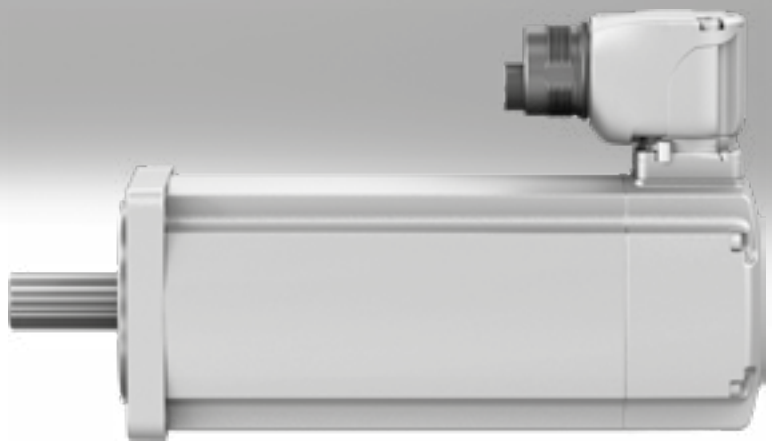
Servo motors EMMT-AS

FESTO



Key features

Everything from a single source

Motors EMMT-AS

➔ Page 3

- Dynamic, brushless, permanently excited synchronous servo motors
- Extremely low cogging torque – supports high synchronisation even at low rotational speeds
- Digital absolute displacement encoder; choose from:
  - Single-turn
  - Multi-turn, no batteries
- Motor temperature transmission, digital via EnDat 2.2; motor protection via CMMT-AS
- Torque-optimised
- Speed-optimised
- Degree of protection:
  - IP21 (motor shaft) for sizes 150/190
  - IP40 (motor shaft)
  - IP67 (motor housing with connection technology)
  - IP65 (motor shaft with rotary shaft seal made from PTFE)
- Optional:
  - Holding brake
  - Shaft with feather key
  - Motor shaft with rotary shaft seal
- Simple connection technology (OCP: one cable plug) – hybrid cable: motor and connecting cable for supply and encoder rolled into one
- Plug can be rotated:
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Gear unit EMGA-EAS/-SAS

➔ Page 33

- Planetary/right-angle gear unit
- Gear ratio i = 3, 5, 8, 12, 20
- Life-time lubrication
- Degree of protection: IP54
- Other gear unit types, ratios, designs and versions on request

Servo drive CMMT-AS

➔ Internet: cmmt-as

- Universal servo drive for synchronous servo motors
- Integrated EMC filters
- Integrated brake chopper
- Integrated braking resistor
- Integrated safety functions
- Position controller
- Speed controller
- Force controller
- Range of control functions
- Interfaces:
  - EtherCAT
  - PROFINET RT/IRT
  - EtherNet/IP
  - Modbus TCP

Motor cables NEBM

➔ Page 35

- Suitable for energy chains
- Connection technology on motor side with degree of protection to IP67
- Can be used in a wide temperature range

Axial and parallel kits EAMM

➔ Internet: eamm

- Specific kits for all electromechanical axes from Festo
- Each kit includes the relevant necessary coupling housing, couplings and motor flange as well as all screws
- Optionally with degree of protection IP65

Type codes

001	Series	
EMMT	Servo motor	

002	Motor type	
AS	AC synchronous	

003	Flange size, motors [mm]	
60	60	
80	80	
100	100	
150	150	
190	190	

004	Length	
H	Very long	
L	Long	
M	Medium	
S	Short	

005	Output shaft	
	Smooth shaft	
K	Shaft to DIN 6885	

006	Radial shaft seal	
	None	
R	With standard shaft sealing ring	

007	Winding	
LS	Low voltage, standard	
HS	High voltage, standard	
HV	High voltage, speed optimised	
HT	High voltage, torque optimised	

008	Electrical connection	
R	Angled plug, rotatable	
R2	Angled plug M23, rotatable	
R3	Angled plug M40, rotatable	

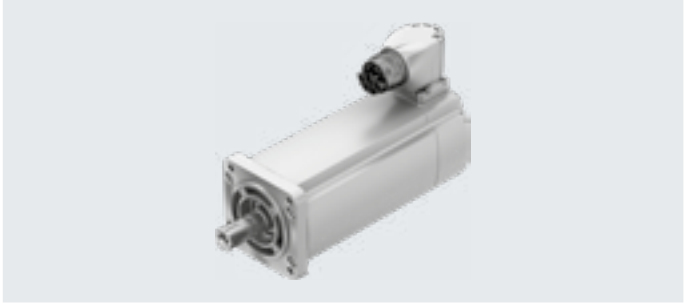
009	Measuring unit	
S	Absolute encoder, single turn	
M	Absolute encoder, multi-turn	
MY	Absolute multi-turn safety encoder, EnDat®	

010	Brake	
	None	
B	With brake	

Datasheet

Note

Motors and motor controllers from Festo have been specially designed to be used together. Trouble-free operation cannot be guaranteed in combination with third-party controllers.



Technical data							
Flange size		60					
Length		S		M		L	
Winding		LS	HS	LS	HS	LS	HS
Nominal operating voltage[1]	[V DC]	325	680	325	680	325	680
Nominal current[2]	[A]	1.6/1.4	1.6/1.4	2.4/2.2	2.4/2.2	3.2/3	3.2/3
Continuous stall current[2]	[A]	1.7/1.6	1.7/1.6	2.7/2.5	2.7/2.5	3.8/3.5	3.8/3.5
Peak current	[A]	5.4	5.4	11.0	11.0	18.3	18.3
Nominal power[2]	[W]	200/190	200/190	350/310	350/310	440/410	440/410
Nominal torque[2][3]	[Nm]	0.64/0.6	0.64/0.6	1.1/1.0	1.1/1.0	1.4/1.3	1.4/1.3
Peak torque	[Nm]	1.6	1.6	3.4	3.4	5.6	5.6
Stall torque[2]	[Nm]	0.7/0.66	0.7/0.66	1.24/1.15	1.24/1.15	1.66/1.56	1.66/1.56
Stall torque constant[4]	[Nm/A]	0.49	0.49	0.53	0.53	0.52	0.52
Nominal rotational speed	[rpm]	3000					
Max. rotational speed	[rpm]	7100	15000	6800	14200	6800	14300
Max. mechanical rotational speed	[rpm]	16000					
Max. idling rotational speed with brake	[rpm]	10000					
Motor constant	[Nm/A]	0.41	0.41	0.45	0.45	0.44	0.44
Voltage constant (phase-to-phase)	[mVmin]	29.9	29.9	32	32	31.2	31.2
Electric time constant	[ms]	2.1	2.1	2.7	2.7	3	3
Thermal time constant[2]	[min]	40/41	40/41	41/42	41/42	43/44	43/44
Thermal resistance[2]	[K/W]	1.3/1.5	1.3/1.5	1.1/1.3	1.1/1.3	1/1.2	1/1.2
Number of pole pairs		5	5	5	5	5	5
Winding resistance (phase-to-phase)	[Ω]	11.7	11.7	4.85	4.85	2.68	2.68
Winding inductance (phase-to-phase)	[mH]	38	38	20	20	12	12
Winding series inductance Ld (phase)	[mH]	15.5	15.5	8	8	5	5
Winding shunt inductance Lq (phase)	[mH]	19	19	10	10	6	6
Total output moment of inertia[2]	[kgcm²]	0.169/0.257	0.169/0.257	0.286/0.373	0.286/0.373	0.403/0.490	0.403/0.490
Shaft load at nominal rotational speed							
Radial	[N]	350					
Axial	[N]	65					

Brake		
Operating voltage	[V DC]	24 (+6 ... −10%)
Current consumption	[A]	0.46
Power	[W]	11
Holding torque (static)	[Nm]	2.5
Separation time	[ms]	≤ 35
Closing time	[ms]	10
Response delay	[ms]	≤ 2
Coil resistance	[Ω]	52.4
Coil inductance	[mH]	700
Mass moment of inertia	[kgcm²]	0.074
Max. friction	[J]	5600

1) With 3-phase mains supply to the servo drive, a voltage up to 3x 480 V AC +10% is permitted
2) Without brake/with brake
3) When using the radial shaft seal, a reduction (derating) of the nominal torque of 10% must be taken into account
4) Inner stall torque constant

Datasheet

Technical data								
Flange size		80						
Length		S		M		L		H
Winding		LS	HS	LS	HS	LS	HS	HS
Nominal operating voltage[1]	[V DC]	325	680	325	680	325	680	680
Nominal current	[A]	2.7	1.76	4.1	2.2	5.5	3.5	3.8
Continuous stall current	[A]	3.1	2	4.9	2.6	6.7	4.3	4.8
Peak current	[A]	8.4	5.4	17.1	9	27.3	17.5	21.7
Nominal power	[W]	408	408	690	690	910	910	1070
Nominal torque[3]	[Nm]	1.3	1.3	2.2	2.2	2.9	2.9	3.4
Peak torque	[Nm]	2.8	2.8	6.4	6.4	9.9	9.9	13.5
Stall torque	[Nm]	1.46	1.46	2.6	2.6	3.5	3.5	4.3
Stall torque constant[4]	[Nm/A]	0.57	0.89	0.62	1.17	0.6	0.93	1
Nominal rotational speed	[rpm]	3000						
Max. rotational speed	[rpm]	6700	8950	6150	6800	6400	8540	7820
Max. mechanical rotational speed	[rpm]	14000						
Max. idling rotational speed with brake	[rpm]	10000						
Motor constant	[Nm/A]	0.48	0.74	0.54	1	0.53	0.82	0.9
Voltage constant (phase-to-phase)	[mVmin]	34.3	53.6	37.3	70.7	36	56	61.4
Electric time constant	[ms]	4.9	4.8	6.5	6.4	6.9	7	7.2
Thermal time constant	[min]	42	42	45	45	48	48	51
Thermal resistance	[K/W]	0.95	0.95	0.78	0.78	0.68	0.68	0.65
Number of pole pairs		5	5	5	5	5	5	5
Winding resistance (phase-to-phase)	[Ω]	4.93	12.4	2.04	7.43	1.13	2.69	2.21
Winding inductance (phase-to-phase)	[mH]	16.3	39.8	8.9	31.8	5.2	12.6	10.7
Winding series inductance Ld (phase)	[mH]	10.2	25	5.4	19.4	3.1	7.5	6.6
Winding shunt inductance Lq (phase)	[mH]	12.2	29.8	6.6	23.8	3.9	9.45	8.0
Total output moment of inertia[2]	[kgcm²]	0.59/0.89	0.59/0.89	1.04/1.28	1.04/1.28	1.47/1.99	1.47/1.99	1.91/2.42
Shaft load at nominal rotational speed								
Radial	[N]	620						
Axial	[N]	120						
Brake								
Operating voltage	[V DC]	24 (+6 … –10%)						
Current consumption	[A]	0.5	0.5	0.5	0.5	0.63	0.63	0.63
Power	[W]	12	12	12	12	15	15	15
Holding torque (static)	[Nm]	4.5	4.5	4.5	4.5	7	7	7
Separation time	[ms]	≤ 55	≤ 55	≤ 55	≤ 55	≤ 45	≤ 45	≤ 45
Closing time	[ms]	≤ 15	≤ 15	≤ 15	≤ 15	≤ 30	≤ 30	≤ 30
Response delay	[ms]	≤ 3	≤ 3	≤ 3	≤ 3	≤ 4	≤ 4	≤ 4
Coil resistance	[Ω]	48	48	48	48	38.4	38.4	38.4
Coil inductance	[mH]	1000	1000	1000	1000	900	900	900
Mass moment of inertia	[kgcm²]	0.249	0.249	0.249	0.249	0.459	0.459	0.459
Max. friction	[J]	8200	8200	8200	8200	12000	12000	12000

1) With 3-phase mains supply to the servo drive, a voltage up to 3x 480 V AC +10% is permitted
2) Without brake/with brake
3) When using the radial shaft seal, a reduction (derating) of the nominal torque of 10% must be taken into account
4) Inner stall torque constant

Datasheet

Technical data					
Flange size		100			
Length		S	M	L	H
Winding		HS	HS	HS	HS
Nominal operating voltage[1]	[V DC]	680	680	680	680
Nominal current	[A]	3.5	4.3	4.7/4.3	5.9/5.5
Continuous stall current[2]	[A]	4.4	5.9	7/6.7	9.7/9.5
Peak current	[A]	13.7	22.1	28.6	36
Nominal power[2]	[W]	1450	1770	2030/1870	2200/2060
Nominal torque[2][3]	[Nm]	5.1	6.3	7.2/6.6	7.8/7.3
Peak torque	[Nm]	13.7	22.4	30.5	38.7
Stall torque[2]	[Nm]	6.3	8.6	10.8/10.4	13/12.4
Stall torque constant[4]	[Nm/A]	1.67	1.66	1.75	1.54
Nominal rotational speed	[rpm]	2700			
Max. rotational speed	[rpm]	4770	4790	4530	5150
Max. mechanical rotational speed	[rpm]	13000			
Max. idling rotational speed with brake	[rpm]	10000			
Motor constant	[Nm/A]	1.45	1.46	1.54	1.32
Voltage constant (phase-to-phase)	[mVmin]	101	100	106	93.2
Electric time constant	[ms]	14.5	16.6	15.8	16.7
Thermal time constant	[min]	74	73	71	68
Thermal resistance	[K/W]	0.6	0.5	0.46	0.39
Number of pole pairs		5	5	5	5
Winding resistance (phase-to-phase)	[Ω]	3.35	1.84	1.49	0.81
Winding inductance (phase-to-phase)	[mH]	32.4	20.4	15.7	9
Winding series inductance Ld (phase)	[mH]	17.8	10.2	8.7	5.7
Winding shunt inductance Lq (phase)	[mH]	24.3	15.3	11.8	6.8
Total output moment of inertia[2]	[kgcm²]	3.15/4.04	4.46/5.34	5.77/8.06	8.80/11.09
Shaft load at nominal rotational speed					
Radial	[N]	1110			815
Axial	[N]	200			
Brake					
Operating voltage	[V DC]	24 (+6 ... −10%)			
Current consumption	[A]	0.75	0.75	1	
Power	[W]	18	18	24	
Holding torque (static)	[Nm]	11	11	18	
Separation time	[ms]	≤ 80			
Closing time	[ms]	≤ 20	≤ 20	≤ 40	
Response delay	[ms]	≤ 4	≤ 4	≤ 5	
Coil resistance	[Ω]	32	32	24	
Coil inductance	[mH]	900	900	900	
Mass moment of inertia	[kgcm²]	0.74	0.74	2.15	
Max. friction	[J]	12000	12000	15000	

1) With 3-phase mains supply to the servo drive, a voltage up to 3x 480 V AC +10% is permitted
2) Without brake/with brake
3) When using the radial shaft seal, a reduction (derating) of the nominal torque of 10% must be taken into account
4) Inner stall torque constant

Datasheet

Technical data					
Flange size		150			
Length		M		L	
Winding		HS	HV	HT	HS
Nominal operating voltage[1]	[V DC]	680	680	680	680
Nominal current	[A]	9.5	10.2	10.3	15.4
Continuous stall current	[A]	11.4	24	11.4	23.6
Peak current	[A]	24	50	24	49.5
Nominal power	[W]	4257	4948	4157	6377
Nominal torque[3]	[Nm]	27.1	13.5	39.7	29
Peak torque	[Nm]	64	60	86	87
Stall torque	[Nm]	33	33	44	45.5
Stall torque constant[4]	[Nm/A]	3.3	1.54	4.38	2.23
Nominal rotational speed	[rpm]	1500	3500	1000	2100
Max. rotational speed	[rpm]	2368	5051	1812	3495
Max. mechanical rotational speed	[rpm]	10000		8000	
Motor constant	[Nm/A]	2.85	1.32	3.85	1.88
Voltage constant (phase-to-phase)	[mVmin]	199.4	92.9	264.9	135.1
Electric time constant	[ms]	15.4	15.6	15.6	17.1
Thermal time constant	[min]	45	45	55	55
Thermal resistance	[K/W]	0.45	0.46	0.42	0.39
Number of pole pairs		5	5	5	5
Winding resistance (phase-to-phase)	[Ω]	0.935	0.211	1.016	0.250
Winding inductance (phase-to-phase)	[mH]	14.6	3.3	15.7	4.4
Winding series inductance Ld (phase)	[mH]	7.2	1.65	7.95	2.15
Winding shunt inductance Lq (phase)	[mH]	7.3	1.65	7.85	2.2
Total output moment of inertia[2]	[kgcm²]	38.7/46.9		57.6/70.1	
Shaft load at nominal rotational speed					
Radial	[N]	1470	1085	1730	1370
Axial	[N]	294	217	346	274
Brake					
Operating voltage	[V DC]	24			
Current consumption	[A]	1.08			
Power	[W]	26			
Holding torque (static)	[Nm]	45		65	
Separation time	[ms]	230		200	
Closing time	[ms]	45		40	
Response delay	[ms]	≤ 6		≤ 10	
Mass moment of inertia	[kgcm²]	8.2		12.5	

1) With 3-phase mains supply to the servo drive, a voltage up to 3x 480 V AC +10% is permitted
2) Without brake/with brake
3) When using the radial shaft seal, a reduction (derating) of the nominal torque of 10% must be taken into account
4) Inner stall torque constant

Datasheet

Technical data			
Flange size		190	
Length		M	L
Winding		HS	HT
Nominal operating voltage[1]	[V DC]	680	680
Nominal current	[A]	19.2	20
Continuous stall current	[A]	25	22.8
Peak current	[A]	41.5	49.7
Nominal power	[W]	7427	8629
Nominal torque[3]	[Nm]	59.1	82.4
Peak torque	[Nm]	118.3	183.3
Stall torque	[Nm]	76.7	93.7
Stall torque constant[4]	[Nm/A]	3.56	4.79
Nominal rotational speed	[rpm]	1200	1000
Max. rotational speed	[rpm]	2163	1654
Max. mechanical rotational speed	[rpm]	8000	
Motor constant	[Nm/A]	3.08	4.12
Voltage constant (phase-to-phase)	[mVmin]	215.2	289.7
Electric time constant	[ms]	39.6	38.8
Thermal time constant	[min]	70	80
Thermal resistance	[K/W]	0.31	0.30
Number of pole pairs		5	5
Winding resistance (phase-to-phase)	[Ω]	0.285	0.358
Winding inductance (phase-to-phase)	[mH]	12.3	13.8
Winding series inductance Ld (phase)	[mH]	5.65	6.95
Winding shunt inductance Lq (phase)	[mH]	6.15	6.9
Total output moment of inertia[2]	[kgcm²]	110/160	145/195
Shaft load at nominal rotational speed			
Radial	[N]	2420	2620
Axial	[N]	480	520
Brake			
Operating voltage	[V DC]	24	
Current consumption	[A]	2.08	
Power	[W]	50	
Holding torque (static)	[Nm]	115	
Separation time	[ms]	190	
Closing time	[ms]	65	
Response delay	[ms]	≤ 12	
Mass moment of inertia	[kgcm²]	50	

1) With 3-phase mains supply to the servo drive, a voltage up to 3x 480 V AC +10% is permitted
2) Without brake/with brake
3) When using the radial shaft seal, a reduction (derating) of the nominal torque of 10% must be taken into account
4) Inner stall torque constant

Datasheet

Weight [kg]											
Flange size	60			80				100			
Length	S	M	L	S	M	L	H	S	M	L	H
Without brake	1.18	1.53	1.91	2.02	2.64	3.29	3.91	5.5	7.1	8.7	11.9
With brake	1.50	1.85	2.23	2.72	3.36	4.12	4.75	6.7	8.2	10.1	13.3

Weight [kg]				
Flange size	150		190	
Length	M	L	M	L
Without brake	18.7	25.4	42.2	53
With brake	22.2	29.7	50.6	61.5

Operating and environmental conditions												
Flange size		60			80				100			
Length		S	M	L	S	M	L	H	S	M	L	H
Standard		IEC 60034										
Motor type to EN 60034-7		IM B5/IM V1/IM V3										
Degree of protection												
Motor shaft		IP40										
With rotary shaft seal		IP65										
Motor housing incl. connection technology		IP67										
Ambient temperature												
Temperature	[°C]	–15 ... +40										
Up to 80°C with derating of ... per degree Celsius[1]	[%]	–1.5	–1.5	–1.5	–1.5	–1.5	–1.5	–1.5	–1.5	–1.5	–1.75/–2.25	
Storage temperature	[°C]	–20 ... +70										
Max. winding temperature	[°C]	155										
Temperature monitoring		Digital motor temperature transmission via EnDat 2.2										
Rating class to EN 60034-1		S1										
Thermal class to EN 60034-1		F										
Relative humidity	[%]	0 ... 90 (non-condensing)										
Concentricity to DIN SPEC 42955		N										
Balance quality		G 2.5										
Pollution degree		2										
Max. setup altitude	[m]	4000 (at 1000 m or higher only with derating of –1.0% per 100 m)										
Storage lifetime under nominal conditions	[h]	20000										
Switching cycles of holding brake[1]		10 million idle actuations										
CE marking (see declaration of conformity)		To EU Low Voltage Directive										
		To EU EMC Directive[2]										
		To EU RoHS Directive										
UKCA marking (see declaration of conformity)		To UK regulations for electrical equipment										
		To UK EMC regulations										
		To UK RoHS instructions										
Certification		c UL us - Recognized (OL)										
		RCM										
Certificate-issuing authority		UL E342973										
Energy efficiency		ENEFF (CN) / Class 2										
Vibration resistant		To EN 60068-2-6										
Shock resistance		To EN 60068-2-27										
LABS (PWIS) conformity		VDMA24364 zone III										
Note on materials		RoHS-compliant										

1) Without friction work
Without brake/with brake

2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Datasheet

Operating and environmental conditions					
Flange size		150		190	
Length		M	L	M	L
Standard		IEC 60034			
Motor type to EN 60034-7		IM B5/IM V1/IM V3			
Degree of protection					
Motor shaft		IP21			
With rotary shaft seal		IP65			
Motor housing incl. connection technology		IP67			
Ambient temperature					
Temperature	[°C]	–15 ... +40			
Up to 80°C with derating of ... per degree Celsius[1]		–1.5%	–1.5%	–1.5%	–1.5%
Storage temperature	[°C]	–20 ... +70			
Max. winding temperature	[°C]	155			
Temperature monitoring		Digital motor temperature transmission via EnDat 2.2			
Rating class to EN 60034-1		S1			
Thermal class to EN 60034-1		F			
Relative humidity	[%]	0 ... 90 (non-condensing)			
Concentricity to DIN SPEC 42955		N			
Balance quality		G 2.5			
Pollution degree		2			
Max. setup altitude	[m]	4000 (at 1000 m or higher only with derating of –1.0% per 100 m)			
Storage lifetime under nominal conditions	[h]	20000			
Switching cycles of holding brake[1]		5 million idle actuations			
CE marking (see declaration of conformity)		To EU Low Voltage Directive			
		To EU EMC Directive[2]			
		To EU RoHS Directive			
UKCA marking (see declaration of conformity)		To UK regulations for electrical equipment			
		To UK EMC regulations			
		To UK RoHS instructions			
Certification		c UL us - Recognized (OL)			
		RCM			
Certificate-issuing authority		UL E342973			
		TÜV 968/FSP 2317.00/21[3]			
Energy efficiency		ENEFF (CN) / Class 1			
Vibration resistant		To EN 60068-2-6			
Shock resistance		To EN 60068-2-27 (15g/11ms)			
Continuous shock resistance		To EN 60068-2-29			
LABS (PWIS) conformity		VDMA24364 zone III			
Note on materials		RoHS-compliant			

1) Without friction work

2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp ➔ Certificates.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

3) Only variant with absolute safety encoder, multi-turn

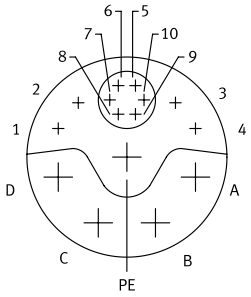
Datasheet

Technical data – Encoder				
Measuring unit		Absolute, single-turn	Absolute, multi-turn	Absolute safety encoder, multi-turn
Operating voltage	[V DC]	5		
Operating voltage range	[V DC]	3.6 ... 14		
Protocol		EnDat 2.2, digital channel only, max. switching frequency (CLOCK) ≤ 16 MHz		
Measuring principle		Inductive		
Position values per revolution				
Flange size 60; 80		262144	524288	
Flange size 100; 150; 190		524288	524288	
Rotor position encoder resolution				
Flange size 60; 80		18 bits	19 bits	
Flange size 100; 150; 190		19 bits	19 bits	
Revolutions		1	4096 revolutions, 12 bits	
System accuracy of angle measurement				
Flange size 60	[arcsec]	–120 ... 120		
Flange size 80	[arcsec]	–120 ... 120		
Flange size 100; 150; 190	[arcsec]	–65 ... 65		

Datasheet

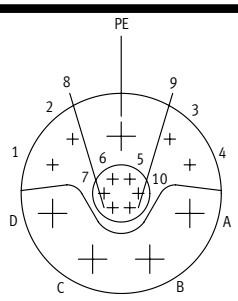
Pin allocation – Motor side

M23x1, pins, 15-pin



PIN	Function	
1	BR–	Brake
2	–	
3	–	
4	BR+	Brake
5	Up	Encoder power supply
6	0 V	Encoder power supply
7	Data +	Encoder communication
8	Data –	Encoder communication
9	CLK +	Encoder communication
10	CLK –	Encoder communication
A	U	Motor power supply
B	V	Motor power supply
C	W	Motor power supply
D	–	
PE	PE	Protective earth conductor

M40x1, pins, 15-pin



PIN	Function	
1	BR–	Brake
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9	CLK +	Encoder communication
10	CLK –	Encoder communication
A	U	Motor power supply
B	V	Motor power supply
C	W	Motor power supply
D	–	
PE	PE	Protective earth conductor

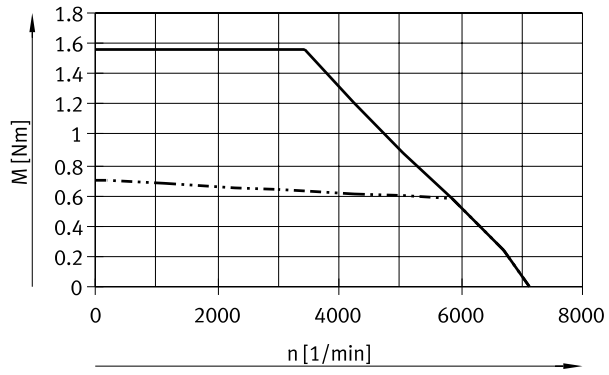
Datasheet

Torque M as a function of rotational speed n

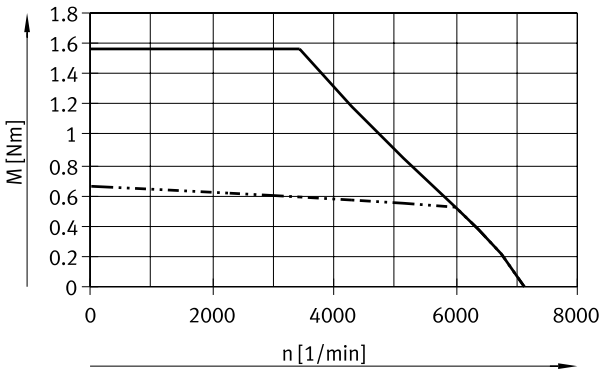
Flange size 60

Length S

Winding LS (without brake)



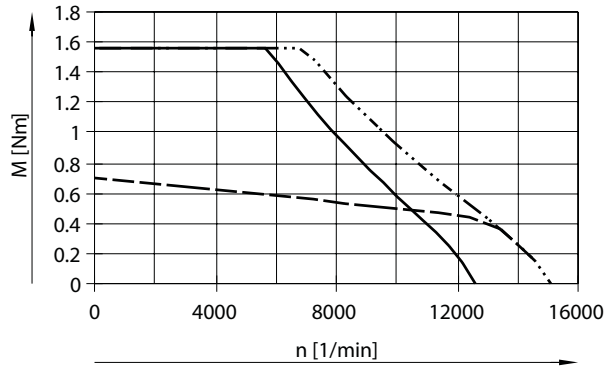
Winding LS-B (with brake)



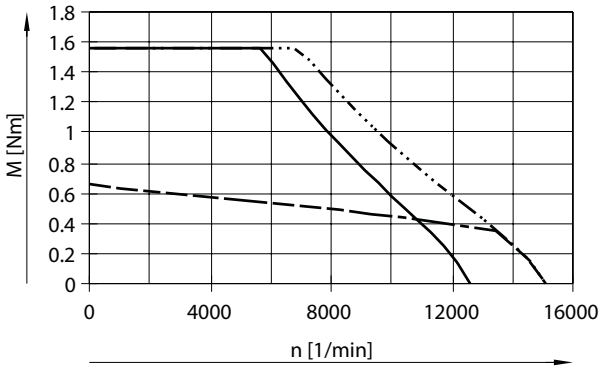
Peak torque at 325 V DC

Nominal torque

Winding HS (without brake)



Winding HS-B (with brake)



Peak torque at 565 V DC

Peak torque at 680 V DC

Nominal torque

Note

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

Observe the maximum permissible rotational speeds of add-on and installation components (such as brake, encoder, etc.).

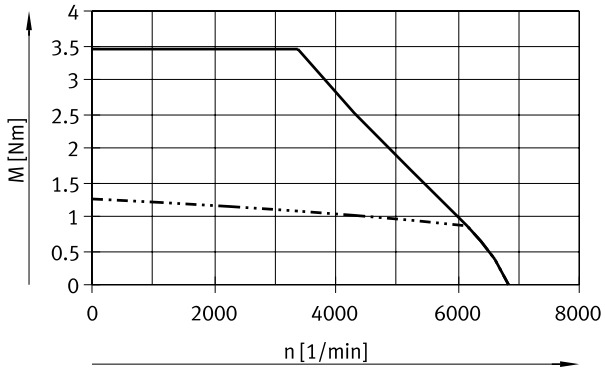
Datasheet

Torque M as a function of rotational speed n

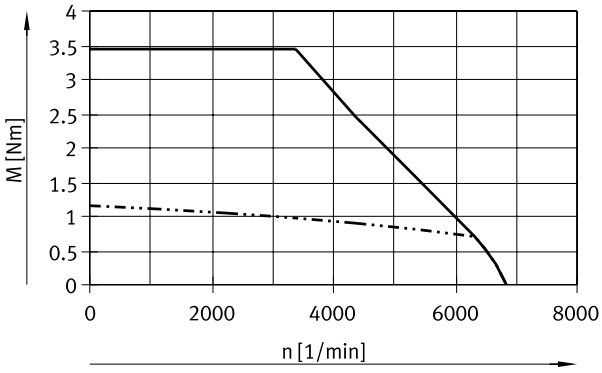
Flange size 60

Length M

Winding LS (without brake)



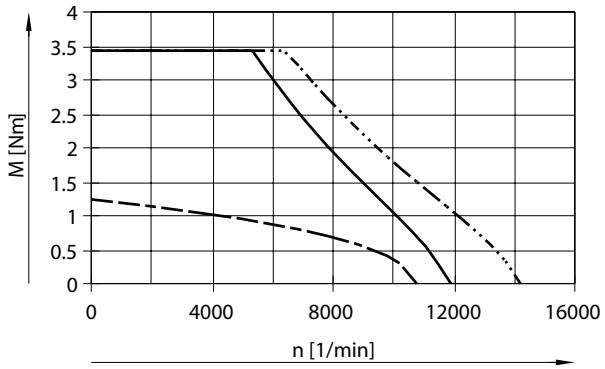
Winding LS-B (with brake)



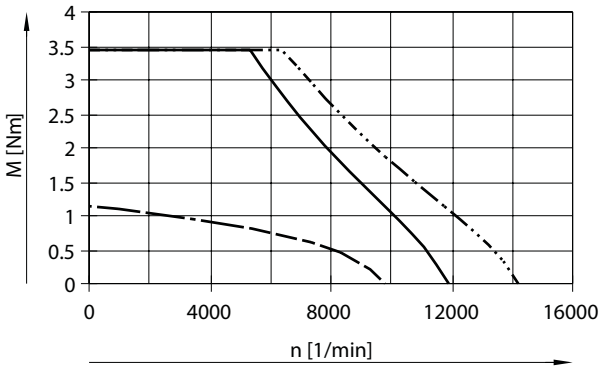
Peak torque at 325 V DC

Nominal torque

Winding HS (without brake)



Winding HS-B (with brake)



Peak torque at 565 V DC

Peak torque at 680 V DC

Nominal torque

Note

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

Observe the maximum permissible rotational speeds of add-on and installation components (such as brake, encoder, etc.).

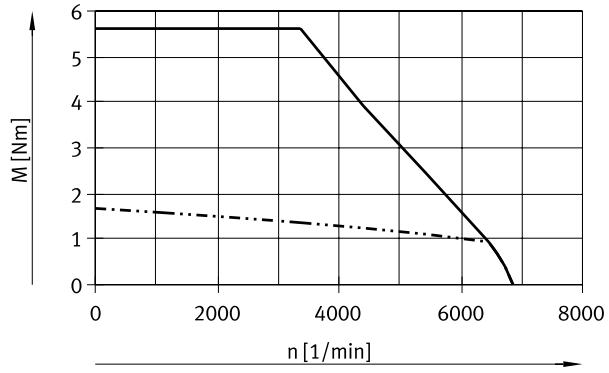
Datasheet

Torque M as a function of rotational speed n

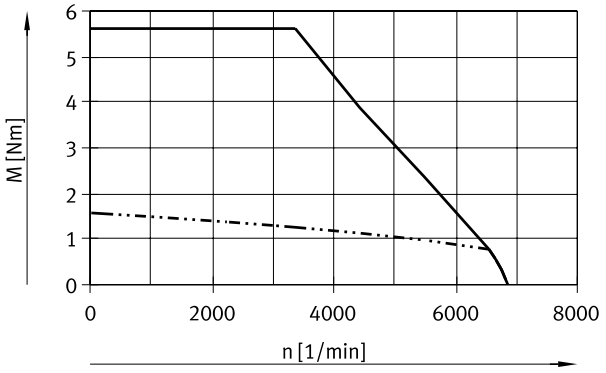
Flange size 60

Length L

Winding LS (without brake)

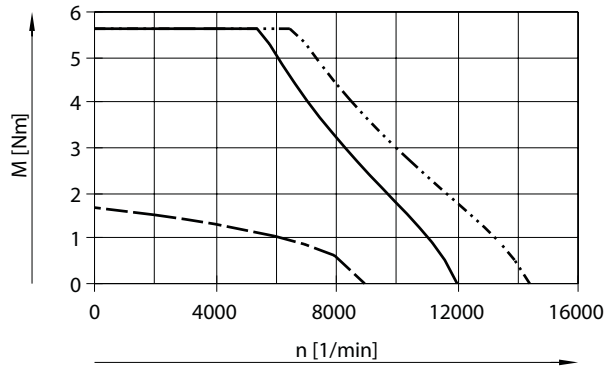


Winding LS-B (with brake)

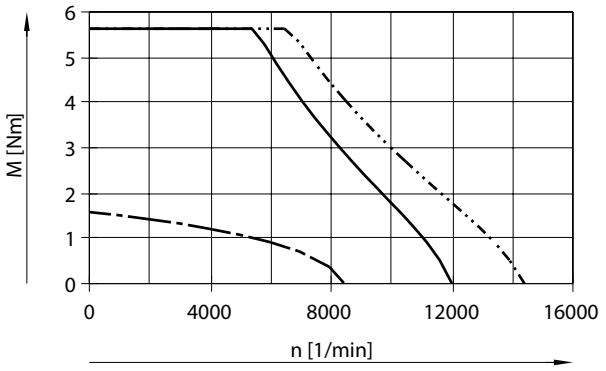


Peak torque at 325 V DC
Nominal torque

Winding HS (without brake)



Winding HS-B (with brake)



Peak torque at 565 V DC
Peak torque at 680 V DC
Nominal torque

Note

Typical motor characteristic curve with nominal voltage and optimal motor controller.
Observe the maximum permissible rotational speeds of add-on and installation components (such as brake, encoder, etc.).

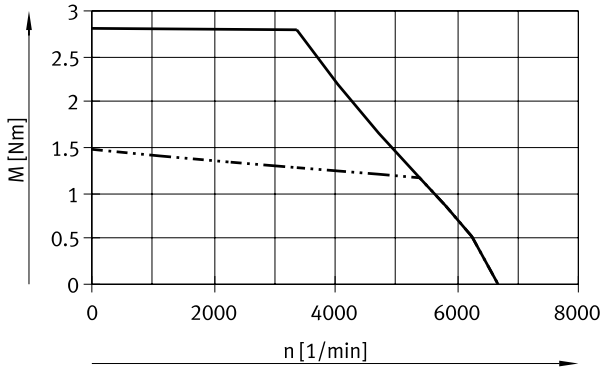
Datasheet

Torque M as a function of rotational speed n

Flange size 80

Length S

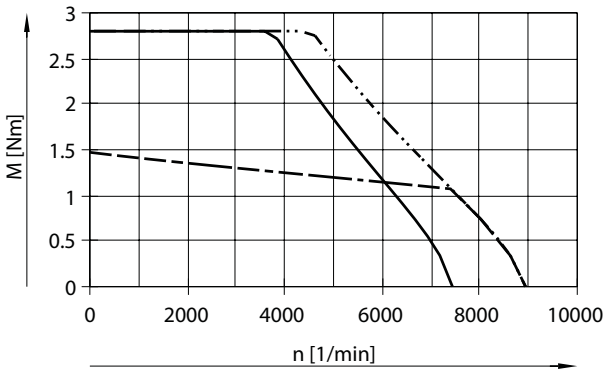
Winding LS (without/with brake)



Peak torque at 325 V DC

Nominal torque

Winding HS (without/with brake)



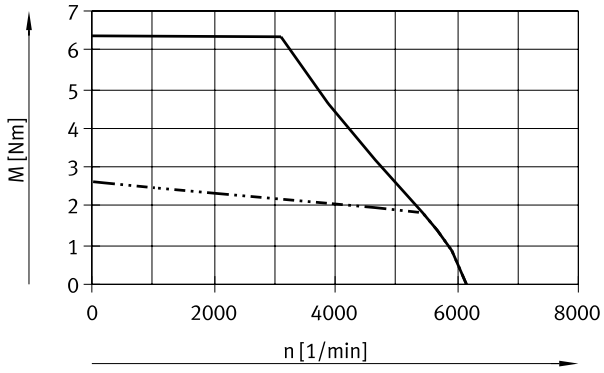
Peak torque at 565 V DC

Peak torque at 680 V DC

Nominal torque

Length M

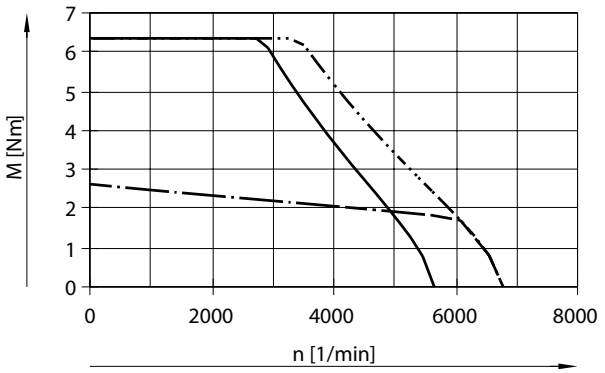
Winding LS (without/with brake)



Peak torque at 325 V DC

Nominal torque

Winding HS (without/with brake)



Peak torque at 565 V DC

Peak torque at 680 V DC

Nominal torque

Note

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

Observe the maximum permissible rotational speeds of add-on and installation components (such as brake, encoder, etc.).

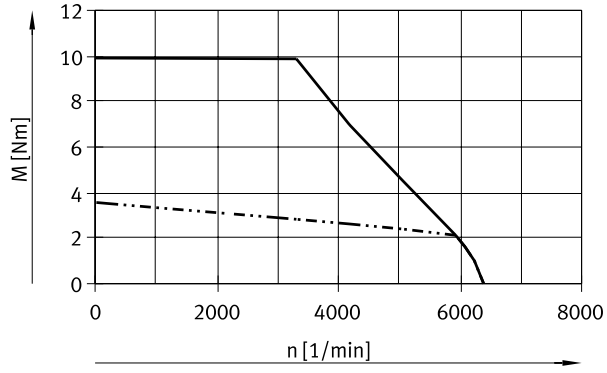
Datasheet

Torque M as a function of rotational speed n

Flange size 80

Length L

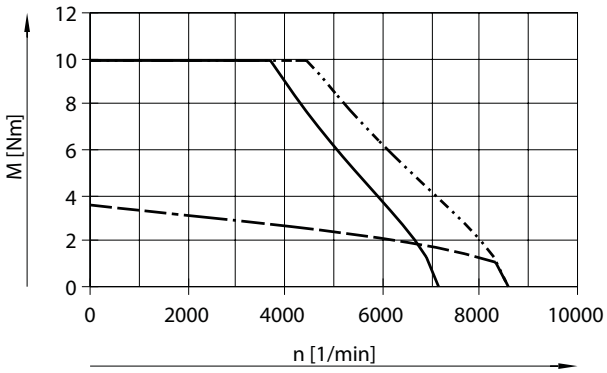
Winding LS (without/with brake)



Peak torque at 325 V DC

Nominal torque

Winding HS (without/with brake)



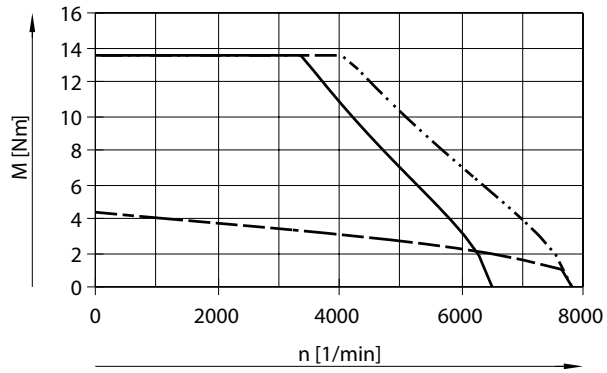
Peak torque at 565 V DC

Peak torque at 680 V DC

Nominal torque

Length H

Winding HS (without/with brake)



Peak torque at 565 V DC

Peak torque at 680 V DC

Nominal torque

Note

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

Observe the maximum permissible rotational speeds of add-on and installation components (such as brake, encoder, etc.).

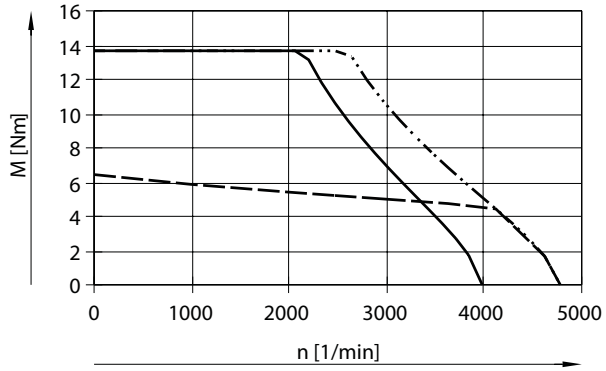
Datasheet

Torque M as a function of rotational speed n

Flange size 100

Length S

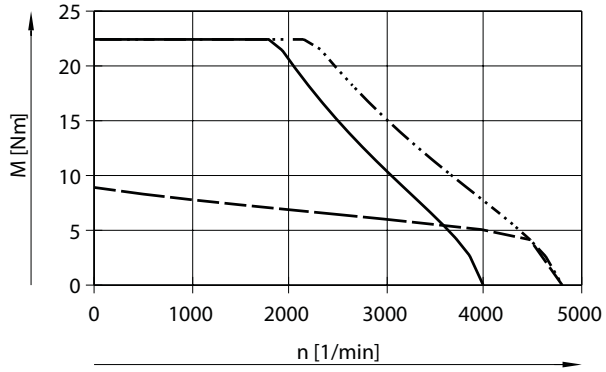
Winding HS (without/with brake)



Peak torque at 565 V DC
Peak torque at 680 V DC
Nominal torque

Length M

Winding HS (without/with brake)



Peak torque at 565 V DC
Peak torque at 680 V DC
Nominal torque

Note

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

Observe the maximum permissible rotational speeds of add-on and installation components (such as brake, encoder, etc.).

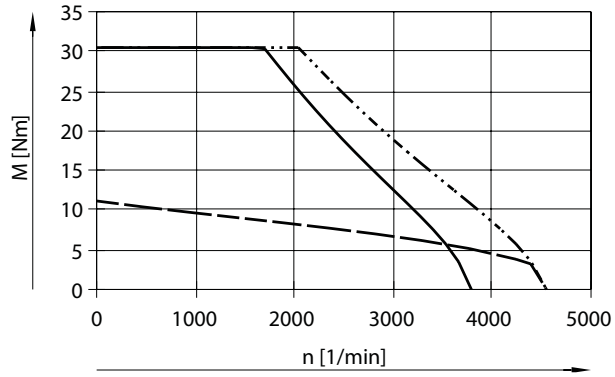
Datasheet

Torque M as a function of rotational speed n

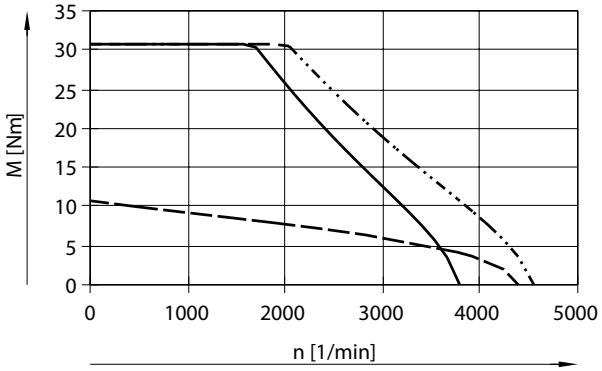
Flange size 100

Length L

Winding HS (without brake)



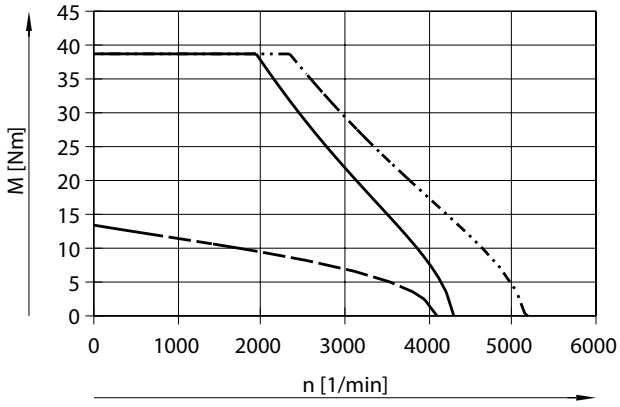
Winding HS-B (with brake)



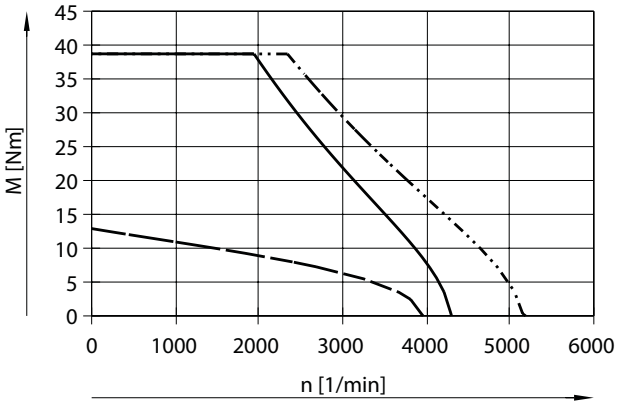
Peak torque at 565 V DC
Peak torque at 680 V DC
Nominal torque

Length H

Winding HS (without brake)



Winding HS-B (with brake)



Peak torque at 565 V DC
Peak torque at 680 V DC
Nominal torque

Note

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

Observe the maximum permissible rotational speeds of add-on and installation components (such as brake, encoder, etc.).

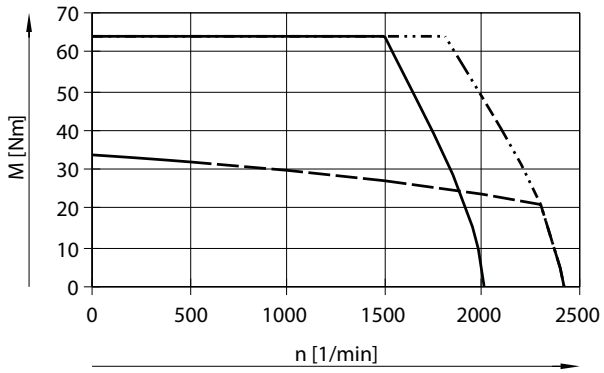
Datasheet

Torque M as a function of rotational speed n

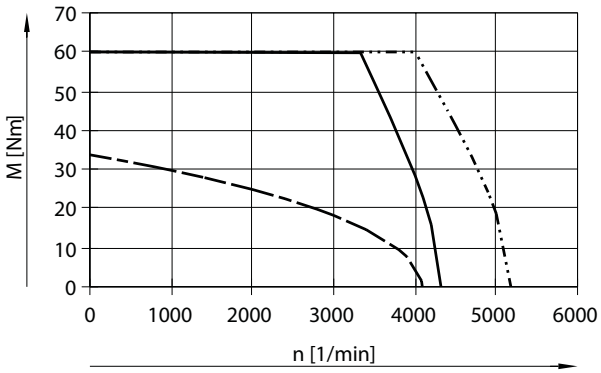
Flange size 150

Length M

Winding HS (without/with brake)



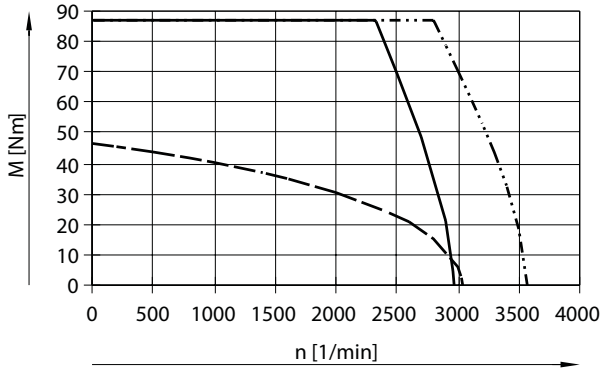
Winding HV (without/with brake)



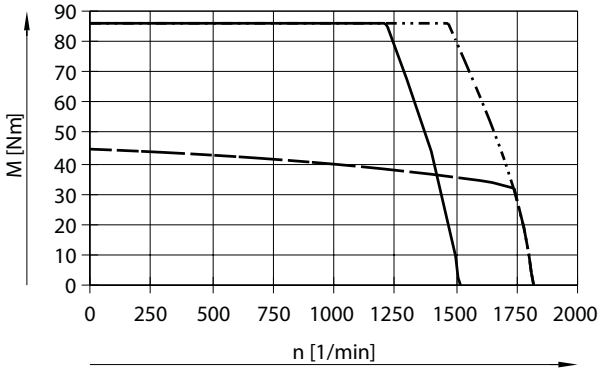
Peak torque at 565 V DC
Peak torque at 680 V DC
Nominal torque

Length L

Winding HS (without/with brake)



Winding HT (without/with brake)



Peak torque at 565 V DC
Peak torque at 680 V DC
Nominal torque

Note

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

Observe the maximum permissible rotational speeds of add-on and installation components (such as brake, encoder, etc.).

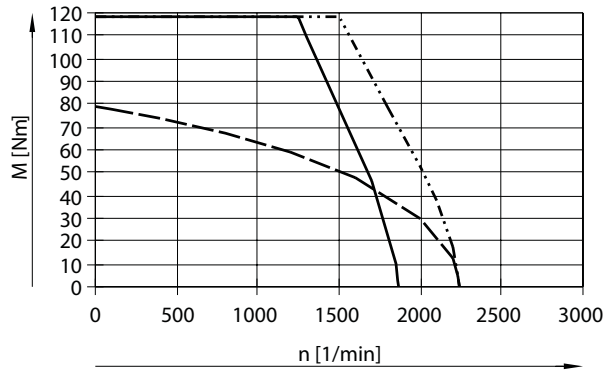
Datasheet

Torque M as a function of rotational speed n

Flange size 190

Length M

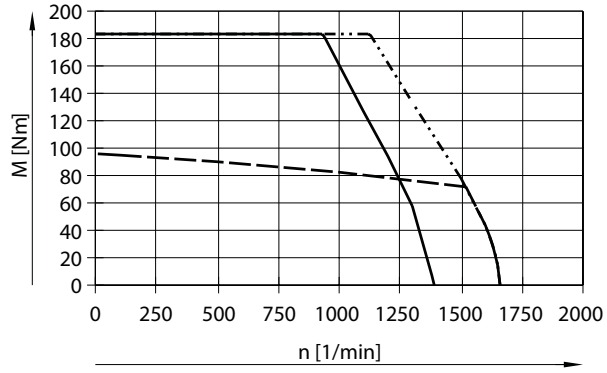
Winding HS (without/with brake)



Peak torque at 565 V DC
Peak torque at 680 V DC
Nominal torque

Length L

Winding HT (without/with brake)



Peak torque at 565 V DC
Peak torque at 680 V DC
Nominal torque

Note

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

Observe the maximum permissible rotational speeds of add-on and installation components (such as brake, encoder, etc.).

Datasheet

Dimensions – Flange size 60, 80, 100

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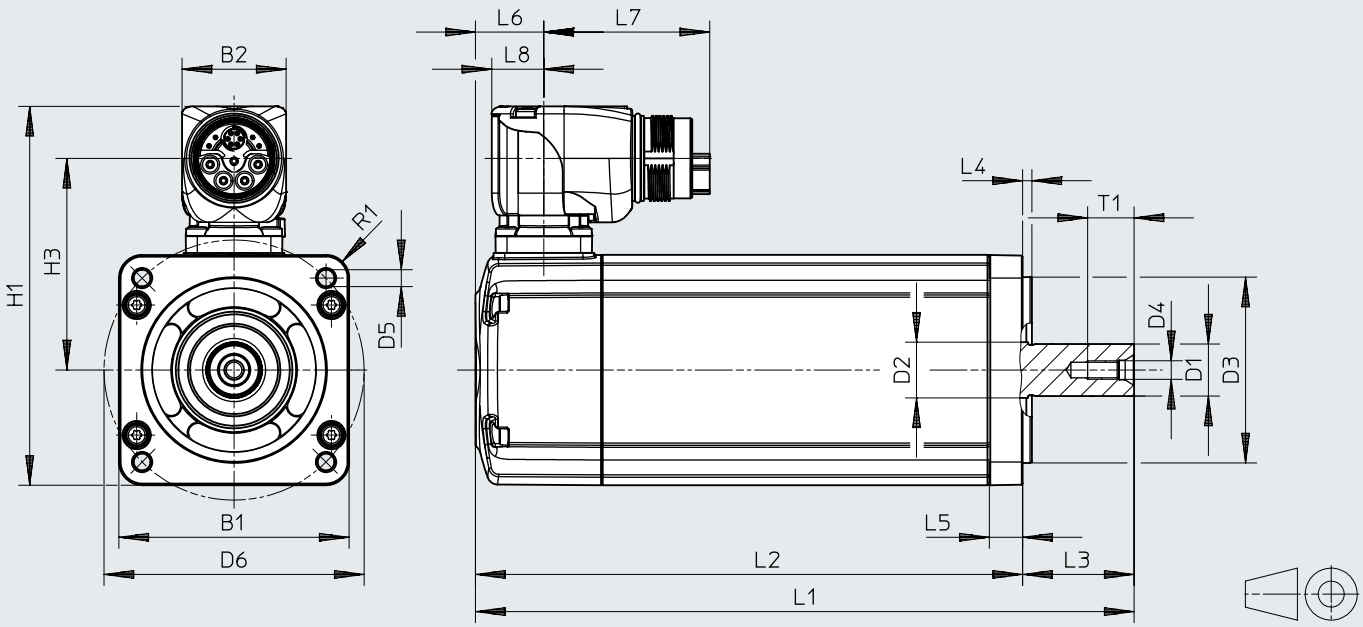


Note

Only motors without feather key may be used in combination with parallel and axial kits (EAMM-U/EAMM-A).

	Length	Interface code, motor	B1	B2	D1 ø h6	D2 ø	D3 ø h7	D4	D5 ø
60	S	60P	62	28	14	15	50	M5	4.3
	M								
	L								
80	S	80P	82	28	19	20	70	M6	5.3
	M								
	L								
	H								
100	S	100A	104	28	19	20	95	M6	9
	M								
	L								
	H								

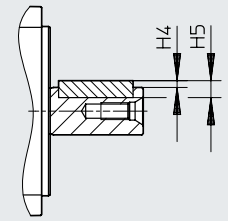
	Length	D6 ø ±0.3	H1	H3	L1		L2		L3
						With brake	±2	With brake ±2	
60	S	70	102	57	144.5	177.3	114.5	147.3	$30^{+0.5/-0.2}$
	M				164.5	197.3	134.5	167.3	
	L				184.5	217.3	154.5	187.3	
80	S	90	122	67	165.2	209.4	130.2	174.4	$35^{+0.4/-0.2}$
	M				185.2	229.4	150.2	194.4	
	L				205.2	249.4	170.2	214.4	
	H				225.2	269.4	190.2	234.4	
100	S	115	144	78	227.5	271.7	187.5	231.7	$40^{+0.4/-0.2}$
	M				257.5	301.7	217.5	261.7	
	L				287.5	330.7	247.5	290.7	
	H				344.5	388.7	304.5	348.7	

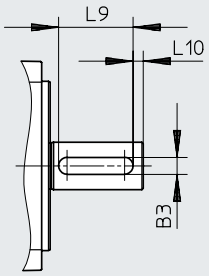
Datasheet

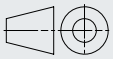
	Length	L4 ±0.2	L5 ±0.3	L6	L7	L8	R1	T1
60	S	2.5	9	18.4	44.7	14	6	12.5
	M							
	L							
80	S	3	10	20.1	44.7	14	8	16
	M							
	L							
	H							
100	S	3	12	22.7	44.7	14	11	16
	M							
	L							
	H							

Dimensions – Feather key for flange size 60, 80, 100

Download CAD data ➔ www.festo.com



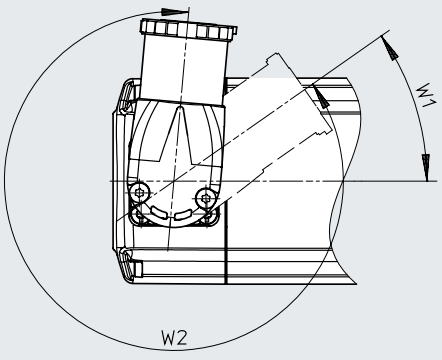




	B3	H4	H5	L9	L10	Feather key
EMMT-AS-60-...-K	5	2	5	22	3	DIN 6885 A 5x5x22
EMMT-AS-80-...-K	6	2.5	6	22	3	DIN 6885 A 6x6x22
EMMT-AS-100-...-K	6	2.5	6	32	3	DIN 6885 A 6x6x32

Dimensions – Connection for flange size 60, 80, 100

Download CAD data ➔ www.festo.com

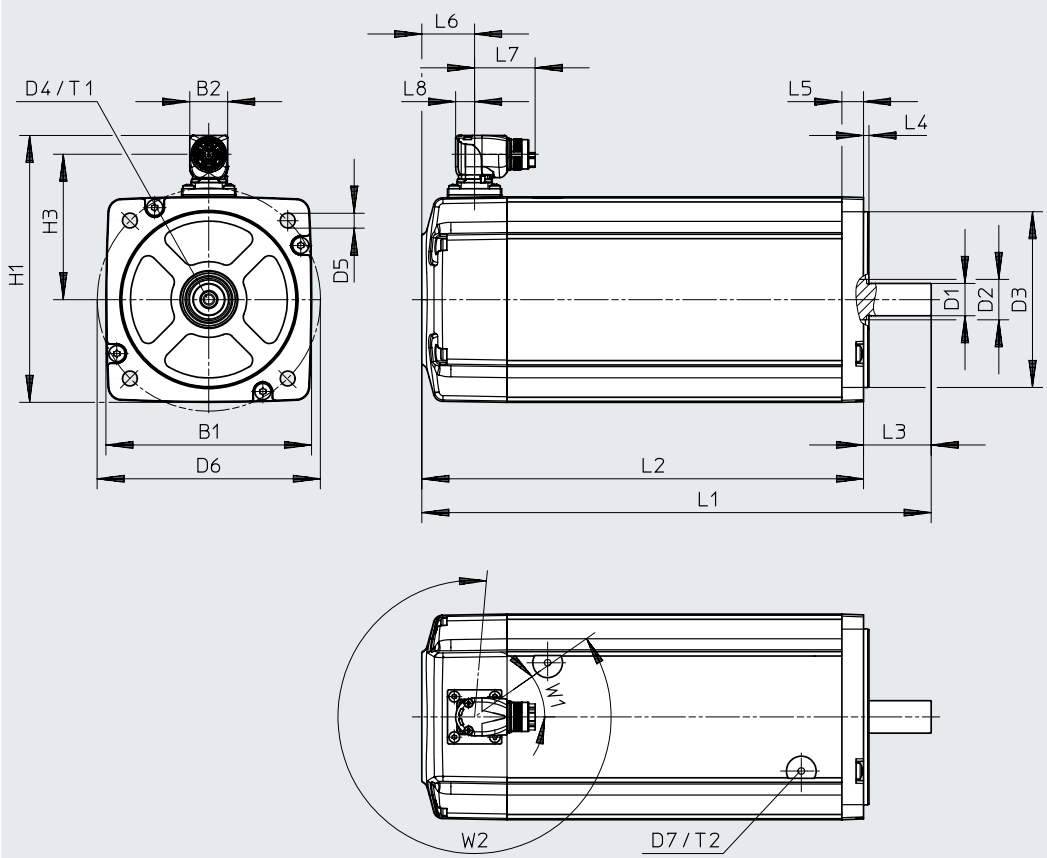


	W1	W2
EMMT-AS-...	–35°	310°

Datasheet

Dimensions – Flange size 150, 190

Download CAD data ➔ www.festo.com



Note

Only motors without feather key may be used in combination with parallel and axial kits (EAMM-U/EAMM-A).

	Length	Winding	Interface code, motor	B1	B2	D1 ø h6	D2 ø	D3 ø h7	D4	D5 ø	D6 ø ±0.3
150	M	HS	150A	152	28	24	30	130	M8	11	165
	L	HT									
	M	HV			42.8						
	L	HS									
190	M	HS	190B	190	42.8	32	40	180	M8	13.5	215
	L	HT									

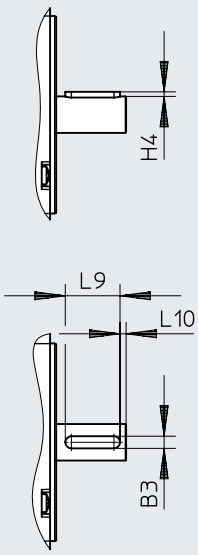
	Length	Winding	D7	H1	H3	L1		L2		L3	L4 ±0.2
							With brake	±2	With brake ±2		
150	M	HS	M6	197.4	107.4	316.5	367.5	266.5	317.5	$50^{+0.5/-1}$	4
	L	HT				376.5	440.5	326.5	390.5		
	M	HV		219.8	117.8	316.5	367.5	266.5	317.5		
	L	HS				376.5	440.5	326.5	390.5		
190	M	HS	M8	258.3	137.3	414.5	477	356.5	419	$58^{+0.5/-1}$	5
	L	HT				474.5	537	416.5	479		

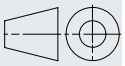
	Length	Winding	L5 ±0.3	L6	L7	L8	T1	T2	W1	W2
150	M	HS	16	39	44.7	14	19	13	–35	310
	L	HT								
	M	HV			80.9	19.9				
	L	HS								
190	M	HS	18	46	80.9	19.9	28	13	–35	310
	L	HT								

Datasheet

Dimensions – Feather key for flange size 150, 190

Download CAD data ➔ www.festo.com

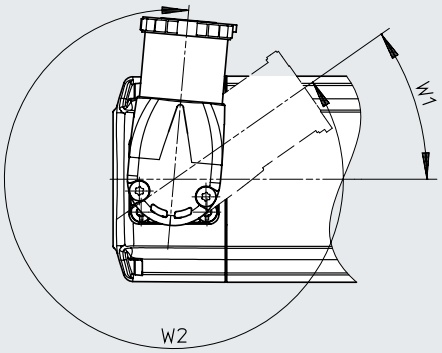




	B3 h9	H4	L9 –0.2	L10	Feather key
EMMT-AS-150-...-K	8	3	36	4	DIN 6885 A 8x7x36
EMMT-AS-190-...-K	10	3	45	4	DIN 6885 A 10x8x45

Dimensions – Connection for flange size 150, 190

Download CAD data ➔ www.festo.com



	W1	W2
EMMT-AS-...	–35°	310°

Datasheet

Ordering data										
Length				Winding		Measuring unit			Part no.	Type
Short	Medium	Long	Very long	Low voltage, standard	High voltage, standard	Encoder, single-turn	Encoder, multi-turn	Brake		
Flange size 60										
■				■		■			**5242196**	**EMMT-AS-60-S-LS-RS**
■				■			■		**5242197**	**EMMT-AS-60-S-LS-RM**
■				■		■		■	**5242198**	**EMMT-AS-60-S-LS-RSB**
■				■			■	■	**5242199**	**EMMT-AS-60-S-LS-RMB**
■					■	■			**5242200**	**EMMT-AS-60-S-HS-RS**
■					■		■		**5242201**	**EMMT-AS-60-S-HS-RM**
■					■	■		■	**5242202**	**EMMT-AS-60-S-HS-RSB**
■					■		■	■	**5242203**	**EMMT-AS-60-S-HS-RMB**
	■			■		■			**5242204**	**EMMT-AS-60-M-LS-RS**
	■			■			■		**5242205**	**EMMT-AS-60-M-LS-RM**
	■			■		■		■	**5242206**	**EMMT-AS-60-M-LS-RSB**
	■			■			■	■	**5242207**	**EMMT-AS-60-M-LS-RMB**
	■				■	■			**5242208**	**EMMT-AS-60-M-HS-RS**
	■				■		■		**5242209**	**EMMT-AS-60-M-HS-RM**
	■				■	■		■	**5242210**	**EMMT-AS-60-M-HS-RSB**
	■				■		■	■	**5242211**	**EMMT-AS-60-M-HS-RMB**
		■		■		■			**5242212**	**EMMT-AS-60-L-LS-RS**
		■		■			■		**5242213**	**EMMT-AS-60-L-LS-RM**
		■		■		■		■	**5242214**	**EMMT-AS-60-L-LS-RSB**
		■		■			■	■	**5242215**	**EMMT-AS-60-L-LS-RMB**
		■			■	■			**5242216**	**EMMT-AS-60-L-HS-RS**
		■			■		■		**5242217**	**EMMT-AS-60-L-HS-RM**
		■			■	■		■	**5242218**	**EMMT-AS-60-L-HS-RSB**
		■			■		■	■	**5242219**	**EMMT-AS-60-L-HS-RMB**
Flange size 80										
■				■		■			**5255425**	**EMMT-AS-80-S-LS-RS**
■				■			■		**5255426**	**EMMT-AS-80-S-LS-RM**
■				■		■		■	**5255427**	**EMMT-AS-80-S-LS-RSB**
■				■			■	■	**5255428**	**EMMT-AS-80-S-LS-RMB**
■					■	■			**5255429**	**EMMT-AS-80-S-HS-RS**
■					■		■		**5255430**	**EMMT-AS-80-S-HS-RM**
■					■	■		■	**5255431**	**EMMT-AS-80-S-HS-RSB**
■					■		■	■	**5255432**	**EMMT-AS-80-S-HS-RSM**
	■			■		■			**5255433**	**EMMT-AS-80-M-LS-RS**
	■			■			■		**5255434**	**EMMT-AS-80-M-LS-RM**
	■			■		■		■	**5255435**	**EMMT-AS-80-M-LS-RSB**
	■			■			■	■	**5255436**	**EMMT-AS-80-M-LS-RMB**
	■				■	■			**5255437**	**EMMT-AS-80-M-HS-RS**
	■				■		■		**5255438**	**EMMT-AS-80-M-HS-RM**
	■				■	■		■	**5255439**	**EMMT-AS-80-M-HS-RSB**
	■				■		■	■	**5255440**	**EMMT-AS-80-M-HS-RMB**
		■		■		■			**5255441**	**EMMT-AS-80-L-LS-RS**
		■		■			■		**5255442**	**EMMT-AS-80-L-LS-RM**
		■		■		■		■	**5255443**	**EMMT-AS-80-L-LS-RSB**
		■		■			■	■	**5255444**	**EMMT-AS-80-L-LS-RMB**
		■			■	■			**5255445**	**EMMT-AS-80-L-HS-RS**
		■			■		■		**5255446**	**EMMT-AS-80-L-HS-RM**
		■			■	■		■	**5255447**	**EMMT-AS-80-L-HS-RSB**
		■			■		■	■	**5255448**	**EMMT-AS-80-L-HS-RMB**
			■		■	■			**610909**	**EMMT-AS-80-H-HS-RS**
			■		■		■		**8172104**	**EMMT-AS-80-H-HS-RM**
			■		■	■		■	**610908**	**EMMT-AS-80-H-HS-RSB**
			■		■		■	■	**8172026**	**EMMT-AS-80-H-HS-RMB**

Datasheet

Ordering data										
Length				Winding		Measuring unit		Brake	Part no.	Type
Short	Medium	Long	Very long	Low voltage, standard	High voltage, standard	Encoder, single-turn	Encoder, multi-turn			
Flange size 100										
■					■	■			**5255519**	**EMMT-AS-100-S-HS-RS**
■					■		■		**5255521**	**EMMT-AS-100-S-HS-RM**
■					■	■		■	**5255528**	**EMMT-AS-100-S-HS-RSB**
■					■		■	■	**5255529**	**EMMT-AS-100-S-HS-RMB**
	■				■	■			**5255530**	**EMMT-AS-100-M-HS-RS**
	■				■		■		**5255531**	**EMMT-AS-100-M-HS-RM**
	■				■	■		■	**5255532**	**EMMT-AS-100-M-HS-RSB**
	■				■		■	■	**5255533**	**EMMT-AS-100-M-HS-RMB**
		■			■	■			**5255534**	**EMMT-AS-100-L-HS-RS**
		■			■		■		**5255535**	**EMMT-AS-100-L-HS-RM**
		■			■	■		■	**5255536**	**EMMT-AS-100-L-HS-RSB**
		■			■		■	■	**5255537**	**EMMT-AS-100-L-HS-RMB**
			■		■	■			**8182017**	**EMMT-AS-100-H-HS-RS**
			■		■		■		**8182016**	**EMMT-AS-100-H-HS-RM**
			■		■	■		■	**8182015**	**EMMT-AS-100-H-HS-RSB**
			■		■		■	■	**8182014**	**EMMT-AS-100-H-HS-RMB**

Datasheet

Ordering data										
Length		Winding			Measuring unit			Brake	Part no.	Type
Medium	Long	High voltage			Encoder					
		Standard	Speed-optimised	Torque-optimised	Single-turn	Multi-turn	Safety, multi-turn			
Flange size 150										
■		■			■				**8148270**	**EMMT-AS-150-M-HS-R2S**
■		■				■			**8148271**	**EMMT-AS-150-M-HS-R2M**
■		■					■		**8148272**	**EMMT-AS-150-M-HS-R2MY**
■		■			■			■	**8148273**	**EMMT-AS-150-M-HS-R2SB**
■		■				■		■	**8148274**	**EMMT-AS-150-M-HS-R2MB**
■		■					■	■	**8148275**	**EMMT-AS-150-M-HS-R2MYB**
■			■		■				**8148276**	**EMMT-AS-150-M-HV-R3S**
■			■			■			**8148277**	**EMMT-AS-150-M-HV-R3M**
■			■				■		**8148278**	**EMMT-AS-150-M-HV-R3MY**
■			■		■			■	**8148279**	**EMMT-AS-150-M-HV-R3SB**
■			■			■		■	**8148280**	**EMMT-AS-150-M-HV-R3MB**
■			■				■	■	**8148281**	**EMMT-AS-150-M-HV-R3MYB**
	■			■	■				**8148318**	**EMMT-AS-150-L-HT-R2S**
	■			■		■			**8148319**	**EMMT-AS-150-L-HT-R2M**
	■			■			■		**8148320**	**EMMT-AS-150-L-HT-R2MY**
	■			■	■			■	**8148321**	**EMMT-AS-150-L-HT-R2SB**
	■			■		■		■	**8148322**	**EMMT-AS-150-L-HT-R2MB**
	■			■			■	■	**8148323**	**EMMT-AS-150-L-HT-R2MYB**
	■	■			■				**8148324**	**EMMT-AS-150-L-HS-R3S**
	■	■				■			**8148325**	**EMMT-AS-150-L-HS-R3M**
	■	■					■		**8148326**	**EMMT-AS-150-L-HS-R3MY**
	■	■			■			■	**8148327**	**EMMT-AS-150-L-HS-R3SB**
	■	■				■		■	**8148328**	**EMMT-AS-150-L-HS-R3MB**
	■	■					■	■	**8148329**	**EMMT-AS-150-L-HS-R3MYB**
Flange size 190										
■		■			■				**8148366**	**EMMT-AS-190-M-HS-R3S**
■		■				■			**8148367**	**EMMT-AS-190-M-HS-R3M**
■		■					■		**8148368**	**EMMT-AS-190-M-HS-R3MY**
■		■			■			■	**8148369**	**EMMT-AS-190-M-HS-R3SB**
■		■				■		■	**8148370**	**EMMT-AS-190-M-HS-R3MB**
■		■					■	■	**8148371**	**EMMT-AS-190-M-HS-R3MYB**
	■			■	■				**8148390**	**EMMT-AS-190-L-HT-R3S**
	■			■		■			**8148391**	**EMMT-AS-190-L-HT-R3M**
	■			■			■		**8148392**	**EMMT-AS-190-L-HT-R3MY**
	■			■	■			■	**8148393**	**EMMT-AS-190-L-HT-R3SB**
	■			■		■		■	**8148394**	**EMMT-AS-190-L-HT-R3MB**
	■			■			■	■	**8148395**	**EMMT-AS-190-L-HT-R3MYB**

Datasheet

Ordering data – With feather key

Length		Winding			Measuring unit			Brake	Part no.	Type
Medium	Long	High voltage			Encoder					
		Standard	Speed-optimised	Torque-optimised	Single-turn	Multi-turn	Safety, multi-turn			
Flange size 150										
■		■			■				**8148282**	**EMMT-AS-150-MK-HS-R2S**
■		■				■			**8148283**	**EMMT-AS-150-MK-HS-R2M**
■		■					■		**8148284**	**EMMT-AS-150-MK-HS-R2MY**
■		■			■			■	**8148285**	**EMMT-AS-150-MK-HS-R2SB**
■		■				■		■	**8148286**	**EMMT-AS-150-MK-HS-R2MB**
■		■					■	■	**8148287**	**EMMT-AS-150-MK-HS-R2MYB**
■			■		■				**8148288**	**EMMT-AS-150-MK-HV-R3S**
■			■			■			**8148289**	**EMMT-AS-150-MK-HV-R3M**
■			■				■		**8148290**	**EMMT-AS-150-MK-HV-R3MY**
■			■		■			■	**8148291**	**EMMT-AS-150-MK-HV-R3SB**
■			■			■		■	**8148292**	**EMMT-AS-150-MK-HV-R3MB**
■			■				■	■	**8148293**	**EMMT-AS-150-MK-HV-R3MYB**
	■			■	■				**8148330**	**EMMT-AS-150-LK-HT-R2S**
	■			■		■			**8148331**	**EMMT-AS-150-LK-HT-R2M**
	■			■			■		**8148332**	**EMMT-AS-150-LK-HT-R2MY**
	■			■	■			■	**8148333**	**EMMT-AS-150-LK-HT-R2SB**
	■			■		■		■	**8148334**	**EMMT-AS-150-LK-HT-R2MB**
	■			■			■	■	**8148335**	**EMMT-AS-150-LK-HT-R2MYB**
	■	■			■				**8148336**	**EMMT-AS-150-LK-HS-R3S**
	■	■				■			**8148337**	**EMMT-AS-150-LK-HS-R3M**
	■	■					■		**8148338**	**EMMT-AS-150-LK-HS-R3MY**
	■	■			■			■	**8148339**	**EMMT-AS-150-LK-HS-R3SB**
	■	■				■		■	**8148340**	**EMMT-AS-150-LK-HS-R3MB**
	■	■					■	■	**8148341**	**EMMT-AS-150-LK-HS-R3MYB**
Flange size 190										
■		■			■				**8148372**	**EMMT-AS-190-MK-HS-R3S**
■		■				■			**8148373**	**EMMT-AS-190-MK-HS-R3M**
■		■					■		**8148374**	**EMMT-AS-190-MK-HS-R3MY**
■		■			■			■	**8148375**	**EMMT-AS-190-MK-HS-R3SB**
■		■				■		■	**8148376**	**EMMT-AS-190-MK-HS-R3MB**
■		■					■	■	**8148377**	**EMMT-AS-190-MK-HS-R3MYB**
	■			■	■				**8148396**	**EMMT-AS-190-LK-HT-R3S**
	■			■		■			**8148397**	**EMMT-AS-190-LK-HT-R3M**
	■			■			■		**8148398**	**EMMT-AS-190-LK-HT-R3MY**
	■			■	■			■	**8148399**	**EMMT-AS-190-LK-HT-R3SB**
	■			■		■		■	**8148400**	**EMMT-AS-190-LK-HT-R3MB**
	■			■			■	■	**8148401**	**EMMT-AS-190-LK-HT-R3MYB**

Datasheet

Ordering data – With rotary shaft seal										
Length		Winding			Measuring unit			Brake	Part no.	Type
Medium	Long	High voltage			Encoder					
		Standard	Speed-optimised	Torque-optimised	Single-turn	Multi-turn	Safety, multi-turn			
Flange size 150										
■		■			■				**8148294**	**EMMT-AS-150-MR-HS-R2S**
■		■				■			**8148295**	**EMMT-AS-150-MR-HS-R2M**
■		■					■		**8148296**	**EMMT-AS-150-MR-HS-R2MY**
■		■			■			■	**8148297**	**EMMT-AS-150-MR-HS-R2SB**
■		■				■		■	**8148298**	**EMMT-AS-150-MR-HS-R2MB**
■		■					■	■	**8148299**	**EMMT-AS-150-MR-HS-R2MYB**
■			■		■				**8148300**	**EMMT-AS-150-MR-HV-R3S**
■			■			■			**8148301**	**EMMT-AS-150-MR-HV-R3M**
■			■				■		**8148302**	**EMMT-AS-150-MR-HV-R3MY**
■			■		■			■	**8148303**	**EMMT-AS-150-MR-HV-R3SB**
■			■			■		■	**8148304**	**EMMT-AS-150-MR-HV-R3MB**
■			■				■	■	**8148305**	**EMMT-AS-150-MR-HV-R3MYB**
	■			■	■				**8148342**	**EMMT-AS-150-LR-HT-R2S**
	■			■		■			**8148343**	**EMMT-AS-150-LR-HT-R2M**
	■			■			■		**8148344**	**EMMT-AS-150-LR-HT-R2MY**
	■			■	■			■	**8148345**	**EMMT-AS-150-LR-HT-R2SB**
	■			■		■		■	**8148346**	**EMMT-AS-150-LR-HT-R2MB**
	■			■			■	■	**8148347**	**EMMT-AS-150-LR-HT-R2MYB**
	■	■			■				**8148348**	**EMMT-AS-150-LR-HS-R3S**
	■	■				■			**8148349**	**EMMT-AS-150-LR-HS-R3M**
	■	■					■		**8148350**	**EMMT-AS-150-LR-HS-R3MY**
	■	■			■			■	**8148351**	**EMMT-AS-150-LR-HS-R3SB**
	■	■				■		■	**8148352**	**EMMT-AS-150-LR-HS-R3MB**
	■	■					■	■	**8148353**	**EMMT-AS-150-LR-HS-R3MYB**
Flange size 190										
■		■			■				**8148378**	**EMMT-AS-190-MR-HS-R3S**
■		■				■			**8148379**	**EMMT-AS-190-MR-HS-R3M**
■		■					■		**8148380**	**EMMT-AS-190-MR-HS-R3MY**
■		■			■			■	**8148381**	**EMMT-AS-190-MR-HS-R3SB**
■		■				■		■	**8148382**	**EMMT-AS-190-MR-HS-R3MB**
■		■					■	■	**8148383**	**EMMT-AS-190-MR-HS-R3MYB**
	■			■	■				**8148402**	**EMMT-AS-190-LR-HT-R3S**
	■			■		■			**8148403**	**EMMT-AS-190-LR-HT-R3M**
	■			■			■		**8148404**	**EMMT-AS-190-LR-HT-R3MY**
	■			■	■			■	**8148405**	**EMMT-AS-190-LR-HT-R3SB**
	■			■		■		■	**8148406**	**EMMT-AS-190-LR-HT-R3MB**
	■			■			■	■	**8148407**	**EMMT-AS-190-LR-HT-R3MYB**

Datasheet

Ordering data – With feather key and rotary shaft seal

Length		Winding			Measuring unit			Brake	Part no.	Type
Medium	Long	High voltage			Encoder					
		Standard	Speed-optimised	Torque-optimised	Single-turn	Multi-turn	Safety, multi-turn			
Flange size 150										
■		■			■				**8148306**	**EMMT-AS-150-MKR-HS-R2S**
■		■				■			**8148307**	**EMMT-AS-150-MKR-HS-R2M**
■		■					■		**8148308**	**EMMT-AS-150-MKR-HS-R2MY**
■		■			■			■	**8148309**	**EMMT-AS-150-MKR-HS-R2SB**
■		■				■		■	**8148310**	**EMMT-AS-150-MKR-HS-R2MB**
■		■					■	■	**8148311**	**EMMT-AS-150-MKR-HS-R2MYB**
■			■		■				**8148312**	**EMMT-AS-150-MKR-HV-R3S**
■			■			■			**8148313**	**EMMT-AS-150-MKR-HV-R3M**
■			■				■		**8148314**	**EMMT-AS-150-MKR-HV-R3MY**
■			■		■			■	**8148315**	**EMMT-AS-150-MKR-HV-R3SB**
■			■			■		■	**8148316**	**EMMT-AS-150-MKR-HV-R3MB**
■			■				■	■	**8148317**	**EMMT-AS-150-MKR-HV-R3MYB**
	■			■	■				**8148354**	**EMMT-AS-150-LKR-HT-R2S**
	■			■		■			**8148355**	**EMMT-AS-150-LKR-HT-R2M**
	■			■			■		**8148356**	**EMMT-AS-150-LKR-HT-R2MY**
	■			■	■			■	**8148357**	**EMMT-AS-150-LKR-HT-R2SB**
	■			■		■		■	**8148358**	**EMMT-AS-150-LKR-HT-R2MB**
	■			■			■	■	**8148359**	**EMMT-AS-150-LKR-HT-R2MYB**
	■	■			■				**8148360**	**EMMT-AS-150-LKR-HS-R3S**
	■	■				■			**8148361**	**EMMT-AS-150-LKR-HS-R3M**
	■	■					■		**8148362**	**EMMT-AS-150-LKR-HS-R3MY**
	■	■			■			■	**8148363**	**EMMT-AS-150-LKR-HS-R3SB**
	■	■				■		■	**8148364**	**EMMT-AS-150-LKR-HS-R3MB**
	■	■					■	■	**8148365**	**EMMT-AS-150-LKR-HS-R3MYB**
Flange size 190										
■		■			■				**8148384**	**EMMT-AS-190-MKR-HS-R3S**
■		■				■			**8148385**	**EMMT-AS-190-MKR-HS-R3M**
■		■					■		**8148386**	**EMMT-AS-190-MKR-HS-R3MY**
■		■			■			■	**8148387**	**EMMT-AS-190-MKR-HS-R3SB**
■		■				■		■	**8148388**	**EMMT-AS-190-MKR-HS-R3MB**
■		■					■	■	**8148389**	**EMMT-AS-190-MKR-HS-R3MYB**
	■			■	■				**8148408**	**EMMT-AS-190-LKR-HT-R3S**
	■			■		■			**8148409**	**EMMT-AS-190-LKR-HT-R3M**
	■			■			■		**8148410**	**EMMT-AS-190-LKR-HT-R3MY**
	■			■	■			■	**8148411**	**EMMT-AS-190-LKR-HT-R3SB**
	■			■		■		■	**8148412**	**EMMT-AS-190-LKR-HT-R3MB**
	■			■			■	■	**8148413**	**EMMT-AS-190-LKR-HT-R3MYB**

Ordering data – Modular product system

Ordering table

Size	60	80	100	Conditions	Code		Enter code
Module no.	**4808568**	**4595815**	**5185818**				
Series	EMMT				**EMMT**		EMMT
Motor technology	AC synchronous				**-AS**		-AS
Motor flange size	60 mm	80 mm	100 mm		**-**		-
Length	Short				**-S**		
	Medium				**-M**		
	Long				**-L**		
	–	Very long			**-H**		
Output shaft	Smooth shaft						
	Shaft to DIN 6885				**K**		
Radial shaft seal	None						
	With standard shaft seal			[1]	**R**		
Winding	Low voltage, standard			[2]	**-LS**		
	High voltage, standard				**-HS**		
Electrical connection	Angled plug, rotatable				**-R**		-R
Measuring unit	Absolute encoder, single-turn				**S**		
	Absolute encoder, multi-turn				**M**		
Brake	None						
	With brake				**B**		

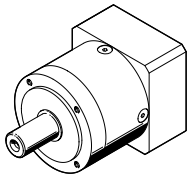
[1] R When using the radial shaft seal, a reduction (derating) of the nominal torque of 10% must be taken into account

[2] LS Not in combination with length H

Accessories

Ordering data – Gear unit

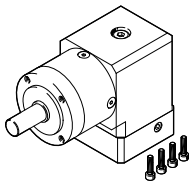
Datasheets → Internet: emga



For motor	Gear ratio	Part no.	Type
EMMT-AS-60	3	**2297686**	**EMGA-60-P-G3-EAS-60**
	5	**2297687**	**EMGA-60-P-G5-EAS-60**
	8	**8141735**	**EMGA-60-P-G8-EAS-60**
	12	**8141736**	**EMGA-60-P-G12-EAS-60**
	20	**8141737**	**EMGA-60-P-G20-EAS-60**
EMMT-AS-80	3	**2297690**	**EMGA-80-P-G3-EAS-80**
	5	**2297691**	**EMGA-80-P-G5-EAS-80**
	8	**8141741**	**EMGA-80-P-G8-EAS-80**
	12	**8141742**	**EMGA-80-P-G12-EAS-80**
	20	**8141743**	**EMGA-80-P-G20-EAS-80**
EMMT-AS-100	3	**552194**	**EMGA-80-P-G3-SAS-100**
	5	**552195**	**EMGA-80-P-G5-SAS-100**
	8	**8141750**	**EMGA-80-P-G8-SAS-100**
	12	**8141751**	**EMGA-80-P-G12-SAS-100**
	20	**8141752**	**EMGA-80-P-G20-SAS-100**
	3	**552196**	**EMGA-120-P-G3-SAS-100**
	5	**552197**	**EMGA-120-P-G5-SAS-100**
	8	**8141753**	**EMGA-120-P-G8-SAS-100**
	12	**8141754**	**EMGA-120-P-G12-SAS-100**
	20	**8141755**	**EMGA-120-P-G20-SAS-100**
EMMT-AS-150	3	**552198**	**EMGA-120-P-G3-SAS-140**
	5	**552199**	**EMGA-120-P-G5-SAS-140**
	8	**8141759**	**EMGA-120-P-G8-SAS-140**
	12	**8141760**	**EMGA-120-P-G12-SAS-140**
	20	**8141761**	**EMGA-120-P-G20-SAS-140**
	3	**552200**	**EMGA-160-P-G3-SAS-140**
	5	**552201**	**EMGA-160-P-G5-SAS-140**

Ordering data – Right-angle gear unit

Datasheets → Internet: emga



For motor	Gear ratio	Part no.	Type
EMMT-AS-60	3	**8085344**	**EMGA-60-A-G3-60P**
	5	**8085345**	**EMGA-60-A-G5-60P**
	8	**8141738**	**EMGA-60-A-G8-60P**
	12	**8141739**	**EMGA-60-A-G12-60P**
	20	**8141740**	**EMGA-60-A-G20-60P**
EMMT-AS-80	3	**8085346**	**EMGA-80-A-G3-80P**
	5	**8085347**	**EMGA-80-A-G5-80P**
	8	**8141744**	**EMGA-80-A-G8-80P**
	12	**8141745**	**EMGA-80-A-G12-80P**
	20	**8141746**	**EMGA-80-A-G20-80P**
EMMT-AS-100	3	**8085348**	**EMGA-80-A-G3-100A**
	5	**8085349**	**EMGA-80-A-G5-100A**
	8	**8141747**	**EMGA-80-A-G8-100A**
	12	**8141748**	**EMGA-80-A-G12-100A**
	20	**8141749**	**EMGA-80-A-G20-100A**

Accessories

Ordering data – Rotary shaft seal

	For flange size	Description	Part no.	Type
	60	• For the motors EMMT-AS • Protection to IP65 is achieved in combination with the sealing ring • Based on the operating conditions, the shaft seal must be replaced after a maximum of 5000 operating hours • When using the radial shaft seal, a reduction (derating) of the nominal torque of 10% must be taken into account • Information on installation/replacement ➔ www.festo.com/sp	**8079786**	**EASS-RS-T-A-4P-15-30-B7**
	80, 100		**8079785**	**EASS-RS-T-A-4P-20-40-B7**
	150		**8154298**	**EASS-RS-T-A-4P-30-42-B7**
	190		**8154299**	**EASS-RS-T-A-4P-40-55-B7**

Recommended cable cross section at an ambient temperature of 40°C as a function of cable length and servo drive CMMT-AS

	Up to 5 m	Up to 10 m	Up to 20 m	Up to 30 m	Up to 40 m	Up to 50 m	Up to 75 m	Up to 100 m
EMMT-AS-60-S-...	Q7							Q10
EMMT-AS-60-M-...					Q9			
EMMT-AS-60-L-...	Q9							
EMMT-AS-80-S-...	Q7							
EMMT-AS-80-M-...					Q9			
EMMT-AS-80-L-...	Q9						Q10	
EMMT-AS-80-H-...								
EMMT-AS-100-S-...	Q7					Q10		
EMMT-AS-100-M-...	Q9							
EMMT-AS-100-L-...					Q10			
EMMT-AS-100-H-...								
EMMT-AS-150-M-HS-... / L-HT-...								
EMMT-AS-150-M-HV-... / L-HS-...	Q11				Q12			
EMMT-AS-190-...								
EMMT-AS-60-S-...-B	Q7							Q10
EMMT-AS-60-M-...-B					Q9			
EMMT-AS-60-L-...-B	Q9							
EMMT-AS-80-S-...-B	Q7							
EMMT-AS-80-M-...-B					Q9			
EMMT-AS-80-L-...-B	Q9						Q10	
EMMT-AS-80-H-...-B								
EMMT-AS-100-S-...-B	Q7					Q10		
EMMT-AS-100-M-...-B	Q9							
EMMT-AS-100-L-...-B					Q10			
EMMT-AS-100-H-...-B								
EMMT-AS-150-M-HS-... / L-HT-...-B								
EMMT-AS-150-M-HV-... / L-HS-...-B	Q11				Q12			
EMMT-AS-190-...-B								

Q7 = 0.75 mm²
Q9 = 1.5 mm²
Q10 = 2.5 mm²
Q11 = 4 mm²
Q12 = 6 mm²
No cable

Note

- When using other servo drives, the max. cable lengths may be shorter or the cable cross sections may be different.
- For cable lengths › 25 m, prior technical clarification is recommended.
- Motors with a holding brake require a logic power supply of UB ≥ 24 V DC. In this case, the recommended motor cables from Festo with the appropriate cross sections should also be used.
- This recommendation is made on the basis that the servo drive is connected to the supply network via a short connecting cable and network-side voltage drops can therefore be neglected.

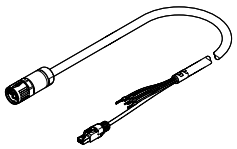
Accessories

Technical data – Motor cables				
Cable cross section		0.75 mm²	1.5 mm²	2.5 mm²
Type		NEBM-M23G15-...-Q7N	NEBM-M23G15-...-Q9N	NEBM-M23G15-...-Q10N
Cable composition		4x 0.75 mm² + 1x (2x 0.75 mm²) + 1x (2x 0.24 mm² + 2x 2x0.15 mm²)	4x 1.5 mm² + 1x (2x 0.75 mm²) + 1x (2x 0.24 mm² + 2x 2x 0.15 mm²)	4x 2.5 mm² + 1x (2x 1.0 mm²) + 1x (2x 0.24 mm² + 2x 2x 0.15 mm²)
		Shielded		
Cable diameter	[mm]	12	12.8	13.9
Min. bending radius				
With fixed cable installation	[mm]	≥ 48	≥ 51.2	≥ 55.6
With flexible cable installation	[mm]	≥ 90	≥ 96	≥ 97.3
Pollution degree		1	3	3
Ambient temperature				
With fixed cable installation	[°C]	–40 ... +90		
With flexible cable installation	[°C]	–25 ... +80		
Cable characteristic		Suitable for energy chains		
Degree of protection		IP67 (when mounted)		
Material		TPE-U (PUR)		
Note on materials		RoHS-compliant		
LABS (PWIS) conformity		VDMA24364-B2-L		
CE marking (see declaration of conformity)		To EU Low Voltage Directive		
		To EU RoHS Directive		
UKCA marking (see declaration of conformity)		To UK regulations for electrical equipment		
		To UK RoHS instructions		

Technical data – Motor cables			
Cable cross section		4 mm²	6 mm²
Type		NEBM-M40G15-...-Q11N	NEBM-M40G15-...-Q12N
Cable composition		4x 4 mm² + 1x (2x 1.5 mm²) + 1x (2x 0.24 mm² + 2x 2x 0.15 mm²)	4x 6 mm² + 1x (2x 1.5 mm²) + 1x (2x 0.24 mm² + 2x 2x 0.15 mm²)
		Shielded	
Cable diameter	[mm]	16.4	18.7
Min. bending radius			
With fixed cable installation	[mm]	≥ 65.6	≥ 74.8
With flexible cable installation	[mm]	≥ 123	≥ 140.25
Pollution degree		3	3
Ambient temperature			
With fixed cable installation	[°C]	–40 ... +90	
With flexible cable installation	[°C]	–25 ... +80	
Cable characteristic		Suitable for energy chains	
Degree of protection		IP67 (when mounted)	
Material		TPE-U (PUR)	
Note on materials		RoHS-compliant	
LABS (PWIS) conformity		VDMA24364-B2-L	
CE marking (see declaration of conformity)		To EU Low Voltage Directive	
		To EU RoHS Directive	
UKCA marking (see declaration of conformity)		To UK regulations for electrical equipment	
		To UK RoHS instructions	

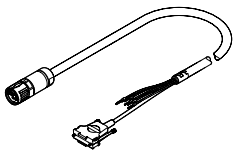
Accessories

Ordering data – Motor cable for servo drive CMMT-AS

	Cable cross section	Cable length [m]	Part no.	Type
	0.75 mm²	2.5	5251374	NEBM-M23G15-EH-2.5-Q7N-R3LEG14
		5	5251375	NEBM-M23G15-EH-5-Q7N-R3LEG14
		7.5	5251376	NEBM-M23G15-EH-7.5-Q7N-R3LEG14
		10	5251377	NEBM-M23G15-EH-10-Q7N-R3LEG14
		15	5251378	NEBM-M23G15-EH-15-Q7N-R3LEG14
		20	5251379	NEBM-M23G15-EH-20-Q7N-R3LEG14
		X length[1)]	5251373	NEBM-M23G15-EH-...-Q7N-R3LEG14
	1.5 mm²	2.5	5251381	NEBM-M23G15-EH-2.5-Q9N-R3LEG14
		5	5251382	NEBM-M23G15-EH-5-Q9N-R3LEG14
		7.5	5251383	NEBM-M23G15-EH-7.5-Q9N-R3LEG14
		10	5251384	NEBM-M23G15-EH-10-Q9N-R3LEG14
		15	5251385	NEBM-M23G15-EH-15-Q9N-R3LEG14
		20	5251386	NEBM-M23G15-EH-20-Q9N-R3LEG14
		X length[1)]	5251380	NEBM-M23G15-EH-...-Q9N-R3LEG14
	2.5 mm²	2.5	5251388	NEBM-M23G15-EH-2.5-Q10N-R3LEG14
		5	5251389	NEBM-M23G15-EH-5-Q10N-R3LEG14
		7.5	5251390	NEBM-M23G15-EH-7.5-Q10N-R3LEG14
		10	5251391	NEBM-M23G15-EH-10-Q10N-R3LEG14
		15	5251392	NEBM-M23G15-EH-15-Q10N-R3LEG14
		20	5251393	NEBM-M23G15-EH-20-Q10N-R3LEG14
		X length[1)]	5251387	NEBM-M23G15-EH-...-Q10N-R3LEG14
	4 mm²	2.5	5251395	NEBM-M40G15-EH-2.5-Q11N-R3LEG14
		5	5251396	NEBM-M40G15-EH-5-Q11N-R3LEG14
		7.5	5251397	NEBM-M40G15-EH-7.5-Q11N-R3LEG14
		10	5251398	NEBM-M40G15-EH-10-Q11N-R3LEG14
		15	5251399	NEBM-M40G15-EH-15-Q11N-R3LEG14
		20	5251400	NEBM-M40G15-EH-20-Q11N-R3LEG14
		X length[1)]	5251394	NEBM-M40G15-EH-...-Q11N-R3LEG14
	6 mm²	X length[1)]	5251401	NEBM-M40G15-EH-...-Q12N-R3LEG14

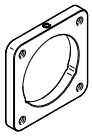
1) Choice of cable lengths: 0.5 ... 99.9 m, in increments of 0.1 m.

Ordering data – Motor cable for motor controller CMMP-AS

	Cable cross section	Cable length [m]	Part no.	Type
	0.75 mm²	5	8190885	NEBM-M23G15-EH-2.5-Q7N-S1LEG21
		7,5	8190886	NEBM-M23G15-EH-7.5-Q7N-S1LEG21
		10	8190887	NEBM-M23G15-EH-10-Q7N-S1LEG21
		X length[1)]	8190874	NEBM-M23/M40
	1,5 mm²	5	8190888	NEBM-M23G15-EH-2.5-Q9N-S1LEG21
		7,5	8190889	NEBM-M23G15-EH-7.5-Q9N-S1LEG21
		10	8190890	NEBM-M23G15-EH-10-Q9N-S1LEG21
		X length[1)]	8190874	NEBM-M23/M40
	4 mm²	X length[1)]	8190874	NEBM-M23/M40
	6 mm²	X length[1)]	8190874	NEBM-M23/M40

1) Choice of cable lengths: 0.5 ... 99.9 m, in increments of 0.1 m.

Ordering data – Mounting flange for fixing the motor cable plug (e.g. on the control cabinet)

	Note on materials	Part no.	Type
	RoHS-compliant	8201098	NEAM-MF-M23
		8201099	NEAM-MF-M40