PRODUCT DATASHEET

ES-SM-A03-040-T0P32NM-100W-004

AC Servo Motors

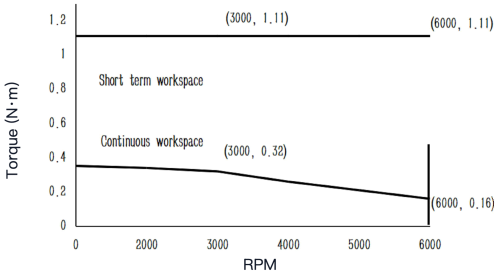
AC Servo Motors | ES-SM-A03-040 Compact 40 mm AC Servo Motor Series

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	N·m
Instantaneous Maximum Torque	1.11	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	100	W
Torque Constant	0.3	N·m/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

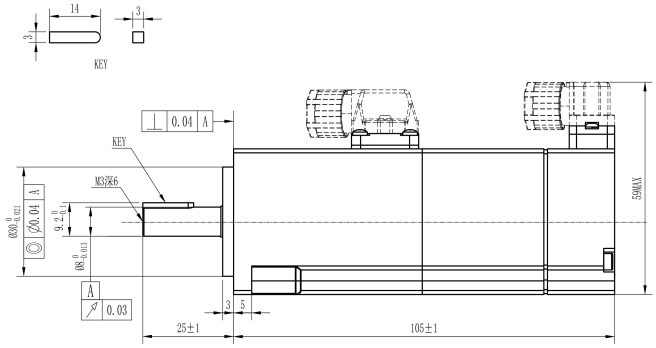
PARAMETER	SPECIFICATION	UNIT	NOTES
ELECTRICAL			
Position Feedback Device	23-bit multi-turn communication optical absolute encoder		
MECHANICAL			
Flange Size	40	mm	
Inertia Level	Low inertia		
Holding Brake Available	With holding brake		
Mechanical Time Constant	0.996 / 0.952	ms	Brake Configuration: 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 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

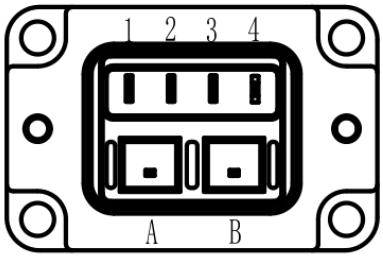
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	40	mm
Inertia Level	Low inertia	
Holding Brake Available	With holding brake	
Mechanical Time Constant	0.996 / 0.952	ms
Rotor Inertia	0.046 / 0.044	Kg·cm2
Bearing Radial Force Capacity	78	N

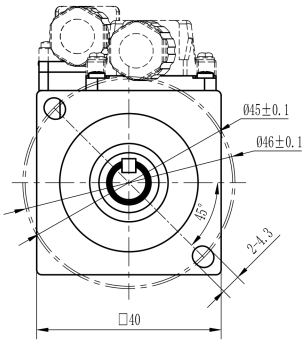
Dimensional Drawings



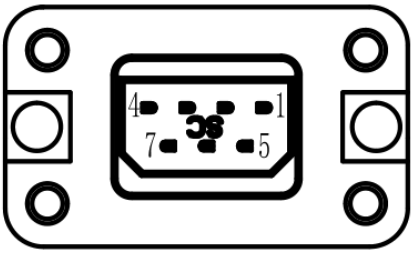
Mechanical View 1



Power Connector Pinout



Mechanical View 3



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Key length	14 mm
	Key width	3 mm
	Key feature label	Key feature
	Perpendicularity tolerance to datum A	Perpendicularity 0.04 mm relative to datum A
	M3 threaded hole depth	M3 thread, depth 6 mm
	Maximum envelope height	59 mm maximum
	Shaft outside diameter	Diameter 30 mm, +0/-0.021 mm
	Geometric tolerance relative to datum A	Diameter tolerance zone 0.04 mm relative to datum A
	Keyway-related height dimension	9.2 mm, +0/-0.1 mm
	Small shaft diameter	Diameter 8 mm, +0/-0.013 mm
	Datum A	
	End step offset dimension	3 mm
		5 mm
	Geometric tolerance 0.03	Geometric tolerance 0.03 mm
	Shaft extension length	25 mm ±1 mm
	Body length	105 mm ±1 mm

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 3	Locating diameter	Diameter 45 ±0.1
	Outer locating diameter	Diameter 46 ±0.1
	Mounting hole angular position	45 degrees
	Square mounting face 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.