

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A02-080S-T3P18NM-1000W-002	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

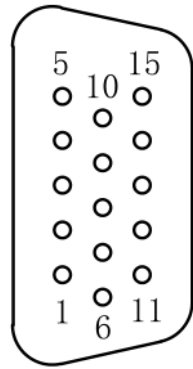
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

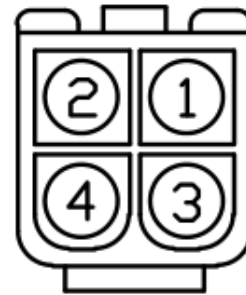
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	3.18 Nm
Rated Speed	3000 rpm
Flange Size	80 mm

Product Structure & Views

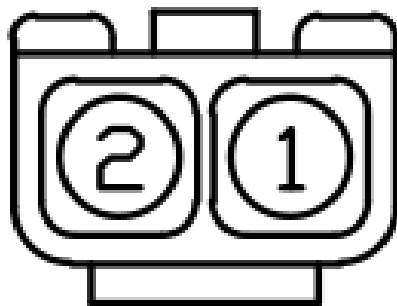
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



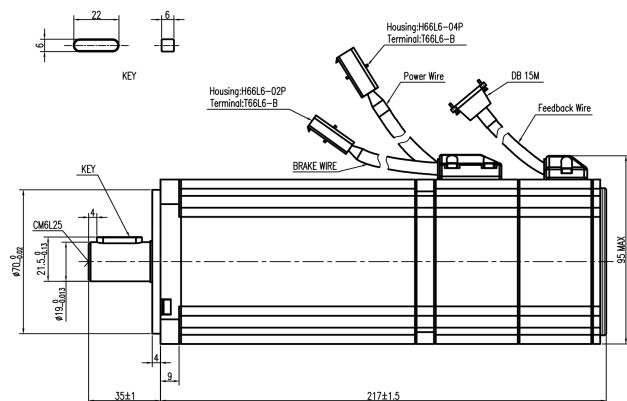
Mechanical View 3



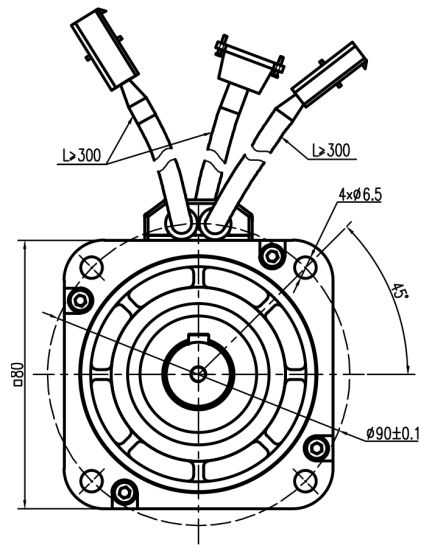
Mechanical View 5



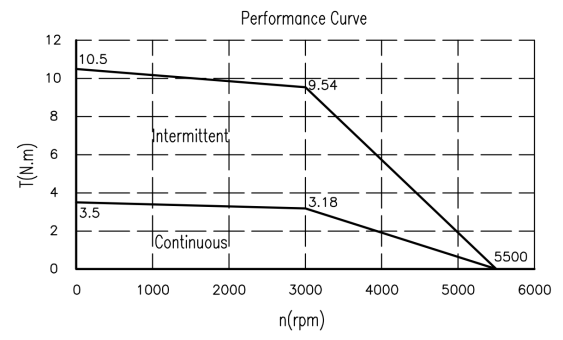
Mechanical View 7



Mechanical View 9



Mechanical View 10



Mechanical View 11

VIEW	FIELD	VALUE
Mechanical View 3	pin number	5
	pin number	15
	pin number	10
	pin number	1
	pin number	6
	pin number	11
Mechanical View 5	Connector pin 2 position identifier	Pin 2
	Connector pin 3 position identifier	Pin 3
	Connector pin 1 position identifier	Pin 1
	Connector pin 4 position identifier	Pin 4
Mechanical View 7	Connector pin 2 position identifier	Pin 2
	Connector pin 1 position identifier	Pin 1
Mechanical View 9	Key slot length	22 mm
	Key slot width	6 mm
	Key slot height	6 mm
	Power wire label	Power Wire
	Feedback wire label	Feedback Wire
	Brake wire label	Brake wire
	Key feature label	Key
	Shaft end thread specification	CM6L25
	Shaft shoulder diameter	Diameter 70 mm, +0/-0.02 mm
	Shaft extension length	21.5 mm, +0/-0.13 mm
	Shaft diameter	Diameter 19 mm, +0/-0.013 mm
	Key height or step dimension	4 mm
	End step length	9 mm
	Body length	217 ±1.5 mm
	Shaft protrusion length	35 ±1 mm
	Maximum overall height	95 mm maximum
	Local width	4mm
Mechanical View 10	Right-side cable minimum length	L ≥300
	Left-side cable minimum length	L ≥800
	Mounting hole quantity and diameter	4 holes, diameter 6.5
	Mounting hole angular position	45 degrees
	Flange outside height	80
	Mounting hole pitch circle diameter	Diameter 90 ± 0.1
Mechanical View 11	Chart title	Performance curve

VIEW	FIELD	VALUE
Torque axis label	Torque T in Nm	
Speed axis label	Rotational speed n in rpm	
Torque scale range	Torque axis ticks from 0 to 12 Nm in increments of 2 Nm	
Speed scale range	Speed axis ticks from 0 to 6000 rpm in increments of 1000 rpm	
Intermittent operation curve label	Intermittent operation performance curve	
Continuous operation curve label	Continuous operation performance curve	
Intermittent curve annotated torque points	Intermittent curve annotated torque values: 10.5 Nm and 9.54 Nm	
Continuous curve annotated torque points	Continuous curve annotated torque values: 3.5 Nm and 3.18 Nm	
Curve endpoint speed callout	Annotated curve endpoint speed: 5500 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	1.925	kgcm 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
Position Feedback Device	2500 PPR incremental 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	2500 PPR incremental 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-A02-080S-T3P18NM-1000W-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.