

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L02-080D-V96-T3P18NM-1000W-001	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

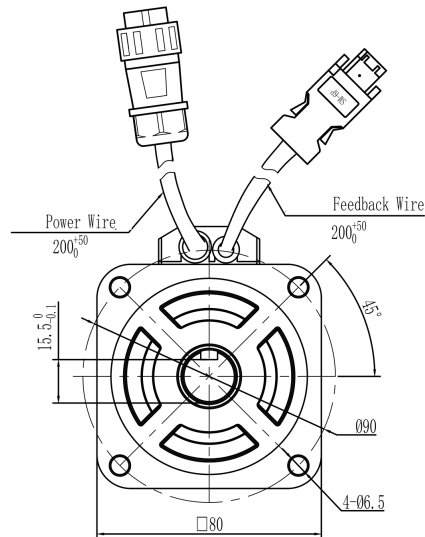
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

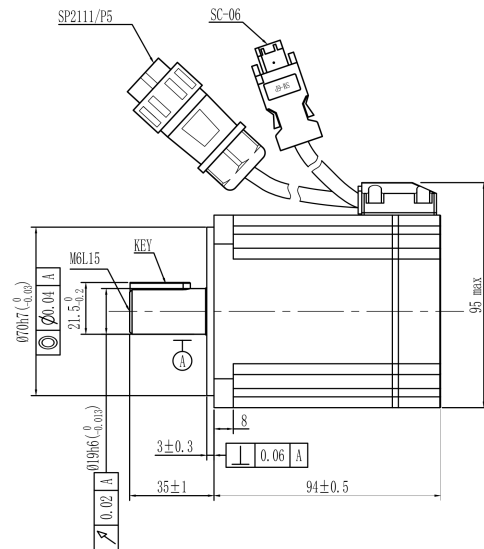
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	3.18 Nm
Rated Speed	3000 rpm
Rated Voltage	96 VDC
Flange Size	80 mm

Product Structure & Views

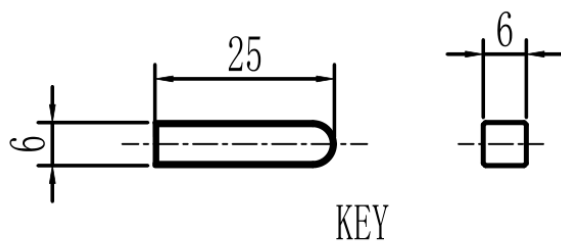
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



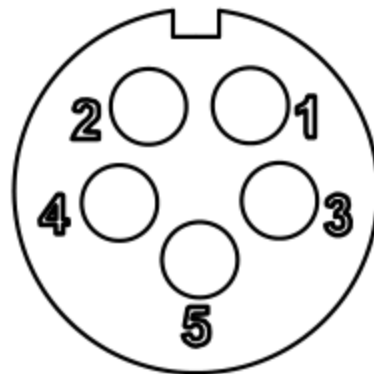
Mechanical View 1



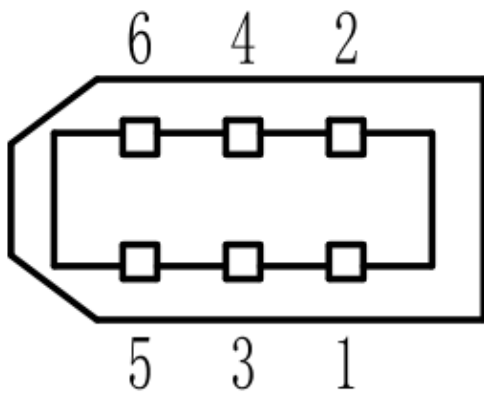
Mechanical View 2



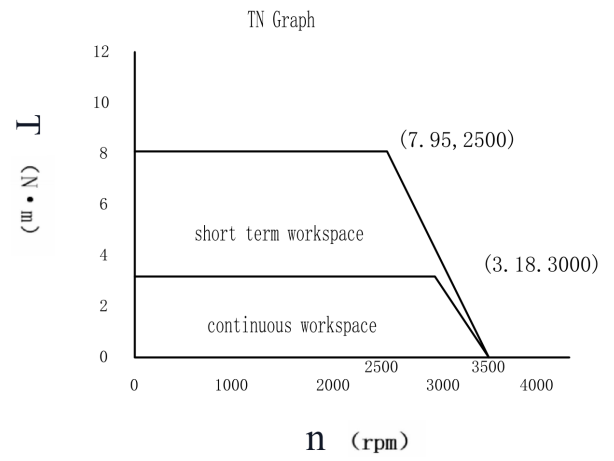
Mechanical View 3



Mechanical View 5



Mechanical View 8



Mechanical View 9

VIEW	FIELD	VALUE
Mechanical View 1	Feedback wire	Feedback wire interface
	Power wire	Power wire interface
	Feedback wire length	200 +50/0 mm
	Power wire length	200 +50/0 mm
	Left side dimension	15.5 0/-0.1 mm
	Angle	45°
	Mounting flange outer diameter	Ø90 mm
	Mounting hole pitch circle diameter	Ø60 mm
	Mounting holes	4 holes Ø6.5 mm
	Mounting flange size	180 mm
Mechanical View 2	Keyway location label	Keyway present
	Mounting bolt specification	M6×15
	Motor-side shaft diameter with tolerance	Ø70h7 (0/-0.03)
	Position tolerance referenced to datum A	Ø0.04 A
	Motor-side shaft length with tolerance	21.5 (0/-0.2)
	Maximum outer diameter	95 max
	Load-side shaft diameter with tolerance	Ø19h6 (0/-0.013)
	Keyway depth	3±0.3
	Perpendicularity tolerance referenced to datum A	0.06 A
	Keyway width	8
	Load-side shaft length	35±1
	Overall length	94±0.5
	Parallelism tolerance referenced to datum A	// 0.02 A
	Datum A	Datum A
Mechanical View 3	Key length	25
	Key width	6
	Key width (end view)	6
	Keyway designation	KEY
Mechanical View 5	Pin Position 1	Pin 1
	Pin Position 2	Pin 2
	Pin Position 3	Pin 3
	Pin Position 4	Pin 4
	Pin Position 5	Pin 5
Mechanical View 8	Connector pin number - top row - left	Pin 6
	Connector pin number - top row - center	Pin 4
	Connector pin number - top row - right	Pin 2

VIEW	FIELD	VALUE
Connector pin number - bottom row - left	Pin 5	
Connector pin number - bottom row - center	Pin 3	
Connector pin number - bottom row - right	Pin 1	
Mechanical View 9	Torque-Speed Curve Graph Title	TN Graph
	Y-axis Label (Torque)	Torque in N·m
	Torque Scale Mark: 12 N·m	12
	Torque Scale Mark: 10 N·m	10
	Torque Scale Mark: 8 N·m	8
	Torque Scale Mark: 6 N·m	6
	Torque Scale Mark: 4 N·m	4
	Torque Scale Mark: 2 N·m	2
	Torque Scale Mark: 0 N·m	0
	X-axis Label (Speed)	Speed in rpm
	Speed Scale Mark: 1000 rpm	1000
	Speed Scale Mark: 2000 rpm	2000
	Speed Scale Mark: 2500 rpm	2500
	Speed Scale Mark: 3000 rpm	3000
	Speed Scale Mark: 3500 rpm	3500
	Speed Scale Mark: 4000 rpm	4000
	Short-term Duty Zone Label	Short-term duty zone
	Continuous Duty Zone Label	Continuous duty zone
	Short-term Duty Zone Boundary Point	Torque 7.95 N·m at 2500 rpm
	Continuous Duty Zone Boundary Point	Torque 3.18 N·m at 3000 rpm

Overall Dimensions and Mounting Interface

PARAMETER	PUBLISHED VALUE	UNIT
Flange Size	80	mm

- Confirm the mounting face, locating feature, shaft geometry, fastener engagement and removal clearance against the applicable exact-SKU drawing.
- Mount the motor on a flat, rigid interface and avoid using fasteners to pull a misaligned assembly into position.

Shaft, Coupling and Load Path

PARAMETER	PUBLISHED VALUE	UNIT
Rotor Inertia	2.04 / 2.2 (	Kg·cm ²

- Align the driven shaft and coupling before tightening; validate radial, axial and moment loads against applicable bearing-load data.
- Do not hammer, uncontrolled press-fit or transmit installation force through the motor bearings.

Electrical, Feedback and Brake Integration

PARAMETER	PUBLISHED VALUE	UNIT
Rated Voltage	96	VDC

- Use only the current winding, feedback, brake and connector definitions for this exact SKU.
- Verify drive compatibility, polarity, current limits, feedback direction and brake sequencing before enabling torque.

Thermal, Duty and Environmental Conditions

PARAMETER	PUBLISHED VALUE	UNIT
Rated Torque	3.18	N·m
Operating Temperature	-20 to 40	°C

- Validate winding and housing temperature under the installed duty cycle, ambient condition, mounting heat path and enclosure airflow.
- Published peak values are transient boundaries and must not be treated as continuous operating ratings.

Cable Routing, Grounding and EMC

- Provide strain relief and bend radius through the full machine motion envelope.
- Separate motor power, brake and feedback wiring and terminate shields according to the specified system grounding architecture.

Commissioning and Motion Validation

PARAMETER	PUBLISHED VALUE	UNIT
Rated Speed	3000	rpm
Rated Torque	3.18	N·m

- Commission at low energy with the transmission unloaded or safely restrained, then confirm direction, feedback polarity, brake final integration, current limit and fault response.
- Validate the complete axis through intended acceleration, speed, load, stop and fault cycles during integration planning.

Integration Checklist

- | | |
|----|--|
| 01 | Confirm the exact SKU, 2D drawing and applicable wiring data. |
| 02 | Verify mounting, shaft, coupling, alignment, fasteners and removal clearance. |
| 03 | Validate radial and axial loads, inertia, acceleration and credible shock cases. |
| 04 | Confirm drive, winding, feedback, brake and connector compatibility. |
| 05 | Set current, speed, acceleration and thermal limits from the installed duty cycle. |
| 06 | Verify cable routing, shielding, grounding, strain relief and bend radius. |
| 07 | Commission at low energy before validating the full machine cycle. |

[View SKU Product Datasheet](#) [Request controlled 2D drawing](#) [Request controlled STEP review](#) [Request a Quote](#)

Engineering Use and Verification Notice

01. This Dimensional & Integration Guide applies only to EmbodyStack SKU ES-SM-L02-080D-V96-T3P18NM-1000W-001 and is intended for dimensional evaluation and preliminary integration. It is not a applicable manufacturing drawing, wiring definition, application approval, machinery risk assessment, safety validation or integration planning document. Before design freeze, machining, wiring or energization, verify all dimensions, tolerances, mounting and locating features, load boundaries, electrical interfaces, thermal conditions, cabling, grounding, protection, commissioning and applicable regulatory requirements against the applicable EmbodyStack engineering data for this exact SKU. Where this guide and applicable product documentation differ, the applicable product documentation governs. Validate the complete installed system under intended duty cycles, loads, accelerations, environmental conditions and credible fault cases.