PRODUCT DATASHEET

ES-SM-L03-180G-V96-T14P33NM-3000W-002

Low-Voltage Servo Motors

Low-Voltage Servo Motors | ES-SM-L03-180G 96V 180 mm Low-Voltage Servo Motor Series

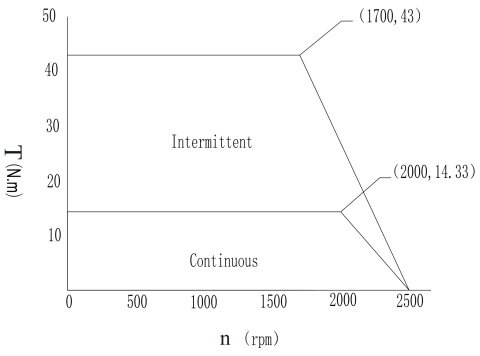
Product Overview

Low-Voltage Servo Motors with rated Torque 14.33 N·m, rated Speed 2000 rpm and continuous Rated Output Power 3000 W.

Configuration Context	Feedback device: Multi-turn communication magnetic absolute encoder

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	14.33	N·m
Rated Speed	2000	rpm
Continuous Rated Output Power	3000	W
Rated Voltage	96	VDC
Rated Line Voltage	96	V
Continuous Rated Current	37.5	A
Instantaneous Maximum Current	120	A
Flange Size	180	mm
Allowable Axial Force	490	N



Torque-Speed Curve

Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	14.33	N·m
Rated Speed	2000	rpm
Continuous Rated Output Power	3000	W
ELECTRICAL		
Rated Voltage	96	VDC
Rated Line Voltage	96	V
Continuous Rated Current	37.5	A
Instantaneous Maximum Current	120	A
Pole Pairs	4	
Rotational Back-EMF Constant	25 ±10%	V/krpm
Electrical Time Constant	11.86	ms
Insulation Class	F	
Motor Outlet Mode	Dedicated motor socket	
MECHANICAL		
Flange Size	180	mm

Technical Specifications

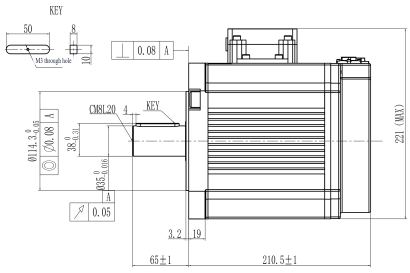
PARAMETER	SPECIFICATION	UNIT	NOTES
MECHANICAL			
Inertia Level	High inertia		
Allowable Radial Force	1470	N	
Mechanical Time Constant	2.24 / 2.06	ms	Brake Configuration: without_brake / Brake Configuration: with_brake
Rotor Inertia	47.34	Kg·cm 2	Brake Configuration: without_brake / Brake Configuration: with_brake
Allowable Axial Force	490	N	
INTEGRATION			
Feedback Device	Multi-turn communication magnetic absolute encoder		
ENVIRONMENTAL			
Operating Environment	Free from corrosive or flammable gases, oil droplets, and dust		
Operating Humidity	≤90% RH, non-condensing	%RH	
Altitude and Derating Rule	Maximum 2,000 m; derate power 1.5% per 100 m above 1,000	m	
Operating Temperature	-20 to 40	°C	
Protection Grade	IP54		
CONFIGURATION			
Output Shaft Type	Keyed shaft		
ADDITIONAL SPECIFICATIONS			
Cooling Method	Fully enclosed, self-cooled		

Dimensional & Integration Overview

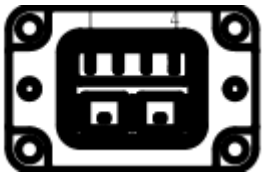
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	180	mm
Inertia Level	High inertia	
Allowable Radial Force	1470	N
Mechanical Time Constant	2.24 / 2.06	ms
Rotor Inertia	47.34	Kg·cm2
Allowable Axial Force	490	N

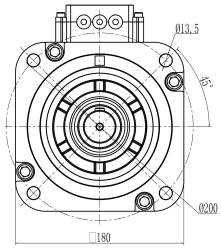
Dimensional Drawings



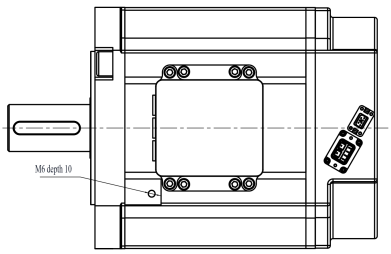
Mechanical View 1



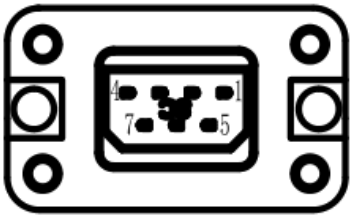
Power Connector Pinout



Mechanical View 3



Mechanical View 4



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Keyway identification	KEY
	Keyway length	50 mm
	Keyway depth	8 mm
	Runout tolerance (datum A)	0.08 mm runout relative to datum A
	M3 through hole	
	M3 through hole position dimension	10 mm
	Datum A	
	Maximum overall length	221 mm maximum
	Shaft diameter with lower tolerance	38 -0.31 mm
	Runout tolerance	Ø0.08 mm runout
	Mounting flange diameter with lower tolerance	Ø114.3 -0.05 mm
	Shaft diameter with bilateral tolerance	Ø35 0/-0.016 mm
	Position tolerance (datum A)	0.05 mm position tolerance relative to datum A
	Dimension callout	3.2 mm
		19 mm
	Overall length dimension (first section)	65±1 mm
	Overall length dimension	210.5±1 mm

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 3	Mounting hole diameter	Ø13.5
	Flange PCD (Pitch Circle Diameter)	Ø200
	Flange square side length or overall width	□180
Mechanical View 4	Threaded mounting hole specification	M6 threaded hole, depth 10mm

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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.