PRODUCT DATASHEET

ES-SM-L03-180G-V96-T23P88NM-5000W-002

Low-Voltage Servo Motors

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

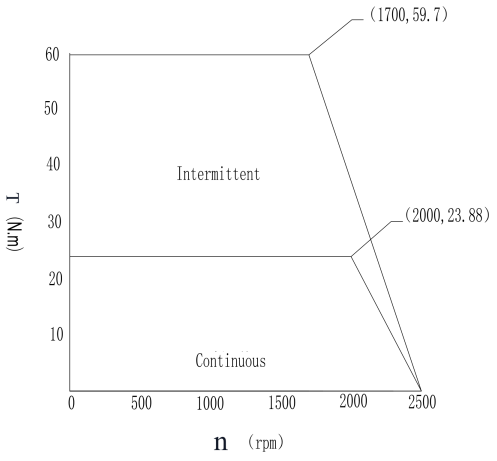
Product Overview

Low-Voltage Servo Motors with rated Torque 23.88 N·m, rated Speed 2000 rpm and continuous Rated Output Power 5000 W.

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

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	23.88	N·m
Rated Speed	2000	rpm
Continuous Rated Output Power	5000	W
Rated Voltage	96	VDC
Rated Line Voltage	96	V
Continuous Rated Current	62.5	A
Instantaneous Maximum Current	156	A
Flange Size	180	mm
Allowable Axial Force	490	N



Torque-Speed Curve

Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	23.88	N·m
Rated Speed	2000	rpm
Continuous Rated Output Power	5000	W
ELECTRICAL		
Rated Voltage	96	VDC
Rated Line Voltage	96	V
Continuous Rated Current	62.5	A
Instantaneous Maximum Current	156	A
Pole Pairs	4	
Rotational Back-EMF Constant	25.2 ±10%	V/krpm
Electrical Time Constant	12.4	ms
Insulation Class	F	
Motor Outlet Mode	Dedicated motor socket	
MECHANICAL		
Flange Size	180	mm

Technical Specifications

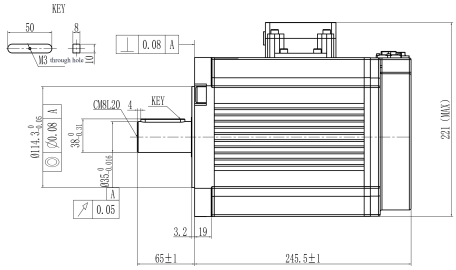
PARAMETER	SPECIFICATION	UNIT	NOTES
MECHANICAL			
Inertia Level	High inertia		
Allowable Radial Force	1470	N	
Mechanical Time Constant	1.87 / 1.78	ms	Brake Configuration: without_brake / Brake Configuration: with_brake
Rotor Inertia	81	Kg·cm 2	Brake Configuration: without_brake / Brake Configuration: 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

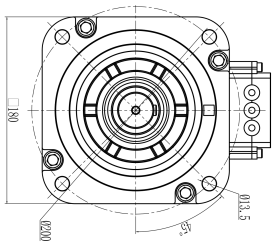
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	180	mm
Inertia Level	High inertia	
Allowable Radial Force	1470	N
Mechanical Time Constant	1.87 / 1.78	ms
Rotor Inertia	81	Kg·cm2
Allowable Axial Force	490	N

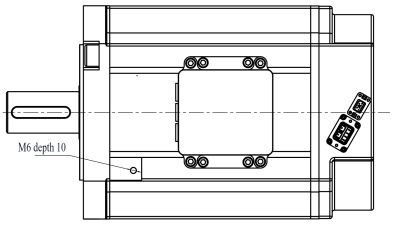
Dimensional Drawings



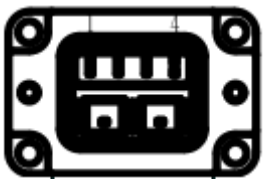
Mechanical View 1



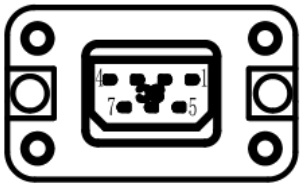
Mechanical View 2



Mechanical View 3



Feedback Connector Pinout



Feedback Connector Pinout

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Keyway designation	KEY
	Shaft length	50 mm
	Keyway width	8 mm
	Perpendicularity tolerance	Perpendicularity 0.08 relative to datum A
	M3 through hole	
	Quantity or sequence number	4
	Datum A	
	Maximum length	221 mm maximum
	Shaft diameter with tolerance	Ø14.3 -0.05 mm
	Shaft section length with tolerance	38 -0.31 mm
	Runout or concentricity tolerance	Runout tolerance 0.08
	Shaft diameter with tolerance	Ø35 -0.016 mm
	Position or angular tolerance	Position tolerance 0.05
	Keyway depth	3.2 mm
	Keyway length	19 mm
	Mounting base length	65±1 mm
	Overall length	245.5±1 mm

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 2	Overall dimension	180 mm
	Mounting hole diameter	Ø13.5 mm
	Mounting hole angular position	45°
	Mounting flange bolt circle diameter	Ø200 mm
Mechanical View 3	Threaded hole depth	M6 thread, 10mm depth

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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.