

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

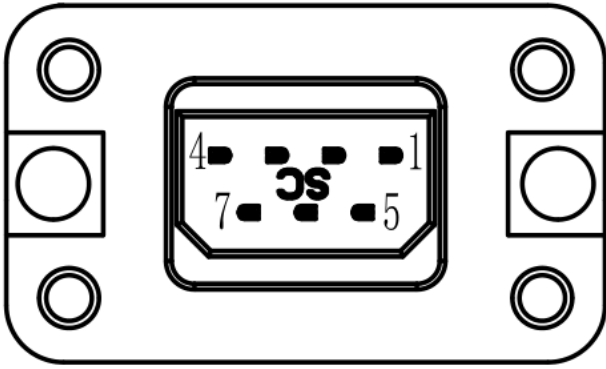
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Integration Overview

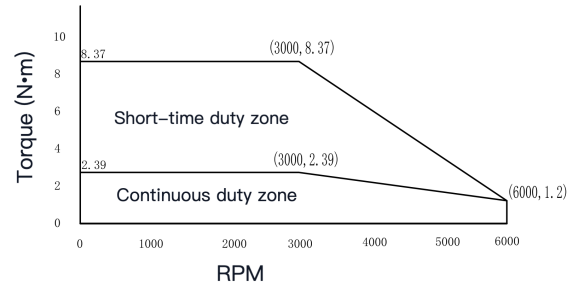
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	2.39 N·m
Rated Speed	3000 rpm
Rated Voltage	220 VAC
Flange Size	80 mm



Mechanical View 7



Mechanical View 9

VIEW	FIELD	VALUE
Mechanical View 1	Flange axial dimension	15.5 0/-0.1 mm
	Mounting hole angular position	45°
	Mounting hole pitch circle diameter (PCD)	Ø90 mm
	Mounting hole specification	4 holes × Ø6.5 mm
	Flange square dimension	80 × 80 mm square
Mechanical View 2	Output shaft diameter (large end)	Ø70h7 0/-0.03 mm
	Position tolerance (shaft centerline)	Ø0.04 mm relative to datum A
	Keyway designation	Keyway present
	Mounting threaded hole specification	M6 thread, 20mm depth
	Shaft shoulder width	21.5 0/-0.2 mm
	Datum A (end face)	Datum A - shaft end face
	Overall length (reference)	(95.5) mm
	Shoulder chamfer or radius	(0.5) mm
	Keyway depth or width	8 mm
	Output shaft diameter (small end)	Ø19h6 0/-0.013 mm
	Axial positioning dimension	3±0.3 mm
	Perpendicularity tolerance	0.06 mm relative to datum A
	Circular runout tolerance	0.02 mm relative to datum A
	Local axial length 1	35±1 mm
	Total axial length	128±1 mm
Mechanical View 3	Shaft diameter tolerance fit	6 h8 (0/-0.018)
	Keyway length	25
	Keyway feature label	KEY
	Through hole specification	M3 through hole
Mechanical View 5	Power connector pin 2	Pin 2
	Power connector pin 3	Pin 3
	Power connector pin 4	Pin 4
	Brake connector position A	Position A
	Brake connector position B	Position B
	Connector Pin 1	Pin 1
Mechanical View 7	Feedback connector type	CS connector type
	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	Rated Torque	8.37 Nm

VIEW	FIELD	VALUE
Continuous Duty Torque	2.39 N·m	
Short-time Duty Zone Corner Point	3000 rpm at 8.37 N·m	
Continuous Duty Zone Corner Point	3000 rpm at 2.39 N·m	
Maximum Speed Point	6000 rpm at 1.2 N·m	
Maximum Speed	6000 rpm	
Motor Speed Scale	0–6000 rpm	
Torque Scale	0–10 N·m	
Y-axis label: Torque	Torque in Newton-meters	
X-axis label	RPM	
Short-time duty zone	Short-time duty zone	
Continuous duty zone	Continuous duty zone	

Overall Dimensions and Mounting Interface

PARAMETER	PUBLISHED VALUE	UNIT
Flange Size	80	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	1.8 ()	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	2.39	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	3000	rpm
Rated Torque	2.39	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-A03-080D-T2P39NM-750W-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.