

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A02-130D-T10NM-2100W-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

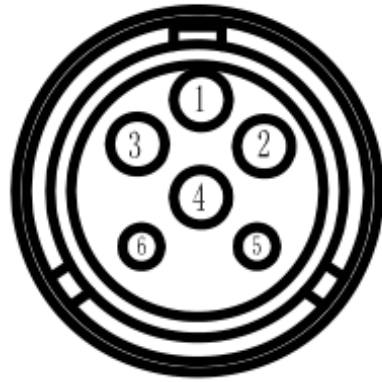
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	10 Nm
Rated Speed	2000 rpm
Flange Size	130 mm

Product Structure & Views

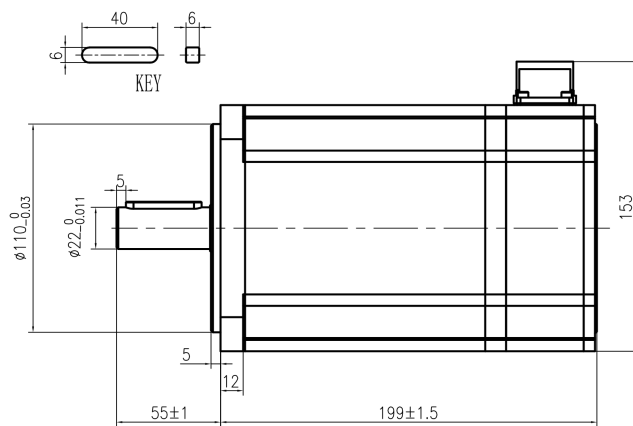
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



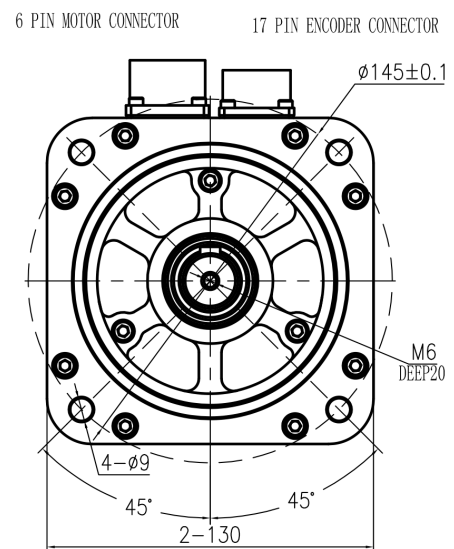
Mechanical View 2



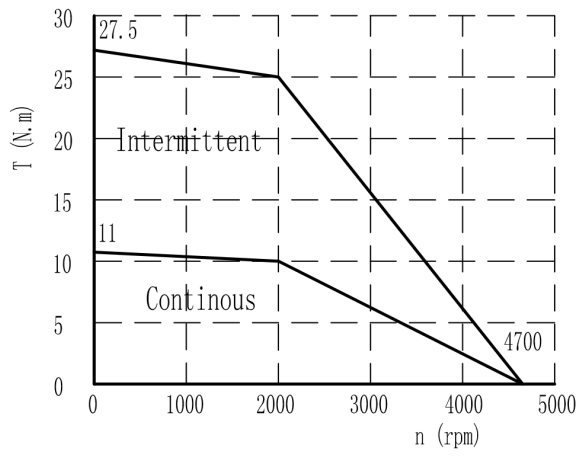
Mechanical View 4



Mechanical View 6



Mechanical View 7



Mechanical View 8

VIEW	FIELD	VALUE
Mechanical View 2	Connector pin label 1-17	Pin 1-17
Mechanical View 4	PINS	Pin 1-6
Mechanical View 6	Key length	40 mm
	Key width	6 mm
	Key cross-section width	6 mm
	Key feature label	Key feature
	Shaft-end keyway height or step dimension	5 mm
	Mounting flange pilot diameter	Diameter 110 mm, +0/-0.03 mm
	Shaft diameter	Diameter 22 mm, +0/-0.011 mm
	Overall body height	153 mm
	Flange face step thickness	5 mm
	Front flange thickness	12 mm
	Shaft extension length	55 mm ±1 mm
	Motor body length	199 mm ±1.5 mm
Mechanical View 7	6-pin motor connector label	6-pin motor connector
	17-pin encoder connector label	17-pin encoder connector
	Mounting pitch circle diameter	Diameter 145 ±0.1
	Threaded hole size and depth	M6 thread, depth 20
	Mounting through-hole quantity and diameter	4 holes, diameter 9
	Mounting hole angular orientation	Two 45 degree angular offsets
	Mounting hole center spacing	Two center spacings of 130
Mechanical View 8	Torque axis label	Torque T in Nm
	Speed axis label	Rotational speed n in rpm
	Torque scale tick values	Torque scale: 0 to 30 Nm, 5 Nm increments
	Speed scale tick values	Speed scale: 0 to 5000 rpm, 1000 rpm increments
	Intermittent torque curve	Intermittent curve starts/plateaus at 27.5 Nm before decreasing with speed
	Continuous torque curve	Continuous curve starts near 11 Nm before decreasing with speed
	Curve endpoint speed callout	Curve endpoint marked at 4700 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

PARAMETER	PUBLISHED VALUE	UNIT
Rotor Inertia	23.4	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	10	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	10	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-T10NM-2100W-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.