

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L01-130D-V48-TTBDNM-3000W-004	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

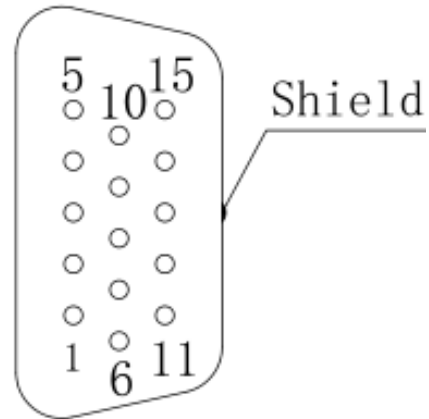
INTEGRATION ITEM	PUBLISHED VALUE
Rated Speed	3000 rpm
Rated Voltage	48 VDC
Flange Size	130 mm

Product Structure & Views

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

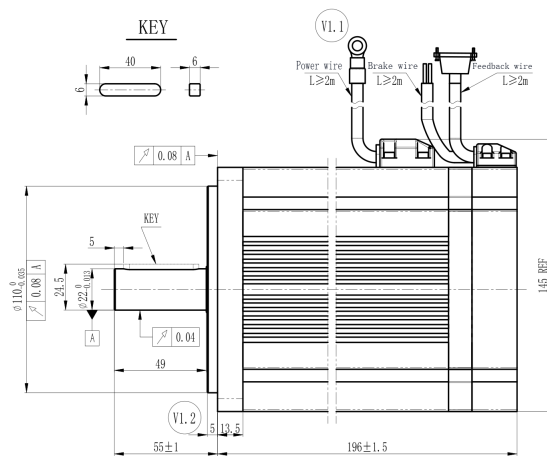


Mechanical View 6

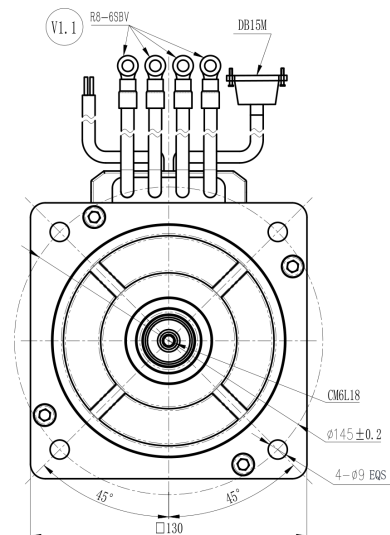


DB 15M

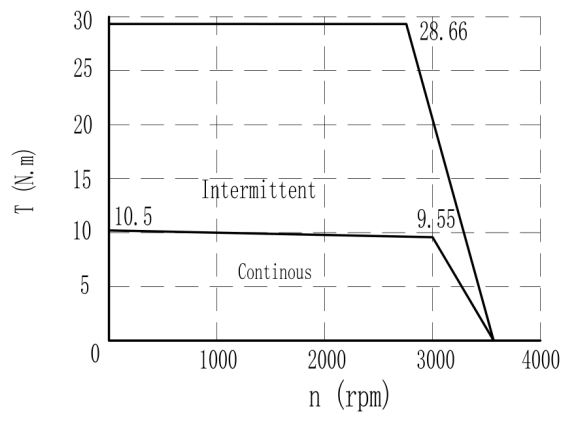
Mechanical View 7



Mechanical View 8



Mechanical View 9



Mechanical View 11

VIEW	FIELD	VALUE
Mechanical View 7	Connector type	DB15M male D-sub connector
	Shield terminal	Shield connection terminal
	Connector pin labels	Visible DB15M pin labels: top row 5, 10, 15; bottom row 1, 6, 11
Mechanical View 8	Key slot length	Key slot length 40 mm
	Key slot width	Key slot width 6 mm
	Power wire length	Power wire length at least 2 m
	Brake wire length	Brake wire length at least 2 m
	Feedback wire length	Feedback wire length at least 2 m
	Key feature geometric tolerance	Geometric tolerance 0.08 relative to datum A
	Key feature label	Key feature indicated
	Shaft step length	Shaft step length 5 mm
	Datum A	Datum A identified
	Reference height	Reference height 145 mm
	Shaft step diameter	Shaft step diameter 24.5 mm
	Shaft end geometric tolerance	Geometric tolerance 0.08 relative to datum A
	Shaft end diameter	Diameter 22 mm, +0/-0.013 mm
	Locating outer diameter	Diameter 110 mm, +0/-0.035 mm
	Shaft shoulder geometric tolerance	Geometric tolerance 0.04
	Shaft extension length	Shaft extension length 49 mm
	View revision marker	Revision/view markers V1.1 and V1.2
	Keyway width	6
	Feature dimension	5 mm
	Feature dimension	13.5 mm
	Shaft section length	55±1 mm
	Overall length	196±1.5 mm
	Datum A	Datum A
Mechanical View 9	Local drawing/view marker	V1.1
	Cable or terminal specification callout	R8-6SBV
	Mounting hole pitch circle diameter	Diameter 145 ±0.2
	Mounting hole quantity and diameter	4 holes, diameter 9, equally spaced
	Mounting hole angular position	45 degrees
	Square mounting flange envelope size	Square 130
Mechanical View 11	Torque axis label	Torque T in N.m
	Speed axis label	Speed n in rpm
	Torque scale values	Torque scale: 0 to 30 N.m
	Speed scale values	Speed scale: 1000 to 4000 rpm

VIEW	FIELD	VALUE
Intermittent operation curve label	Intermittent operation curve	
Continuous operation curve label	Continuous operation curve	
Intermittent maximum torque callout	28.66 N.m	
Continuous torque low-speed callout	10.5 N.m	
Continuous torque near rated speed callout	9.55 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-3000W-004 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.