Series DRCS drives for Stepper motors

SERIES DRCS DRIVES FOR STEPPER MOTORS

One-size full digital drives with WLAN system and NFC integrated

» **Full digital drive with integrated PLC functions**

» **Programmable with the Camozzi QSet configuration software**

» **Feedback by incremental encoder**

» **NFC (Near Field Communication) system enabled**

» **127 programmable positions (setting, acceleration, speed and position)**

» **Wire configuration by means of USB 2.0 and WLAN BL-BLE**

» **Can be controlled in frequency (step and direction), digital I/O and serial CANopen protocol**

Series DRCS drives, compact and optimised in one size, are capable of controlling all Camozzi Stepper motors with two-phase and micro-stepping feed. The use of the micro-stepping control technology (up to 1/16 of a step) enables the drive to almost replicate a sinusoidal current while considerably reducing the natural resonance of the motor itself.

Series DRCS drives can calculate the normal resonance frequency of the motors and optimise their performance. The availability of eight inputs allows the realisation of a table of 127 commands, for each of which it is possible to set position, speed, acceleration and deceleration.
Each command can be absolute or relative. Through the Step and Direction commands, it is possible to control the drive in frequency mode. The frequency defines the speed, while the number of steps defines the position. The Series DRCS drives are equipped with serial protocols CANopen CiA 301 and CiA 402 through which it is possible to perform motion control and condition monitoring of the drive. To configure the drive, wired USB 2.0 or WLAN connections can be used. Thanks to an innovative system that takes advantage of Near Field Communication (NFC) technology, it is possible to extract production and statistical data on the use of the drive, which are essential parameters for industry 4.0.

GENERAL DATA

SUPPLY VOLTAGE	
Logic	18 ÷ 32 V DC
Power	24 ÷ 60 V DC
CURRENT	
Current	0.1 ÷ 7 A
Holding current	Automatic reduction of the holding current with motor in stop mode, this function can be set according to the holding current or its delay
AMBIENT	
Operating temperature	0 ÷ 40°C (up to 55°C with forced ventilation)
Storage temperature	-20°C ÷ 70°C
Humidity	0 ÷ 90%
Altitude	< 1000 meters
Vibration	1G (10 to 500 Hz)
Protection	Overvoltage, minimum voltage, overtemperature, short-circuit or grounding on the motor
Control method	4 state PWM 20kHz
Amplification type	Dual H-Bridge, 4 Quadrants
Position control encoder	100 to 5000 differential impulses / revolution
DIGITAL I/O	
Input control signal	12 opto-isolated 24 V DC
Output control signal	6 opto-isolated
Input impulse control	Step inlet and frequency direction maximum 10kHz
Output control signal	Electromechanical brake max current 1A
COMMUNICATION INTERFACE	
USB	USB 2.0
WLAN	BL-BLE
RFID	with NFC devices
CANopen	CiA 301 and CiA 402 (interpolated position mode)
Microstep emulation	High resolution by means of microstepping and a detailed synchronization. Reduction of oscillations and of resonance vibrations
Anti-Resonance	Activation of the oscillation system in order to reduce vibrations and obtain a smooth movement, control of speed and a reduction of the time of oscillation
Led status	green led
Configuration	Digital with the Camozzi QSet configuration software
Control methods	Digital inputs Frequency CANopen
MEMORY	
Data retention memory	Flash
Configuration data backup memory	E²prom
Weight	0.46 kg

Products designed for industrial applications.
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CODING EXAMPLE

DRCS	-	A05	-	8	-	D	-	0	-	A

|	
DRCS	SERIES
A05	SIZE AT MAX CURRENT: A05 = 7A
8	SUPPLY: 8 = 48 V DC
D	COMMUNICATION: D = Digital I/O and impulse frequency C = CANopen, Digital I/O and impulse frequency
0	FEEDBACK: 0 = Feedback
A	VERSIONS: A = standard B = WLAN BL-BLE

Series DRCS drives

For the Camozzi Stepper motors
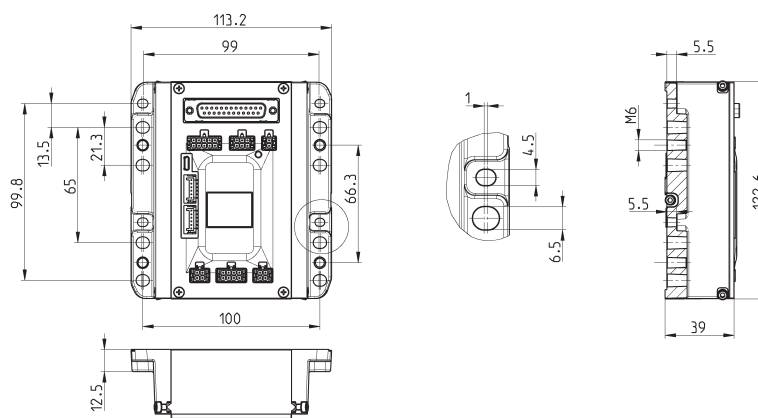
| Mod.	Max current	Logic supply	Power supply	Communication	Versions
DRCS-A05-8-D-0-A	7 A	24 V DC	24 ÷ 48 V DC	Digital I/O and impulse frequency	standard
DRCS-A05-8-C-0-A	7 A	24 V DC	24 ÷ 48 V DC	CANopen, Digital I/O and impulse frequency	standard
DRCS-A05-8-D-0-B	7 A	24 V DC	24 ÷ 48 V DC	Digital I/O and impulse frequency	WLAN BL-BLE
DRCS-A05-8-C-0-B	7 A	24 V DC	24 ÷ 48 V DC	CANopen, Digital I/O and impulse frequency	WLAN BL-BLE

Motor cable for Series DRCS drive with brake
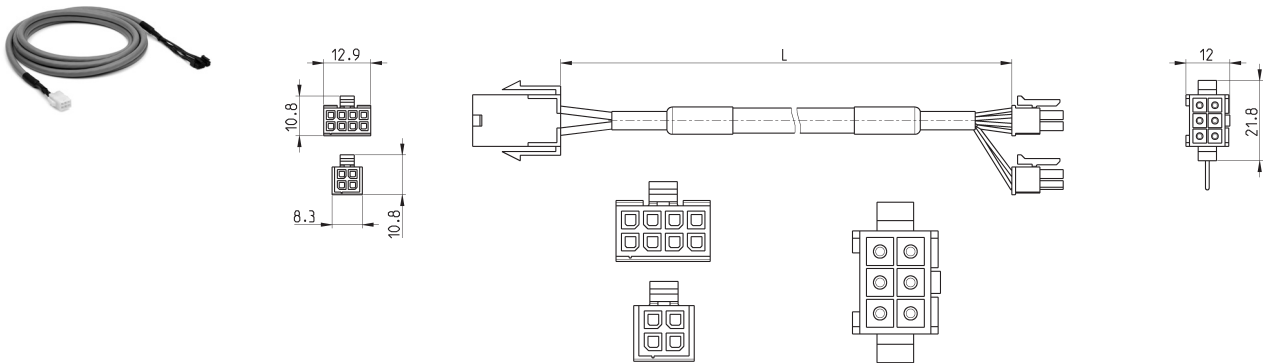
Mod.	Motor	Brake	Pins	L = cable (m)
EC-210A22-B300	Stepper	X	6	3
EC-210A22-B500	Stepper	X	6	5
EC-210A22-BA00	Stepper	X	6	10

Motor cable for Series DRCS drive without brake
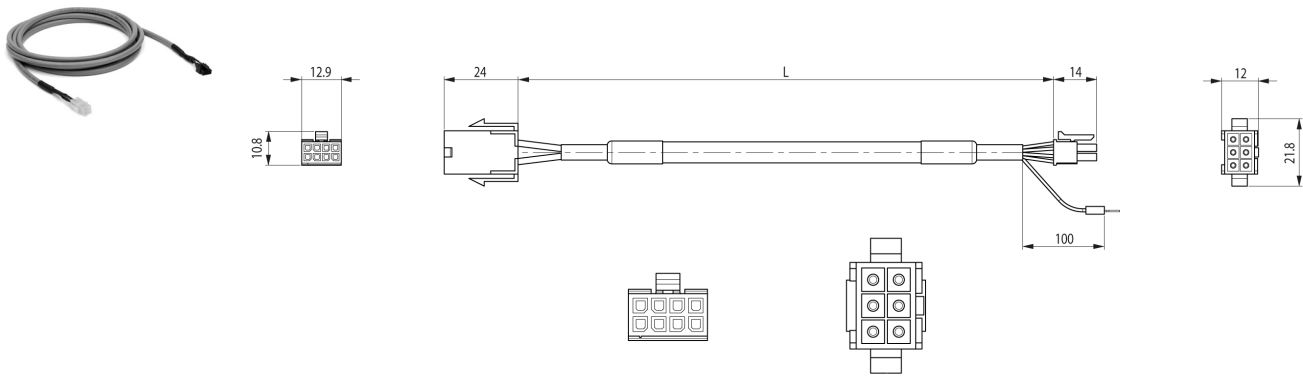
Mod.	Motor	Brake	Pins	L = cable (m)
EC-200A22-B300	Stepper	-	4	3
EC-200A22-B500	Stepper	-	4	5
EC-200A22-BA00	Stepper	-	4	10

Motor cable for Series DRCS drive without brake (Nema 34 only)
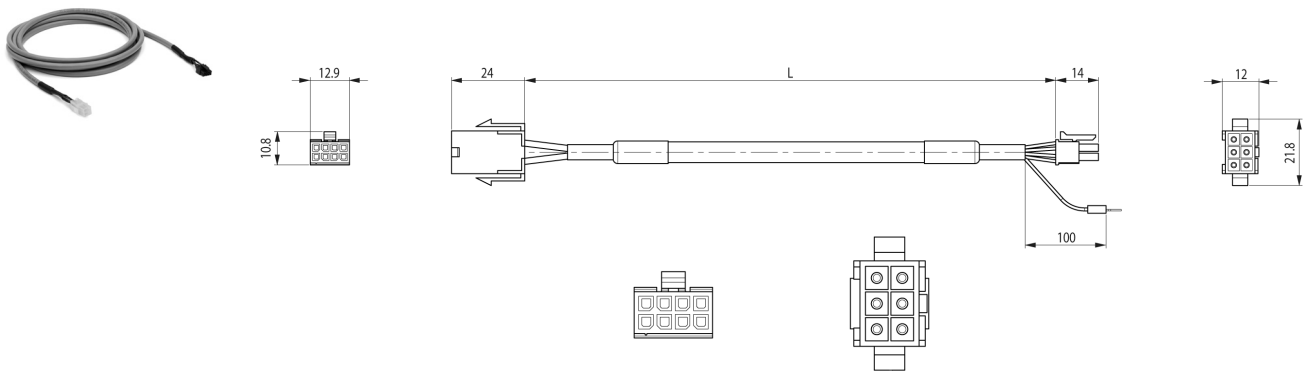
Mod.	Motor	Brake	Pins	L = cable (m)
EC-200522-B300	Stepper	-	5	3
EC-200522-B500	Stepper	-	5	5
EC-200522-BA00	Stepper	-	5	10

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SERIES DRCS DRIVES FOR STEPPER MOTORS

Encoder cable for Series DRCS drive
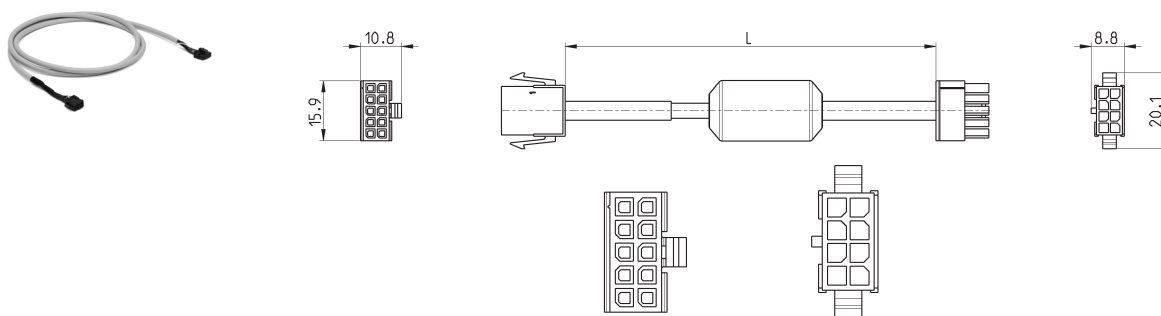
Mod.	Motor	Brake	Pins	L = cable (m)
EC-220A22-B300	Stepper	-	8	3
EC-220A22-B500	Stepper	-	8	5
EC-220A22-BA00	Stepper	-	8	10

Cable for Series DRCS drive logic supply
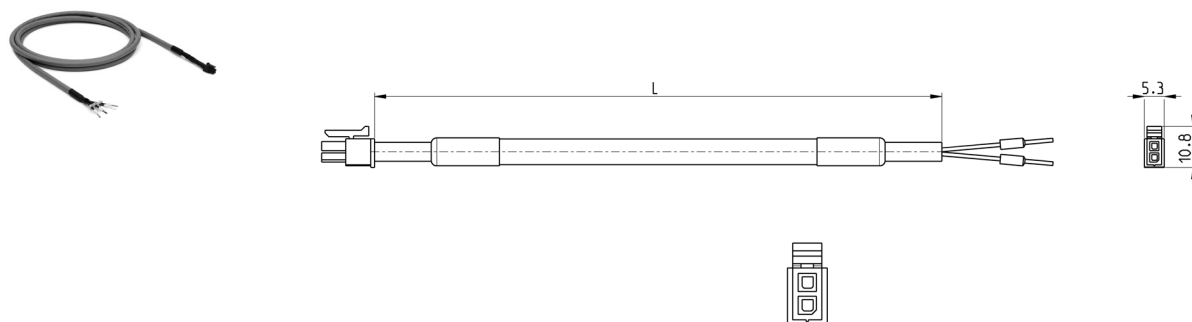
Mod.	Motor	Brake	Pins	L = cable (m)
EC-140222-A200	-	-	2	2

Cable for Series DRCS drive power supply
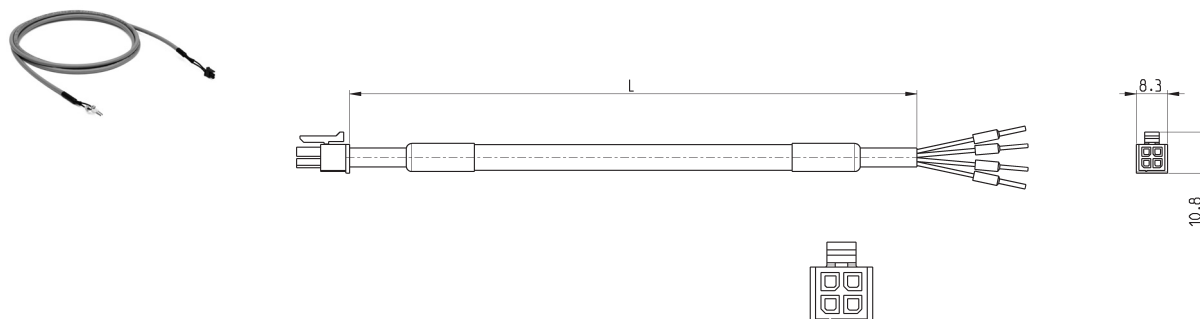
Mod.	Motor	Brake	Pins	L = cable (m)
EC-230422-A200	-	-	4	2

Cable for Series DRCS drive CANopen
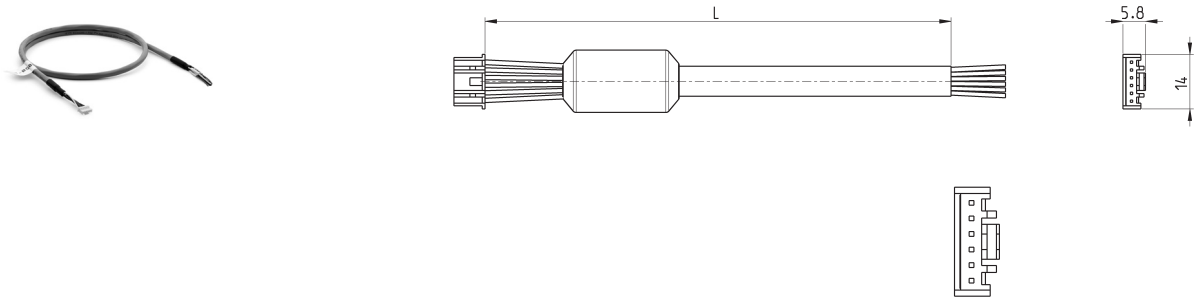
Mod.	Motor	Brake	Pins	L = cable (m)
EC-050522-A100	-	-	6	1
EC-050522-A300	-	-	6	3
EC-050522-A500	-	-	6	5

Cable for Series DRCS drive CANopen expansion
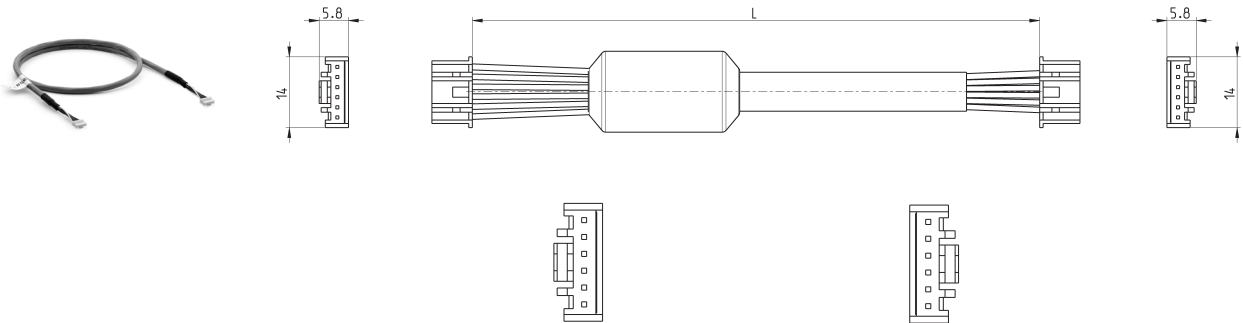
Mod.	Motor	Brake	Pins	L = cable (m)
EC-0130422-A030	-	-	6	0.3

CAN terminating resistor for Series DRCS drives

Mod.	Motor	Brake	Pins	L = cable (m)
EC-060623	-	-	6	-

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Multipole I/O cable 25P M
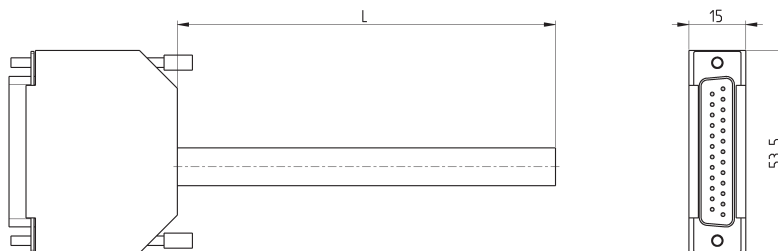
Mod.	Motor	Brake	Pins	L = cable (m)
G2W-1	-	-	25	1
G2W-3	-	-	25	3

USB to Micro USB cable Mod. G11W-G12W-2
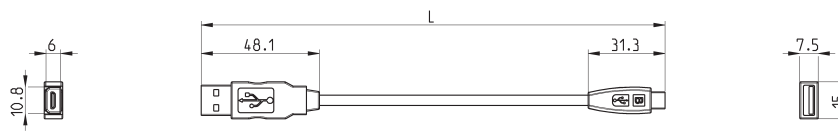
Mod.	description	connections	material for outer sheath	cable length "L" (m)
G11W-G12W-2	black shielded cable 28 AWG	standard USB to Micro USB	PVC	2

Mounting brackets for DIN rail
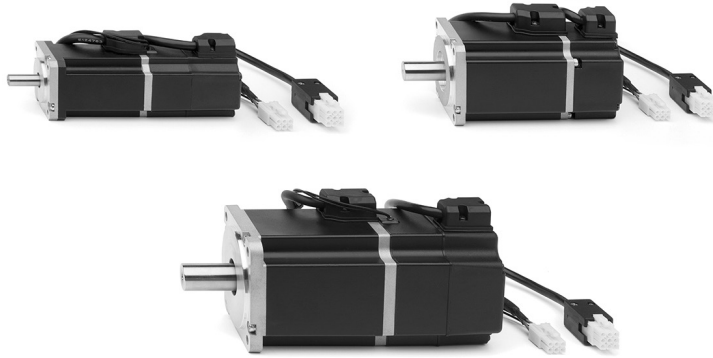
DIN EN 50022 (mm 7,5 x 35 - width 1)

Supplied with:
2x plates
2x screws M4x6 UNI 5931
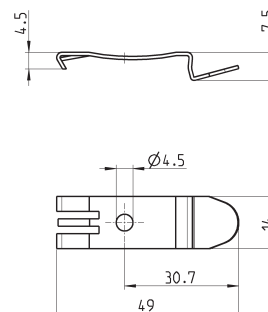
Mod.
PCF-E520

Series MTB motors for electric actuation

Brushless motors in power classes 100, 400, 750, 1000 W

4.30.01

» Low inertia motors

» Available with or without brake

» With incremental 13 bit encoder

» Different sizes or power classes available

» IP65 version available

The standard motors are equipped with a 13 bit encoder with 10,000 increments per cycle and are offered with or without a motor brake. Due to the high dynamics of these motors, it is possible to guarantee a constant torque at any speed.
Due to the low mass inertia, they are particularly suitable for high work dynamics, like sudden changes in direction or high moving frequencies.

The Camozzi motors Series MTB have been designed to be connected in an easy and practical way to the new product range within electrical actuation, being able to drive both electromechanical cylinders and axes.
The Series MTB of synchronous AC Brushless motors is available with a power of 100, 400, 750, 1000 W.

GENERAL DATA

Power	100 W (Mod. MTB-010-...) 400 W (Mod. MTB-040-...) 750 W (Mod. MTB-075-...) 1000 W (Mod. MTB-100...)
Type of motor	permanently excited synchronous servo motor
Magnet	Neodymium, iron and boron (NdFeB)
Housing	Aluminium
Colour	black
Protection class: motor 　　　　　　　on the shaft 　　　　　　　connector	IP65 IP40 IP20
Insulation class	class A
Shaft end	no machining
Nominal torque	0.32 Nm (100 W) - 1.27 Nm (400 W) - 2.4 Nm (750 W) - 4.77 Nm (1000 W)
Peak torque	3 × nominal torque
Braking torque (only for motors with brake)	0.32 Nm (100 W) - 1.27 Nm (400 W) - 2.4 Nm (750 W) - 4.77 Nm (1000 W)
Service life	> 20.000 h (at nominal load)
Motor connection Encoder connection	cable (300 mm) available out of the motor cable (300 mm) available out of the encoder (motors with 1 KW power are equipped with an outgoing motor connector)
Cooling	with an integrated radiator
Thermal monitoring	not available
Encoder	incremental 13-bit TTL encoder, 10 000 pulses/revolution
Ambient temperature Storage temperature	0°C ÷ 40°C −15°C ÷ 70°C
Air humidity	up to 80% of relative air humidity
Max. installation height	at below 1000 metres above sea level

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CAMOZZI
Automation

SERIES MTB MOTORS

CODING EXAMPLE

MTB	-	010	-	2	-	0	-	E

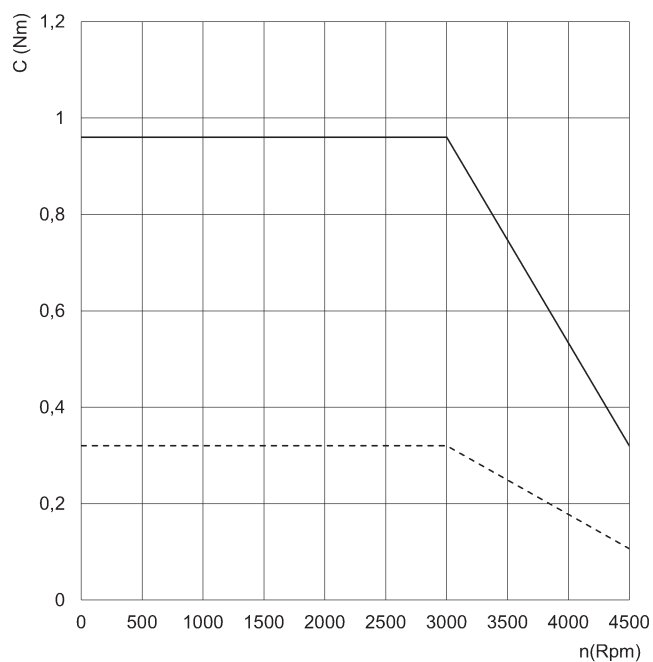| MTB	SERIES
010	POWER: 010 = 100 W 040 = 400 W 075 = 750 W 100 = 1000 W
2	SUPPLY: 2 = 220 V DC
0	BRAKE: 0 = without brake F = with brake
E	ENCODER: E = incremental 13 bit
	VERSION: = Standard P = IP65

Series MTB Brushless motors - dimensions

Supplied with:
1 motor
4 screws
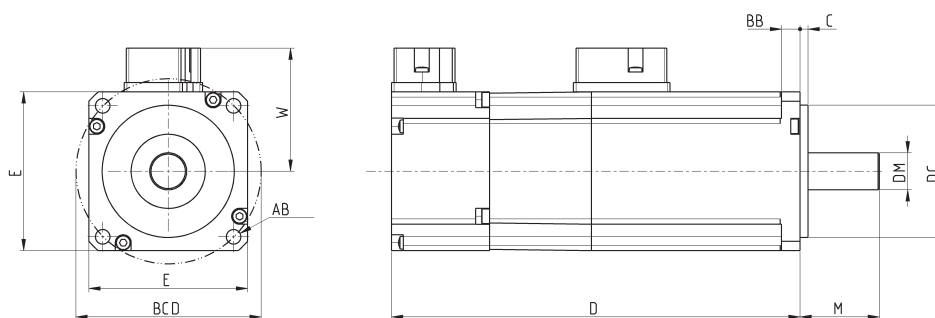
Mod.	Power	torque constant	voltage constant	D	E	W	⌀DM(h6)	M	⌀DC	C	BCD	⌀AB	BB	L cables	J (Kgcm²)	Weight (kg)
MTB-010-2-0-E	100 W	0,356 Nm/Arms	21,98 Vrms/krpm	110.5	42	32	8	25	30 f7	2.5	45	3.4	12	300± 10	0,36	0.63
MTB-010-2-0-EP	100 W	0,356 Nm/Arms	21,98 Vrms/krpm	110.5	42	32	8	25	30 f7	2.5	45	3.4	12	300± 10	0,36	0.75
MTB-010-2-F-E	100 W	0,356 Nm/Arms	21,98 Vrms/krpm	139	42	32	8	25	30 f7	2.5	45	3.4	12	300± 10	0,38	0.76
MTB-010-2-F-EP	100 W	0,356 Nm/Arms	21,98 Vrms/krpm	139	42	32	8	25	30 f7	2.5	45	3.4	12	300± 10	0,38	0.9
MTB-040-2-0-E	400 W	0,51 Nm/Arms	31,9 Vrms/krpm	121.5	60	46.5	14	30	50 h7	3	70	5.5	7.5	300± 10	0,27	1.31
MTB-040-2-0-EP	400 W	0,51 Nm/Arms	31,9 Vrms/krpm	121.5	60	46.5	14	30	50 h7	3	70	5.5	7.5	300± 10	0,27	1.4
MTB-040-2-F-E	400 W	0,51 Nm/Arms	31,9 Vrms/krpm	159	60	46.5	14	30	50 h7	3	70	5.5	7.5	300± 10	0,31	1.86
MTB-040-2-F-EP	400 W	0,51 Nm/Arms	31,9 Vrms/krpm	159	60	46.5	14	30	50 h7	3	70	5.5	7.5	300± 10	0,31	1.95
MTB-075-2-0-E	750 W	0,47 Nm/Arms	28,4 Vrms/krpm	140	80	56.5	19	40	70 f6	3	90	6.6	9	300± 10	1,4	2.66
MTB-075-2-0-EP	750 W	0,47 Nm/Arms	28,4 Vrms/krpm	140	80	56.5	19	40	70 f6	3	90	6.6	9	300± 10	1,4	2.75
MTB-075-2-F-E	750 W	0,47 Nm/Arms	28,4 Vrms/krpm	176	80	56.5	19	40	70 f6	3	90	6.6	9	300± 10	1,46	3.32
MTB-075-2-F-EP	750 W	0,47 Nm/Arms	28,4 Vrms/krpm	176	80	56.5	19	40	70 f6	3	90	6.6	9	300± 10	1,46	3.45
MTB-100-2-0-EP	1000 W	0,94 Nm/Arms	54,7 Vrms/krpm	141	130	113	24	55	110	3	145	9	12	-	7,6	5.8
MTB-100-2-F-EP	1000 W	0,94 Nm/Arms	54,7 Vrms/krpm	175	130	113	24	55	110	3	145	9	12	-	8,7	7.7

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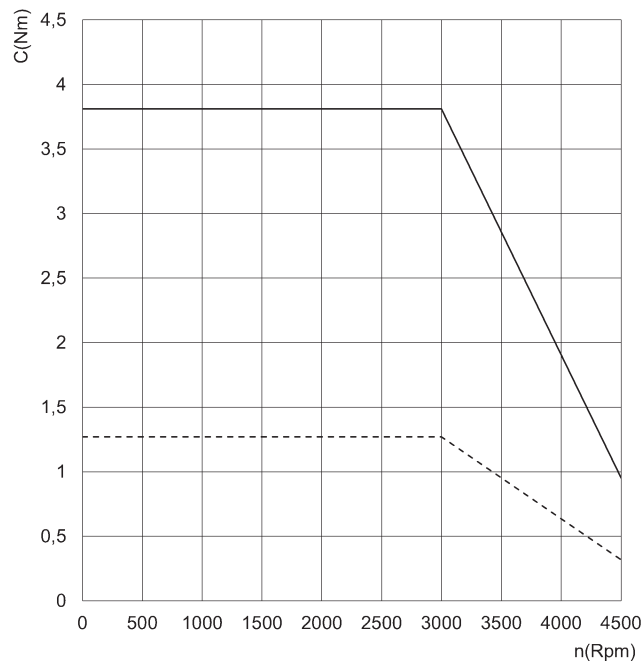
Torque-speed curves

MTB-010..

C = torque
n = number of revolutions per minute

The continuous line represents the peak torque of the motor.

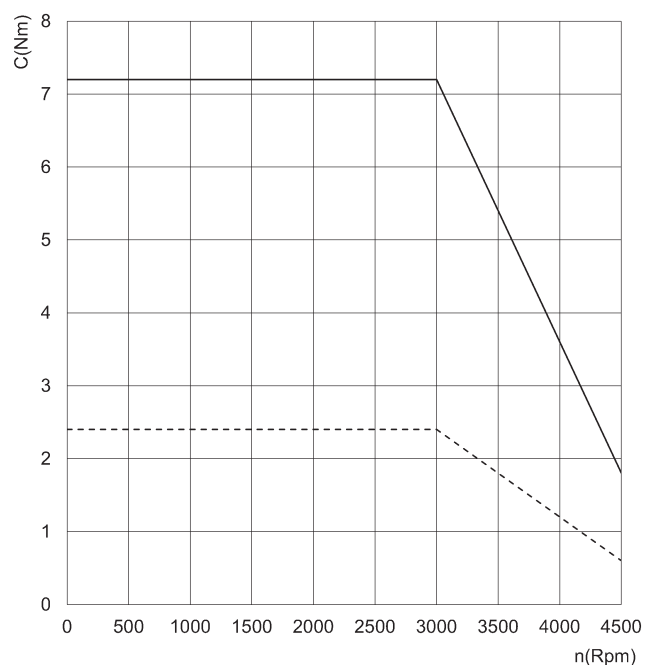The dashed line represents the nominal torque of the motor.

MTB-040..

C = torque
n = number of revolutions per minute

The continuous line represents the peak torque of the motor.

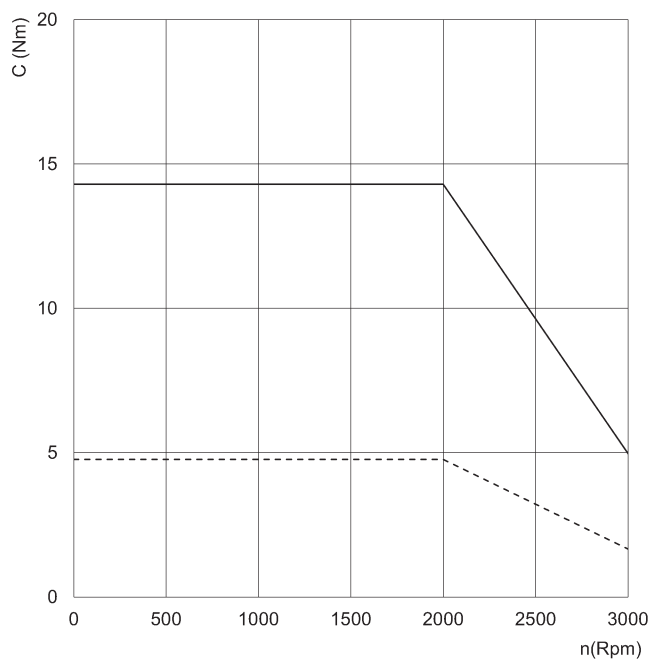The dashed line represents the nominal torque of the motor.

MTB-075..

C = torque
n = number of revolutions per minute

The continuous line represents the peak torque of the motor.

The dashed line represents the nominal torque of the motor.

MTB-100..

C = torque
n = number of revolutions per minute

The continuous line represents the peak torque of the motor.

The dashed line represents the nominal torque of the motor.

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