

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A03-080D-T3P18NM-1000W-004	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

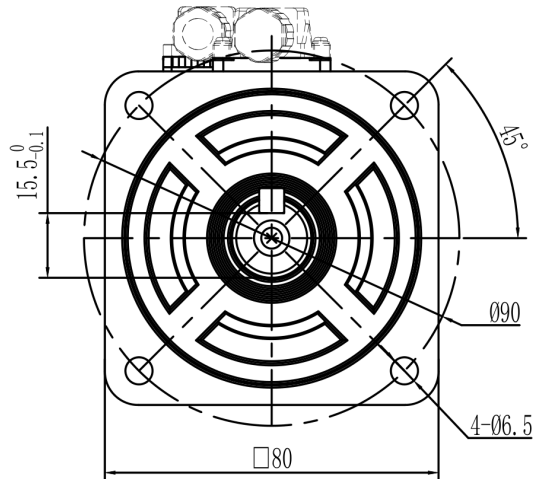
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

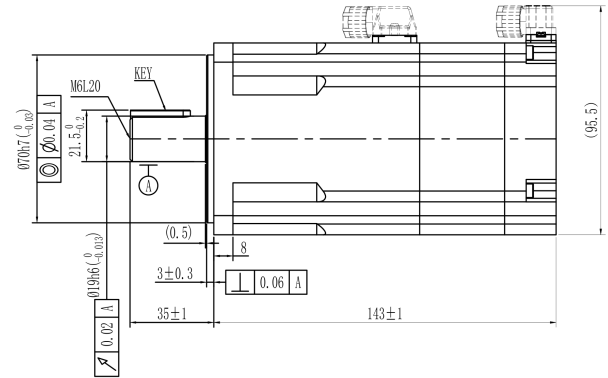
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	3.18 Nm
Rated Speed	3000 rpm
Rated Voltage	220 VAC
Flange Size	80 mm

Product Structure & Views

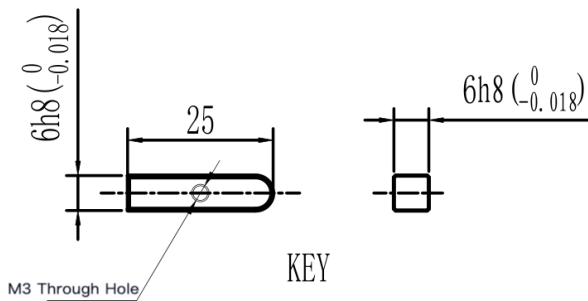
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



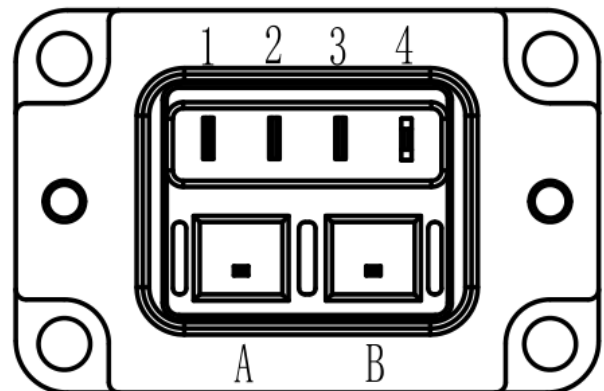
Mechanical View 1



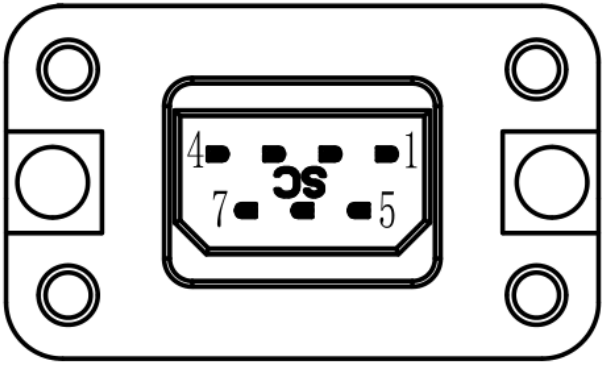
Mechanical View 2



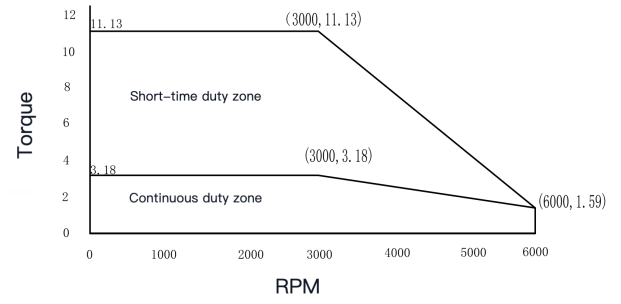
Mechanical View 3



Mechanical View 5



Mechanical View 7



Mechanical View 9

VIEW	FIELD	VALUE
Mechanical View 1	Mounting face height dimension	15.5 0/-0.1
	Mounting hole angular position	45 degrees
	Center hole diameter	Ø90
	Mounting holes	4-Ø6.5
	Square flange side length	±80
Mechanical View 2	Key slot identifier	KEY
	Mounting threaded hole	M6 thread, 20mm depth
	Datum A	Datum A
	Shaft diameter with tolerance	Ø70h7 (0/-0.03)
	Position tolerance	Position 0.04
	Shaft section length with lower deviation	21.5 0/-0.2
	Overall length reference dimension	(95.5)
	Chamfer or radius reference dimension	(0.5)
	Feature count or dimension	8
	Shaft section diameter with tolerance	Ø19h6 (0/-0.013)
	Shaft section width or feature dimension	3±0.3
	Perpendicularity tolerance	0.06 A
	Axial distance 1	35±1
	Total axial length	143±1
	Runout tolerance	Runout 0.02 A
Mechanical View 3	Shaft tolerance (left view)	6h8 (-0.018)
	Shaft tolerance (right view)	6h8 (-0.018)
	Keyway length	25
	Keyway designation	KEY
	M3 through hole	M3 through hole
Mechanical View 5	Connector Pin 2	Pin 2
	Connector Pin 3	Pin 3
	Connector Pin 4	Pin 4
	Mounting Hole Position A	Position A
	Mounting Hole Position B	Position B
	Connector Pin 1	Pin 1
Mechanical View 7	Pin identifier CS	Pin CS marking
	Pin number 5	Pin 5
	Connector pin number	Pin label: 4
	Connector pin number	Pin label: 1
	Connector pin number	Pin label: 7

VIEW	FIELD	VALUE
Mechanical View 9	Y-axis maximum torque	12
	Short-time duty zone starting torque	11.13
	Short-time duty zone endpoint coordinate	(3000 RPM, 11.13 torque)
	Y-axis scale value	10
	Y-axis scale value	8
	Short-time duty zone label	Short-time duty zone
	Y-axis scale value	6
	Y-axis parameter name	Torque
	Continuous duty zone starting coordinate	(3000 RPM, 3.18 torque)
	Y-axis scale value	4
	Continuous duty zone starting torque	3.18
	Y-axis scale value	2
	Continuous duty zone label	Continuous duty zone
	Maximum speed endpoint coordinate	(6000 RPM, 1.59 torque)
	X,Y-axis origin value	0
	X-axis scale value	1000
	X-axis scale value	2000
	X-axis scale value	3000
	X-axis scale value	4000
	X-axis scale value	5000
	X-axis maximum value	6000
	X-axis parameter name	RPM (Revolutions Per Minute)

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	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	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	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	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-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.