

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A03-080D-T3P18NM-1000W-001	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

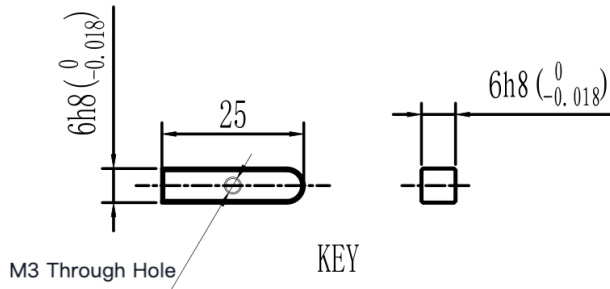
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

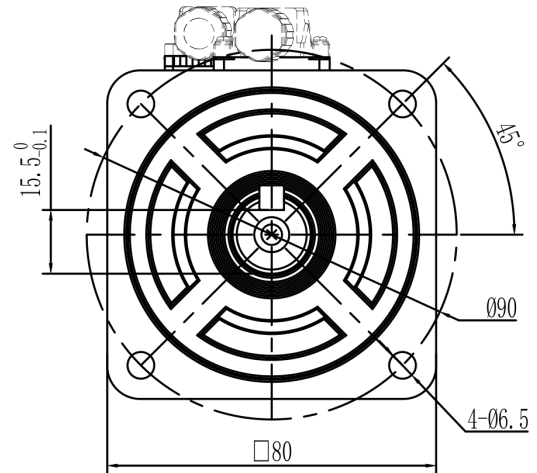
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	3.18 Nm
Rated Speed	3000 rpm
Rated Voltage	220 VAC
Flange Size	80 mm

Product Structure & Views

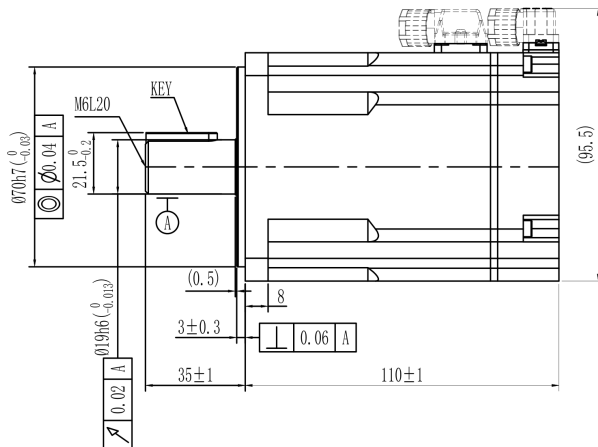
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



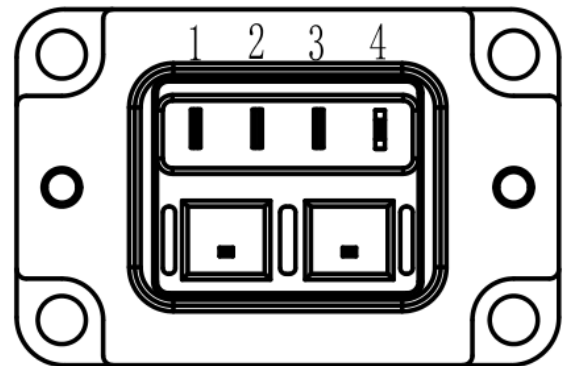
Mechanical View 1



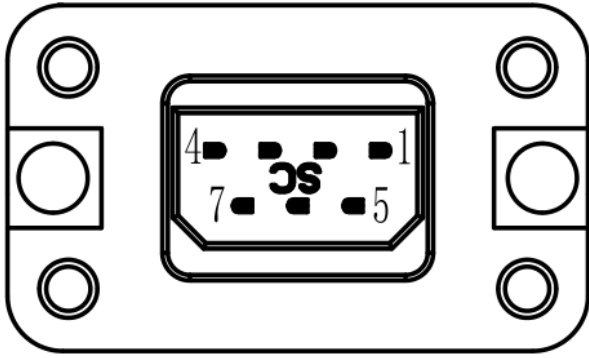
Mechanical View 2



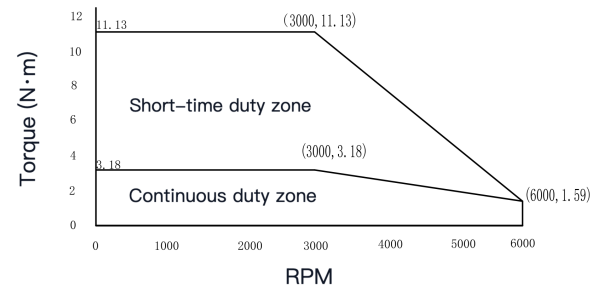
Mechanical View 3



Mechanical View 5



Mechanical View 7



Mechanical View 9

VIEW	FIELD	VALUE
Mechanical View 1	Keyway width tolerance	6h8 (0/-0.018)
	Keyway length	25
	Keyway identification label	KEY
	M3 through hole	M3 through hole
Mechanical View 2	Flange thickness	15.5 0/-0.1
	Chamfer angle	45°
	Flange center hole diameter	Ø90
	Mounting hole diameter and quantity	4 holes × Ø6.5
	Square flange side length	180
Mechanical View 3	Keyway marker	Keyway present
	Mounting threaded hole specification	M6 thread, 20mm length
	Shaft outer diameter with tolerance	Ø70h7 (0/-0.03)
	Position tolerance relative to datum A	Position Ø0.04 relative to A
	Shaft segment length with tolerance	21.5 (0/-0.2)
	Datum feature A	Datum A
	Shaft diameter with tolerance	Ø19h6 (0/-0.013)
	Circular runout tolerance relative to datum A	Runout 0.02 relative to A
	Reference dimension	0.5
	Shaft segment dimension with tolerance	3±0.3
	Shaft segment length	8
	Perpendicularity tolerance relative to datum A	Perpendicularity 0.06 relative to A
	Axial distance with tolerance	35±1
	Overall length with tolerance	110±1
	Reference height	95.5
Mechanical View 5	Power connector pin 2	Pin 2
	Power connector pin 3	Pin 3
	Power connector pin 4	Pin 4
	Power connector pin position 1	Pin position 1
Mechanical View 7	Feedback Connector Pin 7	Pin 7
	Feedback Connector Shield Ground Identifier	Feedback Connector Shield Ground Identifier
	Connector pin number	Pin label: 4
	Connector pin number	Pin label: 1
	Connector pin number	Pin label: 5
Mechanical View 9	Maximum torque value	12 Nm
	Short-time duty zone boundary point	At 3000 RPM, torque = 11.13 Nm
	Torque scale value	11.13 Nm

VIEW	FIELD	VALUE
Torque scale value	10 Nm	
Torque scale value	8 Nm	
Boundary point between short-time and continuous duty zones	At 3000 RPM, torque = 3.18 Nm	
Torque scale value	4 Nm	
Torque scale value	3.18 Nm	
Torque scale value	2 Nm	
Continuous duty zone endpoint	At 6000 RPM, torque = 1.59 Nm	
Speed scale value	1000 RPM	
Speed scale value	2000 RPM	
Speed scale value	3000 RPM	
Speed scale value	4000 RPM	
Speed scale value	5000 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	2.42 ()	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	3.18	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	3.18	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-T3P18NM-1000W-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.