

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

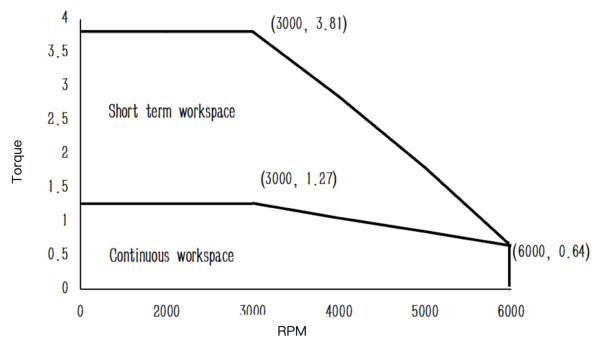
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Integration Overview

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



Mechanical View 10

VIEW	FIELD	VALUE
Mechanical View 1	Key length	16 mm
	Key feature label	Key feature
	Position/concentricity geometric tolerance	Geometric tolerance , diameter tolerance zone 0.04 relative to datum A
	Perpendicularity tolerance	Perpendicularity 0.04 relative to datum A
	Shaft diameter	Diameter 14 mm, +0/-0.011 mm
	Runout/direction geometric tolerance	Geometric tolerance 0.035 relative to datum A
	Mounting pilot diameter	Diameter 50 mm, +0/-0.025 mm
	Keyway width	16 mm, +0/-0.13 mm
	Datum A	Datum A
	Threaded hole specification	M5 thread, depth/length 15 mm
	Step or face offset	6 mm
	Step or face offset	3 mm
	Shaft extension length	30 mm ±1 mm
	Body length	127.1 mm ±1.5 mm
	Key Height	5 mm
	Key Width	5 mm
	Overall Height	79 mm
Mechanical View 2	Mounting hole pitch circle diameter	Pitch circle diameter Ø70 ±0.1
	Mounting hole quantity and diameter	4 holes, diameter Ø5.5
	Square flange outside dimension	Square flange size 160
Mechanical View 5	Pin number	Pin 1
	Pin number	Pin 2
	Pin number	Pin 3
	Pin number	Pin 4
	Connector marking letter	Marking A
	Connector marking letter	Marking B
Mechanical View 8	Connector pin number	Pin label: 1
	Connector pin number	Pin label: 5
	Connector pin number	Pin label: 4
	Connector pin number	Pin label: 7
Mechanical View 10	Y-axis maximum torque value	4 N·m
	Short-term workspace boundary point	3000 rpm, 3.81 N·m
	Y-axis scale mark 3.5	3.5 N·m
	Y-axis scale mark 3	3 N·m
	Short-term workspace label	Short term workspace

VIEW	FIELD	VALUE
Y-axis scale mark 2.5	2.5 Nm	
Y-axis scale mark 2	2 Nm	
Y-axis label	Torque	
Continuous workspace boundary point	3000 rpm, 1.27 Nm	
Y-axis scale mark 1.5	1.5 Nm	
Maximum speed boundary point	6000 rpm, 0.64 Nm	
Y-axis scale mark 0.5	0.5 Nm	
Continuous workspace label	Continuous workspace	
Y-axis origin	0 Nm	
X-axis scale mark 2000	2000 rpm	
X-axis scale mark 3000	3000 rpm	
X-axis scale mark 4000	4000 rpm	
X-axis scale mark 5000	5000 rpm	
X-axis scale mark 6000	6000 rpm	
X-axis label	RPM	
X-axis origin	0 rpm	
Y-axis scale mark 1	1Nm	

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	0.29 ()	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	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	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	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-A03-060S-T1P27NM-400W-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.