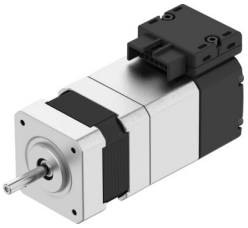
Stepper motor
EMMB-ST-42-S-SSB

Part number: 8156129



General operating condition

Data sheet

Feature	Value
Ambient temperature	0 °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	Non-condensing
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
Motor type as per EN 60034-7	IM V1 IM V3
Mounting position	Any
Degree of protection	IP20
Note on degree of protection	IP40 Motor shaft
Interface code, motor out	42A
Electrical connection 1, connection type	Hybrid plug
Electrical connection 1, connection technology	Connection diagram L5
Electrical connection 1, number of pins/wires	14
Electrical connection for input 1, connection pattern	00997534
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 c UL us - Recognized (OL)
CE marking (see declaration of conformity)	As per EU EMC directive As per EU RoHS directive
UKCA marking (see declaration of conformity)	To UK RoHS instructions
Certificate issuing authority	UL E342973
Nominal operating voltage DC	48 V
Number of pole pairs	50
Motor holding torque	0.25 Nm
Nominal torque	0.24 Nm
Peak torque	0.25 Nm

Feature	Value
Nominal rotary speed	600 rpm
Max. rotational speed	2700 rpm
Max. mechanical speed	9000 rpm
Step angle with full step	1.8 deg
Step angle tolerance	±5%
Motor nominal power	17 W
Continuous stall current	2 A
Motor nominal current	1.8 A
Peak current	2 A
Motor constants	0.133 Nm/A
Voltage constant, phase	12.1 mVmin
Phase winding resistance	2.1 Ohm
Winding inductance phase	3 mH
Winding longitudinal inductivity Ld (phase)	1.6 mH
Cross inductivity Lq (phase)	3 mH
Electric time constant	1.4 ms
Thermal time constant	22 min
Thermal resistance	3.5 K/W
Measuring flange	200 x 200 x 15 mm, steel
Total output inertia moment	0.041 kgcm²
Product weight	520 g
Permissible axial shaft load	10 N
Permissible radial shaft load	28 N
Rotor position sensor	Absolute encoder, single-turn
Rotor position sensor for manufacturer designation	Festo iC-MHM
Rotor position encoder for absolutely detectable revolutions	1
Rotor position sensor interface	BiSS-C
Rotor position sensor measuring principle	Magnetic
Rotor position encoder for DC operating voltage	5 V
Rotor position encoder for DC operating voltage range	4.75 V ... 5.25 V
Rotor position encoder, sinusoidal/cosinusoidal periods per revolution	2
Rotor position encoder for positional values per revolution	65536
Rotor position sensor resolution	16 bit
Rotor position encoder system accuracy angle measurement	-540 arcsec ... 540 arcsec
Brake holding torque	0.63 Nm
Brake DC operating voltage	24 V
Brake current consumption	0.34 A
Brake power consumption	8.2 W
Brake coil resistance	70.9 Ohm
Brake coil inductivity	146 mH
Brake separation time	≤28 ms
Brake closing time	≤41 ms
DC brake response delay	≤8 ms
Max. brake no-load speed	9000 rpm
Max. friction work per braking operation	1500 J
Number of emergency stops per hour	1
Brake mass moment of inertia	0.006 kgcm²
Switching cycles, holding brake	10 million idle actuations (without friction work!)
MTTF, subcomponent	106 years, rotor position encoder