

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

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

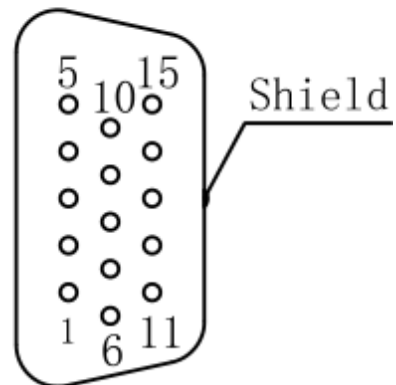
INTEGRATION ITEM	PUBLISHED VALUE
Rated Speed	3000 rpm
Rated Voltage	48 VDC
Flange Size	130 mm

Product Structure & Views

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

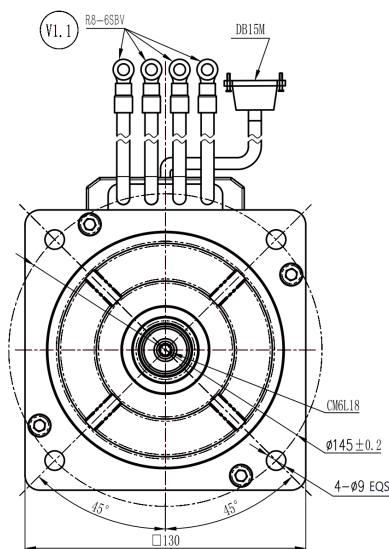


Mechanical View 4

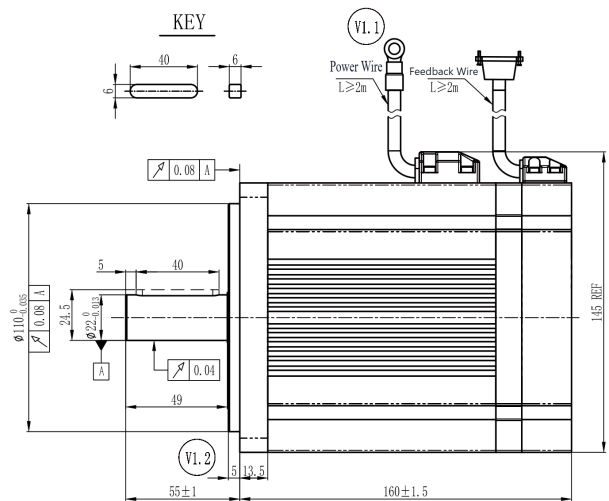


DB 15M

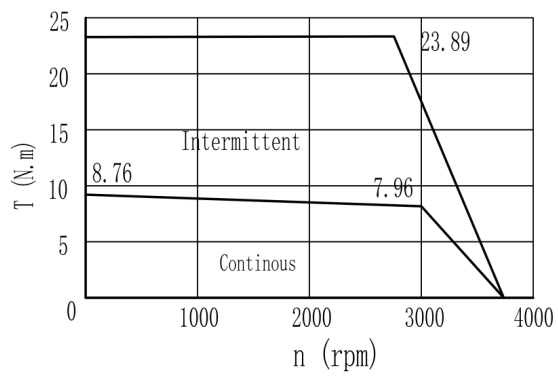
Mechanical View 5



Mechanical View 6



Mechanical View 7



Mechanical View 9

VIEW	FIELD	VALUE
Mechanical View 5	Connector designation	DB 15M connector
	Shield connection label	Shield connection
	Connector pin numbering labels	Visible pin labels: 1, 5, 6, 10, 11, 15
Mechanical View 6	Upper circular connector type	R8-6SBV connector/interface label
	DB connector type	DB15M connector
	Revision label	Revision V1.1
	Side connector type	CM6L18 connector/interface label
	Mounting hole pitch circle diameter	Diameter 145 ±0.2
	Mounting hole count and diameter	4 holes, diameter 9, equally spaced
	Lower-left mounting hole angular position	45 degrees
	Lower-right mounting hole angular position	45 degrees
	Square mounting flange envelope size	Square 130
	Key detail label	Key detail shown
Mechanical View 7	Key length	40
	Key width	6
	Power wire note	Power Wire
	Power wire length	L ≥2 m
	Feedback wire note	Feedback Wire
	Feedback wire length	L ≥2 m
	Upper geometric tolerance to datum A	Geometric tolerance 0.08 relative to datum A
	Shaft step or keyway segment length	40
	Shaft end short segment length	5
	Mounting locating diameter	Diameter 110 with upper deviation 0 and lower deviation -0.035
	Left geometric tolerance to datum A	Geometric tolerance 0.08 relative to datum A
	Shaft step dimension	24.5
	Output shaft diameter	Diameter 22 with upper deviation 0 and lower deviation -0.013
	Reference height	145 reference
	Shaft end geometric tolerance	Geometric tolerance 0.04
	Datum A	Datum A
	Shaft extension length	49
	Revision marker V1.1	V1.1
	Revision marker V1.2	V1.2
	Overall length	513.5
	Front shaft/interface length	55 ± 1
	Motor body length	160 ± 1.5
Mechanical View 9	Torque vertical axis label	Torque T in N.m

VIEW	FIELD	VALUE
Speed horizontal axis label	Rotational speed n in rpm	
Intermittent operation curve label	Intermittent operation curve	
Continuous operation curve label	Continuous operation curve	
Torque axis tick values	Torque scale ticks: 0, 5, 10, 15, 20, 25 N.m	
Speed axis tick values	Speed scale ticks: 1000, 2000, 3000, 4000 rpm	
Peak torque callout	Peak/intermittent torque callout: 23.89 N.m	
Continuous torque callout	Continuous torque callout: 8.76 N.m	
Continuous torque knee callout	Continuous torque knee callout: 7.96 N.m	

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-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.