

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A03-060D-T1P27NM-400W-001	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

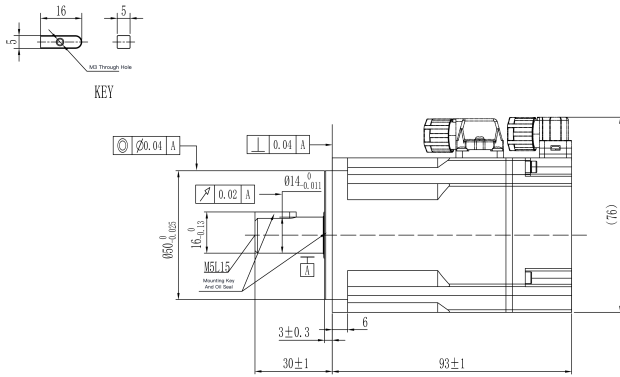
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

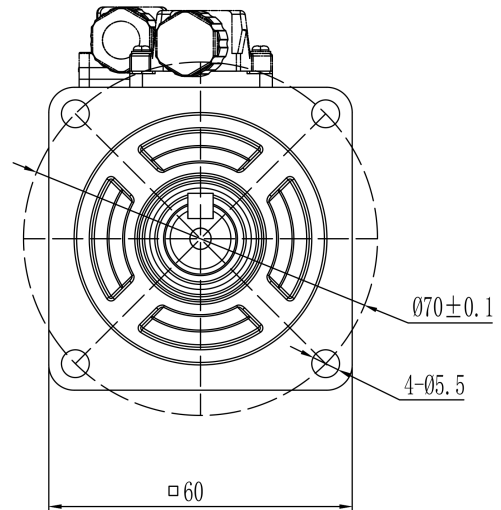
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	1.27 N·m
Rated Speed	3000 rpm
Rated Voltage	220 VAC
Flange Size	60 mm

Product Structure & Views

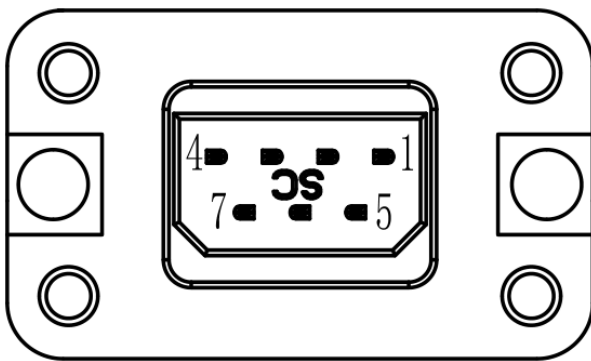
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



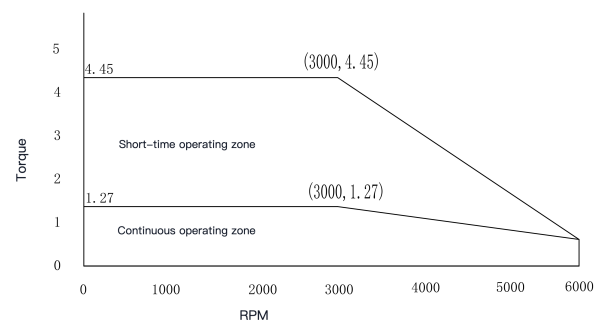
Mechanical View 1



Mechanical View 2



Mechanical View 8



Mechanical View 9

VIEW	FIELD	VALUE
Mechanical View 1	Key slot length	16 mm
	Key slot width	5 mm
	M3 through hole	M3 through hole
	Key detail label	Key detail
	Axis geometric tolerance to datum A	Geometric tolerance: diameter zone 0.04 relative to datum A
	Perpendicularity tolerance to datum A	Perpendicularity 0.04 relative to datum A
	Shaft end diameter	Diameter 14 mm, +0/-0.011
	Geometric tolerance 0.02 to datum A	Geometric tolerance 0.02 relative to datum A
	Main body diameter	Diameter 50 mm, +0/-0.025
	Keyway related height	16 mm, +0/-0.13
	Thread or mounting callout	M5 L15
	Mounting note	Mounting key and oil seal
	Datum A	Datum A
	Local step distance	6 mm
	Local axial distance	3 mm ±0.3
	Front axial length	30 mm ±1
	Main body axial length	93 mm ±1
	Reference overall height	Reference dimension 76 mm
Mechanical View 2	Outer diameter	Ø70 ±0.1 mm
	Hole quantity and diameter	4 × Ø5.5 mm
	Square mounting size	160 mm
Mechanical View 8	Connector center marking	Center marking
	Connector pin number	Pin label: 4
	Connector pin number	Pin label: 7
	Connector pin number	Pin label: 1
	Connector pin number	Pin label: 5
Mechanical View 9	Maximum short-time torque (Y-axis scale)	5 N·m
	Short-time operating zone upper torque limit	4.45 N·m at rated speed
	Short-time operating zone key coordinate point	(3000 rpm, 4.45 N·m)
	Y-axis scale mark 4	4 N·m
	Y-axis scale mark 3	3 N·m
	Short-time operating zone	Short-time operating zone
	Y-axis label: Torque	Torque
	Y-axis scale mark 2	2 N·m
	Continuous operating zone upper torque limit	1.27 N·m at rated speed
	Continuous operating zone key coordinate point	(3000 rpm, 1.27 N·m)

VIEW	FIELD	VALUE
Y-axis scale mark 1	1 Nm	
Continuous operating zone	Continuous operating zone	
Y-axis origin scale	0 Nm	
X-axis origin scale	0 rpm	
X-axis scale mark 1000	1000 rpm	
X-axis scale mark 2000	2000 rpm	
Rated speed	3000 rpm	
X-axis scale mark 4000	4000 rpm	
X-axis scale mark 5000	5000 rpm	
Maximum speed	6000 rpm	
X-axis label: RPM	RPM	

Overall Dimensions and Mounting Interface

PARAMETER	PUBLISHED VALUE	UNIT
Flange Size	60	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	0.51 ()	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	17-bit multi-turn communication magnetic 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	1.27	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	17-bit multi-turn communication magnetic 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	3000	rpm
Rated Torque	1.27	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-A03-060D-T1P27NM-400W-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.