

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A02-150D-T14P3NM-3000W-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

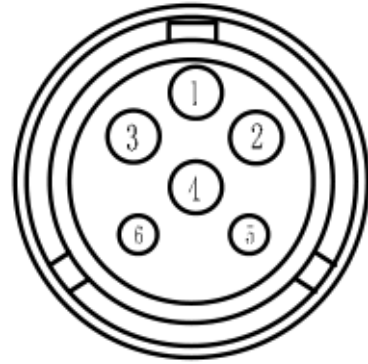
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	14.3 N·m
Rated Speed	2000 rpm
Flange Size	150 mm

Product Structure & Views

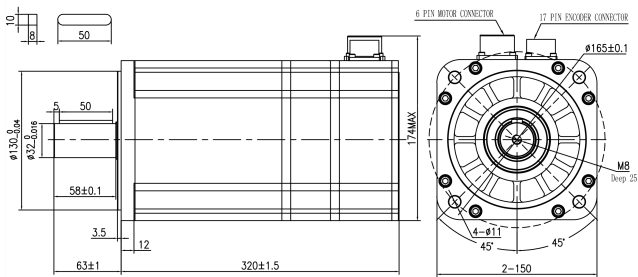
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



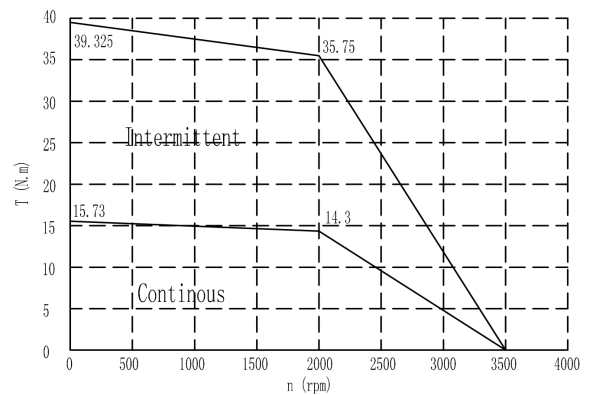
Mechanical View 4



Mechanical View 5



Mechanical View 7



Mechanical View 8

VIEW	FIELD	VALUE
Mechanical View 4	Connector pin label 1-17	Pin 1-17
Mechanical View 5	PINS	Pin 1-6
Mechanical View 7	Motor connector	6 pin motor connector
	Encoder connector	17 pin encoder connector
	Shaft end step length	10
	Keyway length	50
	Keyway width	8
	Mounting flange outside diameter	Diameter 165 ±0.1
	Shaft shoulder to end distance	50
	Local axial step dimension	5
	Maximum body height	174 maximum
	Pilot register diameter	Diameter 130 +0/-0.04
	Output shaft diameter	Diameter 32 +0/-0.016
	Threaded hole size and depth	M8 thread, depth 25
	Shaft extension length	58 ±0.1
	Through hole quantity and diameter	4 holes, diameter 11
	Shaft end chamfer or relief dimension	3.5
	Mounting hole angular position	45 degrees
	End cover step width	12
	Shaft end to flange reference length	63 ±1
	Motor body length	320 ±1.5
	Mounting hole center distance	Two directions, 150 center distance
Mechanical View 8	Torque axis scale values	Torque scale from 0 to 40 N.m in 5 N.m increments
	Torque axis label and unit	Torque T in N.m
	Speed axis scale values	Speed scale from 0 to 4000 rpm in 500 rpm increments
	Speed axis label and unit	Rotational speed n in rpm
	Intermittent operating curve callout values	Intermittent curve annotated torque values: 39.325 N.m and 35.75 N.m
	Continuous operating curve callout value	Continuous curve annotated torque value: 15.73 14.3N.m
	Continuous operating curve label	Continuous operating curve label; visible spelling is Continuous

Overall Dimensions and Mounting Interface

PARAMETER	PUBLISHED VALUE	UNIT
Flange Size	150	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	47.7	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-A02-150D-T14P3NM-3000W-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.