

Servo motor EMMT-AS-100-

Part number: 5185818

FESTO



 General operating condition

Data sheet

Overall data sheet – Individual values depend upon your configuration.

Feature	Value
Ambient temperature	-40 °C ... 40 °C
Note on ambient temperature	Up to 80 °C with derating of -1.75% per degree Celsius Up to 80 °C with derating of -2.25% per degree Celsius 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
Temperature monitoring	Digital motor temperature transmission via EnDat® 2.2
Motor type as per EN 60034-7	IM B5 IM V1 IM V3
Mounting position	Any
Degree of protection	IP40 IP65
Note on degree of protection	IP40 for motor shaft without rotary shaft seal IP65 for motor shaft with rotary shaft seal IP67 for motor housing, incl. connection technology
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
Featherkey shaft design	DIN 6885 A 6 x 6 x 32
Interface code, motor out	100A
Electrical connection 1, connection type	Hybrid plug
Electrical connection 1, connection technology	M23x1
Electrical connection 1, number of pins/wires	15
Electrical connection for input 1, connection pattern	00995913
Contamination level	2
Note on materials	RoHS-compliant
Corrosion resistance class (CRC)	0 - No corrosion stress
LABS (PWIS) conformity	VDMA24364 zone III

Feature	Value
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 German Technical Control Board (TÜV) c UL us - Recognized (OL)
CE marking (see declaration of conformity)	As per EU EMC directive As per EU low voltage directive As per EU RoHS directive
UKCA marking (see declaration of conformity)	To UK instructions for EMC To UK RoHS instructions To UK instructions for electrical equipment
Certificate issuing authority	TÜV 968/INS 464.00/24 UL E342973
Nominal operating voltage DC	680 V
Type of winding switch	Star inside
Number of pole pairs	5
Stall torque	6.3 Nm ... 13 Nm
Nominal torque	4.8 Nm ... 7.8 Nm
Peak torque	13.7 Nm ... 38.7 Nm
Nominal rotary speed	2700 rpm
Max. rotational speed	4530 rpm ... 5150 rpm
Max. mechanical speed	13000 rpm
Angular acceleration	$\leq 100000 \text{ rad/s}^2$
Motor nominal power	1360 W ... 2200 W
Continuous stall current	4.4 A ... 9.7 A
Motor nominal current	3.4 A ... 5.9 A
Peak current	13.7 A ... 36 A
Motor constants	1.3 Nm/A ... 1.54 Nm/A
Standstill torque constant	1.34 Nm/A ... 1.75 Nm/A
Voltage constant, phase-to-phase	93.2 mVmin ... 106 mVmin
Phase-phase winding resistance	0.81 Ohm ... 3.35 Ohm
Winding inductance phase-phase	9 mH ... 32.4 mH
Winding longitudinal inductivity Ld (phase)	5.7 mH ... 17.8 mH
Cross inductivity Lq (phase)	6.8 mH ... 24.3 mH
Electric time constant	14.5 ms ... 16.7 ms
Thermal time constant	68 min ... 74 min
Thermal resistance	0.39 K/W ... 0.6 K/W
Measuring flange	300 x 300 x 20 mm, steel
Total output inertia moment	3.15 kgcm ² ... 10.6 kgcm ²
Product weight	5500 g ... 13300 g
Permissible axial shaft load	200 N
Permissible radial shaft load	815 N ... 1110 N
Rotor position sensor	Absolute encoder, single-turn Absolute encoder, multi-turn Safety encoder, absolute multi-turn
Rotor position sensor for manufacturer designation	ECl 1319 EQI 1331
Rotor position encoder for absolutely detectable revolutions	1 ... 4096
Rotor position sensor interface	EnDat@ 22
Rotor position sensor measuring principle	Inductive
Rotor position encoder for DC operating voltage	5 V
Rotor position encoder for DC operating voltage range	3.6 V ... 14 V
Rotor position encoder for positional values per revolution	524288
Rotor position sensor resolution	19 bit
Rotor position encoder system accuracy angle measurement	-65 arcsec ... 65 arcsec

Feature	Value
Brake holding torque	11 Nm ... 18 Nm
Brake DC operating voltage	24 V
Brake current consumption	0.75 A ... 1 A
Brake power consumption	18 W ... 24 W
Brake coil resistance	24 Ohm ... 32 Ohm
Brake coil inductivity	900 mH
Brake separation time	≤80 ms
Brake closing time	≤40 ms
DC brake response delay	≤5 ms
Max. brake no-load speed	10000 rpm
Max. brake friction work	12000 J ... 15000 J
Number of emergency stops per hour	1
Total brake friction work	1335 kJ ... 3600 kJ
Brake mass moment of inertia	0.74 kgcm ² ... 2.15 kgcm ²
Switching cycles, holding brake	10 million idle actuations (without friction work!)
Safety device	Safety device
Maximum SIL	Security integrity level 3 See user documentation
Safety sub-functions up to SIL2	Reliable acquisition and transmission of single-turn position data
Safety sub-functions up to SIL3	Reliable recording and transmission of single-turn position data, only with additional software function in the servo drive
Maximum PL and category	Performance level e, category 3 See user documentation
Safety sub-function up to PL d, Cat. 3	Reliable acquisition and transmission of single-turn position data
Safety sub-function up to PL e, Cat. 3	Reliable recording and transmission of single-turn position data, only with additional software function in the servo drive
PFHd, subcomponent	15 x 10E-9, encoder
Duration of use Tm, subcomponent	20 years, rotor position sensor
MTTF, subcomponent	190 years, rotor position sensor
Energy efficiency	ENEFF (CN) / Class 2