PRODUCT DATASHEET

ES-SM-A03-130G-T5P39NM-850W-004

AC Servo Motors

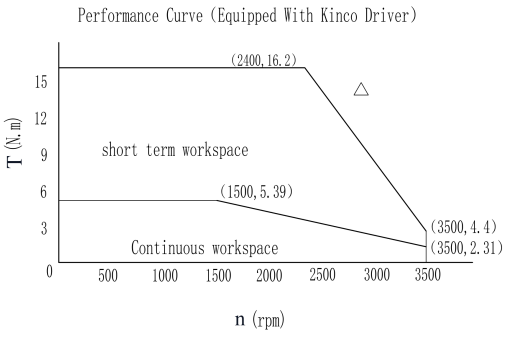
AC Servo Motors | ES-SM-A03-130G Compact 130 mm AC Servo Motor Series

Product Overview

AC Servo Motors with rated Torque 5.39 N·m, instantaneous Maximum Torque 16.2 N·m and rated Speed 1500 rpm.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	5.39	N·m
Instantaneous Maximum Torque	16.2	N·m
Rated Speed	1500	rpm
Continuous Rated Output Power	850	W
Rated Voltage	220	V AC
Instantaneous Maximum Current	16.7	A
Flange Size	130	mm
Torque Constant	1.082	N·m/A
Altitude and Derating Rule	highest altitude2000m(1000mfor each increase above100m,Power drop1.5%)	



Torque-Speed Curve

Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	5.39	N·m
Instantaneous Maximum Torque	16.2	N·m
Rated Speed	1500	rpm
Continuous Rated Output Power	850	W
Torque Constant	1.082	N·m/A
Rated Power	850	W
ELECTRICAL		
Rated Voltage	220	V AC
Instantaneous Maximum Current	16.7	A
Back EMF Constant	56.23	V/krpm
Insulation Class	F	

Technical Specifications

PARAMETER	SPECIFICATION	UNIT	NOTES
ELECTRICAL			
Motor Outlet Mode	Standard socket		
Pole Pairs	5		
Rated Current	5.4	A	
Rotational Back-EMF Constant	56.23	V/krpm	
Electrical Time Constant	4.39	ms	
Position Feedback Device	23-bit multi-turn communication optical absolute encoder		
MECHANICAL			
Flange Size	130	mm	
Inertia Level	High inertia		
Holding Brake Available	With holding brake		
Mechanical Time Constant	2.55 / 2.29	ms	Brake Configuration: without_brake

Technical Specifications

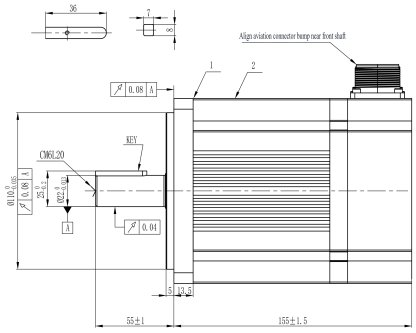
PARAMETER	SPECIFICATION	UNIT	NOTES
MECHANICAL			
Rotor Inertia	12.86 / 11.56	Kg·cm 2	Brake Configuration: without_brake
Bearing Radial Force Capacity	686	N	
Bearing Axial Force Capacity	196	N	
ENVIRONMENTAL			
Altitude and Derating Rule	highest altitude2000m(1000mfor each increase above100m,Power drop1.5%)		
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	IP65, 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

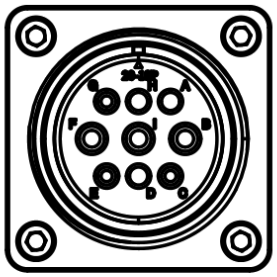
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	130	mm
Inertia Level	High inertia	
Holding Brake Available	With holding brake	
Mechanical Time Constant	2.55 / 2.29	ms
Rotor Inertia	12.86 / 11.56	Kg·cm2
Bearing Radial Force Capacity	686	N

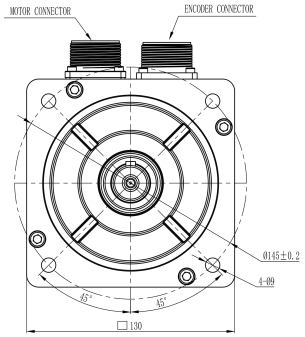
Dimensional Drawings



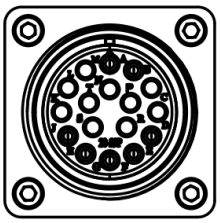
Mechanical View 1



Power Connector Pinout



Mechanical View 3



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Keyway length	36 mm
	Keyway depth	8 mm
	Parallelism tolerance of shaft	Parallelism 0.08 relative to datum A
	Locating hole diameter	Ø22 0/-0.013
	Position tolerance of hole	Position 0.08 relative to datum A
	Hole spacing	25 0/-0.2
	Flange mounting diameter	Ø110 0/-0.035
	Parallelism tolerance of flange face	Parallelism 0.04
	Shaft extension length	13.5 mm
	Flange width	5 mm
	Overall length	155±1.5 mm
	Flange to shaft end length	55±1 mm
	Keyway width	7 mm
Mechanical View 3	Mounting Bolt Circle Diameter	Ø145±0.2 mm
	Number and Diameter of Mounting Holes	4 holes × Ø9 mm
	Mounting Hole Angular Position 1	45°
	Mounting Hole Angular Position 2	
	Motor Flange Square Dimension	130 mm × 130 mm square

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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.