

Stepper motor EMMB-ST-57-L-SMB

Part number: 8156148

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
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
Temperature monitoring	Dig. motor temp. via BiSS-C
Motor type to EN 60034-7	IM B5 IM V1 IM V3
Mounting position	optional
Degree of protection	IP20
Note on degree of protection	IP40 for motor shaft without rotary shaft seal
Interface code, motor out	57A
Electrical connection 1, connection type	Hybrid plug
Electrical connection 1, connector system	Plug pattern L10
Electrical connection 1, number of connections/cores	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 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 trademark
CE mark (see declaration of conformity)	To EU EMC Directive In accordance with EU RoHS Directive
UKCA marking (see declaration of conformity)	To UK instructions for EMC To UK RoHS instructions

Feature	Value
Nominal operating voltage DC	48 V
Number of pole pairs	50
Motor holding torque	1800 Nm
Nominal torque	1580 Nm
Peak torque	2100 Nm
Nominal rotary speed	500 rpm
Max. rotational speed	1500 rpm
Max. mechanical speed	8000 rpm
Stepper angle for complete step	1.8 deg
Stepping angle tolerance	±5%
Nominal power rating of motor	83 W
Continuous stall current	5800 A
Nominal motor current	5 A
Peak current	8 A
Motor constant	320 Nm/A
Voltage constant, phase	22600 mV/min
Phase winding resistance	260 Ohm
Phase winding inductance	950 mH
Winding longitudinal inductivity Ld (phase)	1750 mH
Winding cross inductivity Lq (phase)	950 mH
Electric time constant	3700 ms
Thermal time constant	32 min
Thermal resistance	1500 K/W
Measuring flange	200 x 200 x 15 mm, steel
Total mass moment of inertia of output	0.51 kgcm ²
Product weight	1580 g
Permissible axial shaft load	15 N
Permissible radial shaft load	75 N
Rotor position sensor	Absolute multi-turn encoder
rotor position sensor, manufacturer designation	KCD-BC33B-1617-U09C-JAQ-009
rotor position sensor, absolute detectable revolutions	65536
Rotor position encoder interface	BiSS-C
Rotor position sensor, encoder measuring principle	Magnetic
rotor position sensor, DC operating voltage	14 V
rotor position sensor, DC operating voltage range	4750 V...15000 V
Rotor pos. enc., sin/cosin p/r	2
rotor position sensor, position values per revolution	131072
Rotor position transducer resolution	17 bit
rotor position sensor, system accuracy of angle measurement	-310 arcsec...310 arcsec
Brake holding torque	1740 Nm
Operating voltage DC for brake	24 V
Brake current consumption	380 A
Power consumption, brake	9 W
Brake coil resistance	63800 Ohm
Brake coil inductivity	107 mH
Brake separation time	32 ms
Brake closing time	97 ms
DC brake response delay	11 ms
Max. brake no-load speed	8000 rpm
Max. friction per braking process	6000 J
Number of emergency stops per hour	1
Mass moment of inertia of brake	0.024 kgcm ²
Switching cycles holding brake	10 million idle actuations (without friction work!)

Feature	Value
Mean time to failure (MTTF), subcomponent	20 years, rotor position encoder