

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L01-130D-V48-TTBDNM-3000W-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

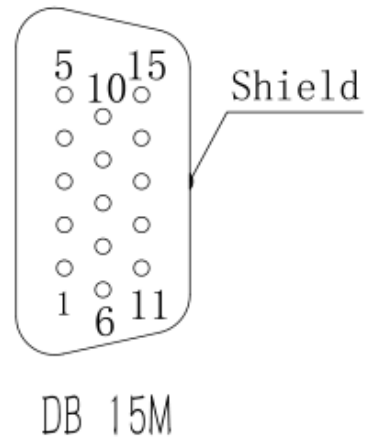
INTEGRATION ITEM	PUBLISHED VALUE
Rated Speed	2000 rpm
Rated Voltage	48 VDC
Flange Size	130 mm

Product Structure & Views

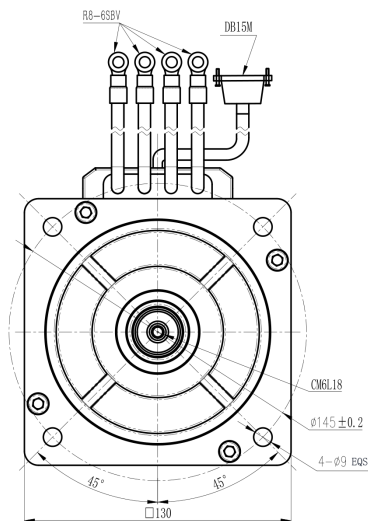
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



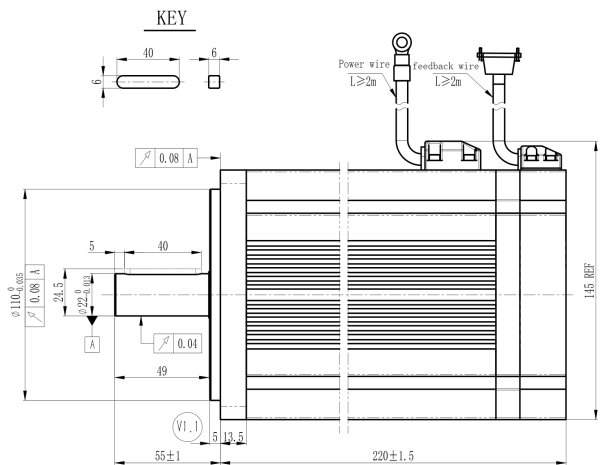
Mechanical View 4



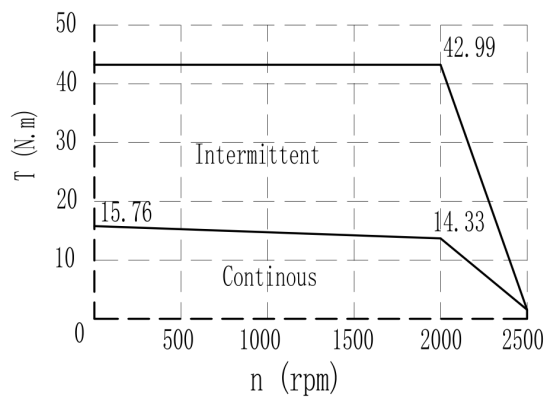
Mechanical View 5



Mechanical View 6



Mechanical View 7



Mechanical View 9

VIEW	FIELD	VALUE
Mechanical View 5	Connector type	DB 15M male D-sub connector
	Shield connection	Shield terminal / shield connection
	Pin number labels	Visible DB15 pin index labels: top row 5/10/15 and bottom row 1/6/11
Mechanical View 6	Circular connector specification	R8-6SBV
	D-sub connector specification	DB15M male D-sub connector
	Circular connector specification	CM6L18
	Mounting hole pitch circle diameter	Diameter 145 ±0.2
	Mounting hole quantity and diameter	4 holes, diameter 9, equally spaced
	Square flange outside size	Square 130
	Mounting hole angular position	45 degrees
Mechanical View 7	Key view label	KEY
	Key length	40 mm
	Key width	6 mm
	Power cable label	Power wire
	Feedback cable label	Feedback wire
	Power cable length	L ≥2 m
	Feedback cable length	L ≥2 m
	Geometric tolerance to datum A	Geometric tolerance 0.08 to datum A
	Shaft end step length	5 mm
	Shaft projection length	40 mm
	Shaft geometric tolerance to datum A	Geometric tolerance 0.08 to datum A
	Mounting pilot diameter	Diameter 110 mm, +0 / -0.035 mm
	Shaft diameter	Diameter 24.5 mm
	Reduced shaft diameter	Diameter 22 mm, +0 / -0.013 mm
	Datum A	Datum A
	Shaft geometric tolerance	Geometric tolerance 0.04
	Shaft end to flange distance	49 mm
	Reference height	145 mm reference
	Drawing revision	Revision V1.1
	Bottom small dimensions	5 mm and 13.5 mm
	Shaft end to mounting face distance	55 ± 1 mm
	Motor body length	220 ± 1.5 mm
	Key width	6
Mechanical View 9	Torque axis upper tick	50 on torque axis
	Intermittent operation peak torque callout	42.99 for intermittent curve
	Torque axis tick	40 on torque axis

VIEW	FIELD	VALUE
Torque axis tick	30 on torque axis	
Operating mode curve label	Intermittent operating region	
Vertical axis variable	T axis variable	
Torque axis tick	20 on torque axis	
Continuous operation starting torque callout	15.76 for continuous curve	
Continuous operation rated torque callout	14.33 for continuous curve near 2000 rpm	
Torque axis tick	10 on torque axis	
Operating mode curve label	Continuous operating region	
Speed axis tick	500 rpm speed tick	
Speed axis tick	1000 rpm speed tick	
Speed axis tick	1500 rpm speed tick	
Speed axis tick	2000 rpm speed tick	
Speed axis tick	2500 rpm speed tick	
Horizontal axis variable and unit	n, rotational speed in rpm	

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	2000	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-3000W-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.