

PRODUCT DATASHEET

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

AC Servo Motors

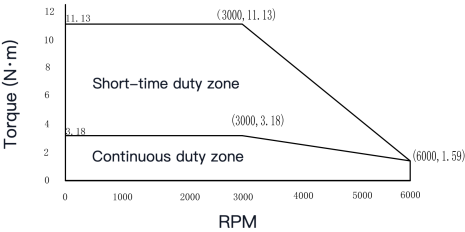
AC Servo Motors | ES-SM-A03-080D Compact 80 mm AC Servo Motor Series

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	16.9	A
Flange Size	80	mm
Altitude and Derating Rule	highest altitude2000m(1000mfor each increase above100m,Power drop1.5%)	
Bearing Axial Force Capacity	147	N



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
Rated Power	1000	W
Torque Constant	0.64	N·m/A
ELECTRICAL		
Rated Voltage	220	V AC
Instantaneous Maximum Current	16.9	A
Insulation Class	F	
Motor Outlet Mode	Standard socket	
Pole Pairs	5	
Rated Current	5.5	A
Rotational Back-EMF Constant	39	V/krpm
Electrical Time Constant	3.6	ms
Position Feedback Device	17-bit multi-turn communication magnetic absolute encoder	

Technical Specifications

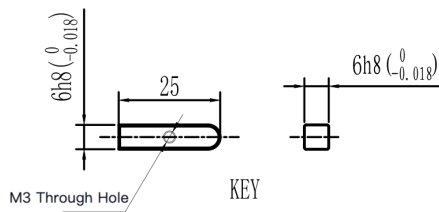
PARAMETER	SPECIFICATION	UNIT	NOTES
MECHANICAL			
Flange Size	80	mm	
Inertia Level	Medium inertia		
Holding Brake Available	Without holding brake		
Mechanical Time Constant	0.81	ms	Brake Configuration: without_brake
Rotor Inertia	2.42 / 2.27	Kg·cm ²	Brake Configuration: without_brake
Bearing Radial Force Capacity	392	N	
Bearing Axial Force Capacity	147	N	
ENVIRONMENTAL			
Altitude and Derating Rule	highest altitude 2000m (1000m for each increase above 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	IP65, 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		
Cooling Method	Totally enclosed, self-cooled		

Dimensional & Integration Overview

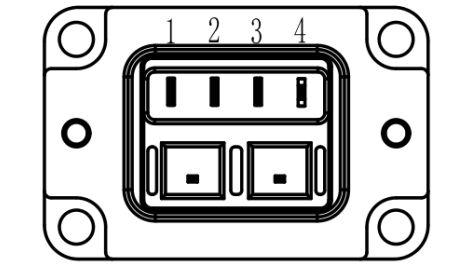
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	80	mm
Inertia Level	Medium inertia	
Holding Brake Available	Without holding brake	
Mechanical Time Constant	0.81	ms
Rotor Inertia	2.42 / 2.27	Kg·cm ²
Bearing Radial Force Capacity	392	N

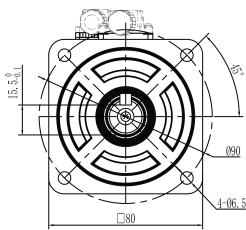
Dimensional Drawings



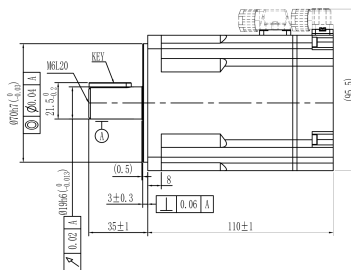
Mechanical View 1



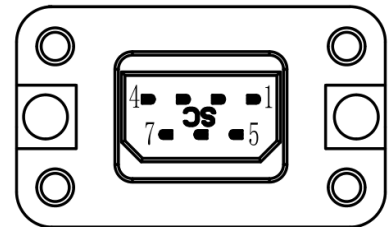
Power Connector Pinout



Mechanical View 3



Mechanical View 4



Feedback Connector Pinout



2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Keyway width tolerance	6h8 (0/-0.018)
	Keyway length	25
	Keyway identification label	KEY
	M3 through hole	
Mechanical View 3	Flange thickness	15.5 0/-0.1
	Chamfer angle	45°
	Flange center hole diameter	Ø90
	Mounting hole diameter and quantity	4 holes × Ø6.5
	Square flange side length	□80

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 4	Keyway marker	Keyway present
	Mounting threaded hole specification	M6 thread, 20mm length
	Shaft outer diameter with tolerance	Ø70h7 (0/-0.03)
	Position tolerance relative to datum A	Position Ø0.04 relative to A
	Shaft segment length with tolerance	21.5 (0/-0.2)
	Datum feature A	Datum A
	Shaft diameter with tolerance	Ø19h6 (0/-0.013)
	Circular runout tolerance relative to datum A	Runout 0.02 relative to A
	Reference dimension	0.5
	Shaft segment dimension with tolerance	3±0.3
	Shaft segment length	8
	Perpendicularity tolerance relative to datum A	Perpendicularity 0.06 relative to A
	Axial distance with tolerance	35±1
	Overall length with tolerance	110±1
	Reference height	95.5

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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.