

Servo Motor EMMT-EC-40-S-ES-R1SCB

Part number: 8171402

FESTO



 General operating condition

Data sheet

Feature	Value
Ambient temperature	-40 °C ... 40 °C
Note on ambient temperature	Up to 80 °C with derating of -1.5% per degree Celsius
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	-40 °C ... 70 °C
Relative air humidity	0 - 90 %
Conforms to standard	IEC 60034
Thermal class according to EN 60034-1	F
Max. winding temperature	155 °C
Rating class according to EN 60034-1	S1
Motor type as per EN 60034-7	IM B5 IM V1 IM V3
Mounting position	Any
Degree of protection	IP40
Note on degree of protection	IP40 for motor shaft without rotary shaft seal IP65 for motor housing, incl. connection technology IP65 for motor shaft with rotary shaft seal
Concentricity, coaxiality, axial runout according to DIN SPEC 42955	N
Balancing quality	G 2.5
Detent torque	<1.0% of peak torque
Bearing lifetime, under nominal conditions	20000 h
Interface code, motor out	40P
Electrical connection 1, connection type	Hybrid plug
Electrical connection 1, connection technology	M17x0.75
Electrical connection 1, number of pins/wires	12
Electrical connection for input 1, connection pattern	00997532
Contamination level	2
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

Feature	Value
UKCA marking (see declaration of conformity)	To UK instructions for EMC To UK RoHS instructions To UK instructions for electrical equipment
Certificate issuing authority	UL E342973
Nominal operating voltage DC	48 V
Type of winding switch	Star inside
Number of pole pairs	5
Stall torque	0.24 Nm
Nominal torque	0.23 Nm
Peak torque	0.85 Nm
Nominal rotary speed	4000 rpm
Max. rotational speed	9100 rpm
Max. mechanical speed	15000 rpm
Angular acceleration	$\leq 100000 \text{ rad/s}^2$
Motor nominal power	96 W
Continuous stall current	4.4 A
Motor nominal current	4.2 A
Peak current	20 A
Motor constants	0.055 Nm/A
Standstill torque constant	0.06 Nm/A
Voltage constant, phase-to-phase	3.6 mV/min
Phase-phase winding resistance	1.1 Ohm
Winding inductance phase-phase	0.9 mH
Winding longitudinal inductivity Ld (phase)	0.35 mH
Cross inductivity Lq (phase)	0.45 mH
Electric time constant	0.82 ms
Thermal time constant	4.6 min
Thermal resistance	1.58 K/W
Measuring flange	200 x 200 x 15 mm, steel
Total output inertia moment	0.045 kgcm ²
Product weight	600 g
Permissible axial shaft load	30 N
Permissible radial shaft load	150 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	4.5 V ... 5.5 V
Rotor position encoder for positional values per revolution	65536
Rotor position sensor resolution	16 bit
Rotor position encoder system accuracy angle measurement	-1800 arcsec ... 1800 arcsec
Brake holding torque	0.45 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	$\leq 28 \text{ ms}$
Brake closing time	41 ms
DC brake response delay	$\leq 8 \text{ ms}$
Max. brake no-load speed	12000 rpm

Feature	Value
Max. brake friction work	1500 J
Number of emergency stops per hour	1
Total brake friction work	1.5 kJ
Brake mass moment of inertia	0.0058 kgcm ²
Switching cycles, holding brake	10 million idle actuations (without friction work!)
MTTF, subcomponent	190 years, rotor position sensor