ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A01-130D-T7P16NM-1500W-001	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

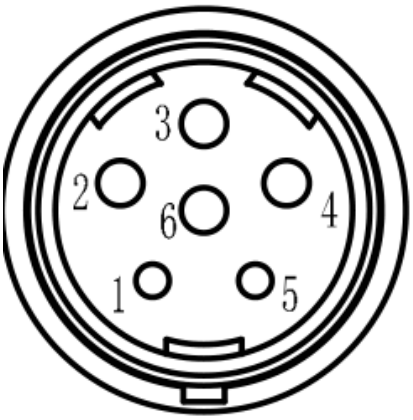
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

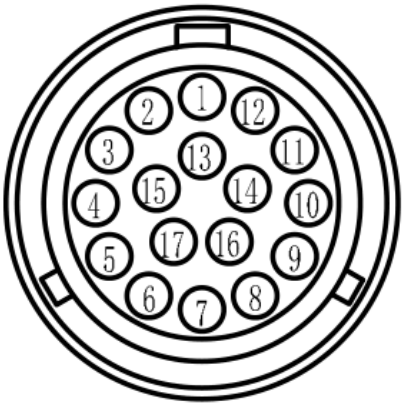
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	7.16 N·m
Rated Speed	2000 rpm
Flange Size	130 mm

Product Structure & Views

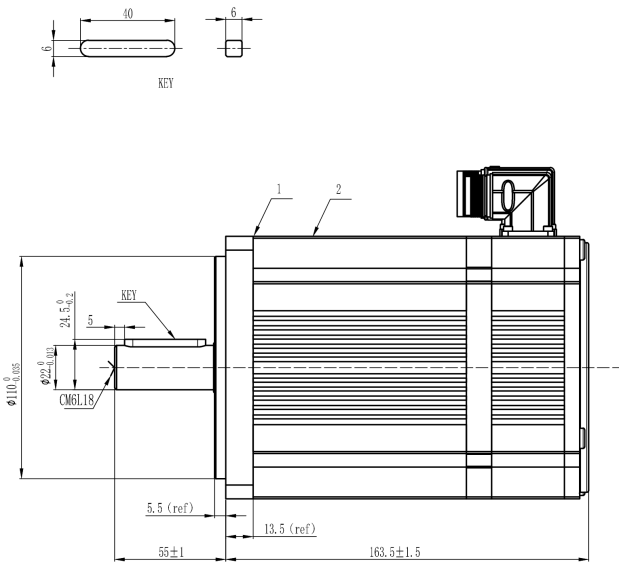
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



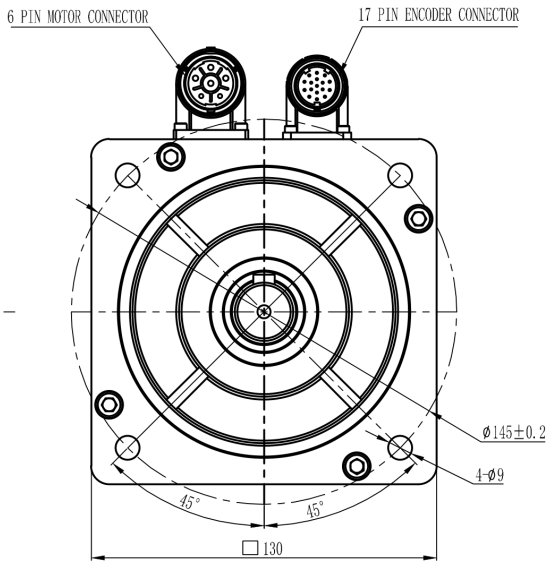
Mechanical View 4



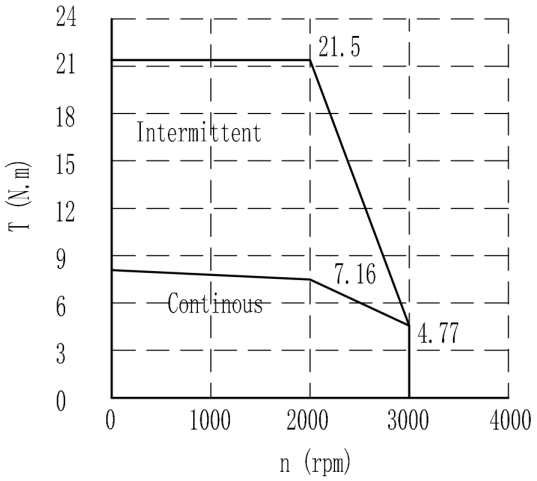
Mechanical View 5



Mechanical View 6



Mechanical View 7



Mechanical View 9

VIEW	FIELD	VALUE
Mechanical View 4	Pin 3 position	Pin 3
	Pin 6 position	Pin 6
	Encoder connector pin number	Pin 5
	Encoder connector pin number	Pin 4
	Connector pin number 2	Pin 2
	Encoder connector pin number	Pin 1
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
	Pin Number 7	Pin 7
	Pin Number 8	Pin 8
	Pin Number 10	Pin 10
	Pin Number 11	Pin 11
	Pin Number 12	Pin 12
	Pin Number 13	Pin 13
	Pin Number 14	Pin 14
	Pin Number 15	Pin 15
	Pin Number 16	Pin 16
	Pin Number 17	Pin 17
	Encoder connector pin number	Pin 9
Mechanical View 6	Keyway length	40 mm
	Keyway width	6 mm
	Keyway depth	6 mm
	Keyway label (upper)	Keyway feature identifier
	Part number label 1	Component 1
	Part number label 2	Component 2
	Shaft keyway label	Keyway feature identifier
	Keyway to shaft end distance	24.5 0/-0.2 mm
	Keyway width (shaft end)	5 mm
	Shaft extension diameter	ϕ22 0/-0.013 mm
	Motor flange mounting diameter	ϕ110 0/-0.035 mm
	Shaft end to mounting face distance (reference)	5.5 mm (reference)
	Mounting face to motor body distance (reference)	13.5 mm (reference)

VIEW	FIELD	VALUE
Motor partial axial length	55±1 mm	
Motor total axial length	163.5±1.5 mm	
Mechanical View 7	Motor Connector	6-pin motor connector
	Encoder Connector	17-pin encoder connector
	Mounting Hole Pitch Circle Diameter	ϕ145 ±0.2 mm
	Mounting Holes Quantity and Diameter	4 holes, ϕ9 mm each
	Mounting Hole Angular Position (Left)	45°
	Mounting Hole Angular Position (Right)	45°
	Square Envelope Dimension	130 mm × 130 mm square
Mechanical View 9	Torque value at 24 N.m	24 N.m
	Intermittent operation maximum torque	21.5 N.m
	Torque value at 21 N.m	21 N.m
	Torque value at 18 N.m	18 N.m
	Intermittent operation region label	Intermittent operation zone
	Torque value at 15 N.m	15 N.m
	Torque axis label	T (N.m)
	Torque value at 12 N.m	12 N.m
	Torque value at 9 N.m	9 N.m
	Intermittent curve torque at specific speed	7.16 N.m
	Torque value at 6 N.m	6 N.m
	Continuous operation region label	Continuous operation zone
	Continuous curve torque at specific speed	4.77 N.m
	Torque value at 3 N.m	3 N.m
	Torque axis origin	0 N.m
	Speed axis origin	0 rpm
	Speed value at 1000 rpm	1000 rpm
	Speed value at 2000 rpm	2000 rpm
	Speed value at 3000 rpm	3000 rpm
	Speed value at 4000 rpm	4000 rpm
	Speed axis label	n (rpm)

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	kg·cm²

- 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	Single-turn communication magnetic 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	N·m
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	Single-turn communication magnetic 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	N·m

- 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-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.