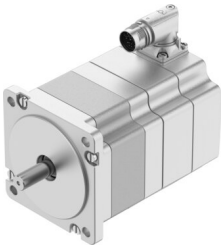
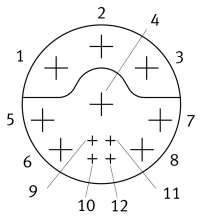
Stepper motor
EMMT-ST-87-S-RSB

Part number: 8156189





Data sheet

Feature	Value
Ambient temperature	-15 °C...40 °C
Note on ambient temperature	Up to 80°C with derating -2%/°C
Max. installation height	4000 m
Note on max. installation height	As of 1,000 m: only with derating of -1.0% per 100 m
Storage temperature	-20 °C...70 °C
Relative air humidity	0 - 90% Non-condensing
Conforms to standard	IEC 60034
Temperature class as per EN 60034-1	B
Max. winding temperature	130 °C
Rating class as per EN 60034-1	S1
Motor type to EN 60034-7	IM B5 IM V1 IM V3
Mounting position	Any
Degree of protection	IP40
Note on degree of protection	IP40 motor shaft IP65 for motor housing, incl. connection technology
Interface code, motor out	87A
Electrical connection 1, connection type	Hybrid plug
Electrical connection 1, connector system	M17x0.75
Electrical connection 1, number of connections/cores	12
Note on materials	RoHS compliant
Corrosion resistance class CRC	0 - No corrosion stress
LABS (PWIS) conformity	VDMA24364 zone III
Vibration resistance	Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6
Shock resistance	Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27
Approval	RCM c UL us - Recognised (Oil)
CE mark (see declaration of conformity)	To EU EMC Directive

Feature	Value
	In accordance with EU RoHS Directive
UKCA marking (see declaration of conformity)	To UK instructions for EMC To UK RoHS instructions
Certificate issuing authority	UL E342973
Nominal operating voltage DC	48 V
Number of pole pairs	50
Motor holding torque	2.4 Nm
Nominal torque	1.9 Nm
Peak torque	2.7 Nm
Nominal rotary speed	800 rpm
Max. rotational speed	2200 rpm
Max. mechanical speed	7000 rpm
Stepper angle for complete step	1.8 deg
Stepping angle tolerance	±5%
Nominal power rating of motor	159 W
Continuous stall current	9.5 A
Nominal motor current	7.8 A
Peak current	12 A
Motor constant	0.24 Nm/A
Voltage constant, phase	15.4 mVmin
Phase winding resistance	0.13 Ohm
Phase winding inductance	0.35 mH
Winding longitudinal inductivity Ld (phase)	0.56 mH
Winding cross inductivity Lq (phase)	0.35 mH
Electric time constant	1.75 ms
Thermal time constant	35 min
Thermal resistance	0.89 K/W
Measuring flange	250 x 250 x 15 mm, steel
Total mass moment of inertia of output	1.11 kgcm²
Product weight	2890 g
Permissible axial shaft load	60 N
Permissible radial shaft load	220 N
Rotor position sensor	Absolute encoder, single turn
rotor position sensor, manufacturer designation	Festo iC-MHM
rotor position sensor, absolute detectable revolutions	1
Rotor position encoder interface	BiSS-C
Rotor position sensor, encoder measuring principle	magnetic
rotor position sensor, DC operating voltage	5 V
rotor position sensor, DC operating voltage range	4.75 V...5.25 V
Rotor pos. enc., sin/cosin p/r	2
rotor position sensor, position values per revolution	65536
Rotor position transducer resolution	16 bit
rotor position sensor, system accuracy of angle measurement	-540 arcsec...540 arcsec
Brake holding torque	4.26 Nm
Operating voltage DC for brake	24 V
Brake current consumption	0.49 A
Power consumption, brake	12 W
Brake coil resistance	49.2 Ohm
Brake coil inductivity	110 mH
Brake separation time	44 ms
Brake closing time	110 ms
DC brake response delay	30 ms
Max. brake no-load speed	7000 rpm

Feature	Value
Max. friction per braking process	14000 J
Number of emergency stops per hour	1
Mass moment of inertia of brake	0.11 kgcm²
Switching cycles holding brake	10 million idle actuations (without friction work!)
Mean time to failure (MTTF), subcomponent	106 years, rotor position encoder