggiare il sensore con scariche elettrostatiche.

ATTENTION ESD Warning:

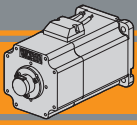
Normal handling precautions should be taken to avoid static discharge damage to the sensor.



Caratteristiche meccaniche

Mechanical Notes

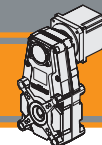
Parametri Parameters	Simbolo Symbol	Valore Value	Tolleranza Tolerance	Unità Unit
Dimensioni esterne Outer dimensions		Ø 48,0 x 37,0	-	mm
Diametro albero Shaft diameter	Øw	6.0	± 0.01	mm
Lunghezza albero richiesta Required shaft length	Lw	da 8 a 29	+ 2.0	mm
Gioco assiale max. ammissibile albero motore Max. allowable axial shaft play of motor		0	-	mm
Gioco radiale max. ammissibile albero motore Max. allowable radial shaft play of motor		0	-	mm
Viti di montaggio (DIN 84) Mounting screw size (DIN 84)		M3	-	-
Coppia di serraggio delle viti Tightening torque of the screws		1:1	- 5	Ncm
Interasse fori di montaggio Pitch circle diameter	Øc	46	± 1.0	mm
Foro interno della flangia Flange inside bore diameter	Øz	6	+ 0.03	mm
Diametro centraggio Mounting boss diameter	Øm	27,8	- 0.03	mm
Altezza max. centraggio Max. mounting boss height	hz	5	- 0.1	mm
Contro connettore (Cable) Mating connector Cable		14 pin	-	
Peso totale Total weight		120	-	g
Momento d'inerzia del mozzo con disco encoder Moment of inertia of the hub with the magnet		25	± 1.0	g·mm ²
Grado di protezione secondo DIN 40500 Protection grade according to DIN 40500		IP50	-	-



Note / Notes

Motoriduttori BLDC pendolari BLDC helical parallel gearmotors





Indice	Index	Pag. Page
Caratteristiche tecniche	<i>Technical features</i>	B2
Designazione	<i>Classification</i>	B2
Simbologia	<i>Symbols</i>	B2
Lubrificazione e temperatura	<i>Lubrication and temperature</i>	B3
Carichi radiali	<i>Radial loads</i>	B3
FT105 con motore BLDC BL070.48.80	<i>FT105 with BL070.48.80 BLDC motor</i>	B4
FT146 con motore BLDC BL070.48.80	<i>FT146 with BL070.48.80 BLDC motor</i>	B6
FT146 con motore BLDC BL200.48.95	<i>FT146 with BL200.48.95 BLDC motor</i>	B8
FT196 con motore BLDC BL200.48.95	<i>FT196 with BL200.48.95 BLDC motor</i>	B10
FT196 con motore BLDC BL400.48.120	<i>FT196 with BL400.48.120 BLDC motor</i>	B12

Questa sezione annulla e sostituisce ogni precedente edizione o revisione. Qualora questa sezione non Vi sia giunta in distribuzione controllata, l'aggiornamento dei dati ivi contenuto non è assicurato. **In tal caso la versione più aggiornata è disponibile sul nostro sito internet www.intecno-srl.com**

*This section replaces any previous edition and revision. If you obtained this catalogue other than through controlled distribution channels, the most up to date content is not guaranteed. **In this case the latest version is available on our web site www.intecno-srl.com***



Caratteristiche tecniche

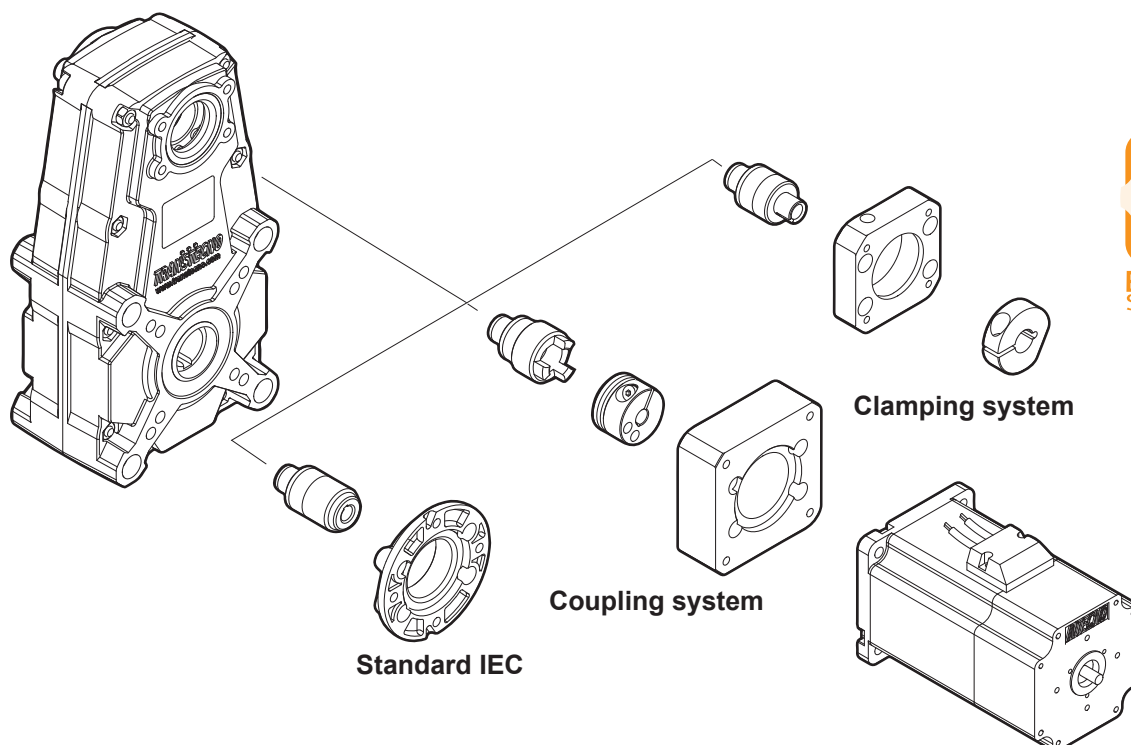
Technical features

Le caratteristiche principali dei motoriduttori brushless CC pendolari della serie FT sono:

- Alimentazione in bassa tensione 24/48 Vcc
- Motore protezione IP65
- Coppie motori disponibili da 0.7 Nm a 4.2 Nm
- Lubrificazione permanente con olio sintetico
- Carcassa in pressofusione di alluminio
- Ingranaggi cilindrici a denti elicoidali, induriti e rettificati
- Disponibili per accoppiamento ingresso motore con giunto oppure con morsetto calettatore
- Disponibile anche con anello di tenuta ingresso in viton

The main features of FT brushless DC helical parallel gearmotors range are:

- Low voltage power supply 24/48 Vdc
- Motor protection IP65
- Motor torque ratings available from 0.7 Nm up to 4.2 Nm
- Permanent synthetic oil long life lubrication
- Die-cast aluminium housing
- Ground-hardened helical gears
- Available for motor input coupling with coupling or with shrink disc
- Also available with sealing ring, viton input



Designazione

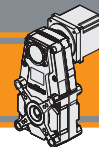
Classification

RIDUTTORE / GEARBOX					MOTORE / MOTOR		
FT	105	U	46	020	BL070.48.80	48V	Encoder
Tipo Type	Grandezza Size	Versione riduttore Gearbox version	Rapporto Ratio	Albero di uscita Output shaft	Tipo Type	Tensione Voltage	Opzioni Options
FT	105 146 196	U	Vedere tabelle See tables	Vedere tabelle See tables	BL070.48.80 BL200.48.95 BL400.48.120	48V-24V 48V-24V 48V-24V	MEHR22 HREA 48

Simbologia

Symbols

Ns	n° stadi / No. stages	Mn ₂	[Nm]	Coppia nominale in uscita in funzione di Pn1 Nominal output torque referred to Pn1
ir	rapporto reale / real ratio	n _{1MAX}	[Rpm]	Velocità max entrata / Max input speed
M ₂	[Nm] coppia in uscita output torque	V	[V]	Tensione / Voltage
A ₂	[N] Carico assiale ammissibile in uscita Permitted output axial load	n ₂	[Rpm]	Velocità in uscita / Output Speed
R ₂	[N] Carico radiale ammissibile in uscita Permitted output radial load	IP		Grado di protezione / Enclosure protection
Pn ₁	[kW] Potenza nominale in entrata Nominal input power	Kg		Peso / Weight
		sf		Fattore di servizio / Service Factor



Lubrificazione e temperatura

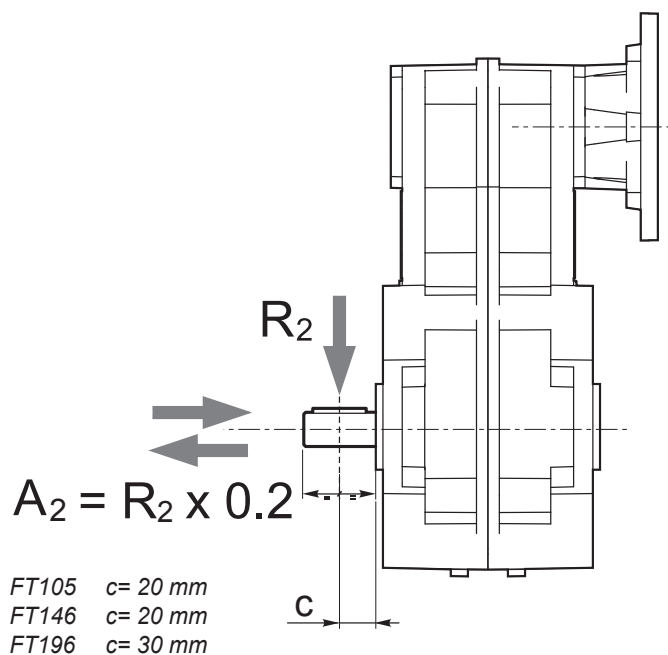
I motoriduttori FT sono forniti completi di lubrificante sintetico (viscosità 320) e non necessitano di manutenzione.
Temperatura ambiente $0 \div 40\text{ }^{\circ}\text{C}$ (in assenza di congelamento ed in assenza di condensa).
Per temperature diverse, contattare nostro UT.

Lubrication and temperature

Permanent synthetic oil long life lubrication (viscosity grade 320) on FT gearmotors.
Ambient temperature $0 \div 40\text{ }^{\circ}\text{C}$ (in the absence of freezing and condensation).
For temperature outside this range please contact our technical dept.

Carichi radiali

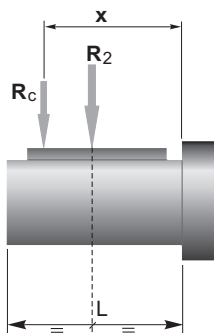
Radial loads



n_2 [min ⁻¹]	R_2 [N]		
	FT105	FT146	FT196
200	1000	1600	2250
175	1040	1700	2300
150	1100	1800	2500
125	1160	1900	2700
100	1250	2000	2900
90	1300	2200	3100
80	1400	2400	3300
70	1500	2500	3500
60	1550	2550	3700
50	1600	2600	3850
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 mezzera 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



Motoriduttori BLDC pendolari

BLDC helical parallel gearmotors



FT105 con motore BLDC

FT105 with BLDC motor

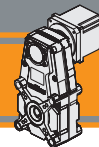
FT105		BL070.48.80											
		48V						24V					
		n _{1MIN} = 400 [rpm]			n _{1MAX} = 4000 [rpm]			n _{1MIN} = 250 [rpm]			n _{1MAX} = 2500 [rpm]		
ir	Ns	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf
20.6	3	19	13.5	3.4	194	13.5	2.0	12	13.5	3.4	122	13.5	2.4
33.3		12	21.9	2.6	120	21.9	1.6	7.5	21.9	2.6	75	21.9	1.9
44.4		9.0	29.2	2.6	90	29.2	1.5	5.6	29.2	2.6	56	29.2	1.8
54.9		7.3	36.1	2.1	73	36.1	1.2	4.6	36.1	2.1	46	36.1	1.5
71.8		5.6	47.3	1.6	-	-	-	3.5	47.3	1.6	35	47.3	1.1
77.1		5.2	50.7	1.5	-	-	-	3.2	50.7	1.5	32	50.7	1.1
88.9		4.5	58.5	1.3	-	-	-	2.8	58.5	1.3	-	-	-

Attenzione: Contattare il ns. servizio tecnico
Attention: Please, contact our technical office.

Modello Model	Poli Poles	Fasi Phases	Tensione nominale Rated voltage	Velocità nominale Rated speed	Coppia nominale Rated torque	Potenza nominale Rated power	Coppia di picco Peak torque	Corrente nominale Rated current	Corrente di picco Peak current	Resistenza fase-fase Line to line resistance	Induttanza fase-fase Line to line inductance	Costante di coppia Torque constant	Costante FCEM Back EMF	Inerzia rotore Rotor inertia	Peso Weight
			[V]	[min ⁻¹]	[Nm]	[W]	[Nm]	[A]	[A]	[Ω]	[mH]	[Nm/A]	[V/kRPM]	[gcm ²]	[kg]
BL070.48.80	8	3	48	4350	0.7	320	2.1	12	36	0.072	0.304	0.059	6.15	1000	1.8
			24	2500		185									

Dati tecnici del freno Brake features	Descrizione Description
Tensione Voltage	24 V / 48 V
Coppia Torque	2 Nm
Potenza Power	9.6 W

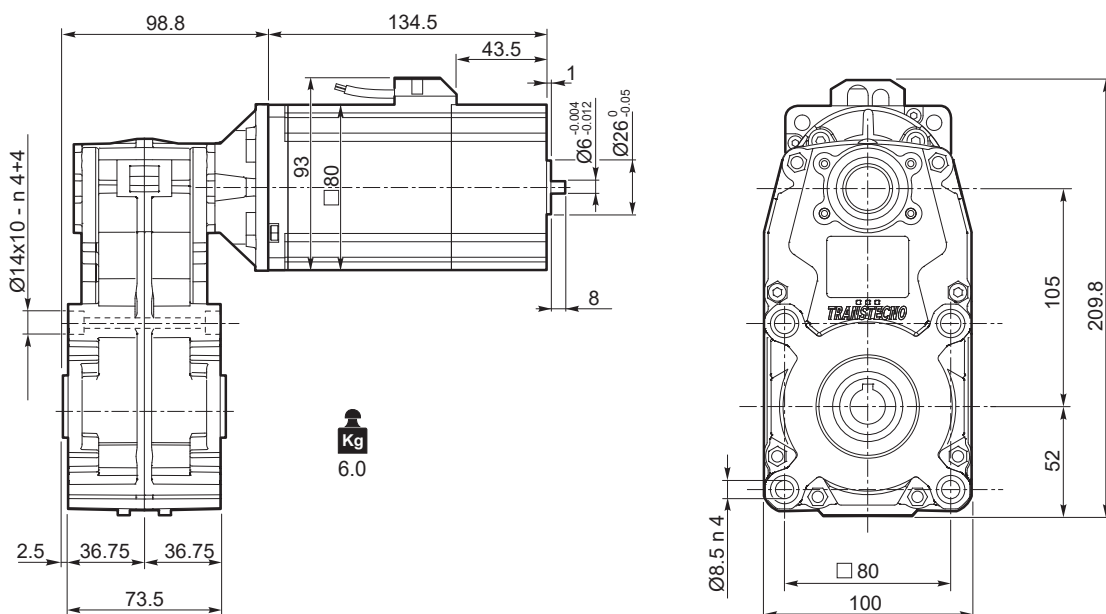
Caratteristiche Encoder Encoder specifications	
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)



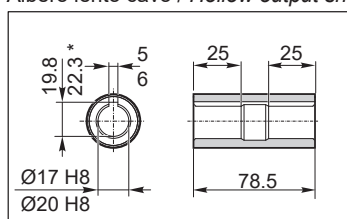
FT105 con motore BLDC

FT105 with BLDC motor

FT105U
+
BL070.48.80

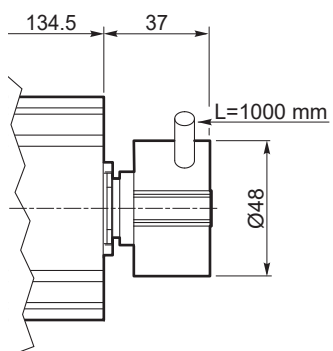


Albero lento cavo / Hollow output shaft

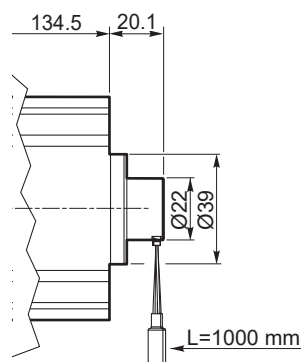


*Sede linguetta ribassata /
*Special keyway

BL070.48.80 + ENCODER HREA 48



BL070.48.80 + ENCODER MEHR 22





Motoriduttori BLDC pendolari

BLDC helical parallel gearmotors



FT146 con motore BLDC

FT146 with BLDC motor

FT146		BL070.48.80											
		48V						24V					
ir	Ns	n _{1MIN} = 400 [rpm]			n _{1MAX} = 4000 [rpm]			n _{1MIN} = 250 [rpm]			n _{1MAX} = 2500 [rpm]		
		n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf
18.8	3	21	12.3	7.3	213	12.3	4.5	13	12.3	7.3	133	12.3	5.1
22.9		17	15.1	6.0	175	15.1	3.7	11	15.1	6.0	109	15.1	4.1
26.2		15	17.2	5.2	153	17.2	3.2	10	17.2	5.2	96	17.2	3.6
28.3		14	18.6	4.9	142	18.6	3.0	8.8	18.6	4.9	88	18.6	3.4
35.1		11	23.1	4.9	114	23.1	3.0	7.1	23.1	4.9	71	23.1	3.4
39.4		10	26.0	4.4	101	26.0	2.7	6.3	26.0	4.4	63	26.0	3.0
46.4		8.6	30.6	3.7	86	30.6	2.3	5.4	30.6	3.7	54	30.6	2.6
52.9		7.6	34.8	3.2	76	34.8	2.0	4.7	34.8	3.2	47	34.8	2.2
60.6		6.6	39.9	3.1	66	39.9	1.9	4.1	39.9	3.1	41	39.9	2.2
70.0		5.7	46.1	2.7	57	46.1	1.6	3.6	46.1	2.7	36	46.1	1.9
74.0		5.4	48.7	2.6	54	48.7	1.6	3.4	48.7	2.6	34	48.7	1.8
84.6		4.7	55.7	2.2	47	55.7	1.4	3.0	55.7	2.2	30	55.7	1.5
95.6		4.2	62.9	2.0	42	62.9	1.2	2.6	62.9	2.0	26	62.9	1.4
113.4		3.5	73.0	1.7	35	73.0	1.0	2.2	73.0	1.7	22	73.0	1.2
133.4		3	85.9	1.4	-			1.9	85.9	1.4	19	85.9	1.0
150.2		3	96.7	1.3	-			1.7	96.7	1.3	-		
160.4		2.5	103.3	1.3	-			1.6	103.3	1.3	-		
178.8		2.2	115.2	1.2	-			1.4	115.2	1.2	-		
195.9	2.0	126.1	1.1	-			1.3	126.1	1.1	-			

Attenzione: Contattare il ns. servizio tecnico
Attention: Please, contact our technical office.

Modello Model	Poli Poles	Fasi Phases	Tensione nominale Rated voltage	Velocità nominale Rated speed	Coppia nominale Rated torque	Potenza nominale Rated power	Coppia di picco Peak torque	Corrente nominale Rated current	Corrente di picco Peak current	Resistenza fase-fase Line to line resistance	Induttanza fase-fase Line to line inductance	Costante di coppia Torque constant	Costante FCEM Back EMF	Inerzia rotore Rotor inertia	Peso Weight
			[V]	[min ⁻¹]	[Nm]	[W]	[Nm]	[A]	[A]	[Ω]	[mH]	[Nm/A]	[V/kRPM]	[gcm ²]	[kg]
BL070.48.80	8	3	48	4350	0.7	320	2.1	12	36	0.072	0.304	0.059	6.15	1000	1.8
			24	2500		185									

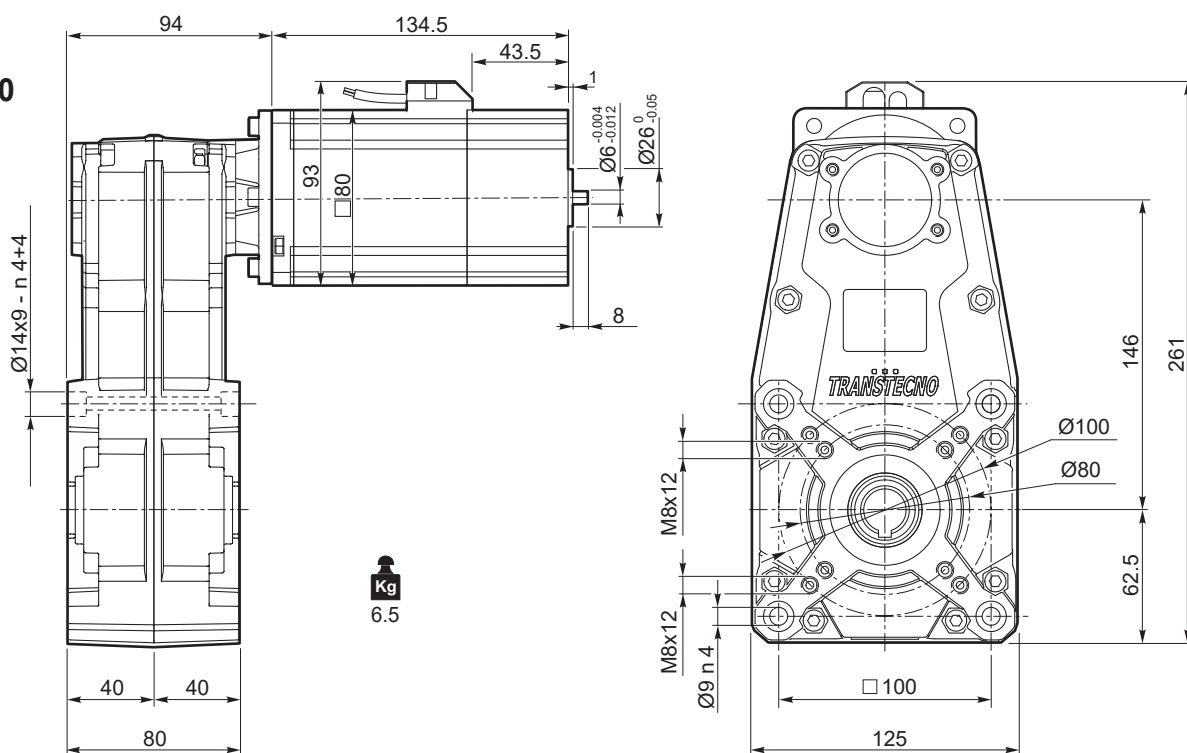
Dati tecnici del freno Brake features	Descrizione Description
Tensione Voltage	24 V / 48 V
Coppia Torque	2 Nm
Potenza Power	9.6 W

Caratteristiche Encoder Encoder specifications	
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)

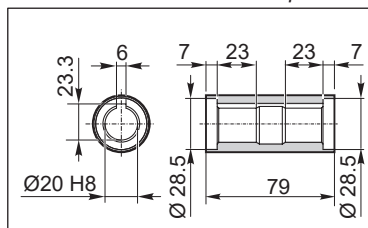
FT146 con motore BLDC

FT146 with BLDC motor

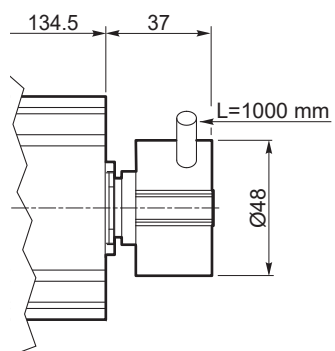
**FT146U
+
BL070.48.80**



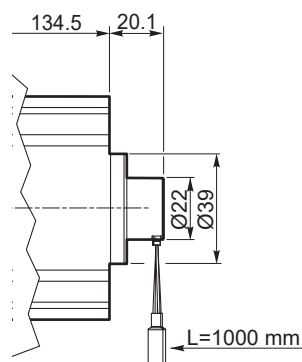
Albero lento cavo / *Hollow output shaft*



BL070.48.80 + ENCODER HREA 48



BL070.48.80 + ENCODER MEHR 22





FT146 con motore BLDC

FT146 with BLDC motor

FT146		BL200.48.95											
		48V						24V					
		n _{1MIN} = 300 [rpm]			n _{1MAX} = 3000 [rpm]			n _{1MIN} = 150 [rpm]			n _{1MAX} = 1500 [rpm]		
ir	Ns	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf
18.8	3	16	35.3	2.6	160	35.3	1.8	8	35.3	2.6	80	35.3	2.3
22.9		13	43.0	2.1	131	43.0	1.5	7	43.0	2.1	66	43.0	1.9
26.2		11	49.2	1.9	115	49.2	1.3	6	49.2	1.9	57	49.2	1.6
28.3		11	53.1	1.7	106	53.1	1.2	5	53.1	1.7	53	53.1	1.5
35.1		9	65.9	1.7	86	65.9	1.2	4	65.9	1.7	43	65.9	1.5
39.4		8	74.2	1.6	76	74.2	1.1	4	74.2	1.6	38	74.2	1.3
46.4		6	87.3	1.3	-			3	87.3	1.3	32	87.3	1.1
52.9		6	99.4	1.2	-			3	99.4	1.2	28	99.4	1.0
60.6		5	114.0	1.1	-			2	114.0	1.1	25	114.0	1.0
70.0		4	131.6	1.0	-			2	131.6	1.0	-		

Attenzione: Contattare il ns. servizio tecnico
Attention: Please, contact our technical office.

Modello Model	Poli Poles	Fasi Phases	Servizio Service	Tensione nominale Rated voltage	Velocità nominale Rated speed	Coppia nominale Rated torque	Potenza nominale Rated power	Coppia di picco Peak torque	Corrente nominale Rated current	Corrente di picco Peak current	Resistenza fase-fase Line to line resistance	Induttanza fase-fase Line to line inductance	Costante di coppia Torque constant	Costante FCEM Back EMF	Inerzia rotore Rotor inertia	Peso Weight
BL200.48.95	8	3	S1	48	3000	2.0	650	6	23	69	0.077 +/- 15%	0.228	0.091	6.7 +/- 10%	2820	6
				24	1500		300									

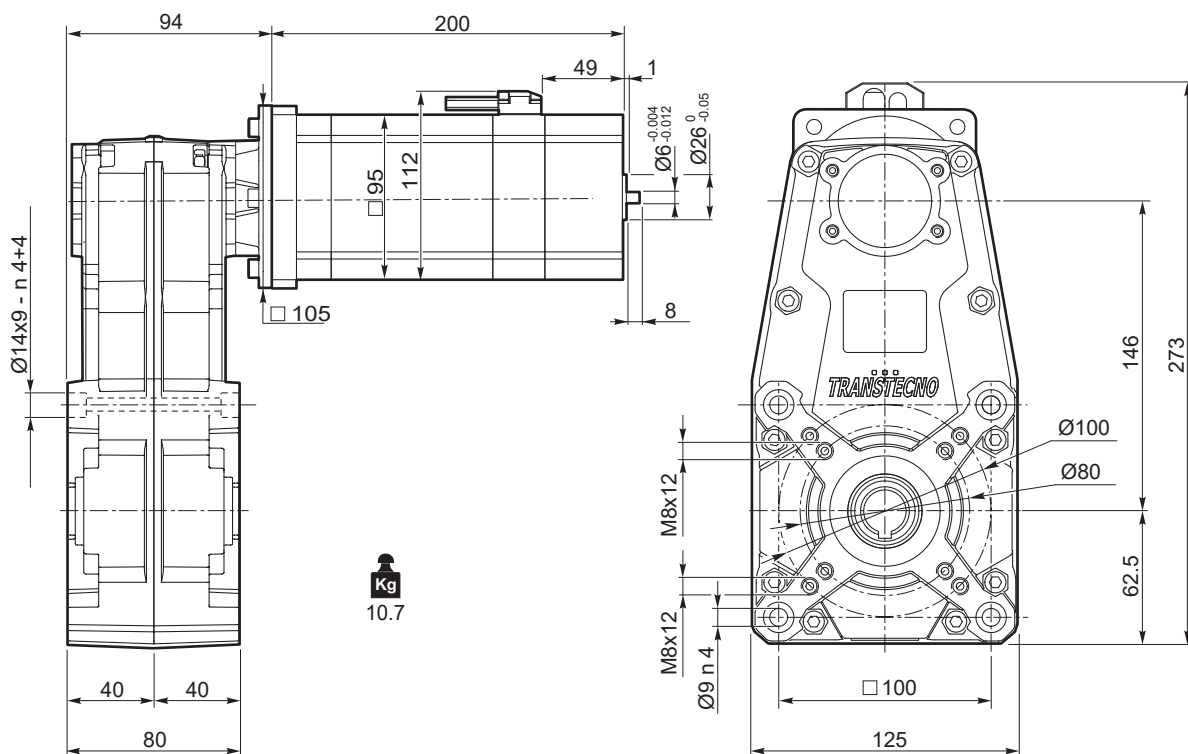
Dati tecnici del freno Brake features	Descrizione Description
Tensione Voltage	48 V / 24 V
Coppia Torque	6 Nm
Potenza Power	13.8 W

Caratteristiche Encoder Encoder specifications	
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)

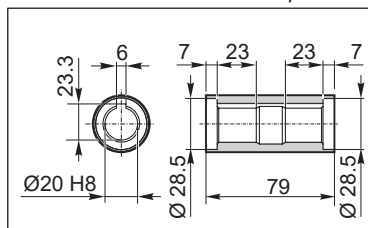
FT146 con motore BLDC

FT146 with BLDC motor

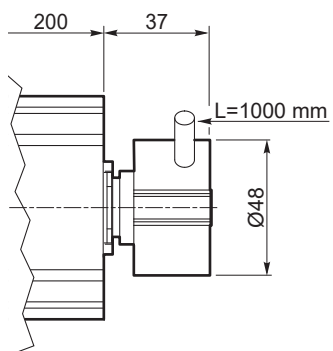
FT146U
+
BL200.48.95



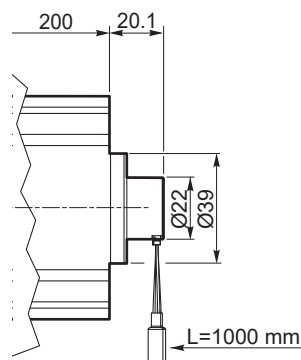
Albero lento cavo / Hollow output shaft



BL200.48.95 + ENCODER HREA 48



BL200.48.95 + ENCODER MEHR 22





FT196 con motore BLDC

FT196 with BLDC motor

FT196		BL200.48.95											
		48V						24V					
		n _{1MIN} = 300 [rpm]			n _{1MAX} = 3000 [rpm]			n _{1MIN} = 150 [rpm]			n _{1MAX} = 1500 [rpm]		
ir	Ns	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf
20.4	3	15	38.4	10.5	147	38.4	7.1	7.4	38.4	10.5	74	38.4	9.1
34.8		8.6	65.4	7.0	86	65.4	4.8	4.3	65.4	7.0	43	65.4	6.1
42.6		7.0	80.1	6.5	70	80.1	4.4	3.5	80.1	6.5	35	80.1	5.6
59.4		5.1	111.6	5.2	51	111.6	3.5	2.5	111.6	5.2	25	111.6	4.5
72.7		4.1	136.6	4.6	41	136.6	3.1	2.1	136.6	4.6	21	136.6	4.0
92.8		3.2	174.5	3.6	32	174.5	2.5	1.6	174.5	3.6	16	174.5	3.2
124.0		2.4	233.0	2.7	24	233.0	1.8	1.2	233.0	2.7	12	233.0	2.4
158.0		1.9	297.1	2.1	19	297.1	1.4	0.9	297.1	2.1	9.5	297.1	1.9
201.8		1.5	379.4	1.7	15	379.4	1.1	0.7	379.4	1.7	7.4	379.4	1.4
269.5		1.1	506.6	1.2	-	-	-	0.6	506.6	1.2	5.6	506.6	1.1

Attenzione: Contattare il ns. servizio tecnico
Attention: Please, contact our technical office.

Modello Model	Poli Poles	Fasi Phases	Servizio Service	Tensione nominale Rated voltage	Velocità nominale Rated speed	Coppia nominale Rated torque	Potenza nominale Rated power	Coppia di picco Peak torque	Corrente nominale Rated current	Corrente di picco Peak current	Resistenza fase-fase Line to line resistance	Induttanza fase-fase Line to line inductance	Costante di coppia Torque constant	Costante FC _{EM} Back EMF	Inerzia rotore Rotor inertia	Peso Weight
				[V]	[min ⁻¹]	[Nm]	[W]	[Nm]	[A]	[A]	[Ω]	[mH]	[Nm/A]	[V/kRPM]	[gcm ²]	[kg]
BL200.48.95	8	3	S1	48	3000	2.0	650	6	23	69	0.077 +/- 15%	0.228	0.091	6.7 +/- 10%	2820	6
				24	1500		300									

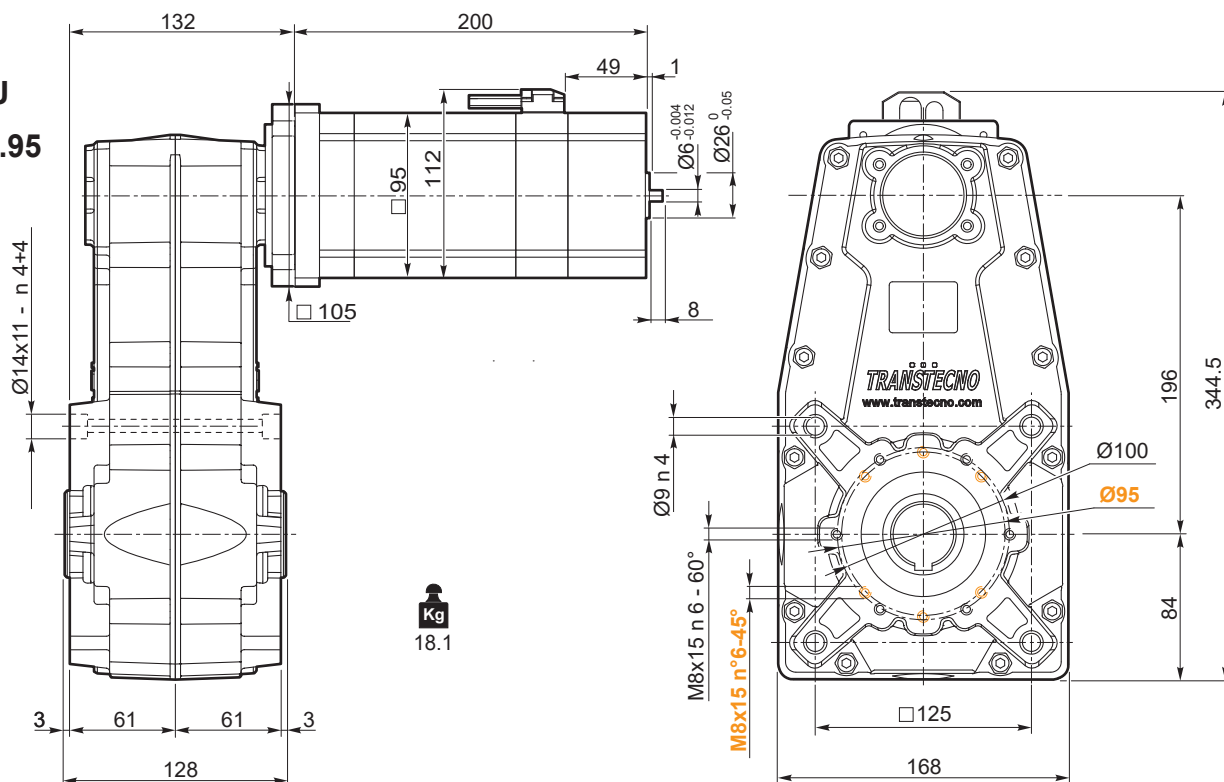
Dati tecnici del freno Brake features	Descrizione Description
Tensione Voltage	48 V / 24 V
Coppia Torque	6 Nm
Potenza Power	13.8 W

Caratteristiche Encoder Encoder specifications	
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)

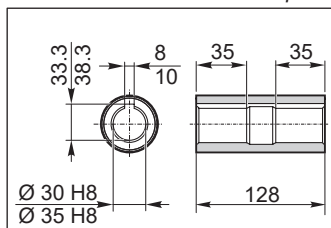
FT196 con motore BLDC

FT196 with BLDC motor

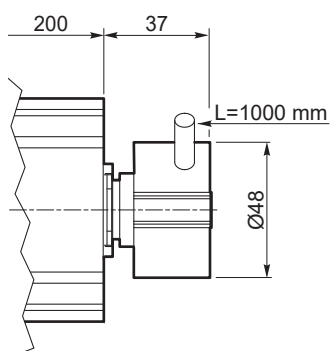
**FT196U
+
BL200.48.95**



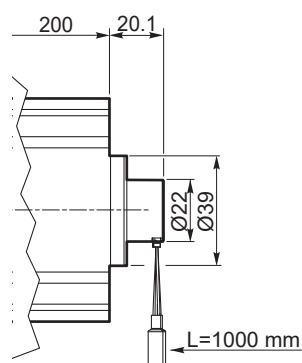
Albero lento cavo / *Hollow output shaft*



BL200.48.95 + ENCODER HREA 48



BL200.48.95 + ENCODER MEHR 22





FT196 con motore BLDC

FT196 with BLDC motor

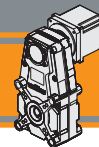
FT196		BL400.48.120											
		48V						24V					
ir	Ns	n ₁ MIN = 300 [rpm]			n ₁ MAX = 3000 [rpm]			n ₁ MIN = 140 [rpm]			n ₁ MAX = 1400 [rpm]		
		n ₂ MIN [rpm]	M ₂ [Nm]	sf	n ₂ MIN [rpm]	M ₂ [Nm]	sf	n ₂ MIN [rpm]	M ₂ [Nm]	sf	n ₂ MIN [rpm]	M ₂ [Nm]	sf
20.4	3	15	67.1	6.0	147	67.1	4.1	6.9	67.1	6.0	69	67.1	5.2
34.8		9	114.5	4.0	86	114.5	2.7	4.0	114.5	4.0	40	114.5	3.5
42.6		7	140.2	3.7	70	140.2	2.5	3.3	140.2	3.7	33	140.2	3.2
59.4		5	195.3	2.9	51	195.3	2.0	2.4	195.3	2.9	24	195.3	2.6
72.7		4	239.1	2.6	41	239.1	1.8	1.9	239.1	2.6	19	239.1	2.3
92.8		3	305.4	2.1	32	305.4	1.4	1.5	305.4	2.1	15	305.4	1.8
124.0		2	407.8	1.6	24	407.8	1.1	1.1	407.8	1.6	11	407.8	1.3
158.0		2	519.9	1.2	-			0.9	519.9	1.2	8.9	519.9	1.1
201.8		1	663.9	1.0	-			0.7	663.9	1.0	-		

Attenzione: Contattare il ns. servizio tecnico
Attention: Please, contact our technical office.

Modello Model	Poli Poles	Fasi Phases	Servizio Service	Tensione nominale Rated voltage	Velocità nominale Rated speed	Coppia nominale Rated torque	Potenza nominale Rated power	Coppia di picco Peak torque	Corrente nominale Rated current	Corrente di picco Peak current	Resistenza fase-fase Line to line resistance	Induttanza fase-fase Line to line inductance	Costante di coppia Torque constant	Costante FCEM Back EMF	Inerzia rotore Rotor inertia	Peso Weight
				[V]	[min ⁻¹]	[Nm]	[W]	[Nm]	[A]	[A]	[Ω]	[mH]	[Nm/A]	[V/kRPM]	[gcm ²]	[kg]
BL400.48.120	8	3	S3	48	3000	4.2	1320	12.6	33	99	0.064	0.31	0.120	12.6	21380	11
			S1			3.5	1100	10.5	28	84						
			S3	24	1400	4.2	615	12.6	33	99						
			S1			3.5	615	10.5	28	84						

Dati tecnici del freno Brake features	Descrizione Description
Tensione Voltage	48 V / 24 V
Coppia Torque	8 Nm
Potenza Power	22 W

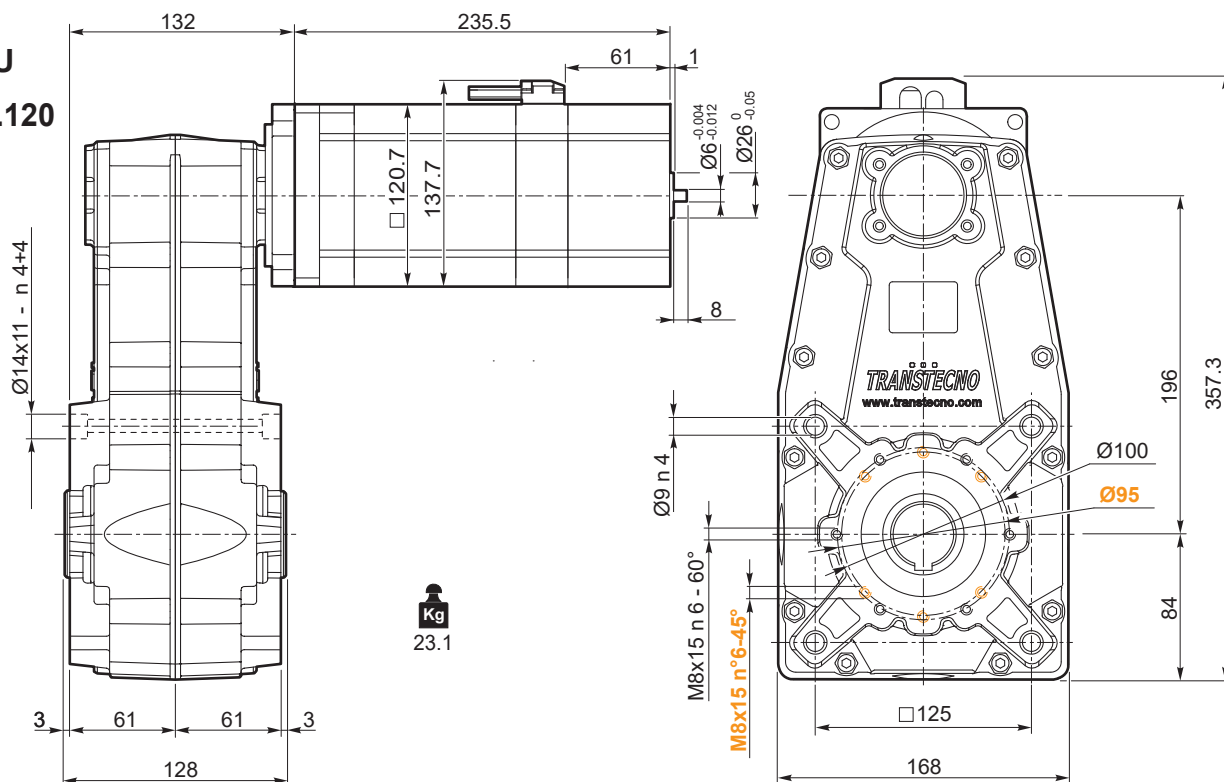
Caratteristiche Encoder Encoder specifications	
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)



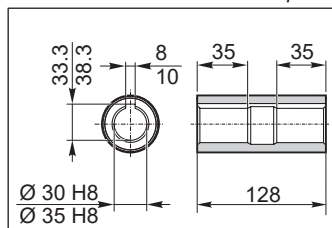
FT196 con motore BLDC

FT196 with BLDC motor

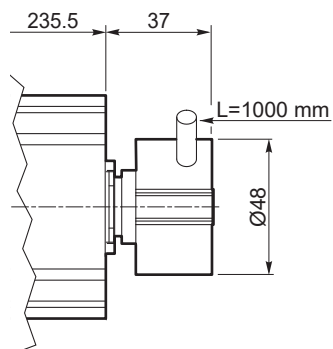
FT196U
+
BL400.48.120



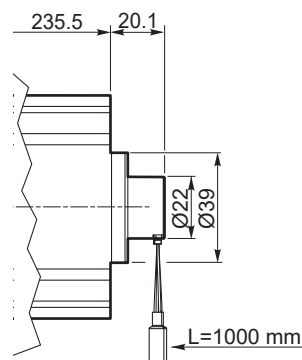
Albero lento cavo / Hollow output shaft



BL400.48.120 + ENCODER HREA 48



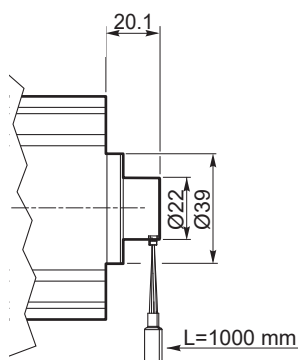
BL400.48.120 + ENCODER MEHR 22



BLDC
TRACTION
FT

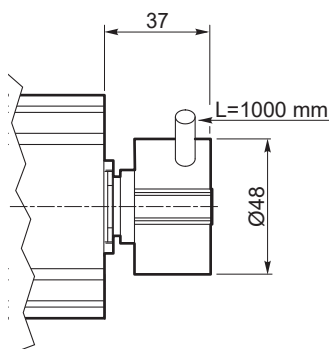


ENCODER MEHR 22



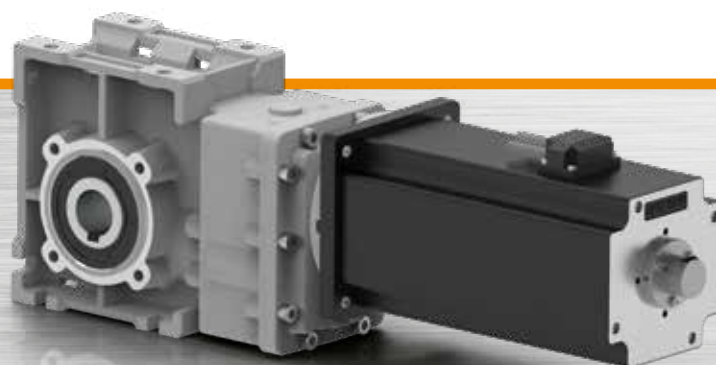
Caratteristiche Encoder Encoder specifications	MEHR 22
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line Driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)

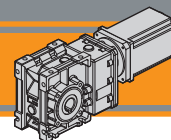
ENCODER HREA 48



Caratteristiche Encoder Encoder specifications	HREA
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)

Motoriduttori BLDC ad assi ortogonali BLDC helical bevel gearmotors

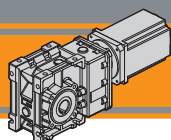




Indice	Index	Pag. Page
Caratteristiche tecniche	<i>Technical features</i>	C2
Designazione	<i>Classification</i>	C2
Simbologia	<i>Symbols</i>	C3
Lubrificazione e temperatura	<i>Lubrication and temperature</i>	C3
Carichi radiali	<i>Radial loads</i>	C3
CMB402 con motore BLDC BL070.48.80	<i>CMB402 with BL070.48.80 BLDC motor</i>	C4
CMB402 con motore BLDC BL200.48.95	<i>CMB402 with BL200.48.95 BLDC motor</i>	C6
CMB502 con motore BLDC BL200.48.95	<i>CMB502 with BL200.48.95 BLDC motor</i>	C8
CMB502 con motore BLDC BL400.48.120	<i>CMB402 with BL400.48.120 BLDC motor</i>	C10
CMB633 con motore BLDC BL400.48.120	<i>CMB633 with BL400.48.120 BLDC motor</i>	C12
CMB903 con motore BLDC BL400.48.120	<i>CMB903 with BL400.48.120 BLDC motor</i>	C14
Flange uscita	<i>Output flange</i>	C16
Accessori	<i>Accessories</i>	C17

Questa sezione annulla e sostituisce ogni precedente edizione o revisione. Qualora questa sezione non Vi sia giunta in distribuzione controllata, l'aggiornamento dei dati ivi contenuto non è assicurato. **In tal caso la versione più aggiornata è disponibile sul nostro sito internet www.intecno-srl.com**

*This section replaces any previous edition and revision. If you obtained this catalogue other than through controlled distribution channels, the most up to date content is not guaranteed. **In this case the latest version is available on our web site www.intecno-srl.com***



Motoriduttori BLDC ad assi ortogonali

BLDC helical bevel gearmotors



Caratteristiche tecniche

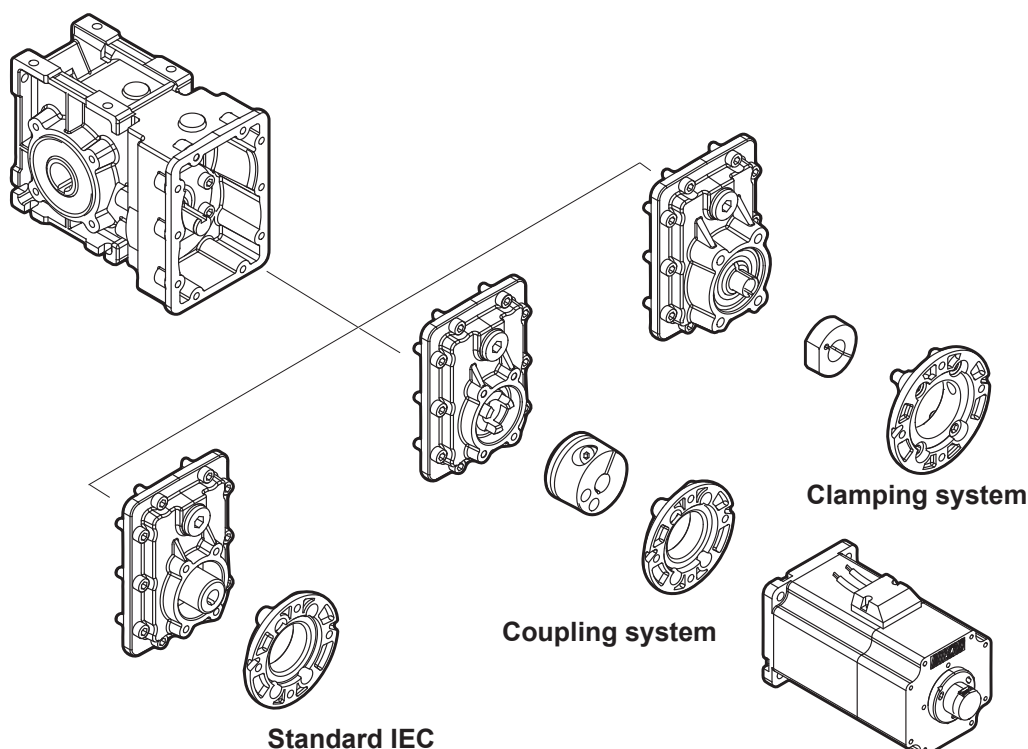
Technical features

Le caratteristiche principali dei motoriduttori brushless CC ad assi ortogonali della serie CMB sono:

- Alimentazione in bassa tensione 24/48 Vcc
- Motore protezione IP65
- Coppie motori disponibili da 0.7 Nm a 4.2 Nm
- Lubrificazione permanente con olio sintetico
- Carcassa in pressofusione di alluminio
- Ingranaggi cilindrici a denti elicoidali, induriti e rettificati
- Disponibili per accoppiamento ingresso motore con giunto oppure con morsetto calettatore
- Disponibile anche con anello di tenuta ingresso in viton

The main features of CMB brushless DC helical bevel gearmotors range are:

- Low voltage power supply 24/48 Vdc
- Motor protection IP65
- Motor torque ratings available from 0.7 Nm up to 4.2 Nm
- Permanent synthetic oil long life lubrication
- Die-cast aluminium housing
- Ground-hardened helical gears
- Available for motor input coupling with coupling or with shrink disc
- Also available with sealing ring, viton input



Designazione

Classification

RIDUTTORE / GEARBOX				
CMB	402	U	9.2	020
Tipo Type	Grandezza Size	Versione riduttore Gearbox version	Rapporto Ratio	Albero di uscita Output shaft
CMB	402 502 633 903	U FD FS FLD FLS FBD FBS	Vedere tabelle See tables	C18

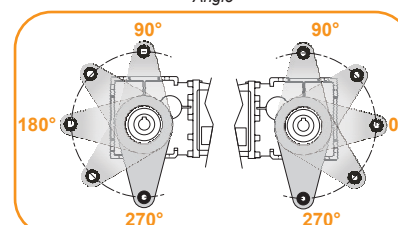
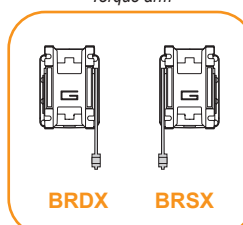
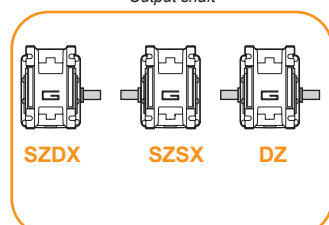
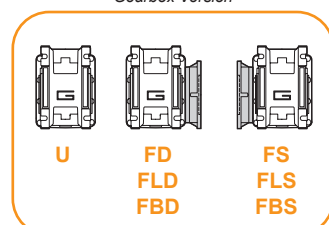
MOTORE / MOTOR		
BL070.480	48V	Encoder
Tipo Type	Tensione Voltage	Opzioni Options
BL070.48.80 BL200.48.95 BL400.48.120	48V-24V 48V-24V 48V-24V	MEHR22 HREA 48 A10 A14

Versione Riduttore
Gearbox Version

Albero di uscita
Output shaft

Braccio di reazione
Torque arm

Angolo
Angle



Simbologia

Symbols

Ns	n° stadi / No. stages	Mn ₂	[Nm]	Coppia nominale in uscita in funzione di Pn1 Nominal output torque referred to Pn1
ir	rapporto reale / real ratio	n _{1MAX}	[Rpm]	Velocità max entrata / Max input speed
M ₂	[Nm]	V	[V]	Tensione / Voltage
A ₂	[N]	n ₂	[Rpm]	Velocità in uscita / Output Speed
R ₂	[N]	IP		Grado di protezione / Enclosure protection
Pn ₁	[kW]	Kg		Peso / Weight
		sf		Fattore di servizio / Service Factor

Lubrificazione e temperatura

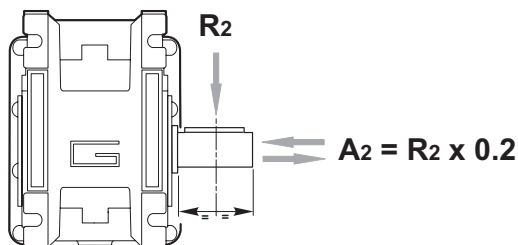
Lubrication and temperature

I motoriduttori CMB sono forniti completi di lubrificante sintetico (viscosità 320) e non necessitano di manutenzione.
Temperatura ambiente 0 ÷ 40 °C (in assenza di congelamento ed in assenza di condensa).
Per temperature diverse, contattare nostro UT.

Permanent synthetic oil long life lubrication (viscosity grade 320) on CMB gearmotors.
Ambient temperature 0 ÷ 40 °C (in the absence of freezing and condensation).
For temperature outside this range please contact our technical dept.

Carichi radiali

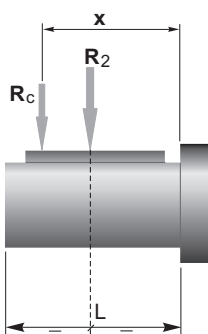
Radial loads



n ₂ [min ⁻¹]	R ₂ [N]			
	CMB 402	CMB 502	CMB 633	CMB 903
400	905	1116	1835	2682
300	996	1228	2020	2952
200	1141	1406	2312	3379
170	1204	1484	2441	3567
140	1414	1743	2604	3806
100	1582	1949	2913	4686
90	1638	2019	3321	4853
60	2047	2490	3801	5556
40	2524	3029	4492	6614
30	2778	3334	5159	7540
20	3180	3816	5906	8631
15	3500	4200	6500	9500
10	3500	4200	6500	9500

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:

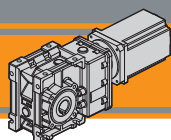


	CMB 402	CMB 502	CMB 633	CMB 903
a	86	104	118	157
b	66	79	93	117
R _{2MAX}	3500	4200	6500	9500

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

$$R \leq R_c$$

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



Motoriduttori BLDC ad assi ortogonali

BLDC helical bevel gearmotors



CMB402 con motore BLDC

CMB402 with BLDC motor

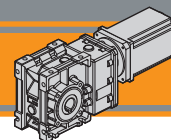
CMB402	BL070.48.80											
	48V						24V					
	n _{1MIN} = 400 [rpm]			n _{1MAX} = 4000 [rpm]			n _{1MIN} = 250 [rpm]			n _{1MAX} = 2500 [rpm]		
	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf
6.2	65	4.1	11.3	648	4.1	6.8	40	4.1	11.3	405	4.1	7.6
7.5	53	4.9	9.3	534	4.9	5.6	33	4.9	9.3	334	4.9	6.3
9.2	43	6.1	7.6	435	6.1	4.6	27	6.1	7.6	272	6.1	5.1
11.8	34	7.8	6.6	338	7.8	4.0	21	7.8	6.6	211	7.8	4.5
12.5	32	8.2	6.3	320	8.2	3.8	20	8.2	6.3	200	8.2	4.3
14.8	27	9.8	5.3	270	9.8	3.2	17	9.8	5.3	169	9.8	3.6
17.6	23	11.6	4.5	227	11.6	2.7	14	11.6	4.5	142	11.6	3.0
18.6	22	12.2	5.2	215	12.2	3.1	13	12.2	5.2	134	12.2	3.5
22.3	18	14.7	4.3	179	14.7	2.6	11	14.7	4.3	112	14.7	2.9
23.9	17	15.7	4.0	167	15.7	2.4	10	15.7	4.0	105	15.7	2.7
28.9	14	19.0	3.9	138	19.0	2.4	8.7	19.0	3.9	87	19.0	2.7
30.8	13	20.3	3.7	130	20.3	2.2	8.1	20.3	3.7	81	20.3	2.5
33.6	12	22.1	3.4	119	22.1	2.0	7.4	22.1	3.4	74	22.1	2.3
35.6	11	23.4	3.2	112	23.4	1.9	7.0	23.4	3.2	70	23.4	2.2
42.8	9.4	28.1	2.7	94	28.1	1.6	5.8	28.1	2.7	58	28.1	1.8
55.3	7.2	36.4	2.1	72	36.4	1.2	4.5	36.4	2.1	45	36.4	1.4
59.1	6.8	38.9	1.9	68	38.9	1.2	4.2	38.9	1.9	42	38.9	1.3
64.3	6.2	42.3	1.8	62	42.3	1.1	3.9	42.3	1.8	39	42.3	1.2
72.5	5.5	47.7	1.6	-	-	-	3.4	47.7	1.6	34	47.7	1.1

Attenzione: Contattare il ns. servizio tecnico
Attention: Please, contact our technical office.

Modello Model	Poli Poles	Fasi Phases	Tensione nominale Rated voltage	Velocità nominale Rated speed	Coppia nominale Rated torque	Potenza nominale Rated power	Coppia di picco Peak torque	Corrente nominale Rated current	Corrente di picco Peak current	Resistenza fase-fase Line to line resistance	Induttanza fase-fase Line to line inductance	Costante di coppia Torque constant	Costante FCEM Back EMF	Inerzia rotore Rotor inertia	Peso Weight
			[V]	[min ⁻¹]	[Nm]	[W]	[Nm]	[A]	[A]	[Ω]	[mH]	[Nm/A]	[V/kRPM]	[gcm ²]	[kg]
BL070.48.80	8	3	48	4350	0.7	320	2.1	12	36	0.072	0.304	0.059	6.15	1000	1.8
			24	2500		185									

Dati tecnici del freno Brake features	Descrizione Description
Tensione Voltage	24 V / 48 V
Coppia Torque	2 Nm
Potenza Power	9.6 W

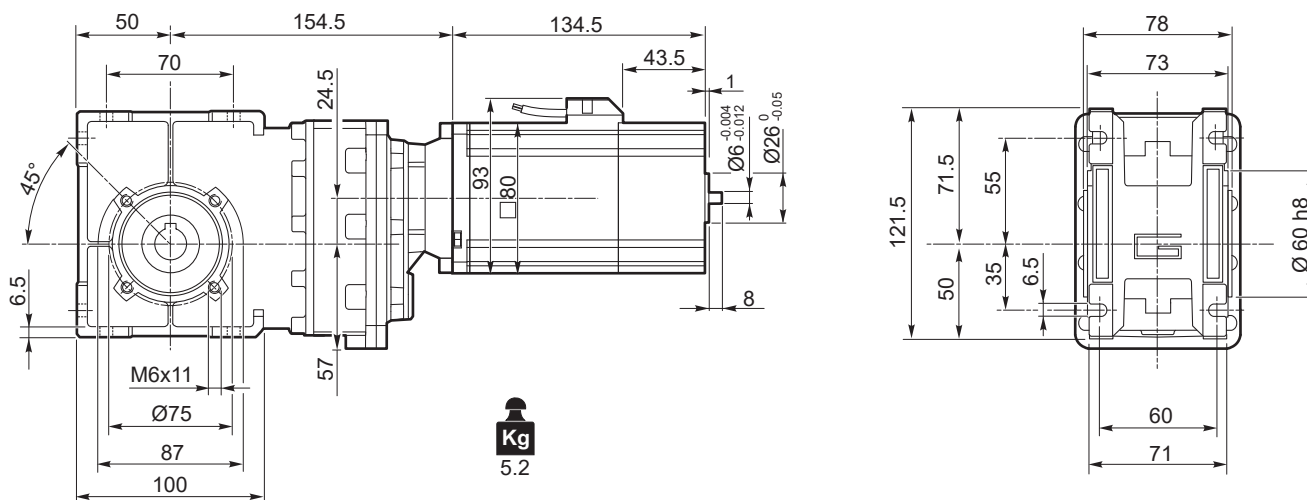
Caratteristiche Encoder Encoder specifications	
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)



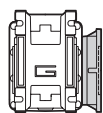
CMB402 con motore BLDC

CMB402 with BLDC motor

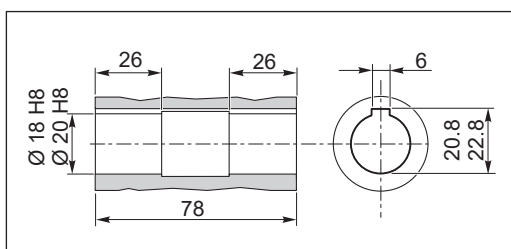
CMB402U
+
BL070.48.80



C17

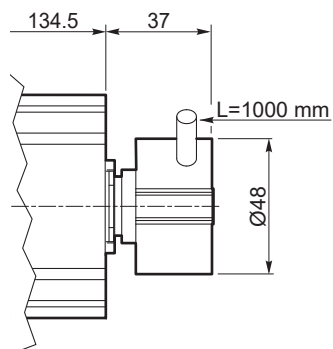


CMB402..F
CMB402..FL
CMB402..FB

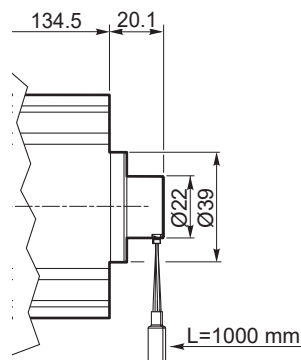


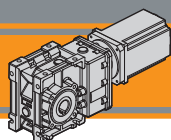
Albero lento cavo / Hollow output shaft

BL070.48.80 + ENCODER HREA 48



BL070.48.80 + ENCODER MEHR 22





CMB402 con motore BLDC

CMB402 with BLDC motor

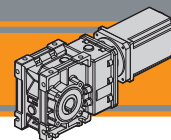
CMB402	BL200.48.95											
	48V						24V					
	n _{1MIN} = 300 [rpm]			n _{1MAX} = 3000 [rpm]			n _{1MIN} = 150 [rpm]			n _{1MAX} = 1500 [rpm]		
	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf
6.2	49	11.6	4.0	486	11.6	2.7	24	11.6	4.0	243	11.6	3.4
7.5	40	14.1	3.3	400	14.1	2.2	20	14.1	3.3	200	14.1	2.8
9.2	33	17.3	2.7	326	17.3	1.8	16	17.3	2.7	163	17.3	2.3
11.8	25	22.2	2.3	254	22.2	1.6	13	22.2	2.3	127	22.2	2.0
12.5	24	23.5	2.2	240	23.5	1.5	12	23.5	2.2	120	23.5	1.9
14.8	20	27.9	1.9	202	27.9	1.3	10	27.9	1.9	101	27.9	1.6
17.6	17	33.1	1.6	170	33.1	1.1	8.5	33.1	1.6	85	33.1	1.4
18.6	16	35.0	1.8	161	35.0	1.2	8.1	35.0	1.8	81	35.0	1.6
22.3	13	42.0	1.5	134	42.0	1.0	6.7	42.0	1.5	67	42.0	1.3
23.9	13	44.9	1.4	125	44.9	1.0	6.3	44.9	1.4	63	44.9	1.2
28.9	10.4	54.3	1.4	-	-	-	5.2	54.3	1.4	52	54.3	1.2
30.8	9.7	58.0	1.3	-	-	-	4.9	58.0	1.3	49	58.0	1.1
33.6	8.9	63.1	1.2	-	-	-	4.5	63.1	1.2	45	63.1	1.0
35.6	8.4	67.0	1.1	-	-	-	4.2	67.0	1.1	42	67.0	1.0

Attenzione: Contattare il ns. servizio tecnico
Attention: Please, contact our technical office.

Modello Model	Poli Poles	Fasi Phases	Servizio Service	Tensione nominale Rated voltage	Velocità nominale Rated speed	Coppia nominale Rated torque	Potenza nominale Rated power	Coppia di picco Peak torque	Corrente nominale Rated current	Corrente di picco Peak current	Resistenza fase-fase Line to line resistance	Induttanza fase-fase Line to line inductance	Costante di coppia Torque constant	Costante FCEM Back EMF	Inerzia rotore Rotor inertia	Peso Weight
				[V]	[min ⁻¹]	[Nm]	[W]	[Nm]	[A]	[A]	[Ω]	[mH]	[Nm/A]	[V/kRPM]	[gcm ²]	[kg]
BL200.48.95	8	3	S1	48	3000	2.0	650	6	23	69	0.077 +/- 15%	0.228	0.091	6.7 +/- 10%	2820	6
				24	1500		300									

Dati tecnici del freno Brake features	Descrizione Description
Tensione Voltage	48 V / 24 V
Coppia Torque	6 Nm
Potenza Power	13.8 W

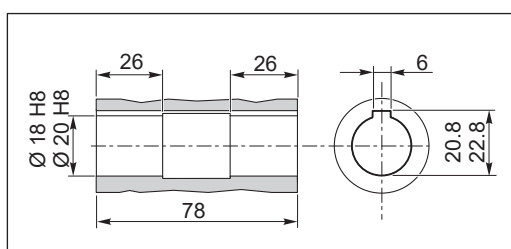
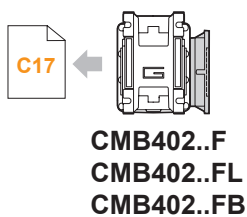
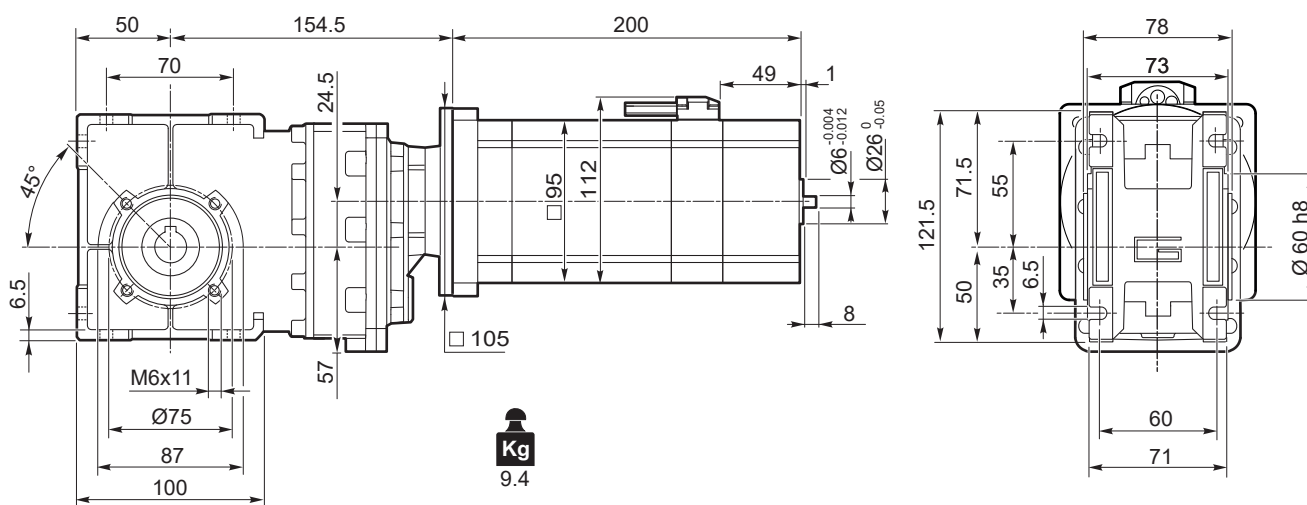
Caratteristiche Encoder Encoder specifications	
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)



CMB402 con motore BLDC

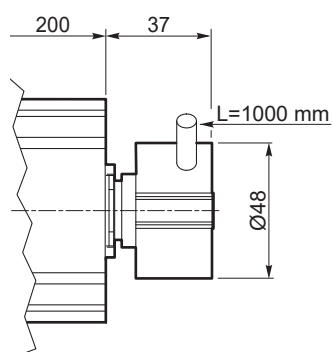
CMB402 with BLDC motor

**CMB402U
+
BL200.48.95**

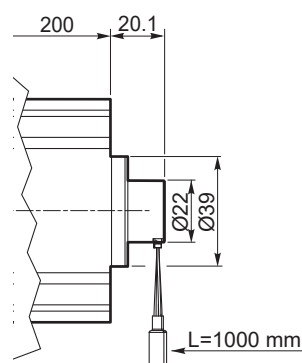


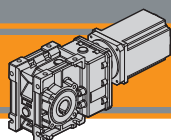
Albero lento cavo / *Hollow output shaft*

BL200.48.95 + ENCODER HREA 48



BL200.48.95 + ENCODER MEHR 22





Motoriduttori BLDC ad assi ortogonali

BLDC helical bevel gearmotors



CMB502 con motore BLDC

CMB502 with BLDC motor

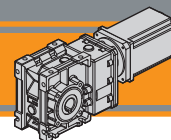
CMB502	BL200.48.95											
	48V						24V					
	n _{1MIN} = 300 [rpm]			n _{1MAX} = 3000 [rpm]			n _{1MIN} = 150 [rpm]			n _{1MAX} = 1500 [rpm]		
	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf
6.2	49	11.6	6.9	486	11.6	4.7	24	11.6	6.9	243	11.6	6.0
7.5	40	14.1	5.7	400	14.1	3.9	20	14.1	5.7	200	14.1	5.0
9.2	33	17.3	4.7	326	17.3	3.2	16	17.3	4.7	163	17.3	4.0
11.8	25	22.2	4.7	254	22.2	3.1	13	22.2	4.7	127	22.2	4.0
12.5	24	23.5	4.4	240	23.5	3.0	12	23.5	4.4	120	23.5	3.8
14.8	20	27.9	3.7	202	27.9	2.5	10	27.9	3.7	101	27.9	3.2
17.6	17	33.1	3.1	170	33.1	2.1	8.5	33.1	3.1	85	33.1	2.7
18.6	16	35.0	3.6	161	35.0	2.5	8.1	35.0	3.6	81	35.0	3.1
22.3	13	42.0	3.0	134	42.0	2.0	6.7	42.0	3.0	67	42.0	2.6
23.9	13	44.9	2.8	125	44.9	1.9	6.3	44.9	2.8	63	44.9	2.4
28.9	10	54.3	2.6	104	54.3	1.8	5.2	54.3	2.6	52	54.3	2.3
30.8	9.7	58.0	2.5	97	58.0	1.7	4.9	58.0	2.5	49	58.0	2.2
33.6	8.9	63.1	2.3	89	63.1	1.6	4.5	63.1	2.3	45	63.1	2.0
35.6	8.4	67.0	2.1	84	67.0	1.5	4.2	67.0	2.1	42	67.0	1.9
42.8	7.0	80.4	1.8	70	80.4	1.2	3.5	80.4	1.8	35	80.4	1.6
55.3	5	104.0	1.4	-	-	-	2.7	104.0	1.4	27	104.0	1.2
59.1	5	111.0	1.3	-	-	-	2.5	111.0	1.3	25	111.0	1.1
64.3	5	120.9	1.2	-	-	-	2.3	120.9	1.2	23	120.9	1.0
72.5	4	136.3	1.1	-	-	-	-	-	-	-	-	-

Attenzione: Contattare il ns. servizio tecnico
Attention: Please, contact our technical office.

Modello Model	Poli Poles	Fasi Phases	Servizio Service	Tensione nominale Rated voltage	Velocità nominale Rated speed	Coppia nominale Rated torque	Potenza nominale Rated power	Coppia di picco Peak torque	Corrente nominale Rated current	Corrente di picco Peak current	Resistenza fase-fase Line to line resistance	Induttanza fase-fase Line to line inductance	Costante di coppia Torque constant	Costante FCEM Back EMF	Inerzia rotore Rotor inertia	Peso Weight
				[V]	[min ⁻¹]	[Nm]	[W]	[Nm]	[A]	[A]	[Ω]	[mH]	[Nm/A]	[V/kRPM]	[gcm ²]	[kg]
BL200.48.95	8	3	S1	48	3000	2.0	650	6	23	69	0.077 +/- 15%	0.228	0.091	6.7 +/- 10%	2820	6
				24	1500		300									

Dati tecnici del freno Brake features	Descrizione Description
Tensione Voltage	48 V / 24 V
Coppia Torque	6 Nm
Potenza Power	13.8 W

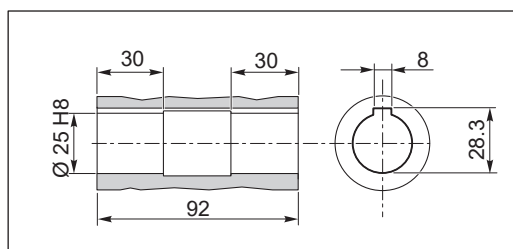
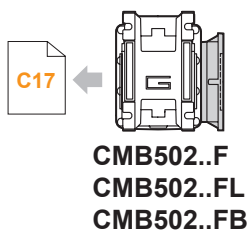
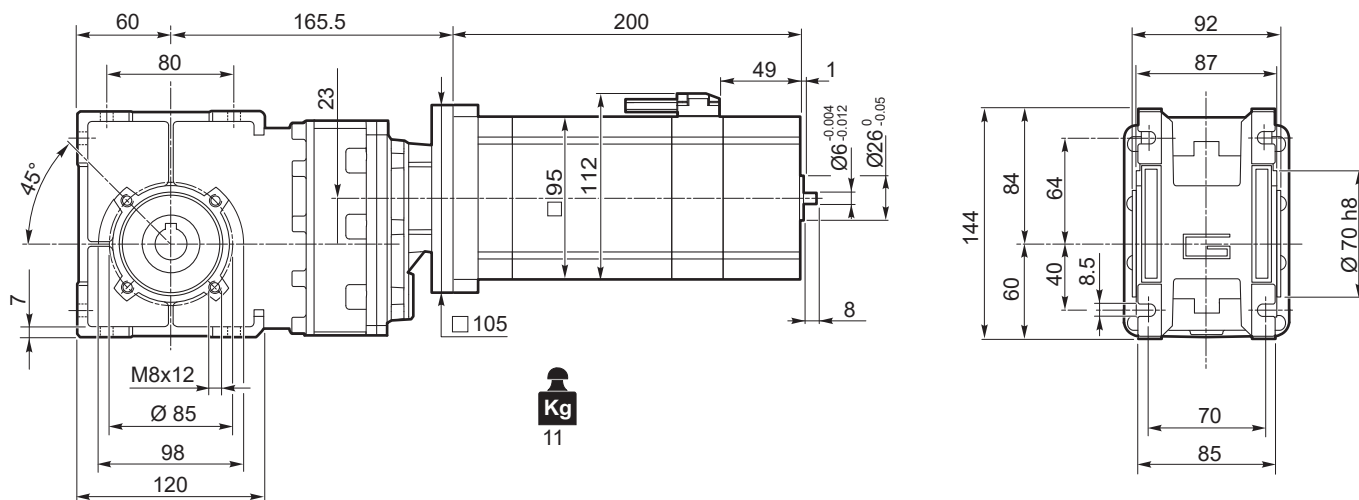
Caratteristiche Encoder Encoder specifications	
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)



CMB502 con motore BLDC

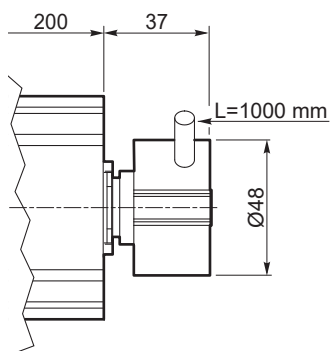
CMB502 with BLDC motor

**CMB502U
+
BL200.48.95**

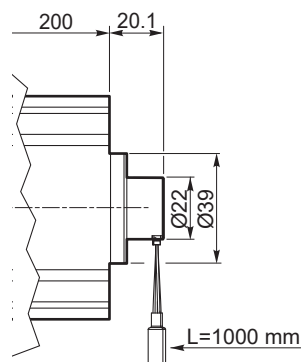


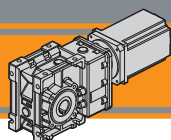
Albero lento cavo / *Hollow output shaft*

BL200.48.95 + ENCODER HREA 48



BL200.48.95 + ENCODER MEHR 22





Motoriduttori BLDC ad assi ortogonali

BLDC helical bevel gearmotors



CMB502 con motore BLDC

CMB502 with BLDC motor

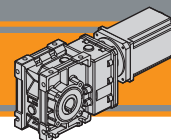
CMB502	BL400.48.120											
	48V						24V					
	n _{1MIN} = 300 [rpm]			n _{1MAX} = 3000 [rpm]			n _{1MIN} = 140 [rpm]			n _{1MAX} = 1400 [rpm]		
	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf
6.2	49	20.3	4.0	486	20.3	2.7	23	20.3	4.0	227	20.3	3.4
7.5	40	24.7	3.3	400	24.7	2.2	19	24.7	3.3	187	24.7	2.8
9.2	33	30.3	2.7	326	30.3	1.8	15	30.3	2.7	152	30.3	2.3
11.8	25	38.9	2.7	254	38.9	1.8	12	38.9	2.7	118	38.9	2.3
12.5	24	41.1	2.5	240	41.1	1.7	11	41.1	2.5	112	41.1	2.2
14.8	20	48.8	2.1	202	48.8	1.4	9.4	48.8	2.1	94	48.8	1.8
17.6	17	58.0	1.8	170	58.0	1.2	7.9	58.0	1.8	79	58.0	1.6
18.6	16	61.2	2.1	161	61.2	1.4	7.5	61.2	2.1	75	61.2	1.8
22.3	13	73.4	1.7	134	73.4	1.2	6.3	73.4	1.7	63	73.4	1.5
23.9	13	78.7	1.6	125	78.7	1.1	5.9	78.7	1.6	59	78.7	1.4
28.9	10	95.0	1.5	104	95.0	1.0	4.8	95.0	1.5	48	95.0	1.3
30.8	9.7	101.5	1.4	97	101.5	1.0	4.5	101.5	1.4	45	101.5	1.2
33.6	9	110.5	1.3	-			4.2	110.5	1.3	42	110.5	1.1
35.6	8	117.2	1.2	-			3.9	117.2	1.2	39	117.2	1.1
42.8	7	140.6	1.0	-			3.3	140.6	1.0	-		

Attenzione: Contattare il ns. servizio tecnico
Attention: Please, contact our technical office.

Modello Model	Poli Poles	Fasi Phases	Servizio Service	Tensione nominale Rated voltage	Velocità nominale Rated speed	Coppia nominale Rated torque	Potenza nominale Rated power	Coppia di picco Peak torque	Corrente nominale Rated current	Corrente di picco Peak current	Resistenza fase-fase Line to line resistance	Induttanza fase-fase Line to line inductance	Costante di coppia Torque constant	Costante FCEM Back EMF	Inerzia rotore Rotor inertia	Peso Weight
				[V]	[min ⁻¹]	[Nm]	[W]	[Nm]	[A]	[A]	[Ω]	[mH]	[Nm/A]	[V/kRPM]	[gcm ²]	[kg]
BL400.48.120	8	3	S3	48	3000	4.2	1320	12.6	33	99	0.064	0.31	0.120	12.6	21380	11
			S1			3.5	1100	10.5	28	84						
			S3	24	1400	4.2	615	12.6	33	99						
			S1			3.5	615	10.5	28	84						

Dati tecnici del freno Brake features	Descrizione Description
Tensione Voltage	48 V / 24 V
Coppia Torque	8 Nm
Potenza Power	22 W

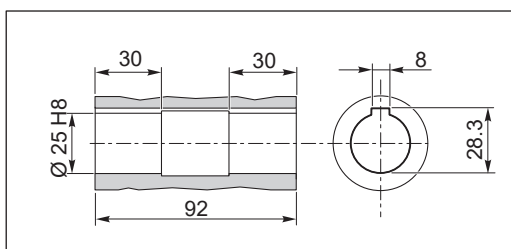
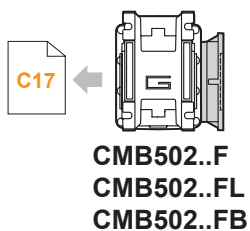
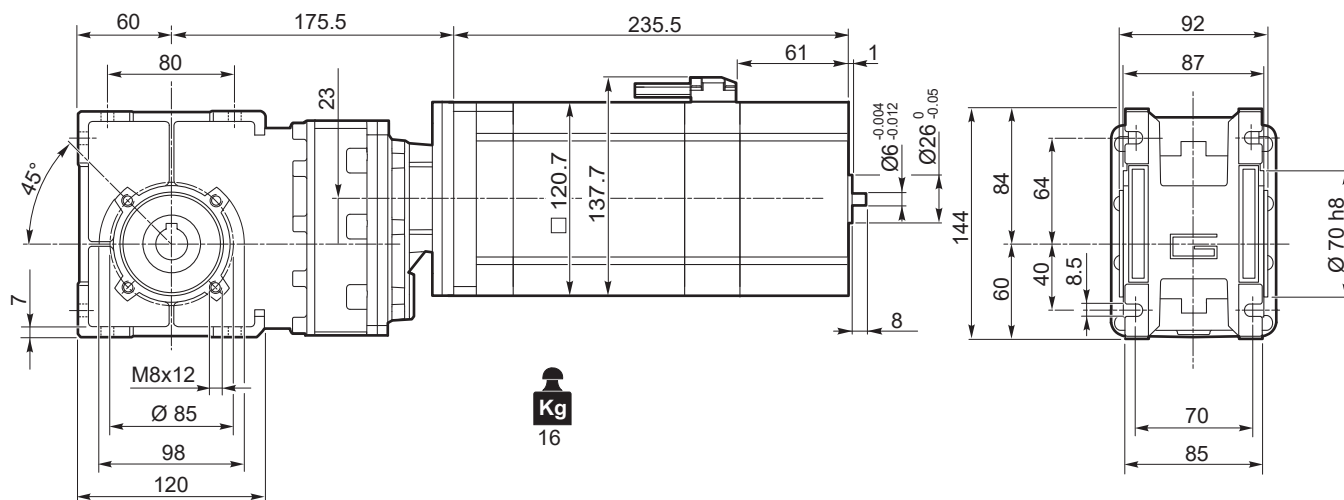
Caratteristiche Encoder Encoder specifications	
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)



CMB502 con motore BLDC

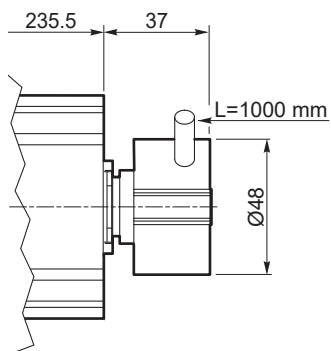
CMB502 with BLDC motor

CMB502U
+
BL400.48.120

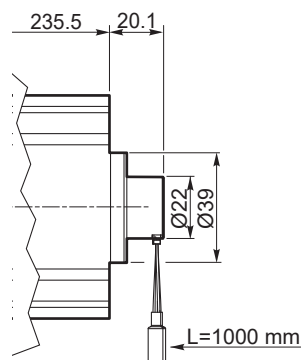


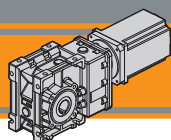
Albero lento cavo / Hollow output shaft

BL400.48.120 + ENCODER HREA 48



BL400.48.120 + ENCODER MEHR 22





Motoriduttori BLDC ad assi ortogonali

BLDC helical bevel gearmotors



CMB633 con motore BLDC

CMB633 with BLDC motor

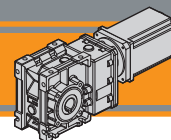
CMB633	BL400.48.120											
	48V						24V					
	n _{1MIN} = 300 [rpm]			n _{1MAX} = 3000 [rpm]			n _{1MIN} = 140 [rpm]			n _{1MAX} = 1400 [rpm]		
	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf
6.6	46	21.7	8.0	456	21.7	5.4	21	21.7	8.0	213	21.7	6.9
8.0	38	26.3	6.6	376	26.3	4.5	18	26.3	6.6	175	26.3	5.7
9.8	31	32.3	5.3	306	32.3	3.6	14	32.3	5.3	143	32.3	4.6
10.4	29	34.3	5.0	287	34.3	3.4	13	34.3	5.0	134	34.3	4.4
12.5	24	41.2	4.2	239	41.2	2.8	11	41.2	4.2	112	41.2	3.6
13.3	23	43.8	3.9	225	43.8	2.7	11	43.8	3.9	105	43.8	3.4
15.8	19	52.0	3.8	190	52.0	2.5	8.9	52.0	3.8	89	52.0	3.3
17.8	17	58.5	4.3	169	58.5	2.9	7.9	58.5	4.3	79	58.5	3.8
21.6	14	70.9	3.6	139	70.9	2.4	6.5	70.9	3.6	65	70.9	3.1
26.5	11	87.1	2.9	113	87.1	2.0	5.3	87.1	2.9	53	87.1	2.5
28.2	11	92.7	2.7	106	92.7	1.9	5.0	92.7	2.7	50	92.7	2.4
33.8	8.9	111.2	2.3	89	111.2	1.5	4.1	111.2	2.3	41	111.2	2.0
35.9	8.4	118.2	2.1	84	118.2	1.5	3.9	118.2	2.1	39	118.2	1.9
38.9	7.7	127.9	2.2	77	127.9	1.5	3.6	127.9	2.2	36	127.9	2.0
47.2	6.4	155.2	1.9	64	155.2	1.3	3.0	155.2	1.9	30	155.2	1.6
57.9	5.2	190.6	1.5	52	190.6	1.0	2.4	190.6	1.5	24	190.6	1.3
61.6	4.9	202.8	1.4	49	202.8	1.0	2.3	202.8	1.4	23	202.8	1.2
74.0	4.1	243.3	1.2	-			1.9	243.3	1.2	19	243.3	1.0
78.6	3.8	258.5	1.1	-			1.8	258.5	1.1	18	258.5	1.0

Attenzione: Contattare il ns. servizio tecnico
Attention: Please, contact our technical office.

Modello Model	Poli Poles	Fasi Phases	Servizio Service	Tensione nominale Rated voltage	Velocità nominale Rated speed	Coppia nominale Rated torque	Potenza nominale Rated power	Coppia di picco Peak torque	Corrente nominale Rated current	Corrente di picco Peak current	Resistenza fase-fase Line to line resistance	Induttanza fase-fase Line to line inductance	Costante di coppia Torque constant	Costante FCEM Back EMF	Inerzia rotore Rotor inertia	Peso Weight
				[V]	[min ⁻¹]	[Nm]	[W]	[Nm]	[A]	[A]	[Ω]	[mH]	[Nm/A]	[V/kRPM]	[gcm ²]	[kg]
BL400.48.120	8	3	S3	48	3000	4.2	1320	12.6	33	99	0.064	0.31	0.120	12.6	21380	11
			S1			3.5	1100	10.5	28	84						
			S3	24	1400	4.2	615	12.6	33	99						
			S1			3.5	615	10.5	28	84						

Dati tecnici del freno Brake features	Descrizione Description
Tensione Voltage	48 V / 24 V
Coppia Torque	8 Nm
Potenza Power	22 W

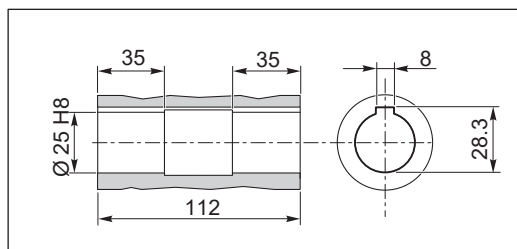
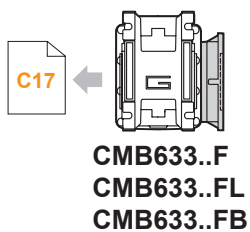
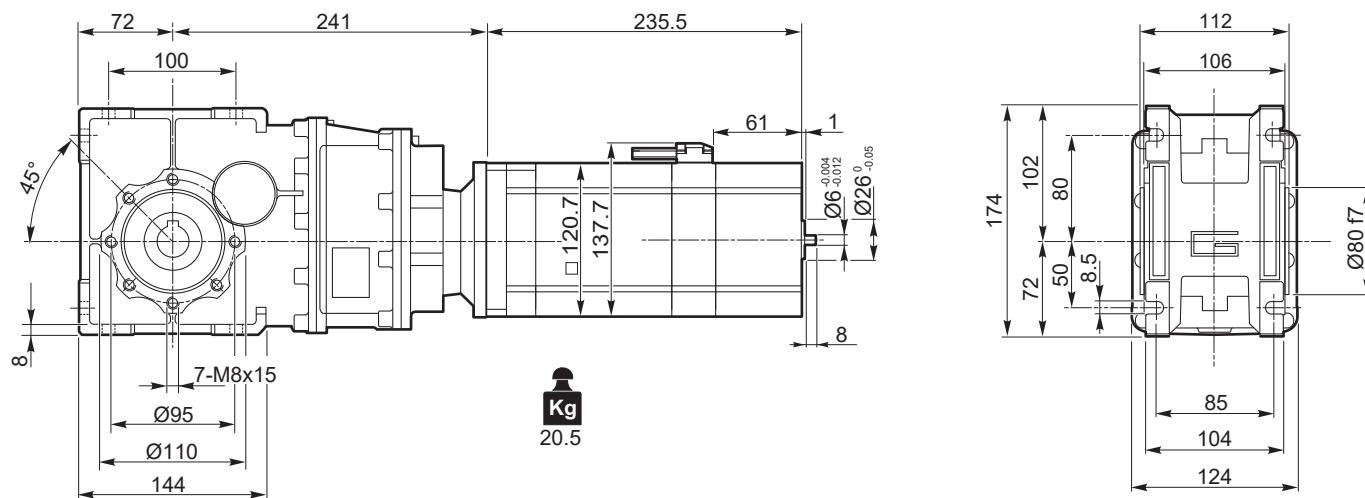
Caratteristiche Encoder Encoder specifications	
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)



CMB633 con motore BLDC

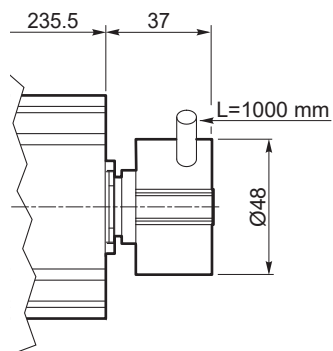
CMB633 with BLDC motor

CMB633U + BL400.48.120

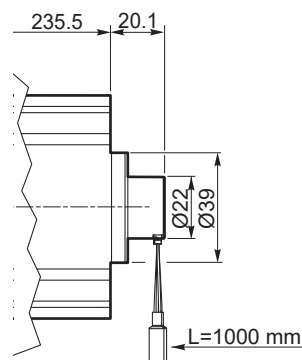


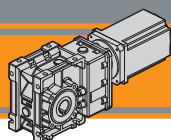
Albero lento cavo / Hollow output shaft

BL400.48.120 + ENCODER HREA 48



BL400.48.120 + ENCODER MEHR 22





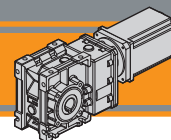
CMB903	BL400.48.120											
	48V						24V					
	n _{1MIN} = 300 [rpm]			n _{1MAX} = 3000 [rpm]			n _{1MIN} = 140 [rpm]			n _{1MAX} = 1400 [rpm]		
	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf
6.7	45	21.9	14.7	451	21.9	10.0	21	21.9	14.7	211	21.9	12.8
8.0	37	26.3	12.2	375	26.3	8.3	17	26.3	12.2	175	26.3	10.6
9.7	31	32.1	10.0	308	32.1	6.8	14	32.1	10.0	144	32.1	8.7
11.2	27	36.9	8.7	268	36.9	5.9	12	36.9	8.7	125	36.9	7.6
14.1	21	46.4	7.4	213	46.4	5.0	10	46.4	7.4	99	46.4	6.5
17.9	17	59.0	8.8	167	59.0	5.9	7.8	59.0	8.8	78	59.0	7.6
21.6	14	71.1	7.3	139	71.1	4.9	6.5	71.1	7.3	65	71.1	6.3
26.3	11	86.5	6.0	114	86.5	4.1	5.3	86.5	6.0	53	86.5	5.2
30.3	10	99.5	5.2	99	99.5	3.5	4.6	99.5	5.2	46	99.5	4.5
39.3	8	129.2	4.5	76	129.2	3.0	3.6	129.2	4.5	36	129.2	3.9
47.3	6	155.5	3.7	63	155.5	2.5	3.0	155.5	3.7	30	155.5	3.2
57.5	5.2	189.3	3.0	52	189.3	2.1	2.4	189.3	3.0	24	189.3	2.6
66.2	4.5	217.7	2.6	45	217.7	1.8	2.1	217.7	2.6	21	217.7	2.3
83.2	3.6	273.7	2.1	36	273.7	1.4	1.7	273.7	2.1	17	273.7	1.8
108.1	2.8	355.6	1.6	28	355.6	1.1	1.3	355.6	1.6	13	355.6	1.4
132.2	2.3	435.0	1.3	-			1.1	435.0	1.3	11	435.0	1.1
147.9	2.0	486.6	1.2	-			0.9	486.6	1.2	9.5	486.6	1.0
167.1	1.8	549.7	1.0	-			0.8	549.7	1.0	-		

Attenzione: Contattare il ns. servizio tecnico
Attention: Please, contact our technical office.

Modello Model	Poli Poles	Fasi Phases	Servizio Service	Tensione nominale Rated voltage	Velocità nominale Rated speed	Coppia nominale Rated torque	Potenza nominale Rated power	Coppia di picco Peak torque	Corrente nominale Rated current	Corrente di picco Peak current	Resistenza fase-fase Line to line resistance	Induttanza fase-fase Line to line inductance	Costante di coppia Torque constant	Costante FCEM Back EMF	Inerzia rotore Rotor inertia	Peso Weight
				[V]	[min ⁻¹]	[Nm]	[W]	[Nm]	[A]	[A]	[Ω]	[mH]	[Nm/A]	[V/kRPM]	[gcm ²]	[kg]
BL400.48.120	8	3	S3	48	3000	4.2	1320	12.6	33	99	0.064	0.31	0.120	12.6	21380	11
			S1			3.5	1100	10.5	28	84						
			S3	24	1400	4.2	615	12.6	33	99						
			S1			3.5	615	10.5	28	84						

Dati tecnici del freno Brake features	Descrizione Description
Tensione Voltage	48 V / 24 V
Coppia Torque	8 Nm
Potenza Power	22 W

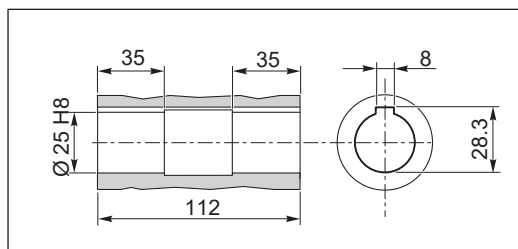
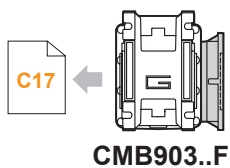
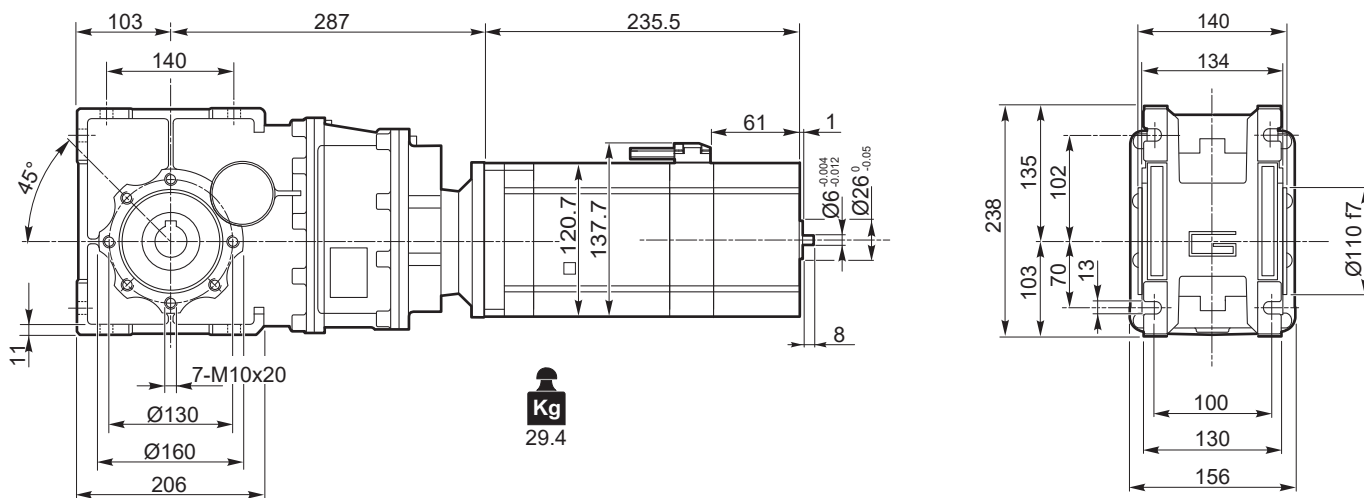
Caratteristiche Encoder Encoder specifications	
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)



CMB903 con motore BLDC

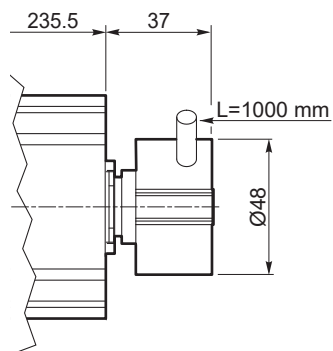
CMB903 with BLDC motor

CMB903U + BL400.48.120

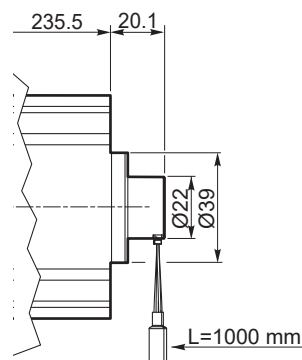


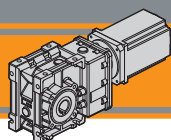
Albero lento cavo / Hollow output shaft

BL400.48.120 + ENCODER HREA 48



BL400.48.120 + ENCODER MEHR 22





Motoriduttori BLDC ad assi ortogonali

BLDC helical bevel gearmotors

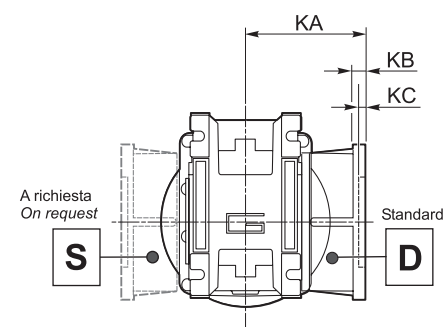
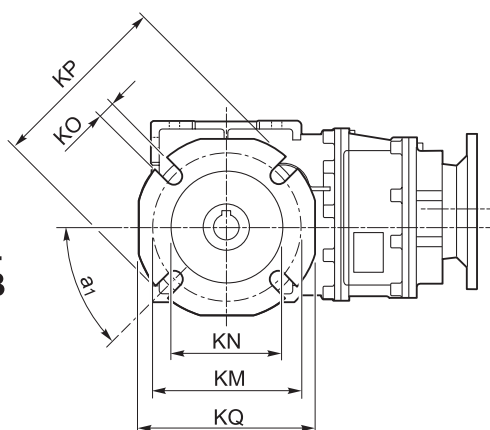


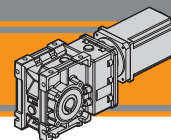
Flange uscita

Output flange

	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
933	45°	111	13	6	175-188	152	14	210	200	-									-								

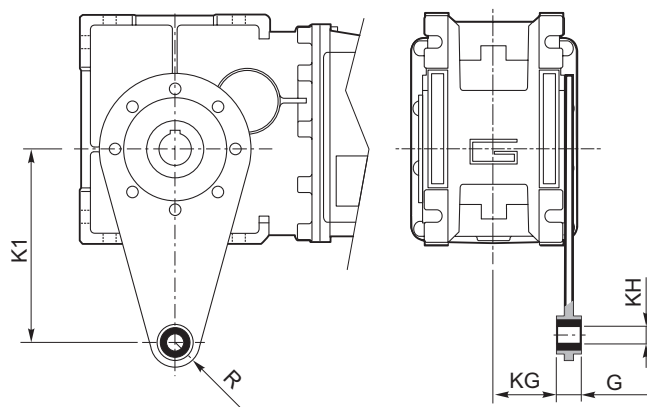
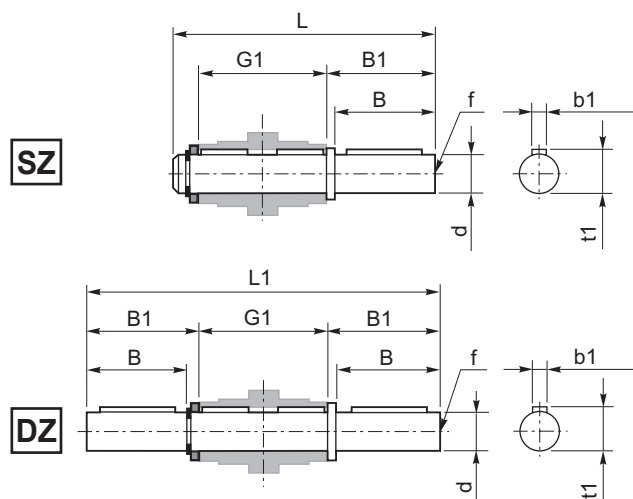
CMB..F
CMB..FL
CMB..FB





Accessori

Accessories



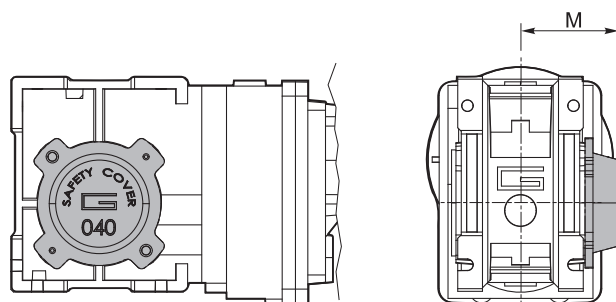
Albero lento / Output shaft

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
903	35	80	84.5	140	234	309	M12	10	38

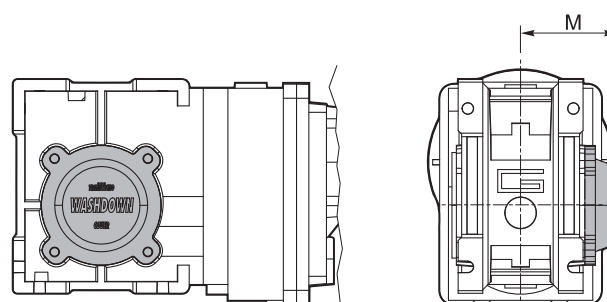
Braccio di reazione / Torque arm

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
903	200	25	56.5	20	30

SC - Safety cover

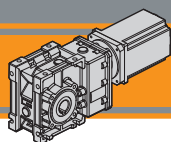


WD - Washdown cover

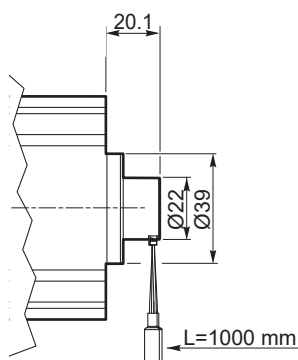


CMB	M
402	54.5
502	62.5
633	73
903	94

CMB	M
402	55.5
502	63.5
633	71.5
903	95

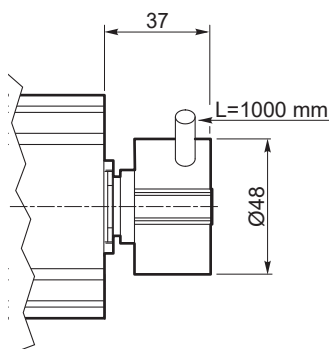


ENCODER MEHR 22



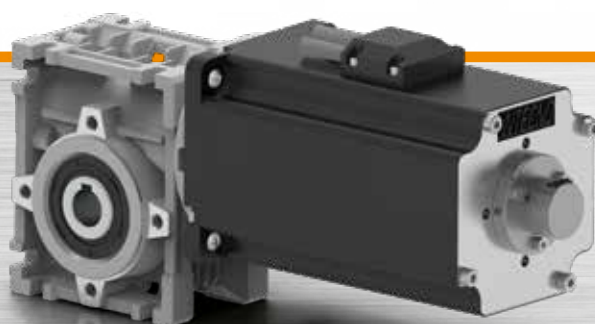
Caratteristiche Encoder Encoder specifications	MEHR 22
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line Driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)

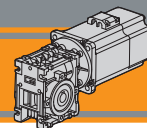
ENCODER HREA 48



Caratteristiche Encoder Encoder specifications	HREA
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)

Motoriduttori BLDC a vite senza fine **BLDC wormgearmotors**

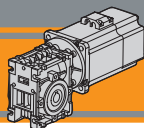




Indice	Index	Pag. Page
Caratteristiche tecniche	<i>Technical features</i>	D2
Designazione	<i>Classification</i>	D2
Simbologia	<i>Symbols</i>	D3
Lubrificazione e temperatura	<i>Lubrication and temperature</i>	D4
Carichi radiali	<i>Radial loads</i>	D4
Dati di dentatura	<i>Toothing data</i>	D5
Rendimento	<i>Efficiency</i>	D5
Reversibilità e irreversibilità	<i>Reversibility and irreversibility</i>	D5
CM030 con motore BLDC BL070.48.80	<i>CM030 with BLDC motor BL070.48.80</i>	D6
CM040 con motore BLDC BL070.48.80	<i>CM040 with BLDC motor BL070.48.80</i>	D8
CM050 con motore BLDC BL200.48.95	<i>CM050 with BLDC motor BL200.48.95</i>	D10
Flange uscita	<i>Output flange</i>	D12
Opzioni	<i>Options</i>	D12
Accessori	<i>Accessories</i>	D13

Questa sezione annulla e sostituisce ogni precedente edizione o revisione. Qualora questa sezione non Vi sia giunta in distribuzione controllata, l'aggiornamento dei dati ivi contenuto non è assicurato. **In tal caso la versione più aggiornata è disponibile sul nostro sito internet www.intecno-srl.com**

*This section replaces any previous edition and revision. If you obtained this catalogue other than through controlled distribution channels, the most up to date content is not guaranteed. **In this case the latest version is available on our web site www.intecno-srl.com***



Caratteristiche tecniche

Technical features

Le caratteristiche principali dei motoriduttori brushless CC a vite senza fine della serie CM sono:

- Alimentazione in bassa tensione 24/48 Vcc
- Motore protezione IP65
- Coppie motore disponibili da 0.7 a 2 Nm
- Carcasse dei riduttori in pressofusione di alluminio
- Lubrificazione permanente con olio sintetico
- Disponibili anche con anello di tenuta ingresso in viton

The main features of CM brushless DC wormgearmotors range are:

- Low voltage power supply 24/48 Vdc
- Motor protection IP65
- Motor torque ratings available from 0.7 up to 2 Nm
- Die-cast aluminium housings
- Permanent synthetic oil long life lubrication
- Also available with sealing ring, viton input

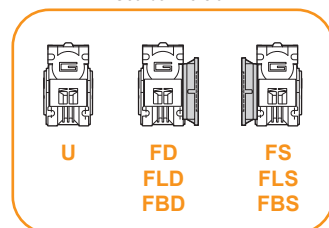
Designazione

Classification

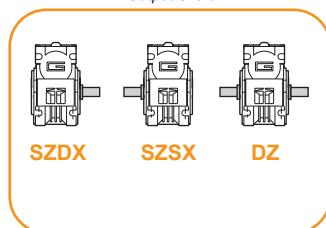
RIDUTTORE / GEARBOX			
CM	030	20	U
Tipo Type	Grandezza Size	Rapporto in Ratio in	Versione Version
CM	030 040 050	Vedere tabelle See tables	U FD FS FLD FLS FBD FBS

MOTORE / MOTOR		
BL070.480	48V	Encoder
Tipo Type	Tensione Voltage	Opzioni Options
BL070.48.80 BL200.48.95	48V-24V 48V-24V	MEHR 22 HREA 48
		A10 A14

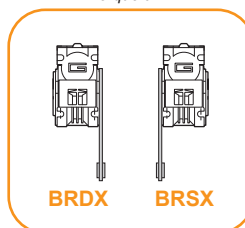
Versione Riduttore
Gearbox Version



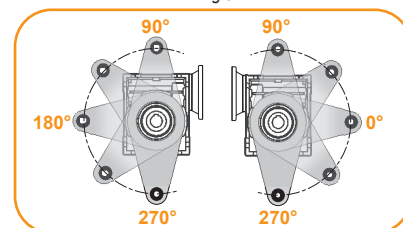
Albero di uscita
Output shaft

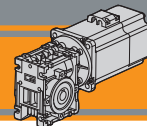


Braccio di reazione
Torque arm



Angolo
Angle





Simbologia

Symbols

Ns	n° stadi / No. stages	n _{1MAX}	[Rpm]	Velocità max entrata / Max input speed
ir	rapporto reale / real ratio	V	[V]	Tensione / Voltage
M ₂	[Nm] coppia in uscita output torque	n ₂	[Rpm]	Velocità in uscita / Output Speed
A ₂	[N] Carico assiale ammissibile in uscita Permitted output axial load	IP		Grado di protezione / Enclosure protection
R ₂	[N] Carico radiale ammissibile in uscita Permitted output radial load	Kg		Peso / Weight
Pn ₁	[kW] Potenza nominale in entrata Nominal input power	sf		Fattore di servizio / Service Factor
Mn ₂	[Nm] Coppia nominale in uscita in funzione di Pn1 Nominal output torque referred to Pn1	Rd	%	Rendimento dinamico / Dynamic efficiency
		Rs	%	Rendimento statico / Static efficiency
		Z		Numero di principi della vite / Worm starts
		β		Angolo d'elica / Helix angle

Lubrificazione e temperatura

Lubrication and temperature

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

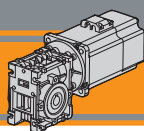
Temperatura ambiente 0 ÷ 40 °C (in assenza di congelamento ed in assenza di condensa).

Per temperature diverse, contattare nostro UT.

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

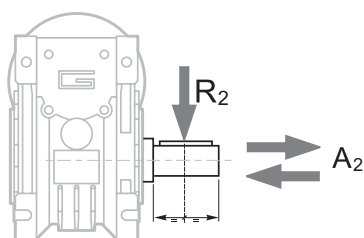
Ambient temperature 0 ÷ 40 °C (in the absence of freezing and condensation).

For temperature outside this range please contact our technical dept.



Carichi radiali

Radial loads

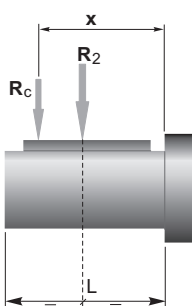


$$A_2 = R_2 \times 0.2$$

n ₂ [min ⁻¹]	R ₂ [N]		
	CM030	CM040	CM050
800	415	779	1090
700	434	814	1140
600	457	857	1200
500	486	911	1275
400	523	981	1374
300	576	1080	1512
200	659	1236	1731
150	726	1361	1905
125	771	1446	2025
100	831	1558	2181
90	860	1613	2259
80	895	1678	2349
70	936	1754	2456
60	985	1847	2586
50	1047	1963	2748
40	1128	2114	2960
30	1241	2327	3258
20	1421	2664	3729
15	1600	3000	4200
10	1600	3000	4200

Quando il carico radiale risultante non è applicato sulla mezzes-
ria 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:

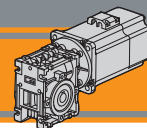


	CM		
	030	040	050
a	65	84	101
b	50	64	76
R _{2MAX}	1600	3000	4200

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

$$R \leq R_c$$

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



Dati 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
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'

Rendimento

Efficiency

	n_1 [min ⁻¹]	Rendimento Efficiency	Rapporto / Ratio											
			5	7.5	10	15	20	25	30	40	50	60	80	100
CM030	2800	Rd	89	88	86	84	81	78	74	70	65	62	57	52
		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
		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
		Rs	73	70	66	59	55	51	44	39	35	32	27	23

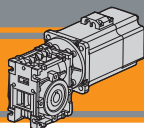
Reversibilità e irreversibilità

Reversibility and irreversibility

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.

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
> 0.60	Reversibilità dinamica	Dynamic reversibility
0.50 - 0.60	Reversibilità dinamica incerta	Uncertain dynamic reversibility
0.40 - 0.50	Buona irreversibilità dinamica	Good dynamic irreversibility
<0.40	Irreversibilità dinamica	Dynamic irreversibility
Rs	Reversibilità e irreversibilità statica	Static reversibility and irreversibility
> 0.55	Reversibilità statica	Static reversibility
0.50 - 0.55	Reversibilità statica incerta	Uncertain static reversibility
<0.50	Irreversibilità statica	Static irreversibility



CM030 con motore BLDC

CM030 with BLDC motor

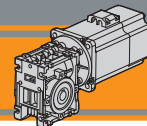
CM030	BL070.48.80											
	48V						24V					
	n _{1MIN} = 400 [rpm]			n _{1MAX} = 4000 [rpm]			n _{1MIN} = 250 [rpm]			n _{1MAX} = 2500 [rpm]		
ir	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf
5	80	2.9	9.3	800	3.1	4.2	50	2.8	12.7	500	3.1	4.2
7.5	53	4.3	7.1	533	4.6	3.2	33	4.0	9.2	333	4.6	3.2
10	40	5.5	5.5	400	6.0	2.7	25	5.2	7.3	250	6.0	2.7
15	27	7.6	4.0	267	8.8	1.8	17	7.0	5.5	167	8.8	1.8
20	20	9.4	2.8	200	11.3	1.2	13	8.8	3.7	125	11.3	1.2
25	16	11.2	2.4	160	13.7	1.1	10	10.5	3.0	100	13.7	1.1
30	13	12.4	2.7	133	15.5	1.2	8	11.3	3.5	83	15.5	1.2

Attenzione: Contattare il ns. servizio tecnico
Attention: Please, contact our technical office.

Modello Model	Poli Poles	Fasi Phases	Tensione nominale Rated voltage	Velocità nominale Rated speed	Coppia nominale Rated torque	Potenza nominale Rated power	Coppia di picco Peak torque	Corrente nominale Rated current	Corrente di picco Peak current	Resistenza fase-fase Line to line resistance	Induttanza fase-fase Line to line inductance	Costante di coppia Torque constant	Costante FCEM Back EMF	Inerzia rotore Rotor inertia	Peso Weight
			[V]	[min ⁻¹]	[Nm]	[W]	[Nm]	[A]	[A]	[Ω]	[mH]	[Nm/A]	[V/kRPM]	[gcm ²]	[kg]
BL070.48.80	8	3	48	4350	0.7	320	2.1	12	36	0.072	0.304	0.059	6.15	1000	1.8
			24	2500		185									

Dati tecnici del freno Brake features	Descrizione Description
Tensione Voltage	24 V / 48 V
Coppia Torque	2 Nm
Potenza Power	9.6 W

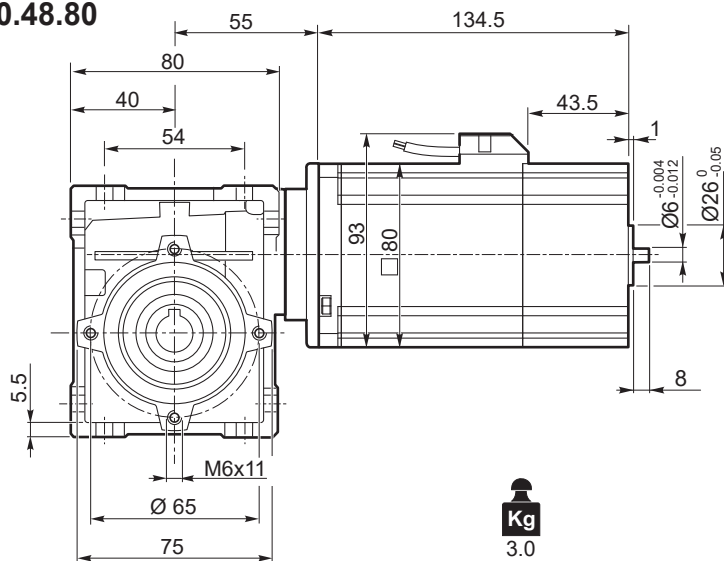
Caratteristiche Encoder Encoder specifications	
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)



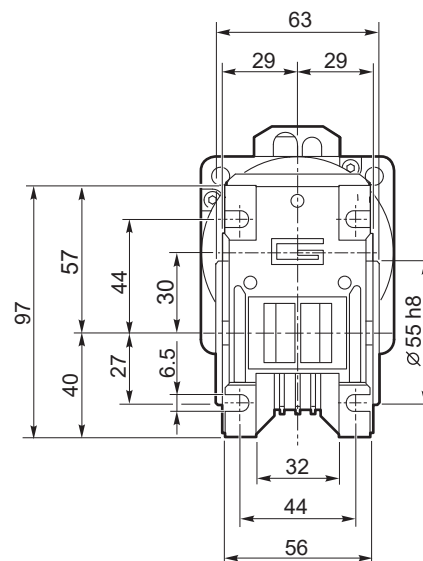
CM030 con motore BLDC

CM030 with BLDC motor

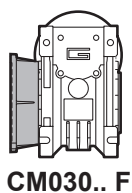
CM030..U
+
BL070.48.80



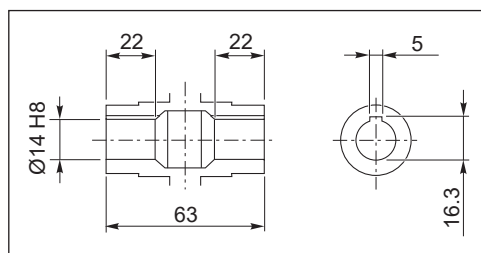
Kg
3.0



D12

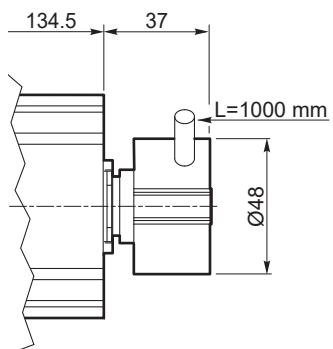


CM030.. F

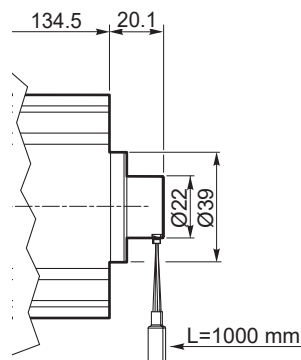


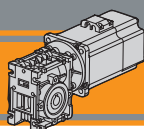
Albero lento cavo / Hollow output shaft

BL070.48.80 + ENCODER HREA 48



BL070.48.80 + ENCODER MEHR 22





CM040 con motore BLDC

CM040 with BLDC motor

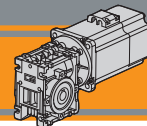
CM040	BL070.48.80											
	48V						24V					
	n _{1MIN} = 400 [rpm]			n _{1MAX} = 4000 [rpm]			n _{1MIN} = 250 [rpm]			n _{1MAX} = 2500 [rpm]		
ir	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf
5	80	2.9	25.6	800	3.2	9.2	50	2.8	28.2	500	3.2	9.2
7.5	53	4.2	17.9	533	4.7	6.6	33	4.1	20.5	333	4.7	6.6
10	40	5.4	14.1	400	6.1	5.4	25	5.3	16.0	250	6.1	5.4
15	27	7.5	10.2	267	8.8	4.0	17	7.2	12.0	167	8.8	4.0
20	20	9.4	7.1	200	11.6	2.7	13	9.4	7.9	125	11.6	2.7
25	16	11.1	5.6	160	14.0	2.0	10	11.2	6.0	100	14.0	2.0
30	13	11.9	6.9	133	16.2	2.4	8.3	12.0	7.5	83	16.2	2.4
40	10	14.5	4.8	100	20.4	1.7	6.3	14.6	5.1	63	20.4	1.7
50	8.0	16.5	3.9	80	24.2	1.3	5.0	16.5	4.1	50	24.2	1.3
60	6.7	18.5	3.1	67	27.7	1.0	4.2	18.5	3.4	42	27.7	1.0
80	5	21.5	2.3	-	-	-	3	21.3	2.5	-	-	-
100	4	23.5	1.9	-	-	-	3	23.1	2.0	-	-	-

Attenzione: Contattare il ns. servizio tecnico
Attention: Please, contact our technical office.

Modello Model	Poli Poles	Fasi Phases	Tensione nominale Rated voltage	Velocità nominale Rated speed	Coppia nominale Rated torque	Potenza nominale Rated power	Coppia di picco Peak torque	Corrente nominale Rated current	Corrente di picco Peak current	Resistenza fase-fase Line to line resistance	Induttanza fase-fase Line to line inductance	Costante di coppia Torque constant	Costante FCEM Back EMF	Inerzia rotore Rotor inertia	Peso Weight
			[V]	[min ⁻¹]	[Nm]	[W]	[Nm]	[A]	[A]	[Ω]	[mH]	[Nm/A]	[V/kRPM]	[gcm ²]	[kg]
BL070.48.80	8	3	48	4350	0.7	320	2.1	12	36	0.072	0.304	0.059	6.15	1000	1.8
			24	2500		185									

Dati tecnici del freno Brake features	Descrizione Description
Tensione Voltage	24 V / 48 V
Coppia Torque	2 Nm
Potenza Power	9.6 W

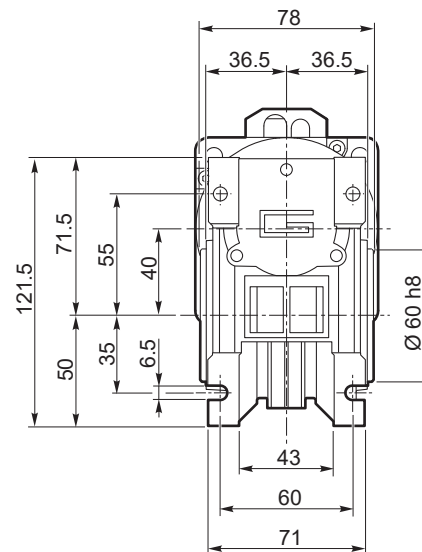
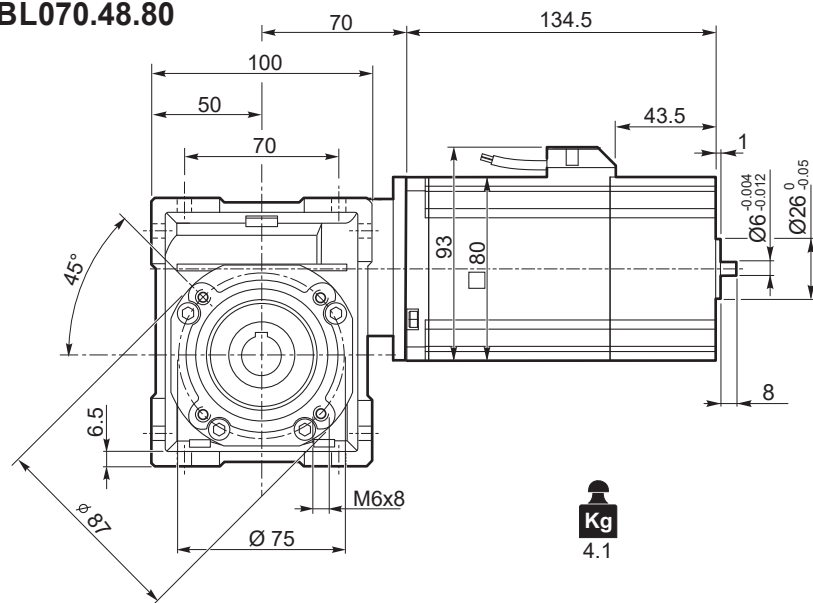
Caratteristiche Encoder Encoder specifications	
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)



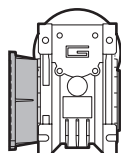
CM040 con motore BLDC

CM040 with BLDC motor

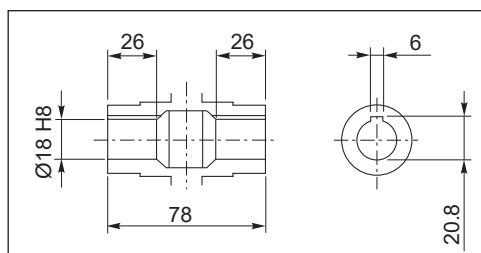
CM040..U
+
BL070.48.80



D12

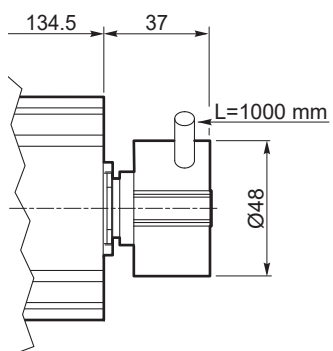


CM040.. F
CM040.. FL
CM040.. FB

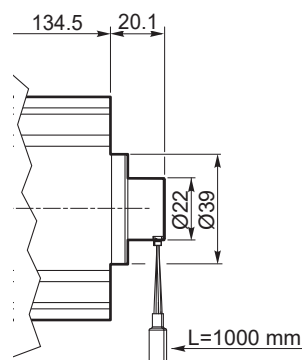


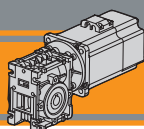
Albero lento cavo / Hollow output shaft

BL070.48.80 + ENCODER HREA 48



BL070.48.80 + ENCODER MEHR 22





CM050 con motore BLDC

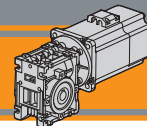
CM050 with BLDC motor

CM050	BL200.48.95											
	48V						24V					
	n _{1MIN} = 300 [rpm]			n _{1MAX} = 3000 [rpm]			n _{1MIN} = 150 [rpm]			n _{1MAX} = 1500 [rpm]		
	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf	n _{2MIN} [rpm]	M ₂ [Nm]	sf
5	60	8.4	16.1	600	9.2	5.7	30	8.4	17.9	300	9.0	8.3
7.5	40	12.1	11.6	400	13.5	4.2	20	11.9	13.2	200	13.1	6.1
10	30	15.4	9.2	300	17.6	3.4	15	15.2	10.2	150	17.0	4.8
15	20	21.6	6.4	200	25.8	2.4	10	21.6	7.5	100	24.6	3.3
20	15	26.9	4.7	150	33.6	1.6	8	27.2	5.0	75	31.6	2.3
25	12	31.7	3.6	120	41.0	1.2	6	32.0	3.8	60	38.0	1.8
30	10	34.6	4.3	100	46.8	1.4	5	34.8	4.7	50	43.2	2.0
40	7.5	42.2	3.0	75	59.2	1.0	4	42.4	3.2	38	53.6	1.4
50	6	48.0	2.5	-	-	-	3	48.0	2.6	30	63.0	1.1
60	5	53.0	2.0	-	-	-	3	52.8	2.1	25	72.0	1.0
80	4	61.4	1.5	-	-	-	2	60.8	1.6	-	-	-
100	3	67.2	1.3	-	-	-	-	-	-	-	-	-

Modello Model	Poli Poles	Fasi Phases	Servizio Service	Tensione nominale Rated voltage	Velocità nominale Rated speed	Coppia nominale Rated torque	Potenza nominale Rated power	Coppia di picco Peak torque	Corrente nominale Rated current	Corrente di picco Peak current	Resistenza fase-fase Line to line resistance	Induttanza fase-fase Line to line inductance	Costante di coppia Torque constant	Costante FCEM Back EMF	Inerzia rotore Rotor inertia	Peso Weight
				[V]	[min ⁻¹]	[Nm]	[W]	[Nm]	[A]	[A]	[Ω]	[mH]	[Nm/A]	[V/kRPM]	[gcm ²]	[kg]
				48	3000	2.0	650	6	23	69	0.077 +/- 15%	0.228	0.091	6.7 +/- 10%	2820	6
BL200.48.95	8	3	S1	24	1500		300									

Dati tecnici del freno Brake features	Descrizione Description
Tensione Voltage	48 V / 24 V
Coppia Torque	6 Nm
Potenza Power	13.8 W

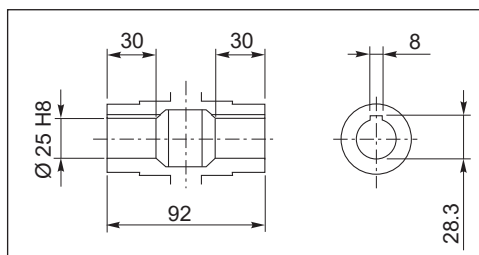
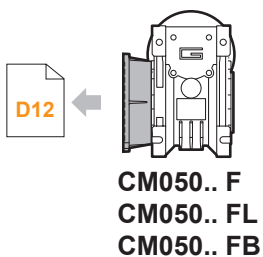
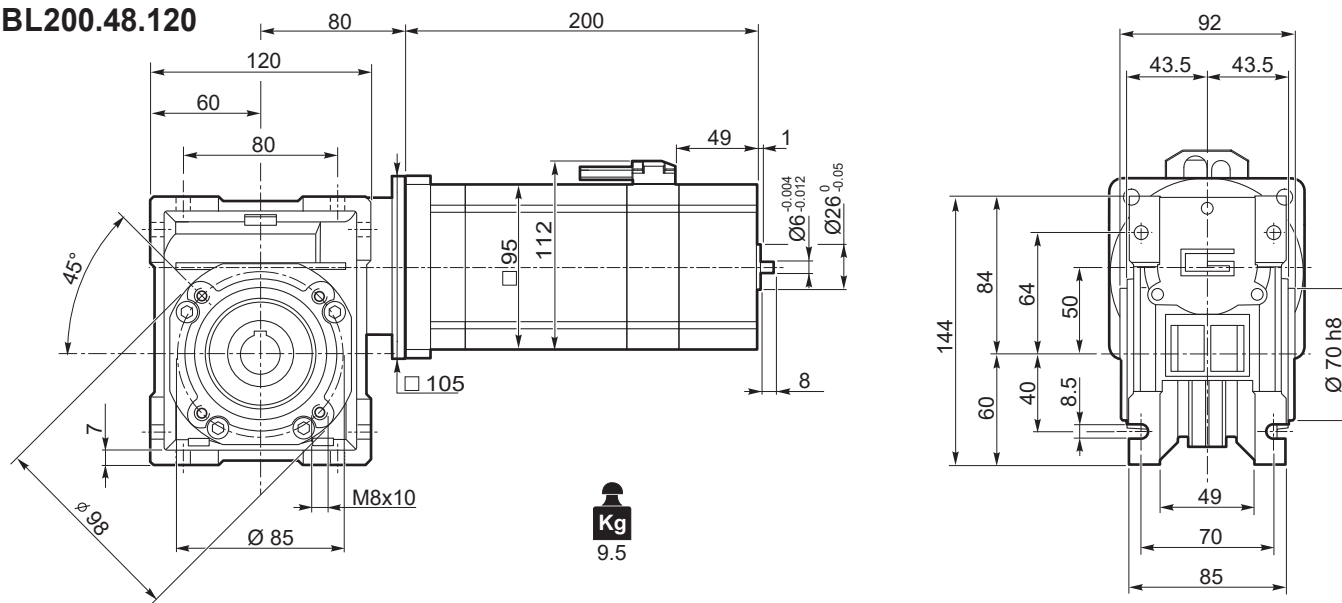
Caratteristiche Encoder Encoder specifications	
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)



CM050 con motore BLDC

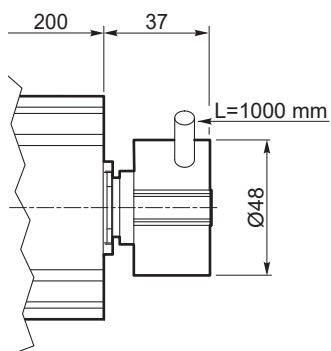
CM050 with BLDC motor

CM050..U + BL200.48.120

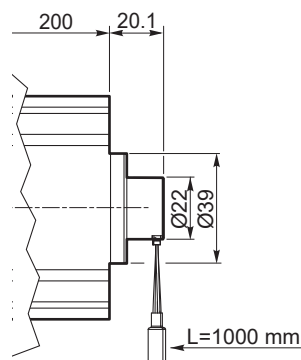


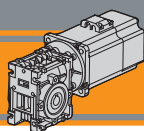
Albero lento cavo / Hollow output shaft

BL200.48.95 + ENCODER HREA 48



BL200.48.95 + ENCODER MEHR 22

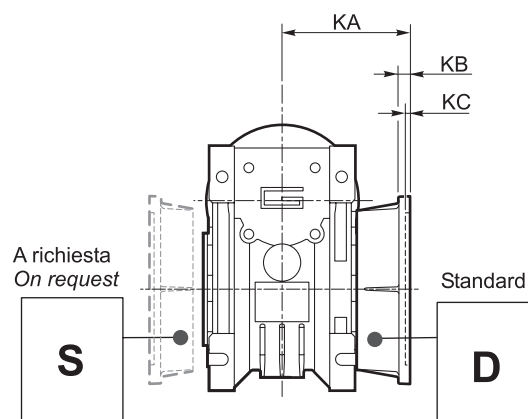
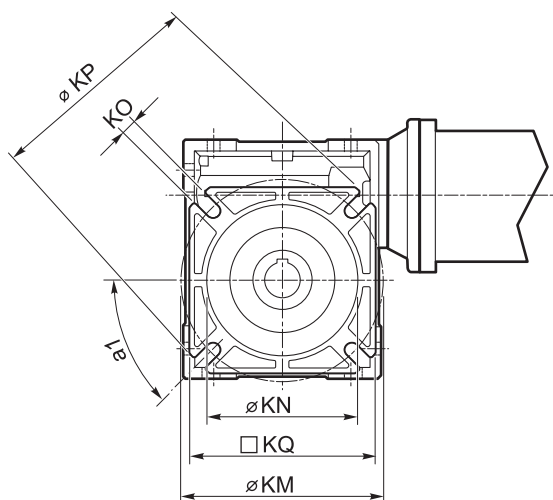




Dimensioni flange uscita

Output flange dimensions

CM.../... F... Flange uscita / Output flanges

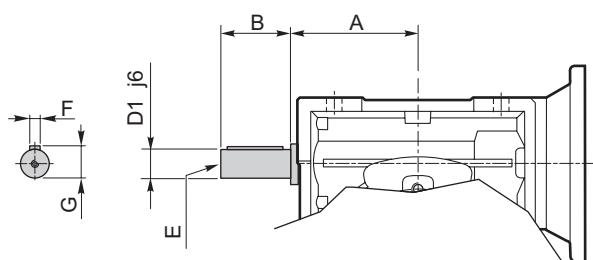


CM	CM..F									CM..FB								CM..FL							
	a1	KA	KB	KC	KM	KN H8	KO	KP	KQ	KA	KB	KC	KM	KN H8	KO	KP	KQ	KA	KB	KC	KM	KN H8	KO	KP	KQ
030	45°	54.5	6	4	68	50	6.5(n.4)	80	70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
040	45°	67	7.5	4	80-95	60	9(n.4)	110	95	80	8.5	5	115-125	95	9.5(n.4)	140	112	97	7.5	4.5	80-95	60	9(n.4)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

Opzioni

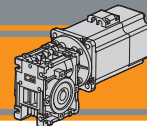
Options

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

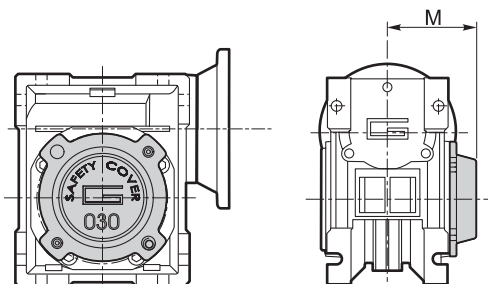
Costruito su richiesta
Built on request



Opzioni

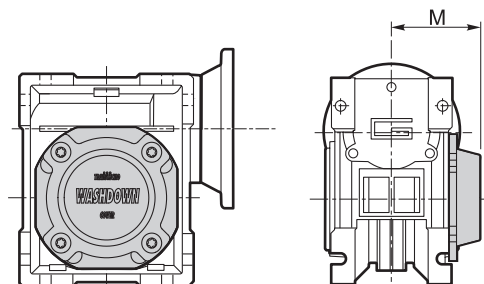
Options

SC - Safety cover



	M
CM 030	47
CM 040	54.5
CM 050	62.5

WD - Kit washdown cover



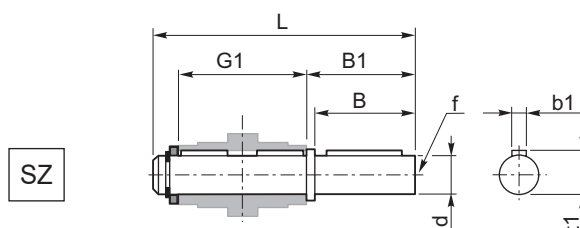
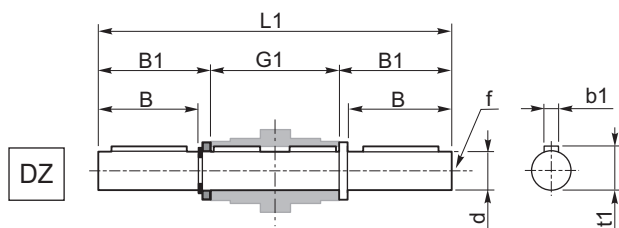
	M
CM 030	48
CM 040	55.5
CM 050	63.5

Accessori

Accessories

Albero lento

Output shaft

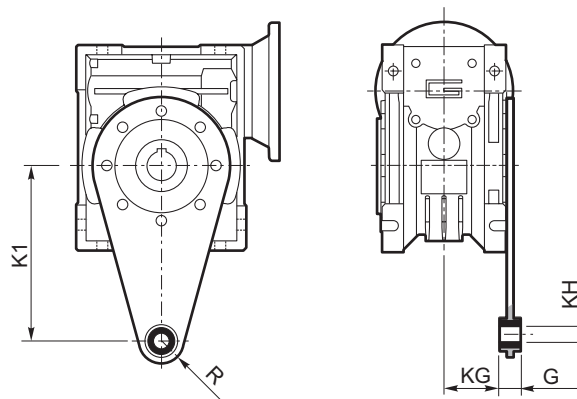


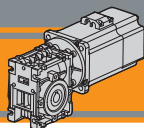
	d h7	B	B1	G1	L	L1	f	b1	t1
CM 030	14	30	32.5	63	102	128	M6	5	16
CM 040	18	40	43	78	128	164	M6	6	20.5
CM 050	25	50	53.5	92	153	199	M10	8	28

Braccio di reazione

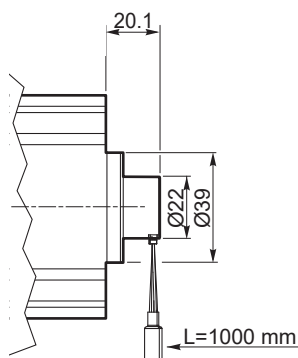
Torque arm

	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



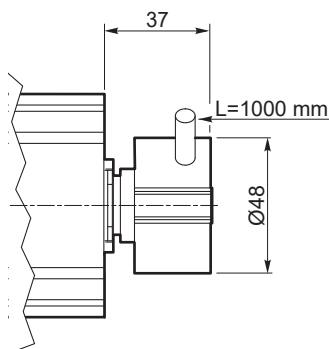


ENCODER MEHR 22



Caratteristiche Encoder Encoder specifications	MEHR 22
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line Driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)

ENCODER HREA 48



Caratteristiche Encoder Encoder specifications	HREA
Potenza alimentazione e tipo di uscita Power supply and output type	5 V
Circuito di uscita Output circuit	Line - driver / TTL / RS-422
Risoluzione Resolution	2000 CPR
Numero di canali Number channels	ABI - (/A/B/I) - UVW - (/U/V/W)

**INTECNO SRL**

Via Caduti di Sabbiuno, 9/E
40011 Anzola dell'Emilia (BO)
ITALY
T +39 051 19 98 53 50
F +39 051 19 98 53 60
info@intecno-srl.com
www.intecno-srl.com

INTECNO

power transmissions

MEMBER OF INTERPUMP GROUP



MA TRANSTECNO S.A.P.I. DE C.V.
Av. Mundial # 176, Parque Industrial
JM Apodaca, Nuevo León,
C.P. 66600 - MÉXICO
T +52 8113340920
info@transtecno.com.mx
www.transtecno.com.mx



**TRANSTECNO IBÉRICA
THE MODULAR GERMOTOR, S.A.**
C/Enginy, 2 Nave 6
08850 Gavà (Barcelona) - SPAIN
T +34 931 598 950
info@transtecno.es
www.transtecno.es



TRANSTECNO B.V.
De Stuwdam, 43
3815 KM Amersfoort - NETHERLANDS
T +31(0) 33 45 19 505
F +31(0) 33 45 19 506
info@transtecno.nl
www.transtecno.nl



TRANSTECNO AANDRIJFTECHNIEK B.V.
De Stuwdam 43
3815 KM Amersfoort - NETHERLANDS
T +31 (0) 33 20 4 7 006
info@transtecnoaandrijftechniek.nl
www.transtecnoaandrijftechniek.nl



TRANSTECNO USA
8 Creek Parkway,
Boothwyn PA 19061-8136
UNITED STATES
T +1 (610) 4970154
F +1 (610) 497 6085

14561 Frylands Blvd SE
Monroe, WA 98272 - UNITED STATES
T +1 360-863-1300
F +1 360-863-1303
usaoffice@transtecno.com
www.transtecno.com



TRANSTECNO CANADA
51 B Caldari Road Unit 10
Vaughan, ON L4K 4G3 - CANADA
T +1 905 761 0762
F +1 905 761 9265
canadaoffice@transtecno.com
www.transtecno.com



TRANSTECNO CHILE-PERU
Av. Los Libertadores 41
Parque Industrial - Los Libertadores 16.500
Santiago, Colina - CHILE
T +56 2 29633870

Carretera Panamericana Sur KM 29.5,
Interior I-3, Z.I. Lurin - PERU
T +51 1 3546259 / + 51 1 3434231
chileoffice@transtecno.com
www.transtecno.com



SALES OFFICE BRAZIL
Rua Dr. Freire Alemão 155 / 402 - CEP. 90450-060
Auxiliadora Porto Alegre RS - BRAZIL
T +55 51 3251 5447
F +55 51 3251 5447
M +55 51 811 45 962
braziloffice@transtecno.com
www.transtecno.com.br



SALES OFFICE OCEANIA
44 Northview drive, Sunshine west 3020
Victoria - AUSTRALIA
T +61 03 9312 4722
F +61 03 9312 4714
M +61 0438060997
oceaniaoffice@transtecno.com
www.transtecno.com.au



SALES OFFICE INDIA
Woodbine 2003/04, Everest World
Kolshet Road, Thane west Mumbai 400607
INDIA
T +91 982 061 46 98
indiaoffice@transtecno.com
www.transtecno.com



SALES OFFICE SOUTH KOREA
772-41, Bongdong-ro, Bongdong-eup, Wanju-goon
Chonbuk, 55313
SOUTH KOREA
T +82 70 8867 8897
F +82 504 199 2107
M +82 10 5094 2107
koreaoffice@transtecno.com
www.transtecno.com

www.intecno-srl.com
www.transtecno.com