

PRODUCT DATASHEET

ES-SM-A03-040-TOP32NM-100W-001

AC Servo Motors

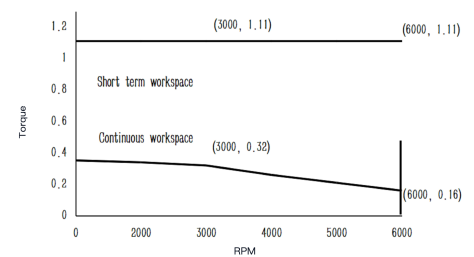
AC Servo Motors | ES-SM-A03-040 Compact 40 mm AC Servo Motor Series

Product Overview

AC Servo Motors with rated Torque 0.32 N·m, instantaneous Maximum Torque 1.11 N·m and rated Speed 3000 rpm.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	0.32	N·m
Instantaneous Maximum Torque	1.11	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	100	W
Rated Voltage	220	V AC
Instantaneous Maximum Current	4.4	A
Flange Size	40	mm
Torque Constant	0.3	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	0.32	Nm
Instantaneous Maximum Torque	1.11	Nm
Rated Speed	3000	rpm
Continuous Rated Output Power	100	W
Torque Constant	0.3	Nm/A
Rated Power	100	W
ELECTRICAL		
Rated Voltage	220	V AC
Instantaneous Maximum Current	4.4	A
Back EMF Constant	18.18	V/krpm
Insulation Class	F	
Motor Outlet Mode	Standard socket	
Pole Pairs	5	
Rated Current	1.2	A
Rotational Back-EMF Constant	18.18	V/krpm
Electrical Time Constant	0.64	ms

Technical Specifications

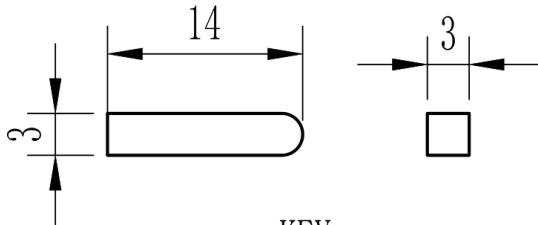
PARAMETER	SPECIFICATION	UNIT	NOTES
ELECTRICAL			
Position Feedback Device	17-bit multi-turn communication magnetic absolute encoder		
MECHANICAL			
Flange Size	40	mm	
Inertia Level	Low inertia		
Holding Brake Available	Without holding brake		
Mechanical Time Constant	0.952	ms	Brake Configuration: without_brake
Rotor Inertia	0.046 / 0.044	Kg-cm ²	Brake Configuration: without_brake
Bearing Radial Force Capacity	78	N	
Bearing Axial Force Capacity	54	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

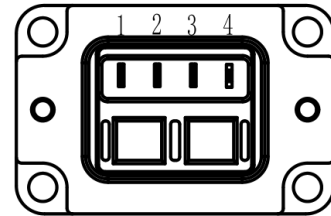
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	40	mm
Inertia Level	Low inertia	
Holding Brake Available	Without holding brake	
Mechanical Time Constant	0.952	ms
Rotor Inertia	0.046 / 0.044	Kg·cm ²
Bearing Radial Force Capacity	78	N

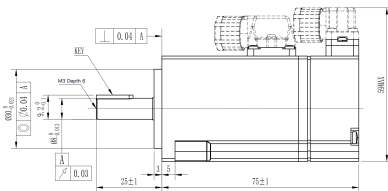
Dimensional Drawings



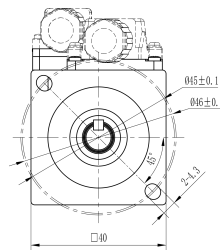
Mechanical View 1



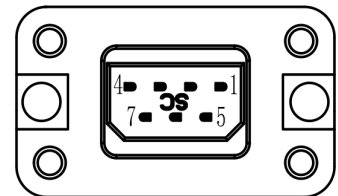
Power Connector Pinout



Mechanical View 3



Mechanical View 4



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Key length	Key length 14 mm
	Key width	Key width 3 mm
	Key height	Key height 3 mm
	Key label	KEY
Mechanical View 3	Perpendicularity tolerance	Perpendicularity tolerance 0.04 relative to datum A
	Key feature label	Key feature indicated
	M3 threaded hole depth	M3 thread depth 6
	Maximum overall height	Maximum height 59
	Main shaft diameter	Diameter 30 with upper deviation 0 and lower deviation -0.021
	Geometric tolerance for shaft feature	Cylindrical geometric tolerance diameter 0.04 relative to datum A
	Key feature height dimension	9.2 with upper deviation 0 and lower deviation -0.1
	Small shaft diameter	Diameter 8 with upper deviation 0 and lower deviation -0.013
	Datum A	Datum A indicated
	Step length	Length 3
		Length 5
	Geometric tolerance value	Geometric tolerance value 0.03; characteristic symbol not OCR captured
	Main body length	Length 75 ±1
	Front shaft extension length	Length 25 ±1

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 4	Diameter 45 fit dimension	Diameter 45 ± 0.1
	Diameter 46 fit dimension	Diameter 46 ± 0.1
	Square mounting size	Square 40

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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.