

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A03-130G-T5P39NM-850W-004	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

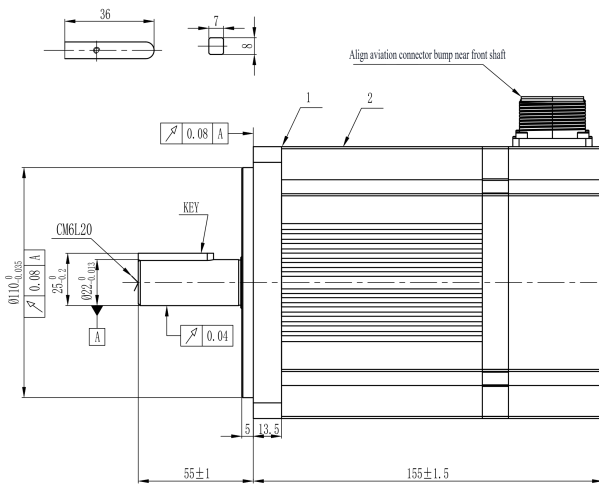
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

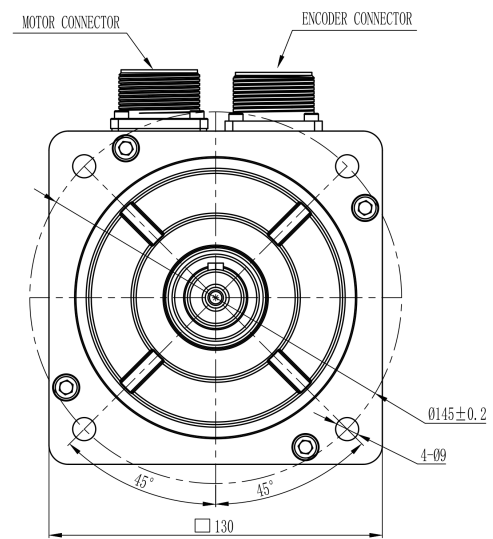
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	5.39 Nm
Rated Speed	1500 rpm
Rated Voltage	220 VAC
Flange Size	130 mm

Product Structure & Views

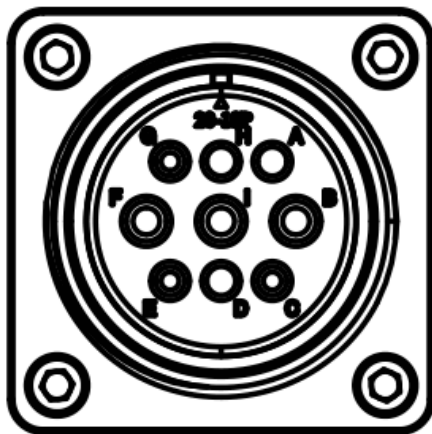
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



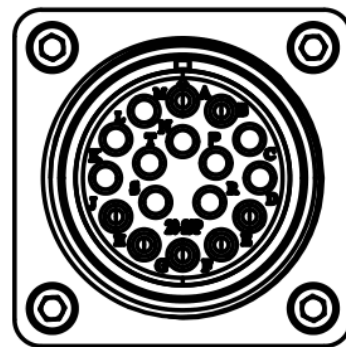
Mechanical View 1



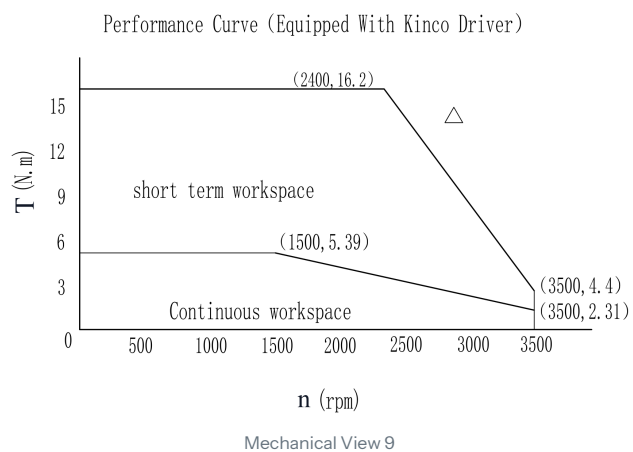
Mechanical View 2



Mechanical View 4



Mechanical View 6



VIEW	FIELD	VALUE
Mechanical View 1	Keyway length	36 mm
	Keyway depth	8 mm
	Connector alignment note	Align aviation connector bump near front shaft
	Parallelism tolerance of shaft	Parallelism 0.08 relative to datum A
	Output shaft diameter	Diameter 22 mm, +0 / -0.013 mm
	Position tolerance of hole	Position 0.08 relative to datum A
	Shaft shoulder length	25 mm, +0 / -0.2 mm
	Pilot or body reference diameter	Diameter 110 mm, +0 / -0.035 mm
	Parallelism tolerance of flange face	Parallelism 0.04
	Shaft extension length	13.5 mm
	Flange width	5 mm
	Overall length	155±1.5 mm
	Flange to shaft end length	55±1 mm
	Keyway width	7 mm
	Item callout 1	Item 1 callout
	Item callout 2	Item 2 callout
Mechanical View 2	Encoder Connector Label	ENCODER CONNECTOR
	Motor Power Connector Label	MOTOR CONNECTOR
	Mounting Bolt Circle Diameter	Ø145±0.2 mm
	Number and Diameter of Mounting Holes	4 holes × Ø9 mm
	Mounting Hole Angular Position 1	45°
	Mounting Hole Angular Position 2	45°
	Motor Flange Square Dimension	130 mm × 130 mm square
Mechanical View 4	Pin layout configuration	8-pin configuration with positions labeled A through I (position H not visible or not used)
Mechanical View 6	Connector Contact Letter Designation	A, B, C, D, ...
Mechanical View 9	Maximum short-term torque point	2400 rpm at 16.2 N.m
	Transition point between short-term and continuous workspace	1500 rpm at 5.39 N.m
	Short-term torque at maximum speed	3500 rpm at 4.4 N.m
	Continuous torque at maximum speed	3500 rpm at 2.31 N.m
	Chart title	Performance Curve
	Torque axis label	Torque T in N.m
	X-axis label: Speed	Speed in revolutions per minute
	Short-term operating zone label	Short-term operating zone
	Continuous operating zone label	Continuous operating zone
	Torque Scale	0-15 N.m

VIEW	FIELD	VALUE
Motor Speed Scale	0-3500 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	12.86 ()	Kg-cm 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
Rated Voltage	220	VAC
Position Feedback Device	23-bit multi-turn communication optical absolute 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	5.39	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	23-bit multi-turn communication optical absolute 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	1500	rpm
Rated Torque	5.39	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-A03-130G-T5P39NM-850W-004 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.