PRODUCT DATASHEET

ES-SM-A01-040S-T0P16NM-50W-002

AC Servo Motors

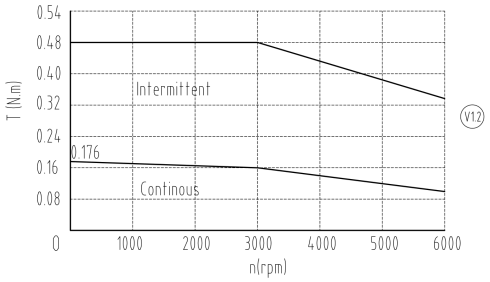
AC Servo Motors | ES-SM-A01-040S Standard 40 mm AC Servo Motor Series

Product Overview

AC Servo Motors with rated Torque 0.16 N·m, instantaneous Maximum Torque 0.48 N·m and rated Speed 3000 rpm.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	0.16	N·m
Instantaneous Maximum Torque	0.48	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	50	W
Instantaneous Maximum Current	2.25	A
Flange Size	40	mm
Torque Constant	0.232	N·m/A
Rated Voltage	220	V AC
Rated Line Voltage	220	V



Torque-Speed Curve

Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	0.16	N·m
Instantaneous Maximum Torque	0.48	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	50	W
Torque Constant	0.232	N·m/A
Rated Power	50	W
ELECTRICAL		
Rated Voltage	220	V AC
Rated Line Voltage	220	V
Instantaneous Maximum Current	2.25	A
Back EMF Constant	0.018	V/krpm
Insulation Class	F	
Maximum Allowed Voltage Slew Rate	8	KV/μs
Motor Outlet Mode	Communication encoder socket	
Pole Pairs	5	
Rated Current	0.7	A

Technical Specifications

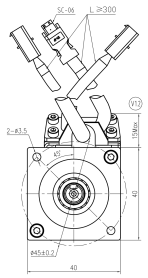
PARAMETER	SPECIFICATION	UNIT	NOTES
ELECTRICAL			
Rotational Back-EMF Constant	0.018	V/krpm	
Electrical Time Constant	1.14	ms	
Position Feedback Device	Single-turn communication magnetic encoder		
MECHANICAL			
Flange Size	40	mm	
Inertia Level	Low inertia		
Holding Brake Available	With holding brake		
Mechanical Time Constant	1.51	ms	Brake Configuration: without_brake
Rotor Inertia	0.021 kg·cm² / 0.018 Kg·cm2		Brake Configuration: without_brake
Bearing Radial Force Capacity	120	N	
Bearing Axial Force Capacity	60	N	
ENVIRONMENTAL			
Altitude and Derating Rule	Maximum altitude 4000 m; above 1000 m, power derates 1.5% per 100 m		
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)		

Dimensional & Integration Overview

Mechanical Overview

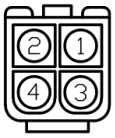
PARAMETER	VALUE	UNIT
Flange Size	40	mm
Inertia Level	Low inertia	
Holding Brake Available	With holding brake	
Mechanical Time Constant	1.51	ms
Rotor Inertia	0.021 kg·cm² / 0.018 Kg·cm2	
Bearing Radial Force Capacity	120	N

Dimensional Drawings

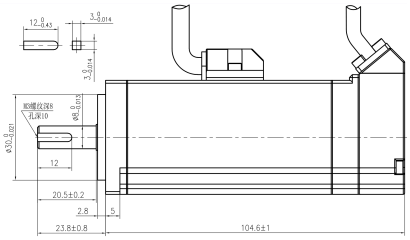


Mechanical View 1

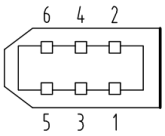
Power Connector Pinout



Power Connector Pinout



Mechanical View 4



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Version number	V1.2
	Motor body right side maximum height	15Max
	Mounting hole specification	2-Φ3.5
	Mounting hole angular position	45°
	Motor body height	40
	Flange diameter	Φ45±0.2
	Motor body width	40

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 4	Shaft end length	12 mm with tolerance 0/-0.43
	Shaft width	3 mm with tolerance 0/-0.014
	Shaft flat depth	
	Thread specification and depth	M3 thread depth 8 mm
	Hole depth	Hole depth 10 mm
	Hole diameter	Ø8 mm with tolerance 0/-0.013
	Shaft diameter	Ø30 mm with tolerance 0/-0.021
	Mounting hole position	12 mm
	Mounting face width	20.5 mm ± 0.2
	Bottom offset	2.8 mm
	End protrusion	5 mm
	Total mounting height	23.8 mm ± 0.8
	Overall length	104.6 mm ± 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.