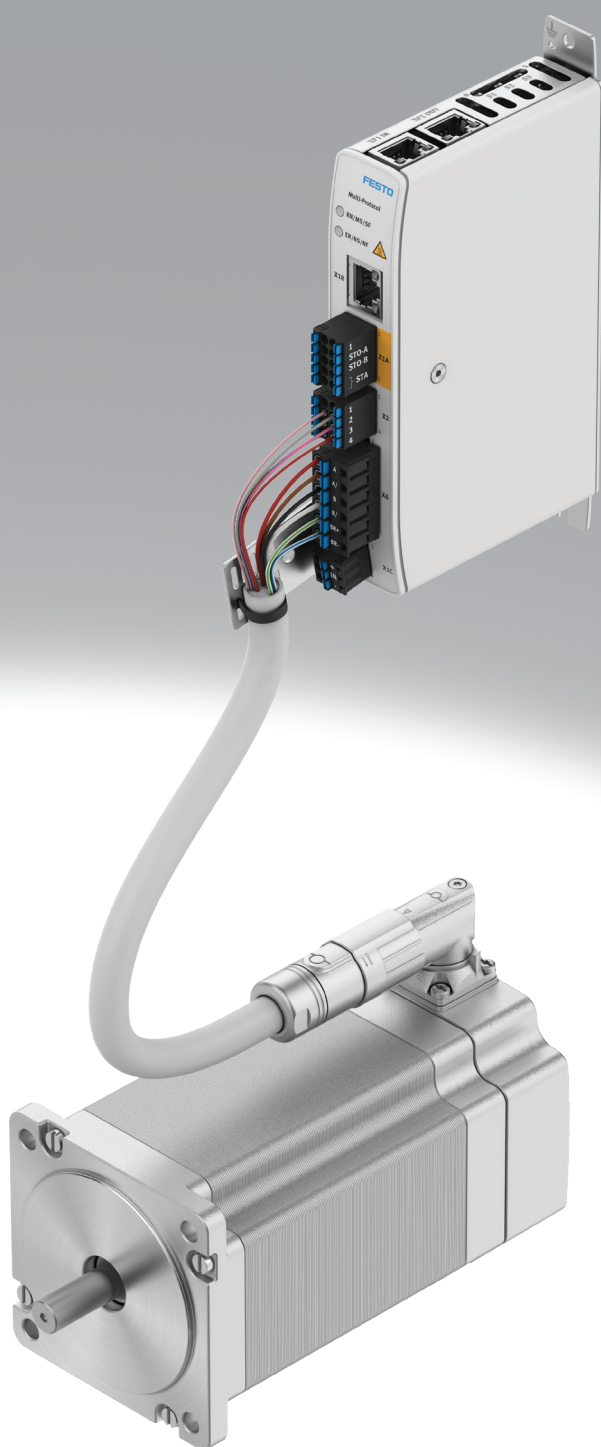


Advanced Servo Technology for High-Precision, Low-Power, and Space-Optimized Automation Systems

FESTO



Drive precision and performance in every motion with our Improved Stepper Motor Drive (CMMT-ST)

A perfect choice for improving efficiency, accuracy, and adaptability in diverse automation applications across multiple industries with New Stepper Technologies

Compact servo drive for operating stepper motors and brushless DC motors

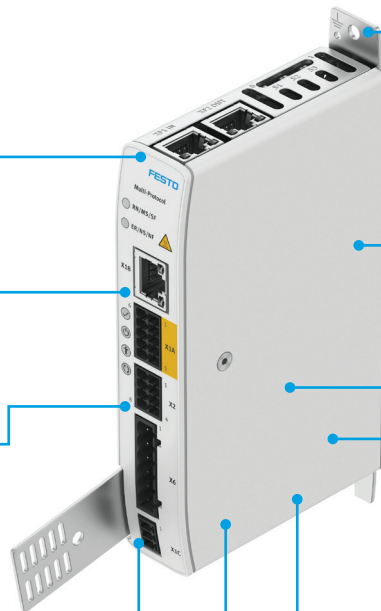
Safety function

- Safe torque off (STO) - up to SIL3/Cat. 3 PL e

EMC-fin to **connect the shielding** of the encoder- and motor-cables

Boost productivity with Smart Engineering tools that optimise systems and efficiency at every project phase

- Electric Motion Sizing (EMS)
- Festo Automation Suite (FAS)



Auto-tuning supports easy commissioning of rotary and linear motion

Support High motor current
8A (peak 20A)

Enables point-to-point, interpolating movements, and precise positioning

Data monitoring with integrated webserver

Sustainable operation with energy management strategy

EtherCAT  EtherNet/IP  Modbus  PROFINET 

Easily integrated into various fieldbus systems
in one single drive

CMMT-ST-MP in Action | Application concepts



Food and Beverage

Ensures precise, waste-free liquid dispensing by controlling filling heads, maintaining accurate portioning and flow rates.



Automated assembly lines

Enhances automated assembly lines by providing precise motion control, improving accuracy, speed, and flexibility.



Material Handling

Delivers precise control over conveyors and robotic arms, increasing accuracy and efficiency in tasks such as picking, placing, and sorting.

Experience precision, quiet and affordability with our new extra low voltage motor (EMMT)

A key feature technology is the true servo operation with field weakening function to improve the performance of the motor

Stepper Motor with Closed loop Control

Absolute Encoder (Biss-C) single or multi-turn encoder that
Do Not require battery

Compact design

With cable connector pivotable,
Suitable for applications with
limited space requirements

Flexible mounting options,
allowing **seamless integration**
into various automation setups

Better Cable Range

Support max cable length up to
25M

Simple connection technology

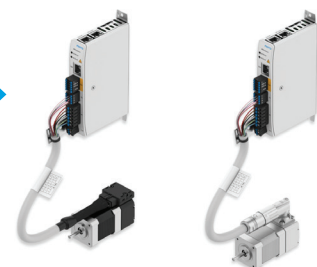
one cable plug with hybrid cable
solution

Compatibility with servo drive controller CMMT-ST-MP

Offers enhanced control and
programming features for efficient
operation and optimisation of
stepper motors

Streamline with our engineering tools for the ideal solution!

- Create the optimum drive package quickly and reliably with **Electric Motion Sizing (EMS)**
- Commissioning is quick and easy with the **Festo Automation Suite (FAS)**



EMMB/T-ST in Action | Application concepts



Semiconductor

Used for precise positioning
and control of manufacturing
equipment in wafer processing
and chip production.



Printing & Packaging

Enable precise and high-speed
motion control in printing
presses and packaging
machines for tasks like label
application, cutting, and
folding.



Manufacturing

Can be used in manufacturing
industries for automation and
control of production proces-
ses, such as assembly lines,
packaging, and material
handling.

Learn more



EMMB-ST



EMMT-ST

Motor: EMMT-ST

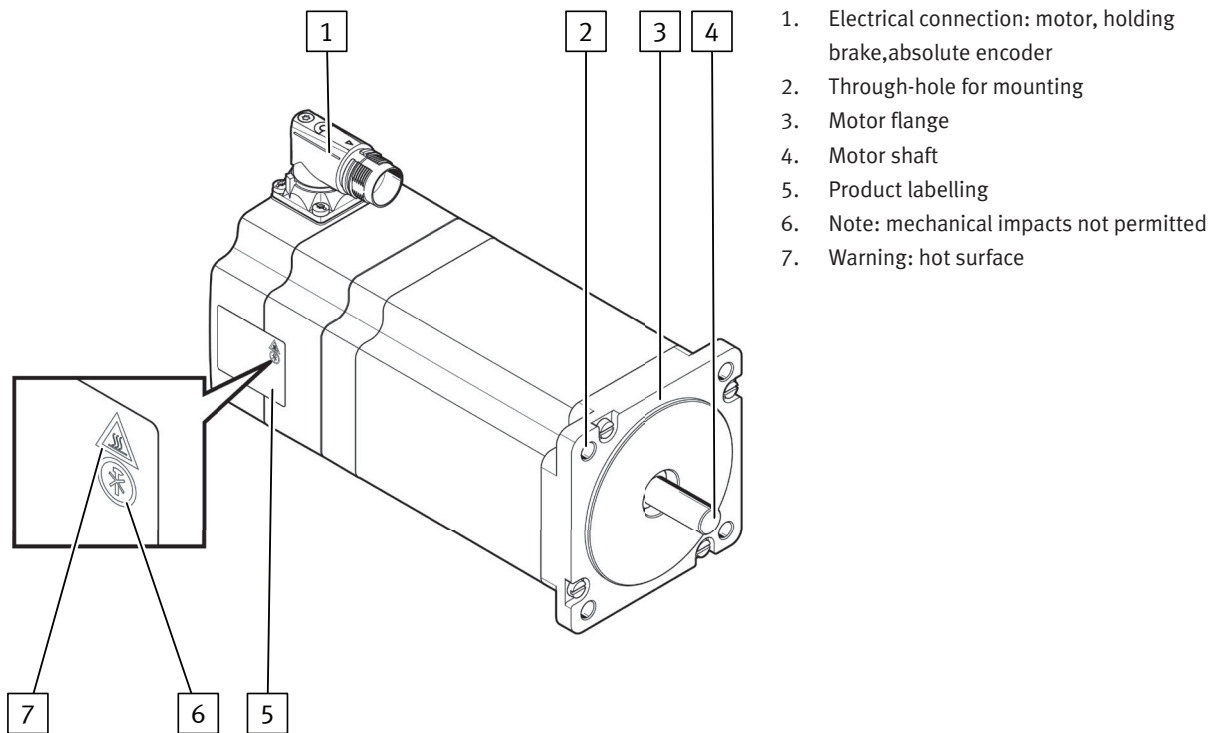


Fig. 1: Product design EMMT-ST, example EMMB-ST-87

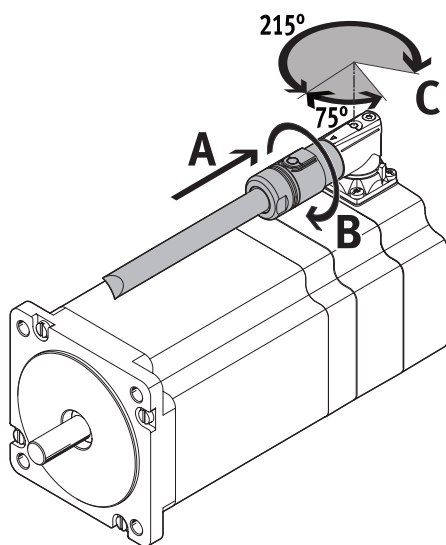


Fig. 2: Connect and align motor cable

1. Electrical connection: motor, holding brake, absolute encoder
2. Through-hole for mounting
3. Motor flange
4. Motor shaft
5. Product labelling
6. Note: mechanical impacts not permitted
7. Warning: hot surface

Requirements:

- Accessories selected → www.festo.com/catalogue.
- Approved cable length and cross section noted → www.festo.com/catalogue.
- Shielded cables used.

1. Connect the cable (A) to the plug and tighten the screw-type lock (B).
2. Align the plug (C), can be swivelled 290°.
3. Connect the cable to the servo drive.
4. Mount the cable with strain relief, e.g. with cable binders. Avoid tension, pressure or vibrations on the motor plug.

Instruction manual for servo drive and cable
→ www.festo.com/sp.

Motor: EMMB-ST

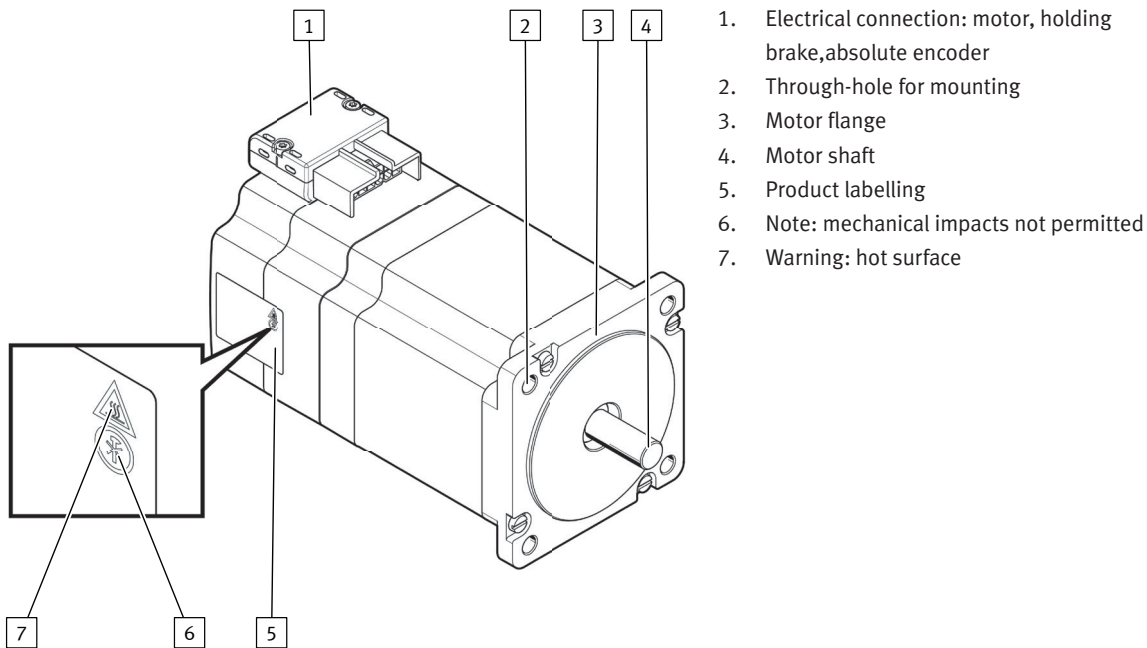


Fig. 1: Product design EMMB-ST, example EMMB-ST-87

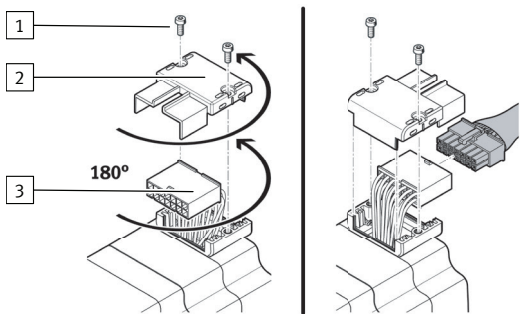


Fig. 2: Rotate plug

Connecting cable

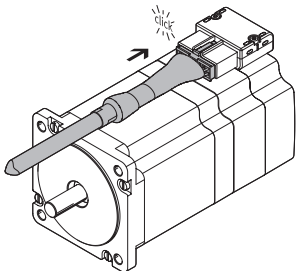


Fig. 3: Connecting the motor cable, example standard alignment

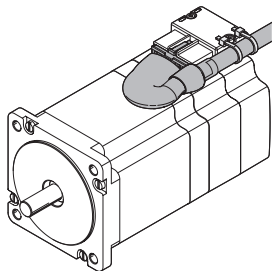
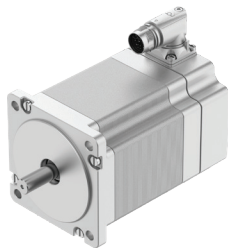


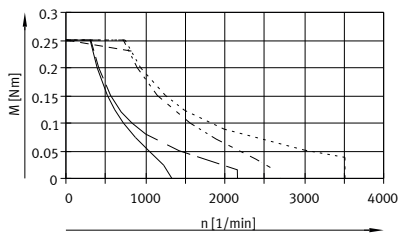
Fig. 4: Strain relief on motor cable

Motor technical specifications

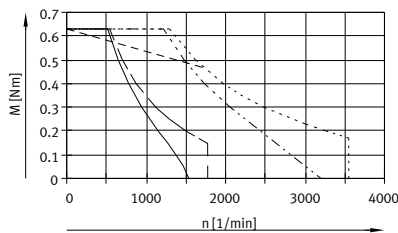


Technical data							
Type	EMMT-ST-42		EMMT-ST-57		EMMT-ST-87		
Flange size	42		57		87		
Length	SL		ML		SM		L
Nominal operating voltage [V]	48		48		48		
Continuous stall current [A]	2.0	3.7	6.6	6.1	9.5	8.2	10.0
Nominal motor power [W]	17	56	87	86	159	87	126
Motor holding torque [Nm]	0.25	0.63	1.12	1.86	2.4	6.6	9.4
Peak torque [Nm]	0.25	0.63	1.1	2.1	2.7	6.8	9.4
Max. speed [1/min]	2700	3200	2600	1500	2200	600	430
Brake holding torque [Nm]	0.63		1.74		4.26		
Ambient temperature [°C]	0 ... 40		-15 ... 40		-15 ... 40		

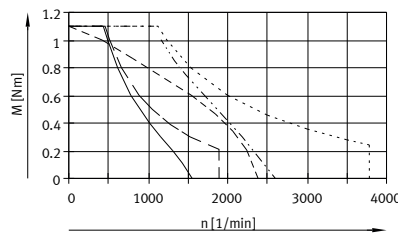
Torque M as a function of rotational speed n for EMMT-ST-42-S



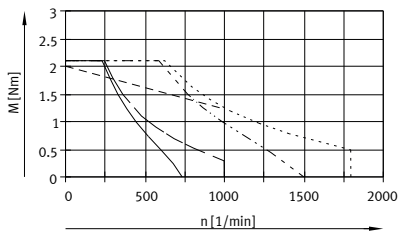
Torque M as a function of rotational speed n for EMMT-ST-42-L



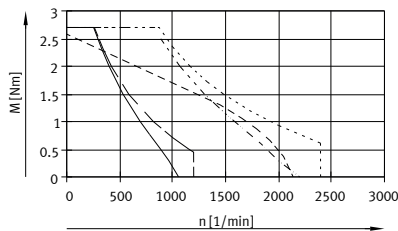
Torque M as a function of rotational speed n for EMMT-ST-57-M



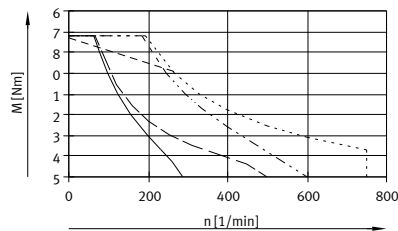
Torque M as a function of rotational speed n for EMMT-ST-57-L



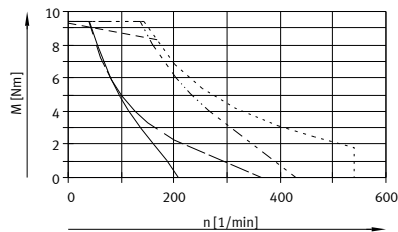
Torque M as a function of rotational speed n for EMMT-ST-87-S



Torque M as a function of rotational speed n for EMMT-ST-87-M



Torque M as a function of rotational speed n for EMMT-ST-87-L



- [1]

[1] Peak torque at 24V DC

[2]

[2] Peak torque at 48V DC

[3]

[3] Field weakened peak torque at 24V DC

[4]

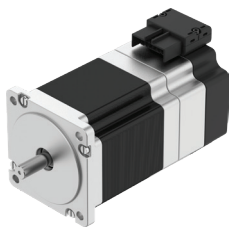
[4] Field weakened peak torque at 48V DC

[5]

[5] Nominal torque

Typical motor characteristic curve with nominal voltage and optimal motor controller.

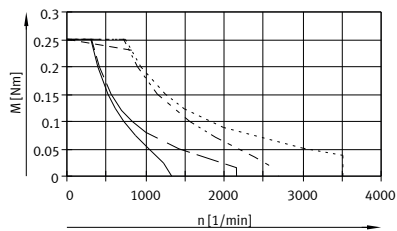
Observe max. permissible rotational speed for add-on and installation components (such as encoders, brakes, etc.)!



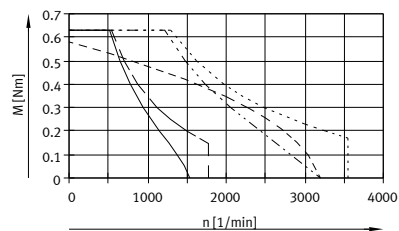
Technical data

Type	EMMB-ST-42		EMMBST-57		EMMB-ST-87	
Flange size	42		57		87	
Length	S	L	M	L	S	M
Nominal operating voltage [V]	48		48		48	
Continuous stall current [A]	2.0	3.7	6.1	5.8	9.5	8.2
Nominal motor power [W]	17	49	81	83	142	87
Motor holding torque [Nm]	0.25	0.63	1.05	1.8	2.4	6.6
Peak torque [Nm]	0.25	0.63	1.1	2.1	2.7	6.8
Max. speed [1/min]	2700	3200	2600	1500	2200	600
Brake holding torque [Nm]	0.63		1.74		4.26	

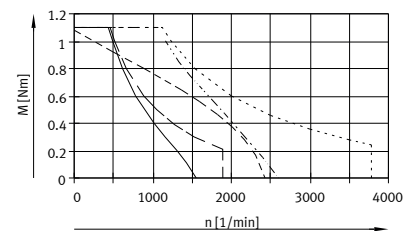
Torque M as a function of rotational speed n for EMMB-ST-42-S



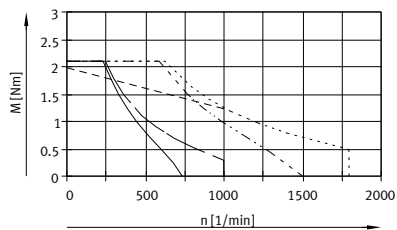
Torque M as a function of rotational speed n for EMMB-ST-42-L



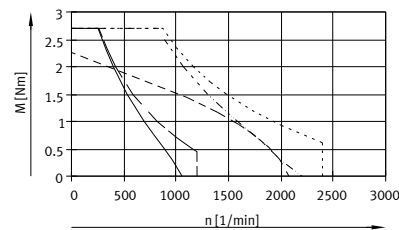
Torque M as a function of rotational speed n for EMMB-ST-57-S



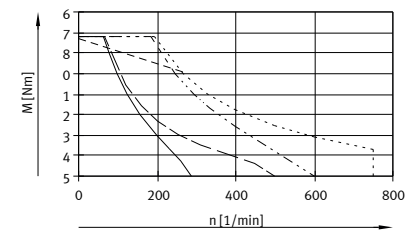
Torque M as a function of rotational speed n for EMMB-ST-57-L



Torque M as a function of rotational speed n for EMMB-ST-87-S



Torque M as a function of rotational speed n for EMMB-ST-87-M



- [1] [1] Peak torque at 24V DC
- - - [2] [2] Peak torque at 48V DC
- · - [3] [3] Field weakened peak torque at 24V DC
- · · [4] [4] Field weakened peak torque at 48V DC
- - - [5] [5] Nominal torque

Typical motor characteristic curve with nominal voltage and optimal motor controller.

Observe max. permissible rotational speed for add-on and installation components (such as encoders, brakes, etc.)!

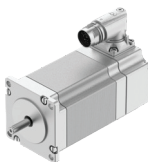
Selection tables

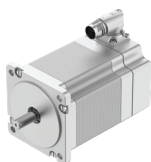
Motor Driver, CMMT-ST

	Type of mounting 1)	Field bus, protocol	Part no.	Type
	Mounting plate, attached with screws, With H-rail	EtherCAT®, EtherNet/IP, PROFINET IRT	8163946 ★	CMMT-ST-C8-1C-MP-S0

Motor EMMT

Flange size 42					
	Flange size, motors [mm]	Measuring unit	Brake	Part no.	Type
	42 mm	None	None	8156161	EMMT-ST-42-S-R
				8156167	EMMT-ST-42-L-R
			With brake	8156170	EMMT-ST-42-L-RB
				8156164	EMMT-ST-42-S-RB
		Absolute encoder, multi-turn	None	8156169 ★	EMMT-ST-42-L-RM
				8156163	EMMT-ST-42-S-RM
			With brake	8156166	EMMT-ST-42-S-RMB
				8156172 ★	EMMT-ST-42-L-RMB
		Absolute encoder, single turn	None	8156162	EMMT-ST-42-S-RS
				8156168 ★	EMMT-ST-42-L-RS
			With brake	8156171	EMMT-ST-42-L-RSB
				8156165	EMMT-ST-42-S-RSB

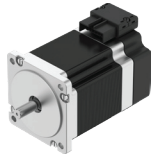
Flange size 57					
	Flange size, motors [mm]	Measuring unit	Brake	Part no.	Type
	57 mm	None	None	8156179	EMMT-ST-57-L-R
				8156173	EMMT-ST-57-M-R
			With brake	8156182	EMMT-ST-57-L-RB
				8156176	EMMT-ST-57-M-RB
		Absolute encoder, multi-turn	None	8156181	EMMT-ST-57-L-RM
				8156175 ★	EMMT-ST-57-M-RM
			With brake	8156184	EMMT-ST-57-L-RMB
				8156178 ★	EMMT-ST-57-M-RMB
		Absolute encoder, single turn	None	8156180	EMMT-ST-57-L-RS
				8156174	EMMT-ST-57-M-RS
			With brake	8156183	EMMT-ST-57-L-RSB
				8156177	EMMT-ST-57-M-RSB

Flange size 87					
	Flange size, motors [mm]	Measuring unit	Brake	Part no.	Type
	87 mm	None	None	8156185	EMMT-ST-87-S-R
				8156197	EMMT-ST-87-L-R
				8156191	EMMT-ST-87-M-R
			With brake	8156188	EMMT-ST-87-S-RB
				8156200	EMMT-ST-87-L-RB
				8156194	EMMT-ST-87-M-RB
		Absolute encoder, multi-turn	None	8156193	EMMT-ST-87-M-RM
				8156199	EMMT-ST-87-L-RM
				8156187	EMMT-ST-87-S-RM
			With brake	8156196	EMMT-ST-87-M-RMB
				8156190	EMMT-ST-87-S-RMB
				8156202	EMMT-ST-87-L-RMB
		Absolute encoder, single turn	None	8156186	EMMT-ST-87-S-RS
				8156198	EMMT-ST-87-L-RS
				8156192	EMMT-ST-87-M-RS
			With brake	8156201	EMMT-ST-87-L-RSB
				8156189	EMMT-ST-87-S-RSB
				8156195	EMMT-ST-87-M-RSB

Motor EMMB

Flange size 42					
	Flange size, motors [mm]	Measuring unit	Brake	Part no.	Type
	42 mm	None	None	8156125	EMMB-ST-42-S-S
				8156131	EMMB-ST-42-L-S
			With brake	8156128	EMMB-ST-42-S-SB
				8156134	EMMB-ST-42-L-SB
		Absolute encoder, multi-turn	None	8156133 ★	EMMB-ST-42-L-SM
				8156127	EMMB-ST-42-S-SM
			With brake	8156130	EMMB-ST-42-S-SMB
				8156136 ★	EMMB-ST-42-L-SMB
		Absolute encoder, single turn	None	8156132	EMMB-ST-42-L-SS
				8156126	EMMB-ST-42-S-SS
			With brake	8156129	EMMB-ST-42-S-SSB
				8156135	EMMB-ST-42-L-SSB

Flange size 57					
	Flange size, motors [mm]	Measuring unit	Brake	Part no.	Type
	57 mm	None	None	8156143	EMMB-ST-57-L-S
				8156137	EMMB-ST-57-M-S
			With brake	8156140	EMMB-ST-57-M-SB
				8156146	EMMB-ST-57-L-SB
		Absolute encoder, multi-turn	None	8156139 ★	EMMB-ST-57-M-SM
				8156145	EMMB-ST-57-L-SM
			With brake	8156142 ★	EMMB-ST-57-M-SMB
				8156148	EMMB-ST-57-L-SMB
		Absolute encoder, single turn	None	8156144	EMMB-ST-57-L-SS
				8156138	EMMB-ST-57-M-SS
			With brake	8156141	EMMB-ST-57-M-SSB
				8156147	EMMB-ST-57-L-SSB

Flange size 87					
	Flange size, motors [mm]	Measuring unit	Brake	Part no.	Type
	87 mm	None	None	8156149	EMMB-ST-87-S-S
				8156155	EMMB-ST-87-M-S
			With brake	8156152	EMMB-ST-87-S-SB
				8156158	EMMB-ST-87-M-SB
		Absolute encoder, multi-turn	None	8156151	EMMB-ST-87-S-SM
				8156157	EMMB-ST-87-M-SM
			With brake	8156160	EMMB-ST-87-M-SMB
				8156154	EMMB-ST-87-S-SMB
		Absolute encoder, single turn	None	8156150	EMMB-ST-87-S-SS
				8156156	EMMB-ST-87-M-SS
			With brake	8156153	EMMB-ST-87-S-SSB
				8156159	EMMB-ST-87-M-SSB

Selection tables

Basic Series, EMMB-ST

Cable length	Motor Size	Type	PN
2.5 M	Size 42	NEBM-L5G14-EH-2.5-Q6N-LE12	8181675
5 M	Size 42	NEBM-L5G14-EH-5-Q6N-LE12	8181664 ★
7.5 M	Size 42	NEBM-L5G14-EH-7.5-Q6N-LE12	8181676
10 M	Size 42	NEBM-L5G14-EH-10-Q6N-LE12	8181672
2.5 M	Size 57	NEBM-L10G14-EH-2.5-Q6N-LE12	8181677
5 M	Size 57	NEBM-L10G14-EH-5-Q6N-LE12	8181667 ★
7.5 M	Size 57	NEBM-L10G14-EH-7.5-Q6N-LE12	8181669
10 M	Size 57	NEBM-L10G14-EH-10-Q6N-LE12	8181665
2.5 M	Size 87	NEBM-L10G14-EH-2.5-Q7N-LE12	8181666
5 M	Size 87	NEBM-L10G14-EH-5-Q7N-LE12	8181671
7.5 M	Size 57	NEBM-L10G14-EH-7.5-Q7N-LE12	8181674
10 M	Size 57	NEBM-L10G14-EH-10-Q7N-LE12	8181673
0.5 20 M	Size 42 , 57 & 87	NEBM-LX/M17-	8181663

Planetary Gear, EMGA

Motor size	Gear unit ratio	Type	PN
EMMB/ T-ST-42	3:1	EMGA-40-P-G3-SST-42	549428
	5:1	EMGA-40-P-G5-SST-42	549429 ★
	8:1	EMGA-40-P-G8-SST-42	8141762
	12:1	EMGA-40-P-G12-SST-42	8141763 ★
EMMB/ T-ST-57	3:1	EMGA-60-P-G3-SST-57	549430
	5:1	EMGA-60-P-G5-SST-57	549431 ★
	8:1	EMGA-60-P-G8-SST-57	8141764
	12:1	EMGA-60-P-G12-SST-57	8141765 ★
EMMB/ T-ST-87	3:1	EMGA-80-P-G3-SST-87	549432
	5:1	EMGA-80-P-G5-SST-87	549433
	8:1	EMGA-80-P-G8-SST-87	8141766
	12:1	EMGA-80-P-G12-SST-87Q7N-LE12	8141767

Technology Series, EMMT-ST

Cable length	Motor Size	Type	PN
2.5 M	Size 42 & 57	NEBM-M17G12-EH-2.5-Q6N-LE12	8181670
5 M	Size 42 & 57	NEBM-M17G12-EH-5-Q6N-LE12	8181668 ★
7.5 M	Size 42	NEBM-M17G12-EH-7.5-Q6N-LE12	8190096
10 M	Size 42	NEBM-M17G12-EH-10-Q6N-LE12	8195457
10 M	Size 57	NEBM-M17G12-EH-10-Q7N-LE12	8195461
2.5 M	Size 87	NEBM-M17G12-EH-2.5-Q7N-LE12	8195458
5 M	Size 87	NEBM-M17G12-EH-5-Q7N-LE12	8195459
7.5 M	Size 87	NEBM-M17G12-EH-7.5-Q7N-LE12	8195460
0.5 20 M	Size 42 , 57 & 87	NEBM-LX/M17-	8181663

Notes

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