

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A03-080D-T2P39NM-750W-001	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

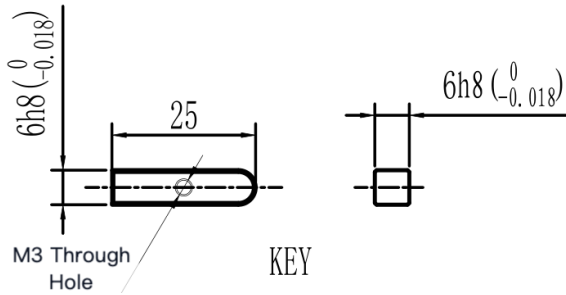
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

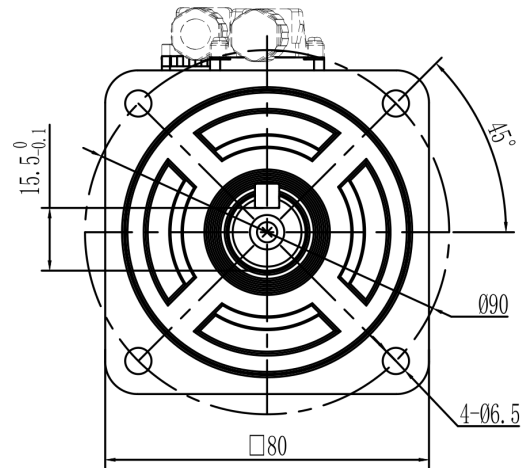
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	2.39 Nm
Rated Speed	3000 rpm
Rated Voltage	220 VAC
Flange Size	80 mm

Product Structure & Views

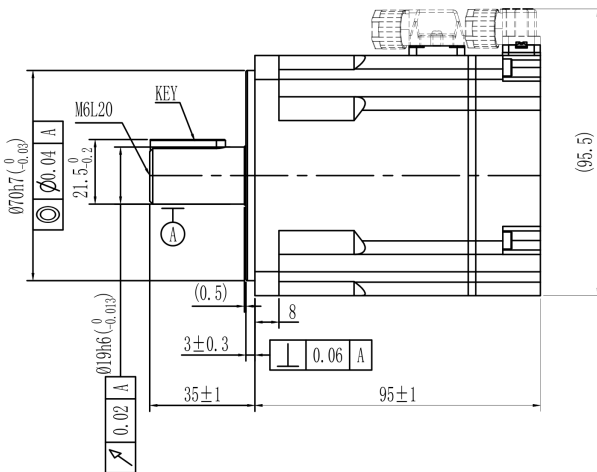
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



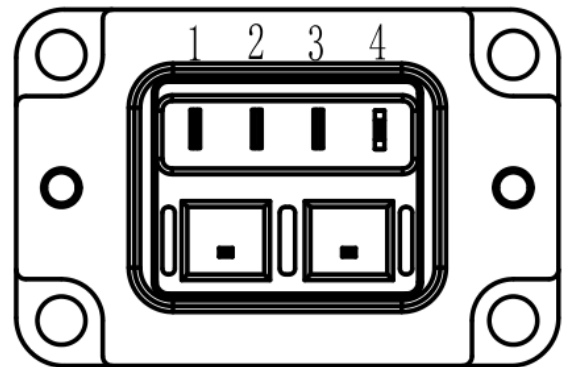
Mechanical View 1



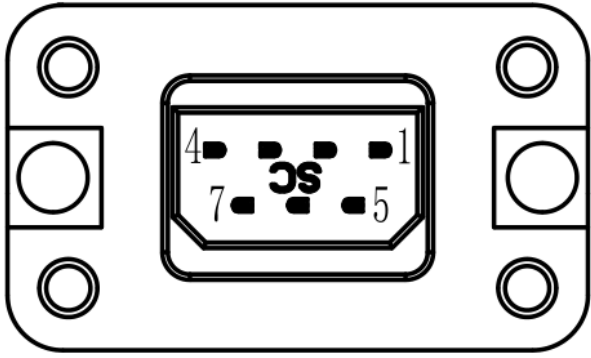
Mechanical View 2



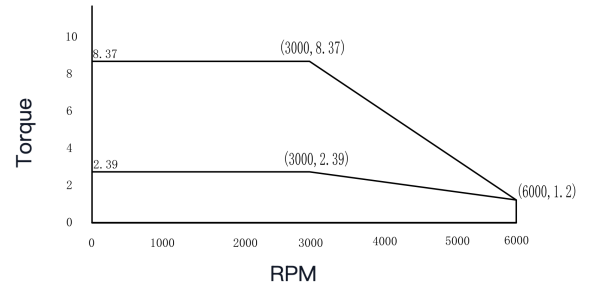
Mechanical View 3



Mechanical View 5



Mechanical View 7



Mechanical View 10

VIEW	FIELD	VALUE
Mechanical View 1	Key width tolerance	6 h8, upper deviation 0, lower deviation -0.018
	Key slot length	25
	M3 through hole	M3 through hole
	Key feature label	Key
Mechanical View 2	Left-side dimension with tolerance	15.5 mm, +0 / -0.1 mm
	Mounting hole angular positioning	45 degrees
	Mounting hole pitch circle diameter	Diameter 90 mm
	Mounting hole quantity and diameter	4 holes, diameter 6.5 mm
	Square flange outside size	Square 80 mm
Mechanical View 3	Keyway label	Keyway present
	Threaded hole specification	M6 thread, length/depth 20
	Shaft shoulder diameter and tolerance	Diameter 70 h7, +0/-0.03
	Geometric tolerance relative to datum A	Cylindrical/geometric tolerance diameter 0.04 relative to datum A
	Shaft end length and tolerance	Length 21.5, +0/-0.2
	Datum A	Datum feature A
	Reference overall height	Reference dimension 95.5
	Reference clearance or step dimension	Reference dimension 0.5
	Mounting-side step dimension	8
	Output shaft diameter and tolerance	Diameter 19 h6, +0/-0.013
	Mounting step width	3 ±0.3
	Perpendicularity tolerance relative to datum A	Perpendicularity 0.06 relative to datum A
	Geometric tolerance value relative to datum A	Geometric tolerance 0.02 relative to datum A
	Shaft end to mounting reference distance	35 ±1
	Main body length	95 ±1
Mechanical View 5	Pin number	Pin 1
	Pin number	Pin 2
	Pin number	Pin 3
	Pin number	Pin 4
Mechanical View 7	Shield/Screen terminal designation	SC (Shield/Screen connection point)
	Connector pin number	Pin label: 4
	Connector pin number	Pin label: 1
	Connector pin number	Pin label: 7
	Connector pin number	Pin label: 5
Mechanical View 10	Y-axis maximum value	10
	Y-axis scale mark	8
	Short-time duty zone maximum torque	8.37

VIEW	FIELD	VALUE
Short-time duty zone transition point	(3000 RPM, 8.37)	
Y-axis scale mark	6	
Y-axis label	Torque	
Y-axis scale mark	4	
Continuous duty zone maximum torque	2.39	
Continuous duty zone transition point	(3000 RPM, 2.39)	
Y-axis scale mark	2	
Maximum speed endpoint	(6000 RPM, 1.2)	
X-axis origin	0	
X-axis scale mark	1000	
X-axis scale mark	2000	
X-axis scale mark	3000	
X-axis scale mark	4000	
X-axis scale mark	5000	
X-axis maximum value	6000	
X-axis label	RPM	

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	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	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	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	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-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.