

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A03-080D-T2P39NM-750W-002	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

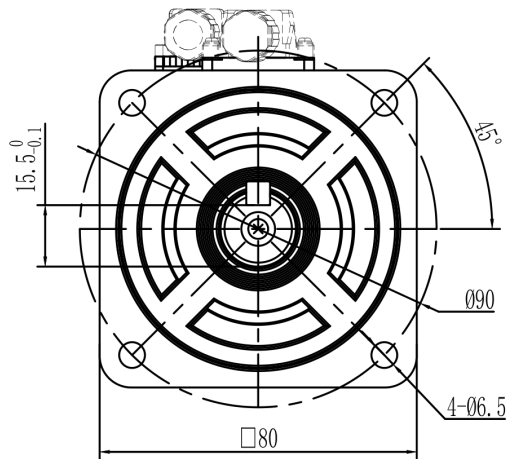
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

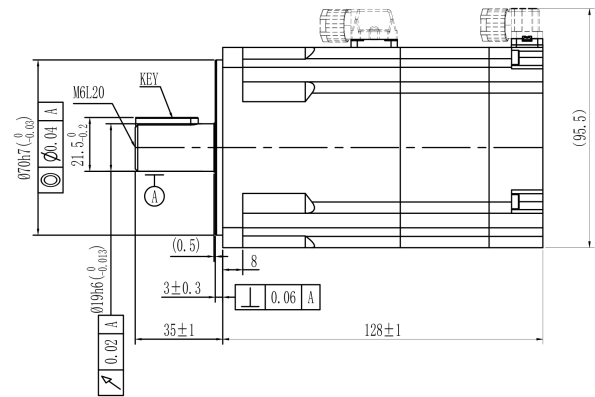
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	2.39 N·m
Rated Speed	3000 rpm
Rated Voltage	220 VAC
Flange Size	80 mm

Product Structure & Views

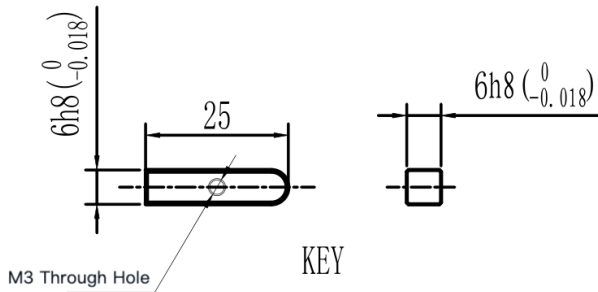
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



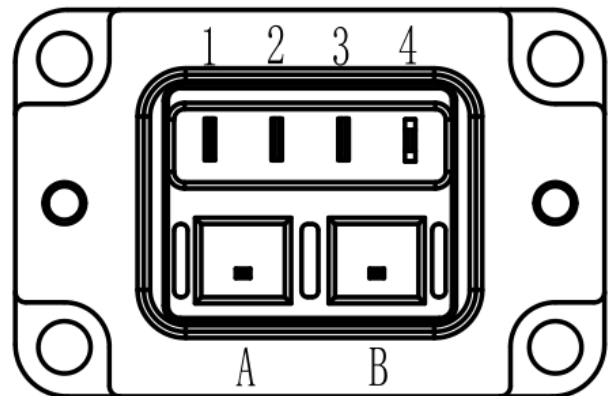
Mechanical View 1



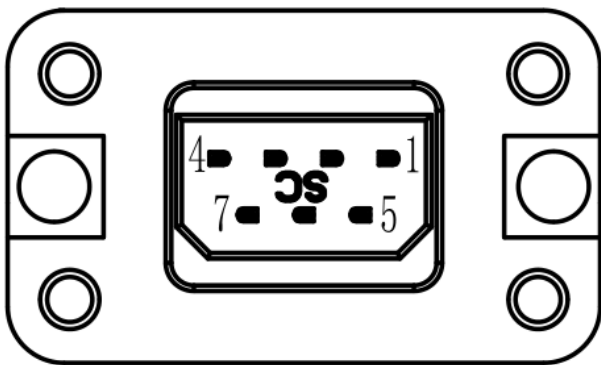
Mechanical View 2



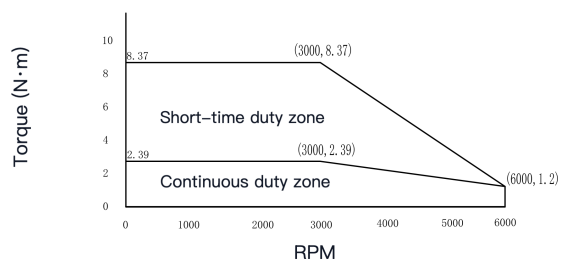
Mechanical View 3



Mechanical View 5



Mechanical View 7



Mechanical View 10

VIEW	FIELD	VALUE
Mechanical View 1	Mounting face offset dimension	15.5 mm with upper deviation 0 mm and lower deviation -0.1 mm
	Mounting hole angular spacing	45 degrees
	Mounting hole pitch circle diameter	Diameter 90 mm
	Mounting hole quantity and diameter	4 holes, diameter 6.5 mm
	Square mounting flange envelope size	Square 80 mm
Mechanical View 2	Keyway label	Keyway feature indicated
	Threaded hole specification	M6 thread, length/depth 20
	Front flange pilot diameter	Diameter 70 h7, tolerance +0/-0.03
	Front flange geometric tolerance relative to datum A	Geometric tolerance diameter 0.04 relative to datum A
	Shaft extension length	21.5 with tolerance +0/-0.2
	Datum A	Datum A assigned to shaft/front reference feature
	Reference clearance or step dimension	Reference dimension 0.5
	End face step or offset dimension	8
	Output shaft diameter	Diameter 19 h6, tolerance +0/-0.013
	Axial clearance or locating dimension	3 ±0.3
	Perpendicularity tolerance	Perpendicularity 0.06 relative to datum A
	Front end to body reference length	35 ±1
	Main body length	128 ±1
	Shaft geometric tolerance relative to datum A	Geometric tolerance 0.02 relative to datum A
	Reference overall height	Reference dimension 95.5
Mechanical View 3	Key width tolerance	Nominal key width 6 mm, h8 tolerance, upper deviation 0 mm, lower deviation -0.018 mm
	Key length	Key length 25 mm
	Key feature label	Key feature
	M3 through hole	M3 through hole
Mechanical View 5	Power terminal pin 2 identifier	Pin 2
	Power terminal pin 4 identifier	Pin 4
	Power terminal pin 3 identifier	Pin 3
	Brake terminal position A identifier	Terminal A
	Brake terminal position B identifier	Terminal B
	Power connector pin position 1	Pin position 1
Mechanical View 7	Feedback connector pin designation	Pin 3S (Shield)
	Connector pin number	Pin label: 4
	Connector pin number	Pin label: 1
	Connector pin number	Pin label: 7
	Connector pin number	Pin label: 5

VIEW	FIELD	VALUE
Mechanical View 10	Y-axis quantity	Torque, unit Nm
	Y-axis tick values	Torque axis scale: 0 to 10 Nm
	X-axis tick values	Speed axis scale: 0 to 6000 rpm
	Short-time duty zone	Short-time duty operating region
	Continuous duty zone	Continuous duty operating region
	Short-time duty curve point	Speed 3000 rpm, torque 8.37 Nm
	Continuous duty curve point	Speed 3000 rpm, torque 2.39 Nm
	High-speed continuous duty curve point	Speed 6000 rpm, torque 1.2 Nm

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-002 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.