

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L01-130D-V48-TTBDNM-1500W-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

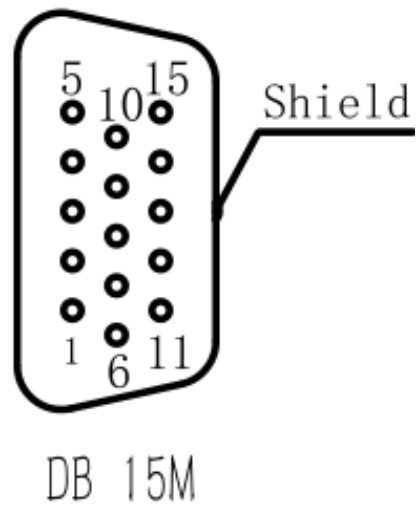
INTEGRATION ITEM	PUBLISHED VALUE
Rated Speed	3000 rpm
Rated Voltage	48 VDC
Flange Size	130 mm

Product Structure & Views

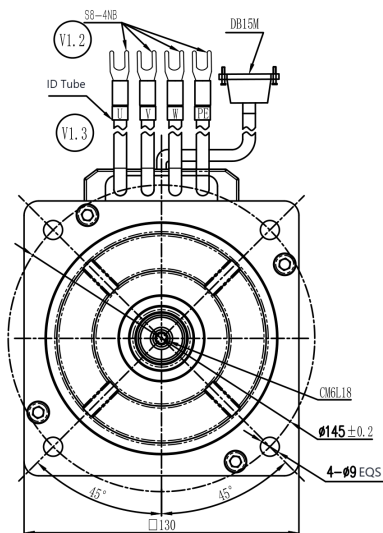
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



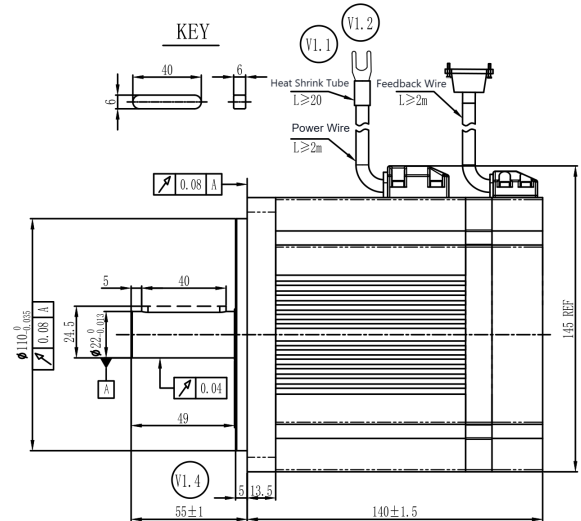
Mechanical View 3



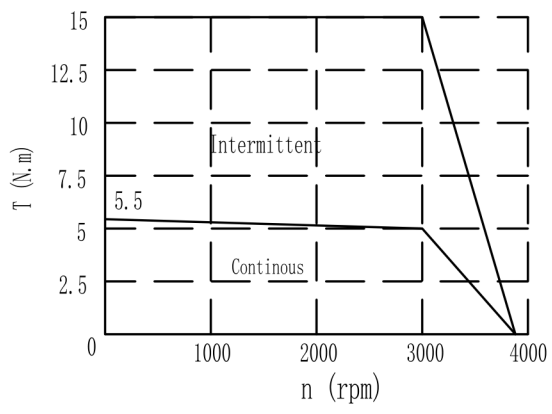
Mechanical View 4



Mechanical View 5



Mechanical View 6



Mechanical View 8

VIEW	FIELD	VALUE
Mechanical View 4	Connector type	DB 15M male D-sub connector
	Shield terminal	Shield connection terminal
	Connector pin number	Pin 15
	Connector pin number	Pin 10
	Connector pin number	Pin 5
	Connector pin number	Pin 6
	Connector pin number	Pin 1
	Connector pin number	Pin 11
Mechanical View 5	Terminal type	S8-4NB terminal
	ID tube version label	V1.2
	Identification tube	ID Tube
	Terminal labels	Terminal labels U,V, W, PE
	Harness version label	V1.3
	Connector or cable specification	CM6L18
	Mounting hole pitch circle diameter	Diameter 145 ±0.2
	Mounting hole quantity and diameter	4 holes, diameter 9, equally spaced
	Left mounting hole angular position	45 degrees
	Right mounting hole angular position	45 degrees
	Square flange outside size	Square 130
Mechanical View 6	Key detail label	Key detail
	Key length	40 mm
	Key width	6 mm
	Key thickness	6 mm
	Heat shrink tube label	Heat Shrink Tube
	Heat shrink tube length requirement	L ≥20 mm
	Feedback wire label	Feedback Wire
	Feedback wire length requirement	L ≥2 m
	Power wire label	Power Wire
	Power wire length requirement	L ≥2 m
	Geometric tolerance to datum A	Geometric tolerance 0.08 relative to datum A
	Reference overall height	145 mm reference
	Shaft diameter with tolerance	Diameter 22 mm, +0/-0.013 mm
	Shaft shoulder distance	24.5 mm
	Pilot diameter with tolerance	Diameter 110 mm, +0/-0.035 mm
	Shaft-related geometric tolerance	Geometric tolerance 0.04
	Datum A	Datum A

VIEW	FIELD	VALUE
Shaft extension length	49 mm	
End offset length	13.5 mm	
Revision marker	V1.1	
Revision marker	V1.2	
Revision marker	V1.4	
Keyway start offset	5 mm	
Shaft keyway length	40 mm	
Shaft section length	55±1 mm	
Overall length	140±1.5 mm	
Mechanical View 8	Torque axis tick value	15 N.m
	Torque axis tick value	12.5 N.m
	Torque axis tick value	10 N.m
	Intermittent operating region	Intermittent operation
	Torque axis tick value	7.5 N.m
	Torque axis label	Torque T in N.m
	Continuous torque callout value	5.5 N.m
	Torque axis tick value	5 N.m
	Continuous operating region	Continuous operation
	Torque axis tick value	2.5 N.m
	Torque axis tick value	0 N.m
	Speed axis tick value	1000 rpm
	Speed axis tick value	2000 rpm
	Speed axis tick value	3000 rpm
	Speed axis tick value	4000 rpm
	Speed axis label	Rotational speed n 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	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-1500W-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.