

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L01-130D-V48-TTBDNM-3000W-003	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

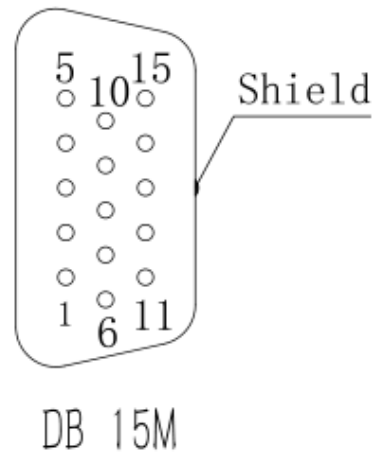
INTEGRATION ITEM	PUBLISHED VALUE
Rated Speed	3000 rpm
Rated Voltage	48 VDC
Flange Size	130 mm

Product Structure & Views

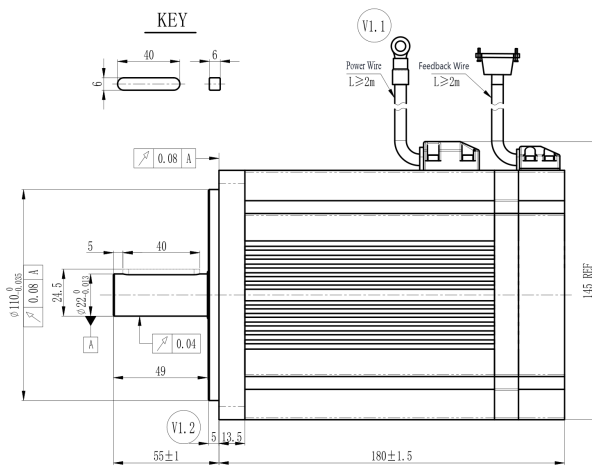
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



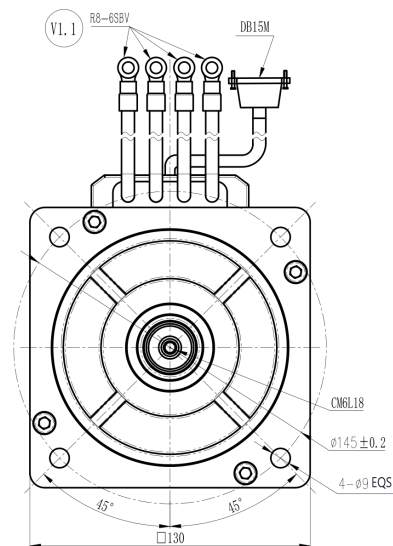
Mechanical View 4



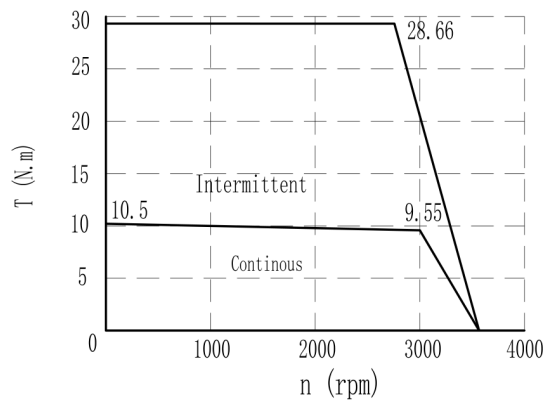
Mechanical View 5



Mechanical View 6



Mechanical View 7



Mechanical View 9

VIEW	FIELD	VALUE
Mechanical View 5	Shield terminal	Shield connection/pin
	Connector pin numbering	Visible DB15M pin numbering markers: 1, 5, 6, 10, 11, 15
Mechanical View 6	Key detail label	Key detail
	Key length	40 mm
	Key width	6 mm
	Power wire label	Power Wire
	Power wire length	$L \geq 2$ m
	Feedback wire label	Feedback Wire
	Feedback wire length	$L \geq 2$ m
	Datum feature	Datum A
	Shaft diameter tolerance	Diameter 22 mm, $+0/-0.013$ mm
	Shaft shoulder diameter	24.5 mm
	Shaft projection length	55 ± 1 mm
	Shaft section length	40 mm
	Shoulder offset	5 mm
	Mounting face to shaft shoulder distance	49 mm
	End face step width	13.5 mm
	Motor body length	180 ± 1.5 mm
	Body height reference dimension	145 mm reference
	Mounting pilot diameter tolerance	Diameter 110 mm, $+0/-0.035$ mm
	Geometric tolerance relative to datum A	Geometric tolerance 0.08 relative to datum A
	Shaft geometric tolerance relative to datum A	Geometric tolerance 0.08 relative to datum A
	Shaft end geometric tolerance	Geometric tolerance 0.04
	Revision marker	V1.1
	Revision marker	V1.2
	Feature dimension	5 mm
Mechanical View 7	Revision mark	V1.1
	Mounting hole pitch circle diameter	PCD diameter 145 ± 0.2 mm
	Equally spaced mounting holes	4 holes, diameter 9 mm, equally spaced
	Left mounting hole angular orientation	45 degrees
	Right mounting hole angular orientation	45 degrees
	Square flange outside size	Square 130 mm
Mechanical View 9	Torque axis label	Torque T in N.m
	Speed axis label	Rotational speed n in rpm
	Torque scale range	Torque scale from 0 to 30 N.m
	Speed scale range	Speed scale from 0 to 4000 rpm

VIEW	FIELD	VALUE
Intermittent operating curve	Intermittent operating region label	
Continuous operating curve	Continuous operating region label	
Maximum intermittent torque callout	Maximum intermittent torque 28.66 N.m	
Continuous torque start value	Continuous torque 10.5 N.m at low speed end	
Rated continuous torque callout	Continuous torque 9.55 N.m near 3000 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-3000W-003 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.