PRODUCT DATASHEET

ES-SM-A03-080S-T3P18NM-1000W-002

AC Servo Motors

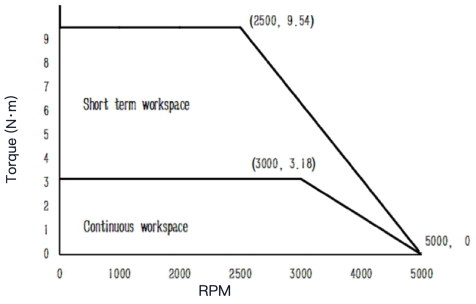
AC Servo Motors | ES-SM-A03-080S Compact 80 mm AC Servo Motor Series

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 altitude2000m,1000mabove,every rise100m,Power drop1.5%	



Torque-Speed Curve

Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	3.18	N·m
Instantaneous Maximum Torque	9.54	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	1000	W
Torque Constant	0.66	N·m/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
Insulation Class	F	
Motor Outlet Mode	Standard socket	
Pole Pairs	5	
Rated Current	5.3	A
Rotational Back-EMF Constant	40	V/krpm

Technical Specifications

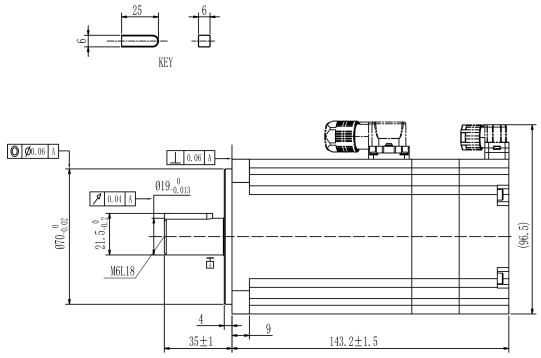
PARAMETER	SPECIFICATION	UNIT	NOTES
ELECTRICAL			
Position Feedback Device	17-bit multi-turn communication magnetic absolute encoder		
MECHANICAL			
Flange Size	80	mm	
Inertia Level	Low inertia		
Holding Brake Available	With holding brake		
Mechanical Time Constant	0.78 / 0.57	ms	Brake Configuration: without_brake
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 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	1		

Dimensional & Integration Overview

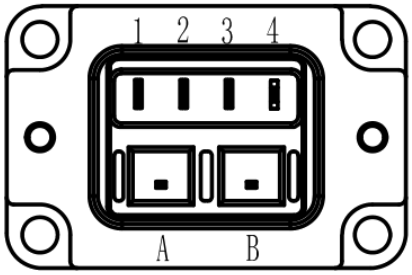
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	80	mm
Inertia Level	Low inertia	
Holding Brake Available	With holding brake	
Mechanical Time Constant	0.78 / 0.57	ms
Rotor Inertia	1.19 / 1.027	Kg·cm2
Bearing Radial Force Capacity	335	N

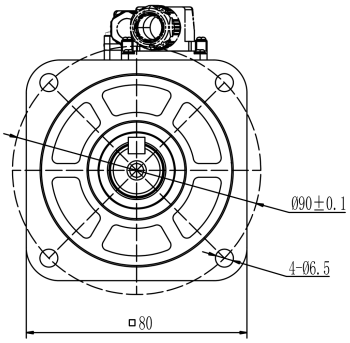
Dimensional Drawings



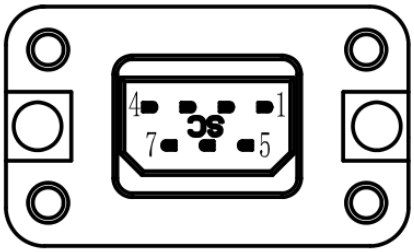
Mechanical View 1



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 or key height	6 mm
	Key feature label	KEY
	Geometric tolerance with diameter zone relative to datum A	Geometric tolerance: diameter 0.06 relative to datum A
	Perpendicularity tolerance relative to datum A	Perpendicularity 0.06 relative to datum A
	Shaft diameter	Diameter 19 mm, +0/-0.013 mm
	Runout or directional geometric tolerance relative to datum A	Geometric tolerance 0.04 relative to datum A
	Shaft extension or shoulder length	21.5 mm, +0/-0.2 mm
	Mounting flange or locating diameter	Diameter 70 mm, +0/-0.02 mm
	Reference overall height	Reference dimension 96.5 mm
	Datum A	
	Threaded hole specification and depth	M6 thread, length/depth 18 mm
	Shoulder or face offset	4 mm
	End offset dimension	9 mm
	Main body length	143.2 mm ±1.5 mm
	Shaft end to mounting face distance	35 mm ±1 mm

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 3	Mounting hole pitch circle diameter	Pitch circle diameter Ø90 ±0.1
	Mounting hole quantity and diameter	4 holes, diameter Ø6.5
	Square flange side length	Square flange 80 × 80

View Product Online Request Engineering Data Request a Quote

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.