

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L01-060S-V48-TOP64NM-200W-005	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

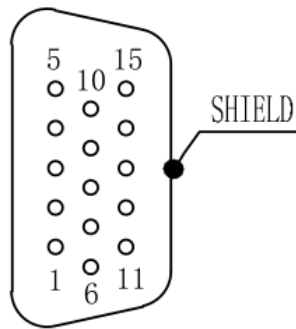
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

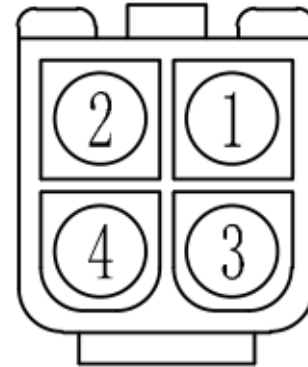
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	0.64 Nm
Rated Speed	3000 rpm
Rated Voltage	48 VDC
Flange Size	60 mm

Product Structure & Views

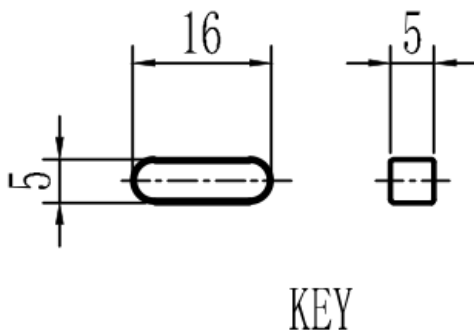
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



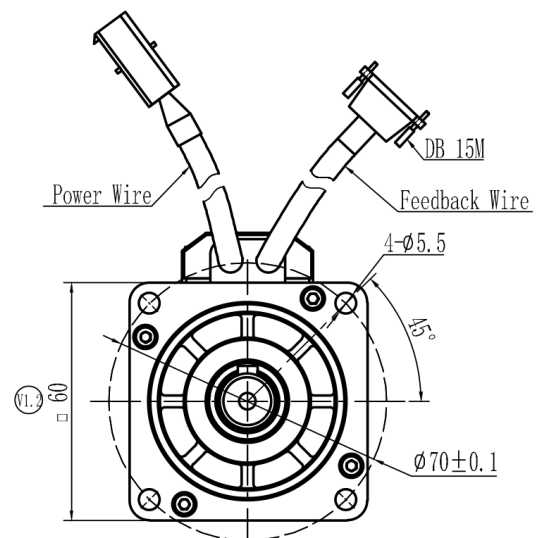
Mechanical View 3



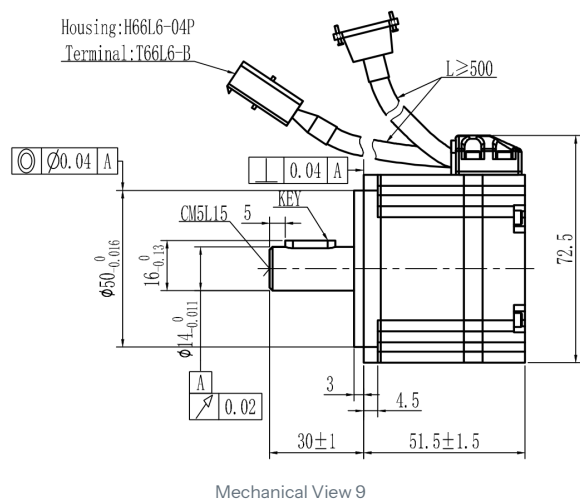
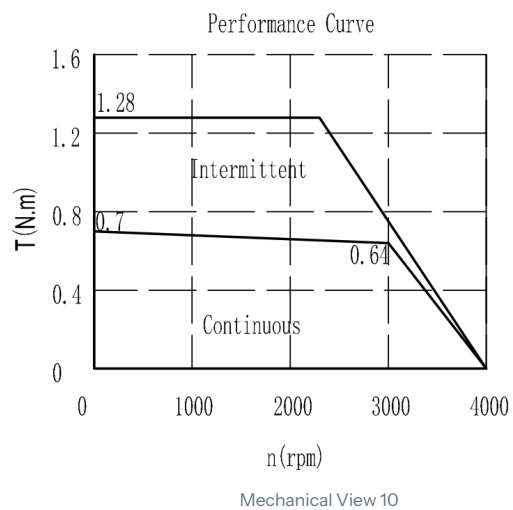
Mechanical View 5



Mechanical View 6



Mechanical View 8



VIEW	FIELD	VALUE
Mechanical View 3	DB15M connector upper-left pin number	Pin number 5
	DB15M connector upper-right pin number	Pin number 15
	DB15M connector upper-middle pin number	Pin number 10
	Shield terminal callout	Shield connection
	DB15M connector lower-left pin number	Pin number 1
	DB15M connector lower-middle pin number	Pin number 6
	DB15M connector lower-right pin number	Pin number 11
Mechanical View 5	Connector pin position number 2	Pin position 2
	Connector pin position number 1	Pin position 1
	Connector pin position number 3	Pin position 3
	Connector pin position number 4	Pin position 4
Mechanical View 6	Keyway length	Length 16 mm
	Keyway width	Width 5 mm
	Key width or square key section width	Key section width 5 mm
	View label	KEY detail
Mechanical View 8	Feedback wire connector type	DB15M connector
	Power wire label	Power Wire
	Feedback wire label	Feedback Wire
	Mounting hole quantity and diameter	4 holes, diameter 5.5 mm
	Mounting hole angular position	45 degrees
	Square flange outside size	Square 60 mm
	Locating circle diameter	Diameter 70 ± 0.1 mm
Mechanical View 9	Minimum cable length	L ≥500 mm
	Shaft-end geometric tolerance relative to datum A	Geometric tolerance diameter zone 0.04 relative to datum A
	Perpendicularity tolerance relative to datum A	Perpendicularity 0.04 relative to datum A
	Key feature label	Key feature
	Key feature dimension	5 mm
	Shaft-end callout label	CM5L15
	Body height	72.5 mm
	Main shaft diameter	Diameter 50 mm, +0/-0.016 mm
	Reduced shaft diameter	10 mm, +0/-0.13 mm
	Shaft end diameter	Diameter 14 mm, +0/-0.011 mm
	Datum A	Datum A
	Angularity/runout-style tolerance callout	Geometric tolerance 0.02
	End small spacing	3 mm
	End step distance	4.5 mm

VIEW	FIELD	VALUE
Shaft extension length	30 ± 1 mm	
Body length	51.5 ± 1.5 mm	
Mechanical View 10	Curve chart title	Performance Curve
	Torque vertical axis	Torque T in N.m
	Speed horizontal axis	Speed n in rpm
	Torque axis tick values	Torque ticks: 0, 0.4, 0.8, 1.2, 1.6 N.m
	Speed axis tick values	Speed ticks: 0, 1000, 2000, 3000, 4000 rpm
	Intermittent operation curve label	Intermittent operating region
	Continuous operation curve label	Continuous operating region
	Curve annotated torque values	Annotated torque values: 1.28, 0.7, 0.64 N.m

Overall Dimensions and Mounting Interface

PARAMETER	PUBLISHED VALUE	UNIT
Flange Size	60	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	0.114 / 0.11	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	48	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	0.64	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	0.64	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-L01-060S-V48-TOP64NM-200W-005 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.