

PRODUCT DATASHEET

ES-SM-A03-180G-T19P1NM-3000W-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 19.1 Nm, instantaneous Maximum Torque 57.3 Nm and rated Speed 1500 rpm.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	19.1	N·m
Instantaneous Maximum Torque	57.3	N·m
Rated Speed	1500	rpm
Continuous Rated Output Power	3000	W
Rated Voltage	380	V AC
Instantaneous Maximum Current	31.8	A
Flange Size	180	mm
Torque Constant	1.98	Nm/A
Altitude and Derating Rule	highest altitude2000m,1000mabove,every rise100m,Power drop1.5%	

Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	19.1	Nm
Instantaneous Maximum Torque	57.3	Nm
Rated Speed	1500	rpm
Continuous Rated Output Power	3000	W
Torque Constant	1.98	Nm/A
Rated Power	3000	W
ELECTRICAL		
Rated Voltage	380	V AC
Instantaneous Maximum Current	31.8	A
Back EMF Constant	120	V/krpm
Insulation Class	F	
Motor Outlet Mode	Standard socket	
Pole Pairs	5	
Rated Current	10.6	A
Rotational Back-EMF Constant	120	V/krpm
Electrical Time Constant	13.8	ms

Technical Specifications

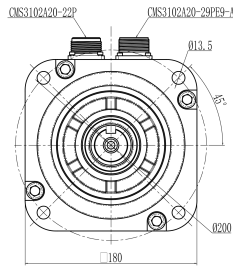
PARAMETER	SPECIFICATION	UNIT	NOTES
ELECTRICAL			
Position Feedback Device	23-bit multi-turn communication optical absolute encoder		
MECHANICAL			
Flange Size	180	mm	
Inertia Level	High inertia		
Holding Brake Available	With holding brake		
Mechanical Time Constant	1.27 / 1.11	ms	Brake Configuration: without_brake
Rotor Inertia	52.43 / 46	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

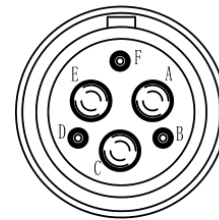
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	180	mm
Inertia Level	High inertia	
Holding Brake Available	With holding brake	
Mechanical Time Constant	1.27 / 1.11	ms
Rotor Inertia	52.43 / 46	Kg·cm ²
Bearing Radial Force Capacity	1470	N

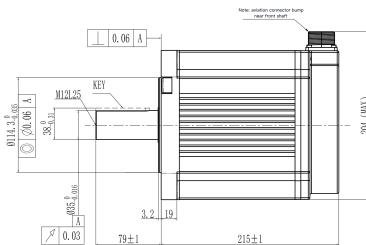
Dimensional Drawings



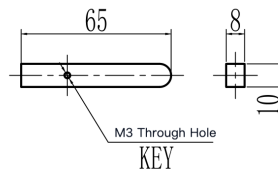
Mechanical View 1



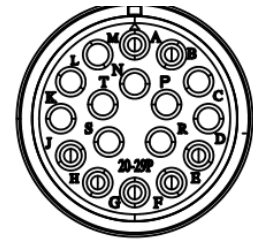
Power Connector Pinout



Mechanical View 3



Mechanical View 4



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Hole diameter	Ø13.5
	Mounting flange diameter	Ø200
	Square flange side length	180
Mechanical View 3	Shaft outer diameter	Ø114.3 -0.035
	Shaft length	38 -0.31
	Shaft end small diameter	Ø35 -0.016
	Perpendicularity tolerance	⊥ 0.06 A
	Circularity tolerance	Ø0.06 A
	Chamfer or angle tolerance	⋕ 0.03 A
	Datum A	A
	Keyway identification	KEY
	Mounting hole specification	M12L25
	Maximum axial length	204 (MAX)
	Local dimension	3.2
		19
	Mounting base center distance	79±1
	Overall axial length	215±1
	Installation note	Aviation connector bump positioned near front shaft

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 4	Keyway length	65 mm
	Shaft diameter	8 mm
	Keyway height/depth	10 mm
	Through hole specification	M3 through hole
	Keyway identifier	Keyway feature label

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Specifications are subject to change without notice. Verify the current product configuration before final design release.
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2D drawings, CAD files and integration documentation are controlled documents and are supplied separately on request.