PRODUCT DATASHEET

ES-SM-A03-180G-T47P8NM-7500W-002

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 47.8 N·m, instantaneous Maximum Torque 119.5 N·m and rated Speed 1500 rpm.

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	47.8	N·m
Instantaneous Maximum Torque	119.5	N·m
Rated Speed	1500	rpm
Continuous Rated Output Power	7500	W
Rated Voltage	380	V AC
Instantaneous Maximum Current	62.5	A
Flange Size	180	mm
Torque Constant	2.18	N·m/A
Altitude and Derating Rule	highest altitude2000m,1000mabove,every rise100m,Power drop1.5%	

Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	47.8	N·m
Instantaneous Maximum Torque	119.5	N·m
Rated Speed	1500	rpm
Continuous Rated Output Power	7500	W
Torque Constant	2.18	N·m/A
Rated Power	7500	W
ELECTRICAL		
Rated Voltage	380	V AC
Instantaneous Maximum Current	62.5	A
Back EMF Constant	128	V/krpm
Insulation Class	F	
Motor Outlet Mode	Standard socket	
Pole Pairs	5	
Rated Current	25	A
Rotational Back-EMF Constant	128	V/krpm
Electrical Time Constant	17.1	ms

Technical Specifications

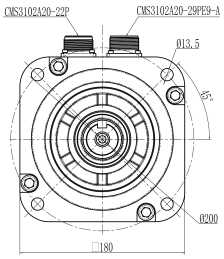
PARAMETER	SPECIFICATION	UNIT	NOTES
ELECTRICAL			
Position Feedback Device	17-bit multi-turn communication magnetic absolute encoder		
MECHANICAL			
Flange Size	180	mm	
Inertia Level	High inertia		
Holding Brake Available	With holding brake		
Mechanical Time Constant	0.75 / 0.71	ms	Brake Configuration: without_brake
Rotor Inertia	146.43 / 140	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 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	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

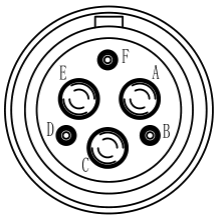
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	180	mm
Inertia Level	High inertia	
Holding Brake Available	With holding brake	
Mechanical Time Constant	0.75 / 0.71	ms
Rotor Inertia	146.43 / 140	Kg·cm2
Bearing Radial Force Capacity	1470	N

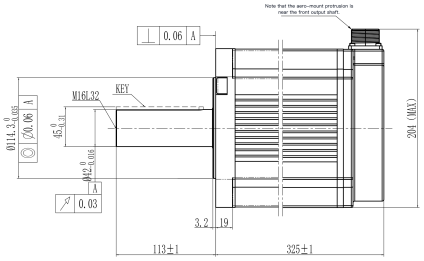
Dimensional Drawings



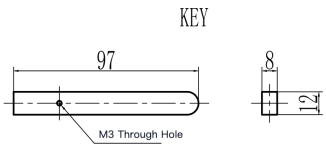
Mechanical View 1



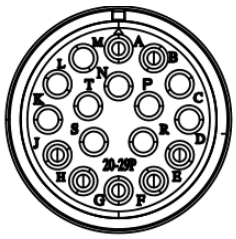
Power Connector Pinout



Mechanical View 3



Mechanical View 4



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Mounting hole diameter	Ø13.5
	Flange bolt circle diameter	Ø200
	Flange square dimension	□180
Mechanical View 3	Output shaft diameter	Ø114.3 -0.035
	Intermediate shaft diameter	Ø42 -0.016
	Intermediate shaft length	45 -0.31
	Keyway designation	KEY
	Threaded mounting hole	M16 depth 32
	Datum A	
	Perpendicularity tolerance	⊥ 0.06 relative to datum A
	Circular runout tolerance	Circular runout Ø0.06 relative to datum A
	Flatness tolerance	Flatness 0.03
	Overall length (bottom dimension)	113±1
	Overall length (extended)	325±1
	Axial positioning dimension	3.2
		19
	Maximum height	204 maximum

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 4	Keyway Label	KEY
	Keyway Length	97 mm
	Keyway Width	8 mm
	Keyway Depth	12 mm
	Through Hole Specification	M3 Through Hole

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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.