

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
Note on max. installation height	As of 1,000 m: 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
Temperature class as per EN 60034-1	F
Max. winding temperature	155 °C
Rating class as per EN 60034-1	S1
Temperature monitoring	Digital motor temperature transmission via EnDat® 2.2
Motor type to EN 60034-7	IM V1 IM V3
Mounting position	Any
Degree of protection	IP40 IP65
Note on degree of protection	IP67 for motor housing including connection components
Concentricity, coaxiality, axial runout to DIN SPEC 42955	N
Balance quality	G 2.5
Detent torque	<1.0% of peak torque
Bearing lifetime under nominal conditions	20000 h
Featherkey shaft type	DIN 6885 A 6 x 6 x 32
Interface code, motor out	100A
Electrical connection 1, connection type	Hybrid plug
Electrical connection 1, connector system	M23x1
Electrical connection 1, number of connections/cores	15
Electrical connection 1, connection pattern	00995913
Pollution degree	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 to FN 942017-4 and EN 60068-2-6

Feature	Value
Shock resistance	Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27
Approval	RCM German Technical Control Board (TÜV) c UL us - Recognised (Oil)
CE mark (see declaration of conformity)	To EU EMC Directive To EU Low Voltage Directive In accordance with EU RoHS Directive
UKCA marking (see declaration of conformity)	To UK RoHS instructions To UK regulations 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
Standstill 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	$\leq 100000 \text{ rad/s}^2$
Nominal power rating of motor	1360 W ... 2200 W
Continuous stall current	4.4 A ... 9.7 A
Nominal motor current	3.4 A ... 5.9 A
Peak current	13.7 A ... 36 A
Motor constant	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
Phase-phase winding inductance	9 mH ... 32.4 mH
Winding longitudinal inductivity Ld (phase)	5.7 mH ... 17.8 mH
Winding 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 mass moment of inertia of output	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 Absolute multi-turn safety encoder
rotor position sensor, manufacturer designation	ECl 1319 EQI 1331
rotor position sensor, absolute detectable revolutions	1 ... 4096
Rotor position encoder interface	EnDat 22
Rotor position sensor, encoder measuring principle	Inductive
rotor position sensor, DC operating voltage	5 V
rotor position sensor, DC operating voltage range	3.6 V ... 14 V
rotor position sensor, position values per revolution	524288
Rotor position transducer resolution	19 bit
rotor position sensor, system accuracy of angle measurement	-65 arcsec ... 65 arcsec
Brake holding torque	11 Nm ... 18 Nm
Operating voltage DC for brake	24 V

Feature	Value
Brake current consumption	0.75 A ... 1 A
Power consumption, brake	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. friction per braking process	12000 J ... 15000 J
Number of emergency stops per hour	1
Total brake friction	1335 kJ ... 3600 kJ
Mass moment of inertia of brake	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	Safety integrity level 3 See user documentation
Safety sub-functions up to SIL2	Reliable recording 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 recording 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 encoder
Mean time to failure (MTTF), subcomponent	190 years, rotor position encoder
Energy efficiency	ENEFF (CN) / Class 2