

# Stepper motor EMMB-ST-87-M-SM

Part number: 8156157

FESTO



## 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
Information on max. installation height	with 1,000 m and longer only with derating of -1.0% per 100 m
Storage temperature	-20 °C...70 °C
Relative air humidity	0 - 90 %
Conforms to standard	IEC 60034
Thermal class according to EN 60034-1	B
Max. winding temperature	130 °C
Rating class according to EN 60034-1	S1
Temperature monitoring	Dig. motor temp. via BiSS-C
Motor type as per EN 60034-7	IM B5 IM V1 IM V3
Mounting position	Any
Degree of protection	IP20
Note on degree of protection	IP40 for motor shaft without rotary shaft seal
Interface code, motor out	87A
Electrical connection 1, connection type	Hybrid plug
Electrical connection 1, connection technology	Plug pattern L10
Electrical connection 1, number of pins/wires	14
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 as per FN 942017-4 and EN 60068-2-6
Shock resistance	Shock test with severity level 2 as per FN 942017-5 and EN 60068-2-27
Certification	RCM compliance mark
CE marking (see declaration of conformity)	As per EU EMC directive As per EU RoHS directive
UKCA marking (see declaration of conformity)	To UK instructions for EMC To UK RoHS instructions
Nominal operating voltage DC	48 V

Feature	Value
Number of pole pairs	50
Motor holding torque	6.6 Nm
Nominal torque	5.9 Nm
Peak torque	6.8 Nm
Nominal rotary speed	140 rpm
Max. rotational speed	600 rpm
Max. mechanical speed	8000 rpm
Step angle with full step	1.8 deg
Step angle tolerance	±5%
Motor nominal power	87 W
Continuous stall current	8.2 A
Motor nominal current	7.5 A
Peak current	12 A
Motor constants	0.79 Nm/A
Voltage constant, phase	56.6 mV/min
Phase winding resistance	0.27 Ohm
Winding inductance phase	2.3 mH
Winding longitudinal inductivity Ld (phase)	3.6 mH
Cross inductivity Lq (phase)	2.3 mH
Electric time constant	8.5 ms
Thermal time constant	33 min
Thermal resistance	0.88 K/W
Measuring flange	250 x 250 x 15 mm, steel
Total output inertia moment	1.906 kgcm <sup>2</sup>
Product weight	3320 g
Permissible axial shaft load	60 N
Permissible radial shaft load	220 N
Rotor position sensor	Absolute encoder, multi-turn
Rotor position sensor for manufacturer designation	KCD-BC33B-1617-U09C-JAQ-009
Rotor position encoder for absolutely detectable revolutions	16384
Rotor position sensor interface	BiSS-C
Rotor position sensor measuring principle	Magnetic
Rotor position encoder for DC operating voltage	14 V
Rotor position encoder for DC operating voltage range	4.75 V...15 V
Rotor position encoder, sinusoidal/cosinusoidal periods per revolution	2
Rotor position encoder for positional values per revolution	131072
Rotor position sensor resolution	17 bit
Rotor position encoder system accuracy angle measurement	-360 arcsec...360 arcsec
MTTF, subcomponent	20 years, rotor position encoder