PRODUCT DATASHEET

ES-SM-L02-080D-V48-T3P18NM-1000W-001

Low-Voltage Servo Motors

Low-Voltage Servo Motors | ES-SM-L02-080D Compact 80 mm Low-Voltage Servo Motor Series

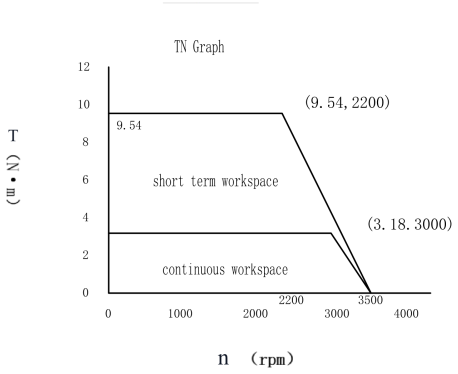
Product Overview

Low-Voltage Servo Motors with rated Torque 3.18 N·m, rated Speed 3000 rpm and continuous Rated Output Power 1000 W.

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

Key Specifications

PARAMETER	VALUE	UNIT
Rated Torque	3.18	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	1000	W
Rated Voltage	48	VDC
Rated Line Voltage	48	V
Continuous Rated Current	24	A
Instantaneous Maximum Current	73	A
Flange Size	80	mm
Allowable Axial Force	90	N



Torque-Speed Curve

Technical Specifications

PARAMETER	SPECIFICATION	UNIT
PERFORMANCE		
Rated Torque	3.18	N·m
Rated Speed	3000	rpm
Continuous Rated Output Power	1000	W
ELECTRICAL		
Rated Voltage	48	VDC
Rated Line Voltage	48	V
Continuous Rated Current	24	A
Instantaneous Maximum Current	73	A
Pole Pairs	5	
Rotational Back-EMF Constant	9	V/krpm
Electrical Time Constant	3.02	ms
Insulation Class	F	
Motor Outlet Mode	Dedicated motor socket	
MECHANICAL		
Flange Size	80	mm
Inertia Level	Medium inertia	

Technical Specifications

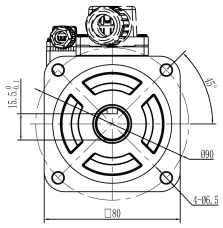
PARAMETER	SPECIFICATION	UNIT	NOTES
MECHANICAL			
Allowable Radial Force	270	N	
Mechanical Time Constant	0.93	ms	Brake Configuration: with_brake / Brake Configuration: without_brake
Rotor Inertia	2.04	Kg·cm 2	Brake Configuration: with_brake / Brake Configuration: without_brake
Allowable Axial Force	90	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	-5 to 40	°C	
Protection Grade	IP65		
CONFIGURATION			
Output Shaft Type	Keyed shaft		
Motor Version	Ultra-short version		
ADDITIONAL SPECIFICATIONS			
Cooling Method	Fully enclosed, self-cooled		

Dimensional & Integration Overview

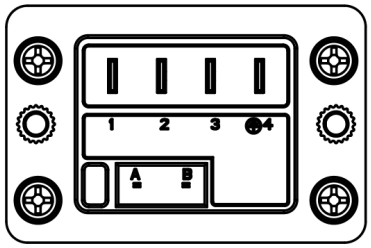
Mechanical Overview

PARAMETER	VALUE	UNIT
Flange Size	80	mm
Inertia Level	Medium inertia	
Allowable Radial Force	270	N
Mechanical Time Constant	0.93	ms
Rotor Inertia	2.04	Kg·cm2
Allowable Axial Force	90	N

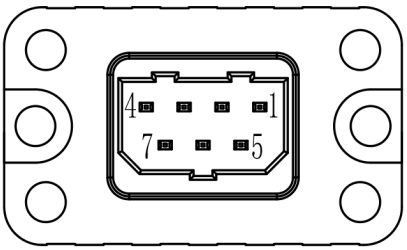
Dimensional Drawings



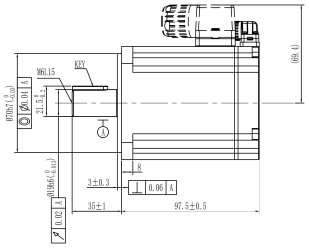
Mechanical View 1



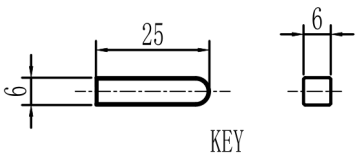
Power Connector Pinout



Power Connector Pinout



Mechanical View 4



Mechanical View 5

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 1	Flange face to shaft end distance	15.5±0.1 mm
	Mounting hole angular position	45°
	Mounting hole pitch circle diameter (PCD)	Ø90 mm
	Number and diameter of mounting holes	4 holes × Ø6.5 mm
	Square flange side length	80 × 80 mm square

2D Drawing Dimensions & Callouts

VIEW	FIELD	VALUE
Mechanical View 4	Shaft diameter (h7 fit)	Ø70h7 (-0.03)
	Shaft diameter (reference)	Ø69.4 (reference)
	Keyway identifier	Keyway present
	Threaded mounting hole	M6 thread depth 15mm
	Datum A (left face)	Datum A
	Shaft section length	21.5 -0.2
	Position tolerance	Position tolerance 0.04
	Depth or length dimension	8
	Bore diameter (h6 fit)	Ø19h6 (-0.013)
	Boss or groove width	3±0.3
	Perpendicularity tolerance to datum A	Perpendicularity 0.06 A
	Axial dimension	35±1
	Total length	97.5±0.5
	Geometric tolerance to datum A	0.02 A
Mechanical View 5	Keyway length	25 mm
	Keyway width	6 mm
	Keyway depth	
	Feature label	Keyway feature

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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.