

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A02-130D-T14P3NM-3000W-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

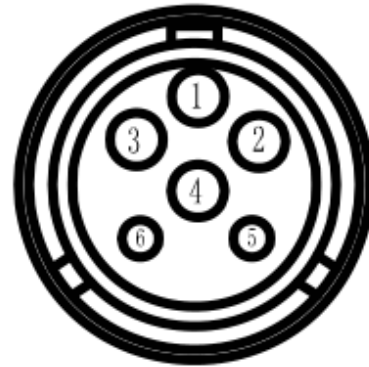
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	14.3 N·m
Rated Speed	2000 rpm
Flange Size	130 mm

Product Structure & Views

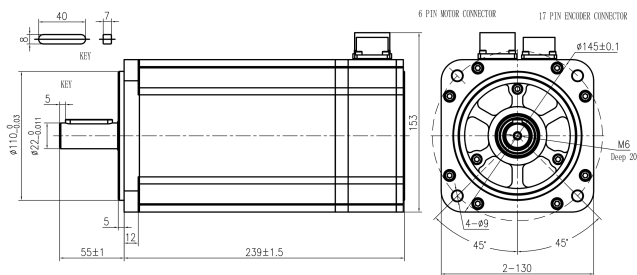
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



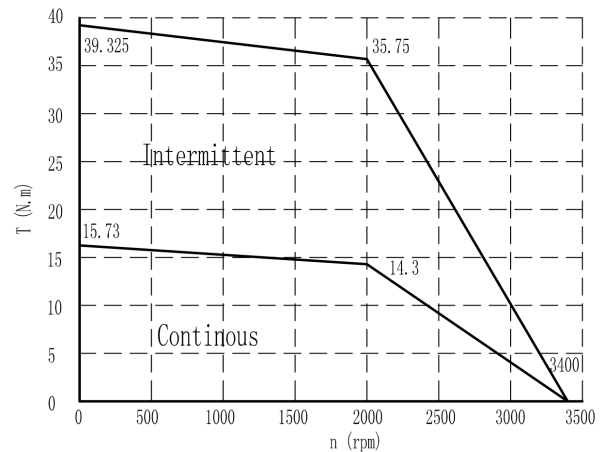
Mechanical View 2



Mechanical View 4



Mechanical View 6



Mechanical View 7

VIEW	FIELD	VALUE
Mechanical View 2	Connector pin label 1-17	Pin 1-17
Mechanical View 4	Connector pin identifiers	Six visible connector cavities are identified by pin numbers 1 through 6.
Mechanical View 6	Motor connector	6-pin motor connector
	Key width	Key width 7
	Key length	Key length 40
	Encoder connector	17-pin encoder connector
	Key height	Key height 8
	Front mounting circle diameter	Diameter 145 $\pm$ 0.1
	Key label	Key feature label
	Keyway shoulder dimension	Keyway shoulder 5
	Motor body height	Overall body height 153
	Mounting pilot diameter	Diameter 110 +0/-0.03
	Shaft diameter	Diameter 22 +0/-0.011
	Threaded hole size and depth	M6 thread, depth 20
	Flange step thickness	Flange step thickness 5
	Through hole quantity and diameter	4 holes, diameter 9
	Front flange thickness	Front flange thickness 12
	Hole angular spacing	Hole angle 45 degrees
	Shaft extension length	Shaft extension length 55 $\pm$ 1
	Motor body length	Motor body length 239 $\pm$ 1.5
	Mounting hole center distance	Two directions, center distance 130
Mechanical View 7	Torque axis label	Torque T in Nm
	Speed axis label	Rotational speed n in rpm
	Torque axis tick values	Torque scale from 0 to 40 Nm in 5 Nm increments
	Speed axis tick values	Speed scale from 0 to 3500 rpm in 500 rpm increments
	Intermittent operation curve callout values	Intermittent curve points include 39.325 Nm and 35.75 Nm
	Continuous operation curve callout values	Continuous curve callouts include 15.73 Nm, 14.3 Nm, and 3400 rpm endpoint
	Continuous operation label	Continuous operation region label; spelling preserved as drawing shows Continuous

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	34.8	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	14.3	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	14.3	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-T14P3NM-3000W-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.