

PRODUCT DATASHEET

ES-SM-A03-080S-T3P18NM-1000W-001

AC Servo Motors

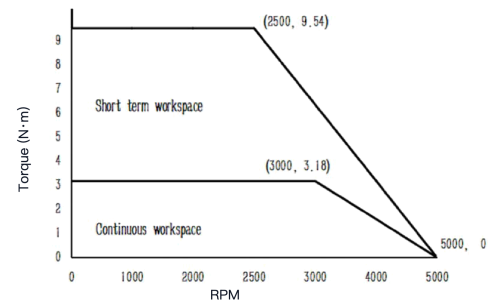
AC Servo Motors | ES-SM-A03-080S Compact 80 mm AC Servo Motor Series

Product Overview

AC Servo Motors with rated Torque 3.18 N·m, instantaneous Maximum Torque 9.54 N·m and rated Speed 3000 rpm.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	3.18	N·m
Instantaneous Maximum Torque	9.54	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	1000	W
Rated Voltage	220	V AC
Instantaneous Maximum Current	16	A
Flange Size	80	mm
Torque Constant	0.66	N·m/A
Altitude and Derating Rule	highest altitude 2000m, 1000m above, every rise 100m, Power drop 1.5%	



Torque-Speed Curve

Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	3.18	Nm
Instantaneous Maximum Torque	9.54	Nm
Rated Speed	3000	rpm
Continuous Rated Output Power	1000	W
Torque Constant	0.66	Nm/A
Rated Power	1000	W
ELECTRICAL		
Rated Voltage	220	V AC
Instantaneous Maximum Current	16	A
Back EMF Constant	40	V/krpm
Electrical Time Constant	4.6	ms

Technical Specifications

PARAMETER	SPECIFICATION	UNIT	NOTES
ELECTRICAL			
Insulation Class	F		
Motor Outlet Mode	Standard socket		
Pole Pairs	5		
Rated Current	5.3	A	
Rotational Back-EMF Constant	40	V/krpm	
Position Feedback Device	17-bit multi-turn communication magnetic absolute encoder		
MECHANICAL			
Flange Size	80	mm	
Inertia Level	Low inertia		
Holding Brake Available	Without holding brake		
Mechanical Time Constant	0.57	ms	Brake Configuration: without_brake

Technical Specifications

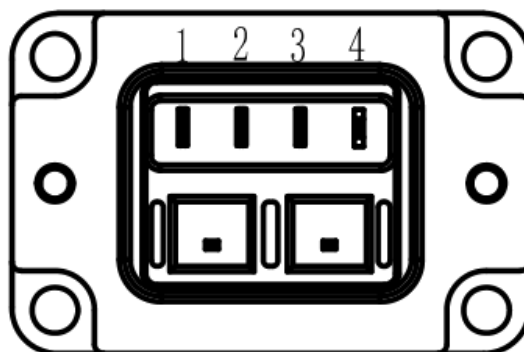
PARAMETER	SPECIFICATION	UNIT	NOTES
MECHANICAL			
Rotor Inertia	1.19 / 1.027	Kg·cm ²	Brake Configuration: without_brake
Bearing Radial Force Capacity	335	N	
Bearing Axial Force Capacity	167.5	N	
ENVIRONMENTAL			
Altitude and Derating Rule	highest altitude 2000m, 1000m above, every rise 100m, Power drop 1.5%		
Operating Environment	Keep away from corrosive or flammable gases, oil droplets and dust		
Operating Humidity	≤90% RH, non-condensing		
Operating Temperature	-20 to 40°C (no freezing)		
Protection Rating	IP67, shaft end IP54 (Note: with shaft-end oil seal IP54, without oil seal IP50)		
CONFIGURATION			
Output Shaft Type	Keyed shaft		
ADDITIONAL SPECIFICATIONS			
Holding Brake	false		

Mechanical Overview

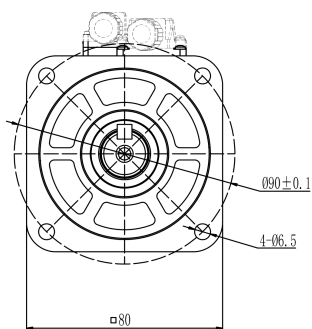
PARAMETER	VALUE	UNIT
Flange Size	80	mm
Inertia Level	Low inertia	
Holding Brake Available	Without holding brake	
Mechanical Time Constant	0.57	ms
Rotor Inertia	1.19 / 1.027	Kg·cm2
Bearing Radial Force Capacity	335	N

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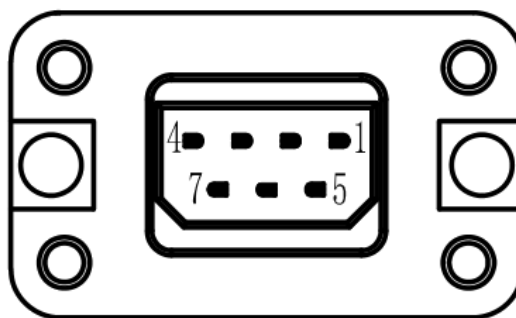
Mechanical View 1



Power Connector Pinout



Mechanical View 3



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Key length	25 mm
	Key feature label	KEY
	Geometric tolerance related to datum A	Diameter tolerance zone 0.06 relative to datum A
	Perpendicularity tolerance	Perpendicularity 0.06 to datum A
	Shaft diameter	Diameter 19 mm, upper deviation 0, lower deviation -0.013
	Geometric tolerance to datum A	Geometric tolerance 0.04 relative to datum A
	Mounting pilot diameter	Diameter 70 mm, upper deviation 0, lower deviation -0.02
	Shaft shoulder length	21.5 mm, upper deviation 0, lower deviation -0.2
	Reference overall height	Reference dimension 96.5 mm
	Datum A	
	Threaded hole specification	M6 thread, length/depth 18 mm
	Step offset distance	9 mm
	Body length	113.7 mm $\pm$ 1.5 mm
	Front section length	35 mm $\pm$ 1 mm
Mechanical View 3	Mounting hole pitch circle diameter	Pitch circle diameter $\varnothing 90 \pm 0.1$
	Mounting hole quantity and diameter	4 holes, $\varnothing 6.5$
	Square flange outside dimension	Square flange size $\square 80$

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01 Specifications are subject to change without notice. Verify the current product configuration before final design release.

02 2D drawings, CAD files and integration documentation are controlled documents and are supplied separately on request.