

PRODUCT DATASHEET

ES-SM-A03-060S-T1P27NM-400W-003

AC Servo Motors

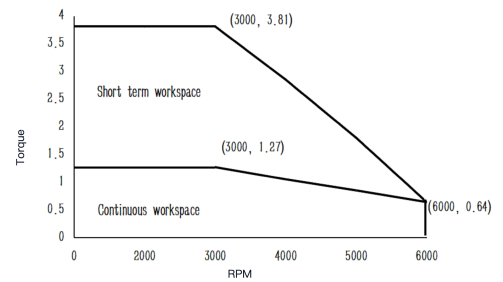
AC Servo Motors | ES-SM-A03-060S Compact 60 mm AC Servo Motor Series

Product Overview

AC Servo Motors with rated Torque 1.27 N·m, instantaneous Maximum Torque 3.81 N·m and rated Speed 3000 rpm.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	1.27	N·m
Instantaneous Maximum Torque	3.81	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	400	W
Rated Voltage	220	V AC
Instantaneous Maximum Current	9.4	A
Flange Size	60	mm
Torque Constant	0.51	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	1.27	Nm
Instantaneous Maximum Torque	3.81	Nm
Rated Speed	3000	rpm
Continuous Rated Output Power	400	W
Torque Constant	0.51	Nm/A
Rated Power	400	W
ELECTRICAL		
Rated Voltage	220	V AC
Instantaneous Maximum Current	9.4	A
Back EMF Constant	31	V/krpm
Insulation Class	F	

Technical Specifications

PARAMETER	SPECIFICATION	UNIT	NOTES
ELECTRICAL			
Motor Outlet Mode	Standard socket		
Pole Pairs	5		
Rated Current	2.93	A	
Rotational Back-EMF Constant	31	V/krpm	
Electrical Time Constant	2.18	ms	
Position Feedback Device	23-bit multi-turn communication optical absolute encoder		
MECHANICAL			
Flange Size	60	mm	
Inertia Level	Low inertia		
Holding Brake Available	Without holding brake		
Mechanical Time Constant	0.74	ms	Brake Configuration: without_brake

Technical Specifications

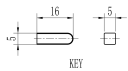
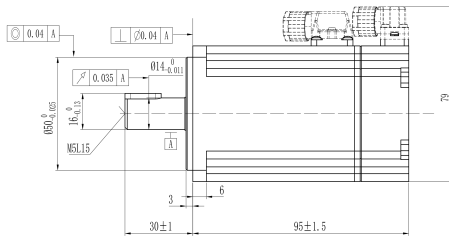
PARAMETER	SPECIFICATION	UNIT	NOTES
MECHANICAL			
Rotor Inertia	0.29 / 0.274	Kg·cm ²	Brake Configuration: without_brake
Bearing Radial Force Capacity	180	N	
Bearing Axial Force Capacity	90	N	
ENVIRONMENTAL			
Altitude and Derating Rule	highest altitude 2000m, 1000m above, every rise 100m, Power drop 1.5%		
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		

Dimensional & Integration Overview

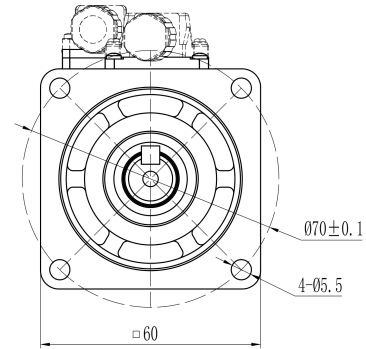
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	60	mm
Inertia Level	Low inertia	
Holding Brake Available	Without holding brake	
Mechanical Time Constant	0.74	ms
Rotor Inertia	0.29 / 0.274	Kg·cm ²
Bearing Radial Force Capacity	180	N

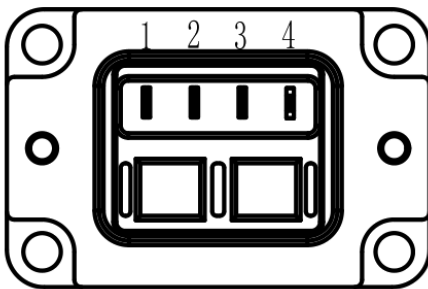
Dimensional Drawings



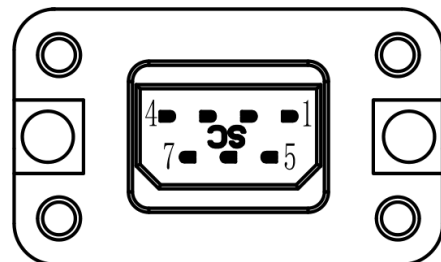
Mechanical View 1



Mechanical View 2



Mechanical View 3



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Key length	Length 16
	Key feature label	Key feature
	Position tolerance	Position tolerance 0.04 relative to datum A
	Perpendicularity tolerance	Perpendicularity tolerance diameter zone $\varnothing 0.04$ relative to datum A
	Shaft end diameter	Diameter $\varnothing 14$ with tolerance $+0/-0.011$
	Runout tolerance	Runout tolerance 0.035 relative to datum A
	Locating diameter	Diameter $\varnothing 50$ with tolerance $+0/-0.025$
	Shaft step length	Length 16 with tolerance $+0/-0.13$
	Threaded hole specification	M5 thread, depth/length 15
	Datum A	
	Shaft extension length	Length 30 ± 1
	Body length	Length 95 ± 1.5
	Overall height	Overall height 79
Mechanical View 2	Mounting hole pitch circle diameter	Pitch circle diameter $\varnothing 70 \pm 0.1$
	Mounting hole quantity and diameter	4 holes, diameter $\varnothing 5.5$
	Square mounting flange side length	Square flange side length 60

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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.