

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A02-130D-T5NM-1050W-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

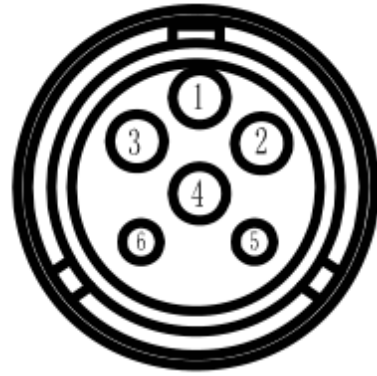
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	5 Nm
Rated Speed	2000 rpm
Flange Size	130 mm

Product Structure & Views

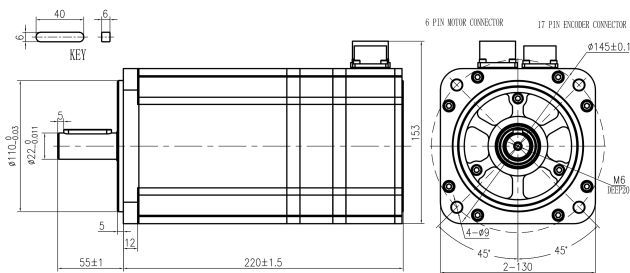
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



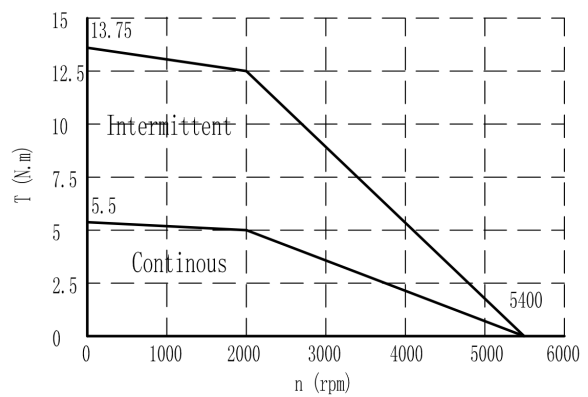
Mechanical View 3



Mechanical View 5



Mechanical View 7



Mechanical View 8

VIEW	FIELD	VALUE
Mechanical View 3	Connector pin label 1-17	Pin 1-17
Mechanical View 5	PINS	Pin 1-6
Mechanical View 7	Key length	Key length 40 mm
	Key width	Key width 6 mm
	Motor connector	6 pin motor connector
	Encoder connector	17 pin encoder connector
	Mounting flange outside diameter	Diameter 145 ±0.1 mm
	Key feature label	Key feature
	Shaft end shoulder length	Shoulder length 5 mm
	Body height	Height 153 mm
	Output shaft diameter	Diameter 22 mm, tolerance +0/-0.011 mm
	Pilot diameter	Diameter 110 mm, tolerance +0/-0.03 mm
	Threaded hole specification and depth	M6 thread, depth 20 mm
	Front flange offset	Offset 5 mm
	Through hole quantity and diameter	4 holes, diameter 9 mm
	Shaft shoulder distance	Distance 12 mm
	Mounting hole angular position	Angular position 45 degrees
	Body length	Length 220 ±1.5 mm
	Shaft extension length	Shaft extension 55 ±1 mm
	Mounting hole center distance	Two directions, center distance 130 mm
Mechanical View 8	Y-axis parameter	Torque T in N.m
	X-axis parameter	Speed n in rpm
	Intermittent torque-speed curve	Intermittent operating curve label
	Continuous torque-speed curve	Continuous operating curve label
	Maximum displayed torque scale	15 N.m torque scale tick
	Intermittent curve starting torque	13.75 N.m at low speed region
	Torque scale tick	12.5 N.m torque scale tick
	Torque scale tick	10 N.m torque scale tick
	Torque scale tick	7.5 N.m torque scale tick
	Continuous curve starting torque	5.5 N.m at low speed region
	Torque scale tick	5 N.m torque scale tick
	Torque scale tick	2.5 N.m torque scale tick
	Y-axis zero tick	0 N.m torque scale tick
	X-axis zero tick	0 rpm speed tick
	Speed scale tick	1000 rpm speed tick
	Speed scale tick	2000 rpm speed tick

VIEW	FIELD	VALUE
Speed scale tick	3000 rpm speed tick	
Speed scale tick	4000 rpm speed tick	
Speed scale tick	5000 rpm speed tick	
Maximum displayed speed scale	6000 rpm speed tick	
Curve endpoint speed	5400 rpm curve endpoint speed	

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	12.04	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	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	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-T5NM-1050W-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.