PRODUCT DATASHEET

ES-SM-A03-080S-T2P39NM-750W-003

AC Servo Motors

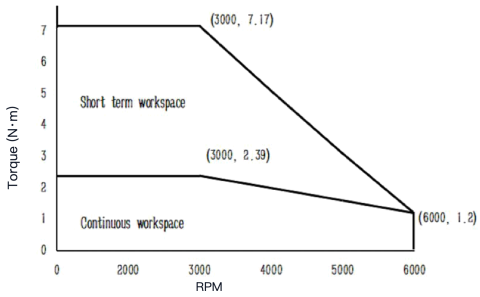
AC Servo Motors | ES-SM-A03-080S Compact 80 mm AC Servo Motor Series

Product Overview

AC Servo Motors with rated Torque 2.39 N·m, instantaneous Maximum Torque 7.17 N·m and rated Speed 3000 rpm.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	2.39	N·m
Instantaneous Maximum Torque	7.17	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	750	W
Rated Voltage	220	V AC
Instantaneous Maximum Current	12.4	A
Flange Size	80	mm
Torque Constant	0.7	N·m/A
Altitude and Derating Rule	highest altitude2000m,1000mabove,every rise100m,Power drop1.5%	



Torque-Speed Curve

Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	2.39	N·m
Instantaneous Maximum Torque	7.17	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	750	W
Torque Constant	0.7	N·m/A
Rated Power	750	W
ELECTRICAL		
Rated Voltage	220	V AC
Instantaneous Maximum Current	12.4	A
Back EMF Constant	42	V/krpm
Electrical Time Constant	4.6	ms
Insulation Class	F	
Motor Outlet Mode	Standard socket	
Pole Pairs	5	
Rated Current	3.9	A
Rotational Back-EMF Constant	42	V/krpm

Technical Specifications

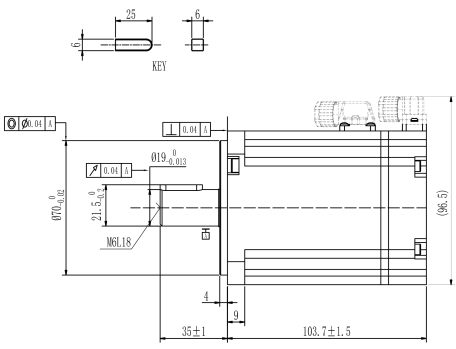
PARAMETER	SPECIFICATION	UNIT	NOTES
ELECTRICAL			
Position Feedback Device	23-bit multi-turn communication optical absolute encoder		
MECHANICAL			
Flange Size	80	mm	
Inertia Level	Low inertia		
Holding Brake Available	Without holding brake		
Mechanical Time Constant	0.58	ms	Brake Configuration: without_brake
Rotor Inertia	0.95 / 0.9	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 altitude2000m,1000mabove,every rise100m,Power drop1.5%		
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		

Dimensional & Integration Overview

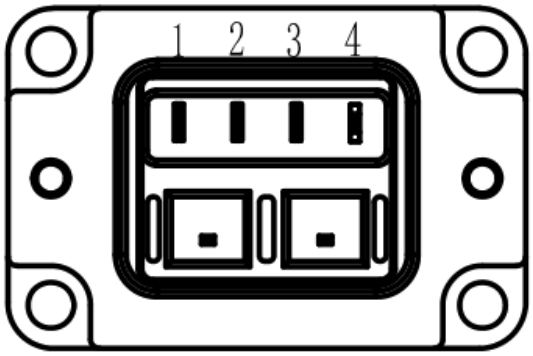
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	80	mm
Inertia Level	Low inertia	
Holding Brake Available	Without holding brake	
Mechanical Time Constant	0.58	ms
Rotor Inertia	0.95 / 0.9	Kg·cm2
Bearing Radial Force Capacity	335	N

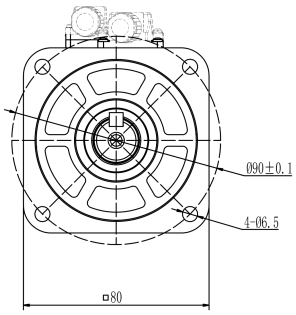
Dimensional Drawings



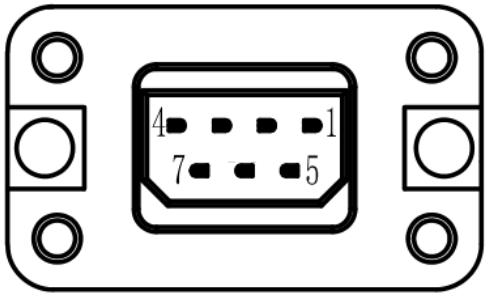
Mechanical View 1



Power Connector Pinout



Mechanical View 3



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Key length	25 mm
	Key width	6 mm
	Keyway label	KEY
	Position tolerance	Position Φ0.04 relative to datum A
	Perpendicularity tolerance	Perpendicularity 0.04 relative to datum A
	Angularity tolerance	Angularity 0.04 relative to datum A
	Shaft diameter	Φ19 0/-0.013 mm
	Outer diameter	Φ70 0/-0.02 mm
	Shaft length	21.5 0/-0.2 mm
	Mounting threaded hole	M6 thread, 18 mm depth
	Datum A	
	Dimension	4 mm
		9 mm
	Overall length	35±1 mm
		103.7±1.5 mm
	Reference dimension	96.5 mm (reference)

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 3	pitch circle diameter	Ø90 ±0.1 mm
	number of mounting holes and hole diameter	4 × Ø6.5 mm
	square envelope size	□80 mm

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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.