

PRODUCT DATASHEET

ES-SM-A03-180G-T22P3NM-3500W-004

AC Servo Motors

AC Servo Motors | ES-SM-A03-180G Compact 180 mm AC Servo Motor Series

Product Overview

AC Servo Motors with rated Torque 22.3 N·m, instantaneous Maximum Torque 66.9 N·m and rated Speed 1500 rpm.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	22.3	N·m
Instantaneous Maximum Torque	66.9	N·m
Rated Speed	1500	rpm
Continuous Rated Output Power	3500	W
Rated Voltage	380	V AC
Instantaneous Maximum Current	38.7	A
Flange Size	180	mm
Torque Constant	1.9	Nm/A
Altitude and Derating Rule	highest altitude2000m,1000mabove,every rise100m,Power drop1.5%	

Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	22.3	Nm
Instantaneous Maximum Torque	66.9	Nm
Rated Speed	1500	rpm
Continuous Rated Output Power	3500	W
Torque Constant	1.9	Nm/A
Rated Power	3500	W
ELECTRICAL		
Rated Voltage	380	V AC
Instantaneous Maximum Current	38.7	A
Back EMF Constant	115	V/krpm
Insulation Class	F	
Motor Outlet Mode	Standard socket	
Pole Pairs	5	
Rated Current	12.9	A
Rotational Back-EMF Constant	115	V/krpm
Electrical Time Constant	13.8	ms

Technical Specifications

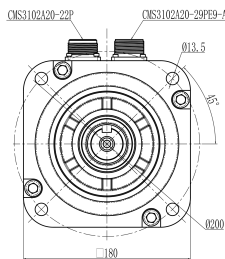
PARAMETER	SPECIFICATION	UNIT	NOTES
ELECTRICAL			
Position Feedback Device	23-bit multi-turn communication optical absolute encoder		
MECHANICAL			
Flange Size	180	mm	
Inertia Level	High inertia		
Holding Brake Available	With holding brake		
Mechanical Time Constant	1.11 / 1.01	ms	Brake Configuration: without_brake
Rotor Inertia	60.5 / 54	Kg-cm ²	Brake Configuration: without_brake
Bearing Radial Force Capacity	1470	N	
Bearing Axial Force Capacity	490	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	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

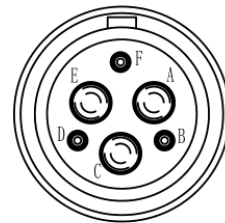
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	180	mm
Inertia Level	High inertia	
Holding Brake Available	With holding brake	
Mechanical Time Constant	1.11 / 1.01	ms
Rotor Inertia	60.5 / 54	Kg·cm ²
Bearing Radial Force Capacity	1470	N

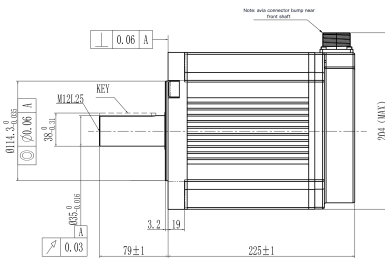
Dimensional Drawings



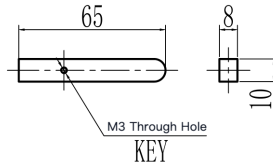
Mechanical View 1



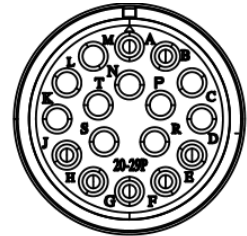
Power Connector Pinout



Mechanical View 3



Mechanical View 4



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Hole Diameter	Ø13.5
	Flange Bolt Circle Diameter	Ø200
	Flange Width	180
Mechanical View 3	Aviation connector bump position note	Aviation connector bump near front shaft
	Position tolerance relative to datum A	Position tolerance 0.06 relative to datum A
	Keyway designation	KEY
	Mounting bolt specification	M12 thread, length 25mm
	Datum A	
	Maximum overall length	204mm maximum
	Shaft outer diameter with negative tolerance	Φ114.3 0/-0.035mm
	Shaft length with negative tolerance	38 0/-0.31mm
	Concentricity tolerance	Concentricity tolerance 0.06mm
	Front shaft diameter with negative tolerance	Φ35 0/-0.016mm
	Keyway width	3.2mm
	Keyway depth	19mm
	Parallelism tolerance	Parallelism tolerance 0.03mm
	First section length	79±1mm
	Overall length	225±1mm



2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 4	Keyway length	65
	Keyway width	8
	Keyway depth	10
	M3 through hole	
	Keyway designation	KEY

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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.