

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L01-130D-V48-TTBDNM-2500W-002	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

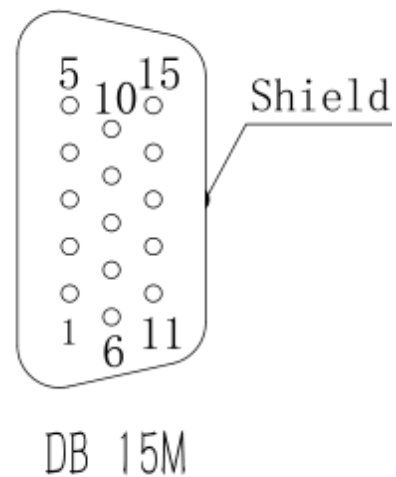
INTEGRATION ITEM	PUBLISHED VALUE
Rated Speed	3000 rpm
Rated Voltage	48 VDC
Flange Size	130 mm

Product Structure & Views

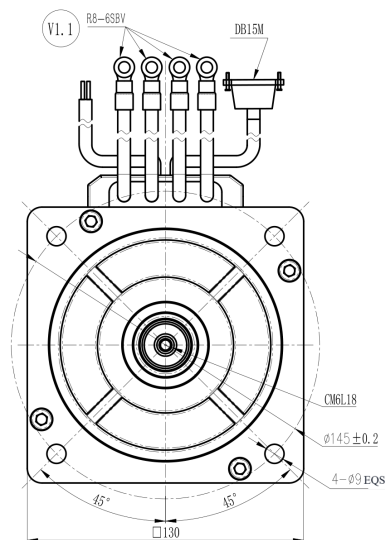
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



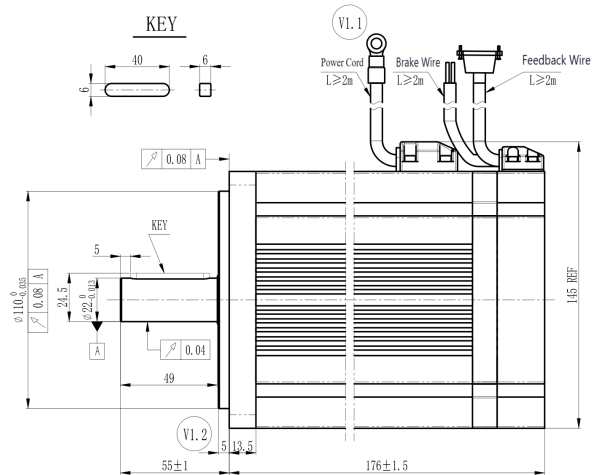
Mechanical View 6



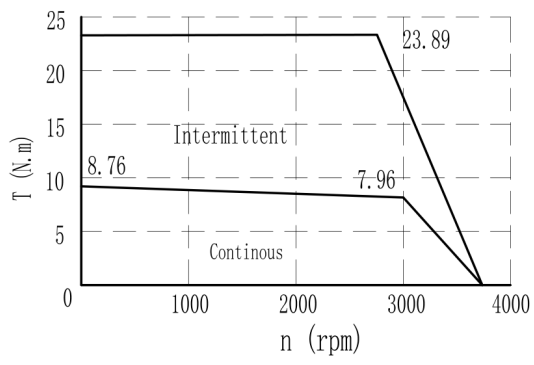
Mechanical View 7



Mechanical View 8



Mechanical View 10



Mechanical View 11

VIEW	FIELD	VALUE
Mechanical View 7	Connector Pin 5	Pin 5
	Connector Pin 10	Pin 10
	Connector Pin 15	Pin 15
	Shield Connection	Shield
	Connector Pin 1	Pin 1
	Connector Pin 6	Pin 6
	Connector Pin 11	Pin 11
	Connector Type	DB15M
Mechanical View 8	DB15 connector	DB15M
	Mounting flange diameter	145±0.2
	Mounting hole size and pattern	4- 9 equally spaced
	Left mounting hole angular position	45°
	Right mounting hole angular position	45°
	Square flange side length	130
Mechanical View 10	Overall length	176±1.5 mm
	Mounting section length	55±1 mm
	Shaft section dimensions	5 mm and 13.5 mm
	Version identifier	V1.2
	Shaft section length	49 mm
	Position tolerance	0.04
	Datum A	Datum A
	Shaft diameter with tolerance	Φ10 +0.085/-0.103 mm
	Keyway depth	5 mm
	Keyway identifier	Keyway
	Runout tolerance	0.08 A
	Shaft diameter with tolerance	Φ2 +0/-0.013 mm
	Power cord length	L ≥2m
	Brake wire length	L ≥2m
	Feedback wire length	L ≥2m
	Height dimension	24.5 mm
	Key length	40 mm
	Key width	6 mm
	Version identifier	V1.1
	Perpendicularity tolerance	Perpendicularity 0.08
	Key width	6
	Reference Dimension	145 REF

VIEW	FIELD	VALUE
Mechanical View 11	Torque-Speed Curve Y-Axis Unit	T (Nm)
	Torque-Speed Curve X-Axis Unit	n (rpm)
	Intermittent Duty Zone Label	Intermittent
	Continuous Duty Zone Label	Continuous
	Torque Y-Axis Scale Values	0, 5, 10, 15, 20, 25 Nm
	Speed X-Axis Scale Values	1000, 2000, 3000, 4000 rpm
	Intermittent Duty Starting Torque	8.76 Nm
	Intermittent Duty Ending Torque	7.96 Nm
	Continuous Duty Peak Torque	23.89 Nm

Overall Dimensions and Mounting Interface

PARAMETER	PUBLISHED VALUE	UNIT
Flange Size	130	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

- 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

- 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

- 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-L01-130D-V48-TTBDNM-2500W-002 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.