

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A02-130D-T7P5NM-1570W-002	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 Torque	7.5 Nm
Rated Speed	2000 rpm
Flange Size	130 mm

VIEW	FIELD	VALUE
Mechanical View 3	Connector pin label 1-17	Pin 1-17
Mechanical View 5	Power connector pin identifiers	Six numbered connector pin positions are visible: pins 1 through 6.
Mechanical View 7	Key length	40 mm
	Key width	6 mm
	Key thickness	6 mm
	Key label	KEY
	Motor connector	6-pin motor connector
	Encoder connector	17-pin encoder connector
	Flange outside diameter	Diameter 145 ±0.1 mm
	Shaft step length	5 mm
	Motor body height	153 mm
	Shaft diameter	Diameter 22 mm, upper deviation 0, lower deviation -0.011 mm
	Pilot diameter	Diameter 110 mm, upper deviation 0, lower deviation -0.03 mm
	Threaded hole	M6 thread, depth 20 mm
	Face step offset	5 mm
	Mounting through holes	4 holes, diameter 9 mm
	Flange thickness	12 mm
	Mounting hole angular position	45 degrees
	Shaft extension length	55 ±1 mm
	Motor body length	240 ±1.5 mm
	Mounting hole center distance	2 directions, 130 mm center distance
Mechanical View 8	Intermittent Maximum Torque	22.5 N.m
	Intermittent Starting Torque	20.6 N.m
	Intermittent Torque Marker	20 N.m
	Intermittent Curve Key Point Torque	18.75 N.m
	Torque Marker	17.5 N.m
	Torque Marker	15 N.m
	Torque Marker	12.5 N.m
	Torque Marker	10 N.m
	Continuous Maximum Torque	8.25 N.m
	Torque Marker	7.5 N.m
	Torque Marker	5 N.m
	Torque Marker	2.5 N.m
	Speed Origin	0 rpm
	Speed Marker	1000 rpm
	Speed Marker	2000 rpm

VIEW	FIELD	VALUE
Speed Marker	3000 rpm	
Speed Marker	4000 rpm	
Speed Marker	5000 rpm	
Speed Marker	6000 rpm	
Rated Speed	5200 rpm	
Intermittent working zone	Intermittent operation zone	
Continuous working zone	Continuous operation zone	
Torque axis label	Torque in Newton-meters	
Speed axis label	Rotational speed in revolutions per minute	

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

PARAMETER	PUBLISHED VALUE	UNIT
Rotor Inertia	17.8	kgcm ²

- 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
Position Feedback Device	2500 PPR incremental encoder	

- 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

PARAMETER	PUBLISHED VALUE	UNIT
Rated Torque	7.5	Nm
Operating Temperature	20 40	°C

- 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

PARAMETER	PUBLISHED VALUE	UNIT
Position Feedback Device	2500 PPR incremental encoder	

- 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
Rated Torque	7.5	Nm

- 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-A02-130D-T7P5NM-1570W-002 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.