

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A02-180D-T48NM-7500W-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

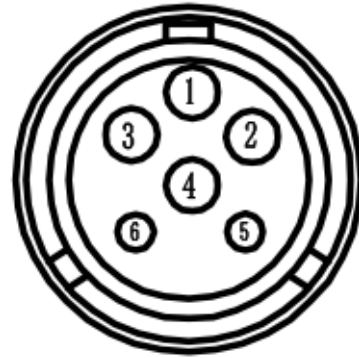
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	48 Nm
Rated Speed	1500 rpm
Flange Size	180 mm

Product Structure & Views

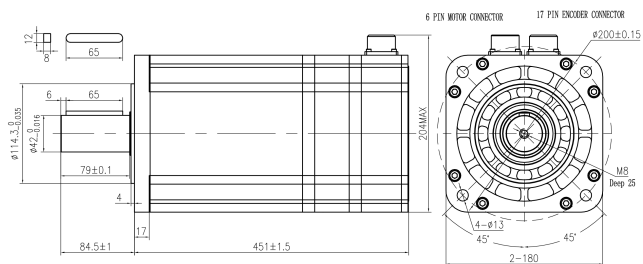
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



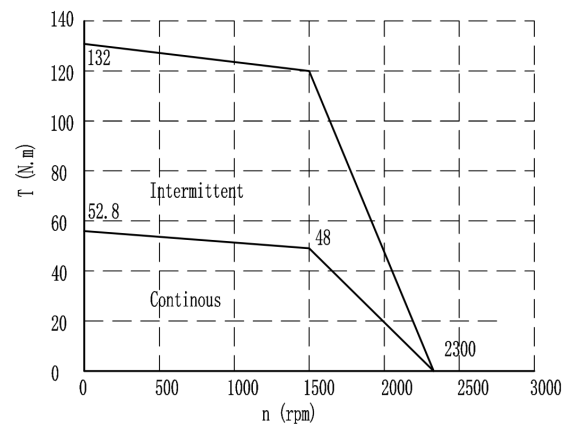
Mechanical View 3



Mechanical View 5



Mechanical View 7



Mechanical View 8

VIEW	FIELD	VALUE
Mechanical View 3	Connector pin label 1-17	Pin 1-17
Mechanical View 5	6-pin power connector pin identifiers	Connector face shows six numbered pin positions: 1 through 6.
Mechanical View 7	Encoder connector	17-pin encoder connector
	Motor connector	6-pin motor connector
	Front face outside diameter	Diameter 200 ±0.15
	Keyway length	65
	Keyway width	8
	Distance to keyway start	6
	Keyway effective length	65
	Maximum body height	204 maximum
	Shaft diameter	Diameter 42 +0/-0.016
	Pilot register diameter	Diameter 114.3 +0/-0.035
	Shaft extension length	79 ±0.1
	Threaded mounting hole size and depth	M8 thread, depth 25
	Shaft shoulder step length	4
	Mounting through holes quantity and diameter	4 holes, diameter 13
	Flange to body end offset	17
	Mounting hole angular position	45 degrees
	Front axial length	84.5 ±1
	Motor body axial length	451 ±1.5
	Mounting hole center distance	Two directions, 180 center distance
	Key Dimension	12
Mechanical View 8	Y-axis Torque Maximum	140 N.m
	Intermittent Maximum Torque	132 N.m
	Y-axis Scale 120	120 N.m
	Y-axis Scale 100	100 N.m
	Y-axis Scale 80	80 N.m
	Y-axis Label Torque	Torque in Newton-meters
	Intermittent Duty Label	Intermittent operation curve
	Continuous Rated Torque	52.8 N.m
	Y-axis Scale 60	60 N.m
	Continuous Curve Torque Point	48 N.m
	Y-axis Scale 40	40 N.m
	Continuous Duty Label	Continuous operation curve
	Y-axis Scale 20	20 N.m
	Rated Speed	2300 rpm

VIEW	FIELD	VALUE
Y-axis Origin	0 N.m	
X-axis Label Speed	Speed in revolutions per minute	
X-axis Scale 500	500 rpm	
X-axis Scale 1000	1000 rpm	
X-axis Scale 1500	1500 rpm	
X-axis Scale 2000	2000 rpm	
X-axis Scale 2500	2500 rpm	
X-axis Scale 3000	3000 rpm	

Overall Dimensions and Mounting Interface

PARAMETER	PUBLISHED VALUE	UNIT
Flange Size	180	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	190.3	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	S-MT37 rotary transformer	

- 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	48	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	S-MT37 rotary transformer	

- 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	1500	rpm
Rated Torque	48	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-A02-180D-T48NM-7500W-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.