ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L03-130G-V96-T9P55NM-3000W-002	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

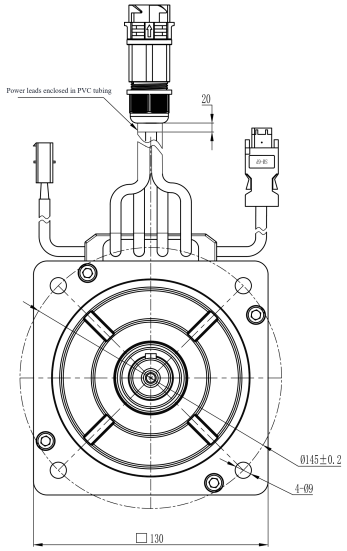
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

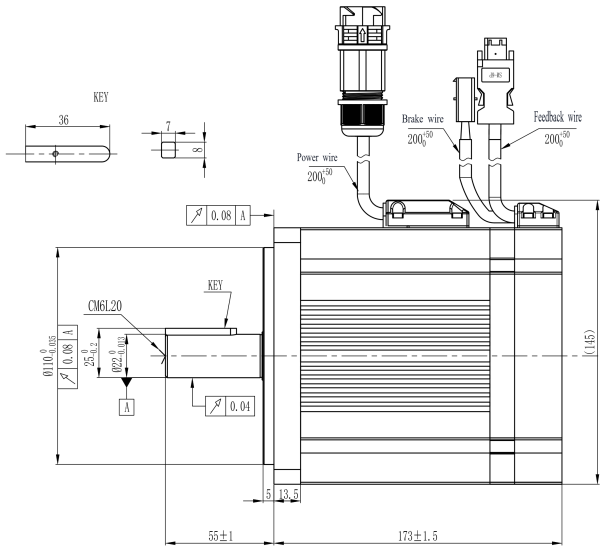
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	9.55 N·m
Rated Speed	3000 rpm
Rated Voltage	96 VDC
Flange Size	130 mm

Product Structure & Views

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

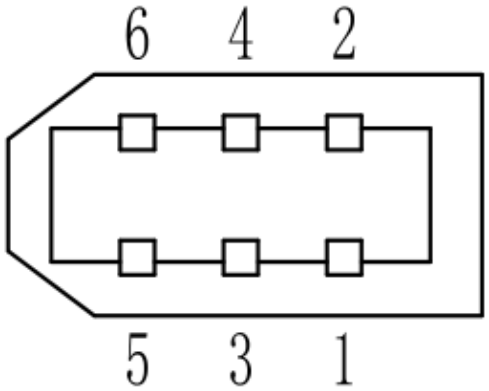


Mechanical View 1

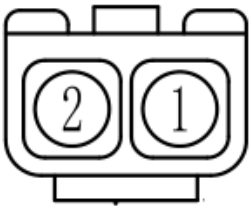


Mechanical View 2

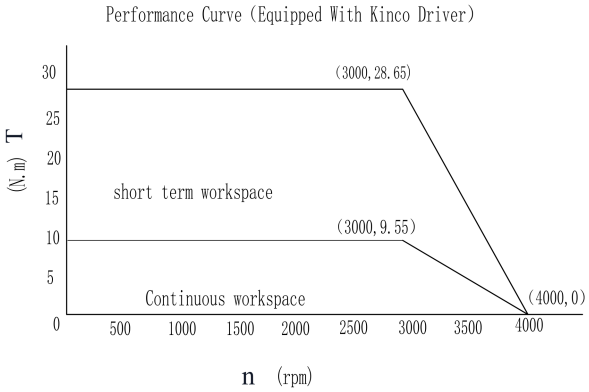
Mechanical View 3



Mechanical View 7



Mechanical View 8



Mechanical View 11

VIEW	FIELD	VALUE
Mechanical View 1	Power lead enclosure specification	Power leads enclosed in PVC tubing
	Power cable lead length	20 mm
	Mounting hole pitch circle diameter	Ø145±0.2 mm
	Mounting hole specification	4 holes × Ø9 mm
	Motor front face width	130 mm
Mechanical View 2	Key length	36 mm
	Key width	7 mm
	Key depth/height	8 mm
	Power wire length	200+50/0 mm
	Brake wire length	200+50/0 mm
	Feedback wire length	200+50/0 mm
	Position tolerance (top callout)	Position 0.08 A
	Shaft diameter with lower tolerance	Ø22 0/-0.013 mm
	Shaft length with tolerance	25 0/-0.2 mm
	Flange mounting diameter with tolerance	Ø110 0/-0.035 mm
	Position tolerance (shaft axis)	Position 0.04 A
	Shaft end boss width	5 mm
	Shaft end boss depth	13.5 mm
	Left section overall length	55±1 mm
	Motor body overall length	173±1.5 mm
	Overall height (reference)	145 mm (reference)
	Datum A	Datum A
	Positional tolerance	0.08 relative to datum A
Mechanical View 3	Connector pin/pole number	Pin 1
	Connector pin number 2	Pin 2
	Encoder connector pin number	Pin 3
	Encoder connector pin number	Pin 4
Mechanical View 7	SC-06 Connector Pin 6	Pin 6
	SC-06 Connector Pin 4	Pin 4
	SC-06 Connector Pin 2	Pin 2
	SC-06 Connector Pin 5	Pin 5
	SC-06 Connector Pin 3	Pin 3
	SC-06 Connector Pin 1	Pin 1
Mechanical View 8	Connector port number	Port 2
	Terminal position number	Position 1
Mechanical View 11	Short-term workspace maximum torque	30 N·m

VIEW	FIELD	VALUE
Continuous workspace maximum torque	9.55 N·m	
Maximum speed	4000 rpm	
Rated speed	3000 rpm	
Short-term workspace zone	Short-term duty zone: 0-3000 rpm, torque up to 30 N·m	
Continuous workspace zone	Continuous duty zone: 0-3000 rpm up to 9.55 N·m, 3000-4000 rpm with declining torque	
Torque axis scale	Y-axis: 0 to 30 N·m	
Speed axis scale	X-axis: 0 to 4000 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	24.15 (/ 22.85	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
Rated Voltage	96	VDC

- 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	9.55	N·m
Operating Temperature	-20 to 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

- 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	9.55	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-L03-130G-V96-T9P55NM-3000W-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.