

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A01-130D-T7P16NM-1500W-013	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

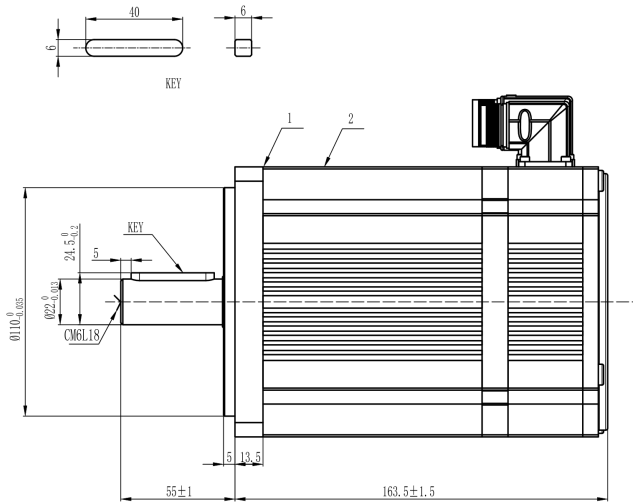
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

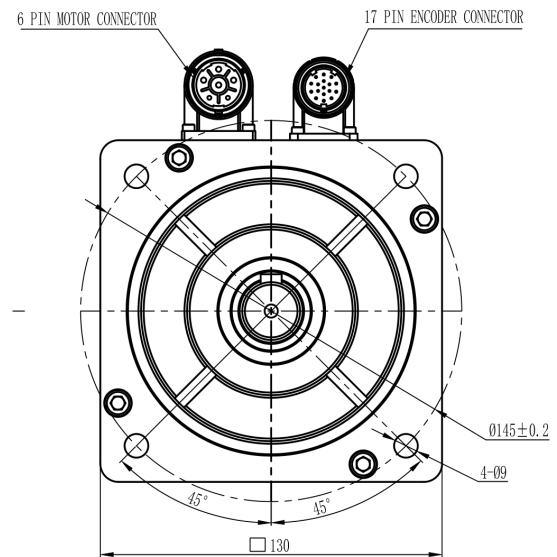
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	7.16 Nm
Rated Speed	2000 rpm
Flange Size	130 mm

Product Structure & Views

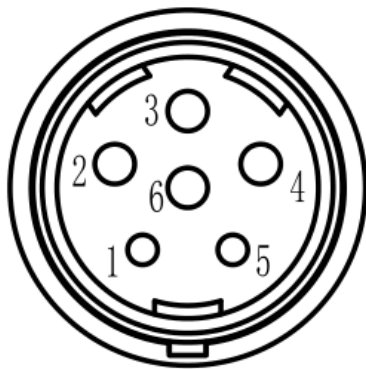
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



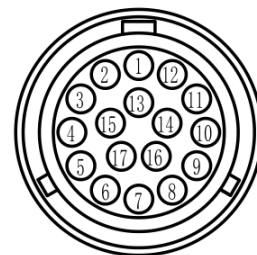
Mechanical View 1



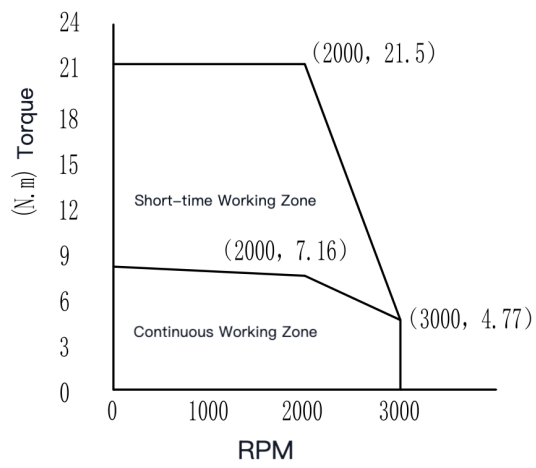
Mechanical View 2



Mechanical View 5



Mechanical View 7



Mechanical View 10

VIEW	FIELD	VALUE
Mechanical View 1	Key length	40
	Key width	6
	Key depth	6
	Key designation	KEY
	Callout 1	1
	Callout 2	2
	Shaft diameter	Ø4.5 0/-0.2
	Shaft length	5
	Shaft diameter	Ø2 0/-0.013
	Overall diameter	Ø10 0/-0.035
	Mounting dimension	5
	Mounting dimension	13.5
	Overall length	55±1
	Overall length	163.5±1.5
Mechanical View 2	17 pin encoder connector	17 pin encoder connector
	6 pin motor connector	6 pin motor connector
	Mounting flange bolt circle diameter	Ø145±0.2 mm
	Mounting hole pattern	4 holes, Ø9 mm
	Mounting hole angular position 1	45°
	Mounting hole angular position 2	45°
	Mounting flange square dimension	130 mm × 130 mm square
Mechanical View 5	Pin number 1	Pin 1
	Pin number 2	Pin 2
	Pin number 3	Pin 3
	Pin number 4	Pin 4
	Pin number 5	Pin 5
	Pin number 6	Pin 6
Mechanical View 7	Pin 1 position label	Pin 1
	Pin 2 position label	Pin 2
	Pin 3 position label	Pin 3
	Pin 4 position label	Pin 4
	Pin 5 position label	Pin 5
	Pin 6 position label	Pin 6
	Pin 7 position label	Pin 7
	Pin 8 position label	Pin 8
	Pin 9 position label	Pin 9

VIEW	FIELD	VALUE
Pin 10 position label	Pin 10	
Pin 11 position label	Pin 11	
Pin 12 position label	Pin 12	
Pin 13 position label	Pin 13	
Pin 14 position label	Pin 14	
Pin 15 position label	Pin 15	
Pin 16 position label	Pin 16	
Pin 17 position label	Pin 17	
Mechanical View 10	Short-time Working Zone Maximum Point	2000 RPM at 21.5 N.m
	Short-time to Continuous Zone Transition Point	2000 RPM at 7.16 N.m
	Continuous Working Zone End Point	3000 RPM at 4.77 N.m
	Torque Axis Scale Values	0 to 24 N.m
	Speed Axis Scale Values	0 to 3000 RPM
	Y-Axis Label	Torque in Newton-meters
	X-Axis Label	Revolutions per minute
	Short-time Working Zone Label	Short-time operating region
	Continuous Working Zone Label	Continuous operating region

Overall Dimensions and Mounting Interface

PARAMETER	PUBLISHED VALUE	UNIT
Flange Size	130	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	15.95	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	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	7.16	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	2000	rpm
Rated Torque	7.16	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-A01-130D-T7P16NM-1500W-013 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.