ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A01-130D-T4P78NM-1000W-004	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

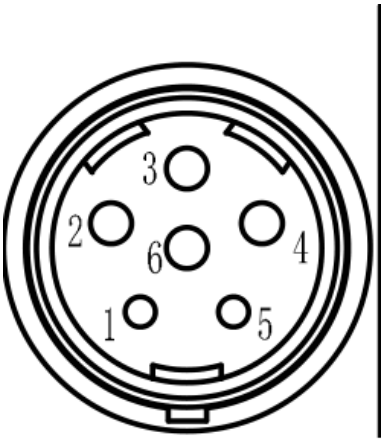
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	4.78 N·m
Rated Speed	2000 rpm
Flange Size	130 mm

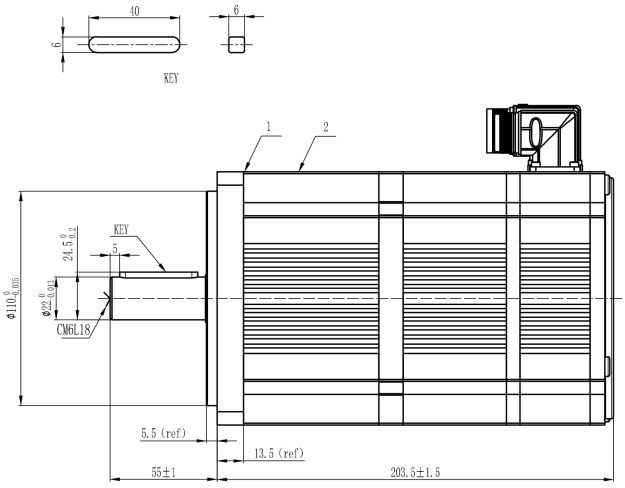
Product Structure & Views

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

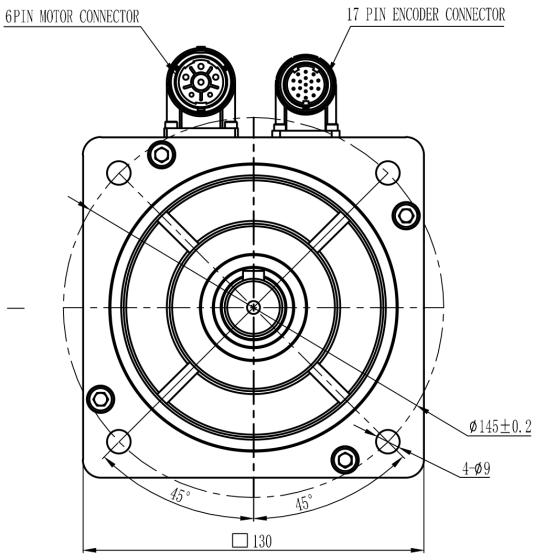


Mechanical View 4

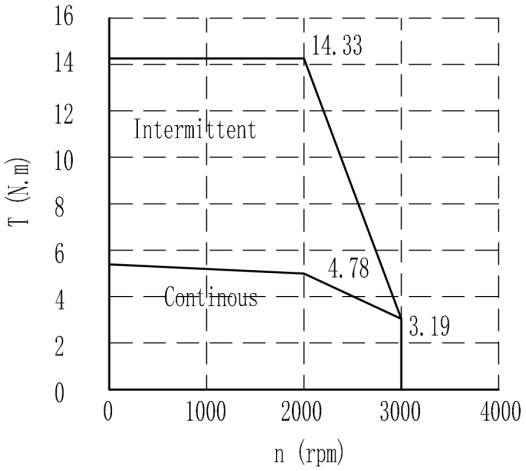
Mechanical View 6



Mechanical View 7



Mechanical View 8



Mechanical View 10

VIEW	FIELD	VALUE
Mechanical View 4	Pin number	Pin 1
	Pin number	Pin 2
	Pin number	Pin 3
	Pin number	Pin 4
	Pin number	Pin 5
	Pin number	Pin 6
Mechanical View 6	Connector pin number 12	Pin 12
	Connector pin number 2	Pin 2
	Connector pin number 11	Pin 11
	Connector pin number 13	Pin 13
	Connector pin number 15	Pin 15
	Connector pin number 14	Pin 14
	Connector pin number 4	Pin 4
	Connector pin number 16	Pin 16
	Connector pin number 5	Pin 5
	Connector pin number 6	Pin 6
	Connector pin number 10	Pin 10
	Encoder connector pin number	Pin 1
	Encoder connector pin number	Pin 3
	Encoder connector pin number	Pin 17
	Encoder connector pin number	Pin 7
	Encoder connector pin number	Pin 8
	Encoder connector pin number	Pin 9
Mechanical View 7	Key length	Key length 40
	Key width	Key width 6
	Key cross-section dimension	Key cross-section dimension 6
	Key label	KEY
	Leader item number 1	Item marker 1
	Leader item number 2	Item marker 2
	Shaft key label	Shaft key/keyway indicated
	Keyway axial position dimension	24.5 with upper deviation 0 and lower deviation -0.2
	Keyway width	Keyway width 5
	Mounting pilot diameter	Diameter 110 with upper deviation 0 and lower deviation -0.035
	Shaft diameter	Shaft diameter 22 with upper deviation 0 and lower deviation -0.013
	Shaft-end threaded hole	CM6L18 shaft-end thread/hole callout
	Reference clearance dimension	5.5 reference

VIEW	FIELD	VALUE
Reference axial dimension	13.5 reference	
Motor body length	203.5 ±1.5	
Shaft extension length	55 ±1	
Mechanical View 8	6-pin motor connector	6-pin motor connector
	17-pin encoder connector	17-pin encoder connector
	Mounting hole pitch circle diameter	Diameter 145 ±0.2
	Mounting hole quantity and diameter	4 holes, diameter 9
	Left mounting hole angular position	45 degrees
	Right mounting hole angular position	45 degrees
	Square flange envelope size	Square 130
Mechanical View 10	Torque axis label	Torque T in N.m
	Speed axis label	Speed n in rpm
	Torque axis tick values	Torque scale values: 0 to 16 N.m in increments of 2 N.m
	Speed axis tick values	Speed scale values: 0 to 4000 rpm in increments of 1000 rpm
	Intermittent operating curve label	Intermittent operating region or curve
	Continuous operating curve label	Continuous operating region or curve
	Intermittent peak torque callout	Intermittent torque callout: 14.33 N.m
	Continuous torque callout	Continuous torque callout: 4.78 N.m
	High-speed torque callout	Torque callout at high-speed end: 3.19 N.m

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	11.6	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	17-bit multi-turn communication magnetic 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	4.78	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	17-bit multi-turn communication magnetic 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	4.78	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-T4P78NM-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.