PRODUCT DATASHEET

ES-SM-A03-040-T0P32NM-100W-002

AC Servo Motors

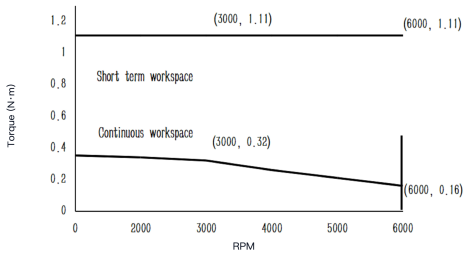
AC Servo Motors | ES-SM-A03-040 Compact 40 mm AC Servo Motor Series

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

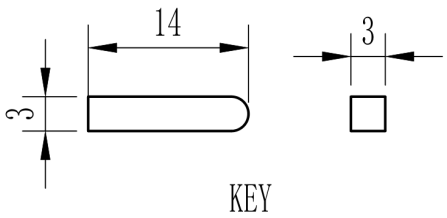
PARAMETER	SPECIFICATION	UNIT	NOTES
ELECTRICAL			
Position Feedback Device	17-bit multi-turn communication magnetic absolute encoder		
MECHANICAL			
Flange Size	40	mm	
Inertia Level	Low inertia		
Holding Brake Available	With holding brake		
Mechanical Time Constant	0.996 / 0.952	ms	Brake Configuration: 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

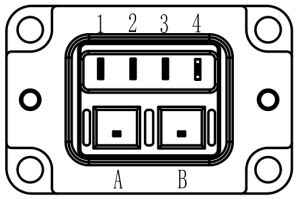
Mechanical Overview

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

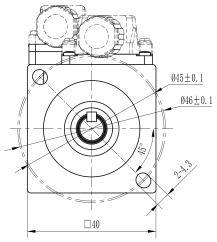
Dimensional Drawings



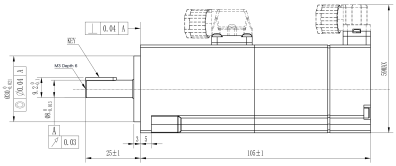
Mechanical View 1



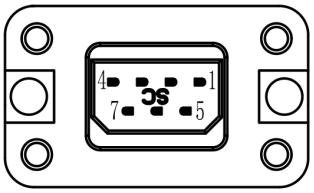
Power Connector Pinout



Mechanical View 3



Mechanical View 4



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Key length	Key length 14 mm
	Key thickness	Key thickness 3 mm
	Square key section side length	Square section side length 3 mm
	Key label	KEY label for key profile
Mechanical View 3	Locating diameter	Diameter 45 ±0.1
	Outer locating diameter	Diameter 46 ±0.1
	Square mounting face side length	Square 40

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 4	Perpendicularity tolerance to datum A	Perpendicularity tolerance 0.04 relative to datum A
	Keyway callout	Key/keyway feature indicated
	M3 threaded hole depth	M3 thread depth 6
	Maximum envelope diameter or height	Maximum envelope 59
	Datum A	
	Diameter-based geometric tolerance	Diameter tolerance zone 0.04
	Main shaft diameter	Diameter 30 with tolerance +0/-0.021
	Keyway width	Width 9.2 with tolerance +0/-0.1
	Small shaft diameter	Diameter 8 with tolerance +0/-0.013
	Geometric tolerance 0.03	Geometric tolerance value 0.03 associated with datum frame A
	Short shoulder axial length	Axial length 3
		Axial length 5
	Front shaft extension length	Length 25 ±1
	Main body length	Length 105 ±1

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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.