

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-A03-130G-T11P45NM-1800W-004	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

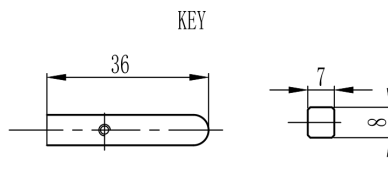
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

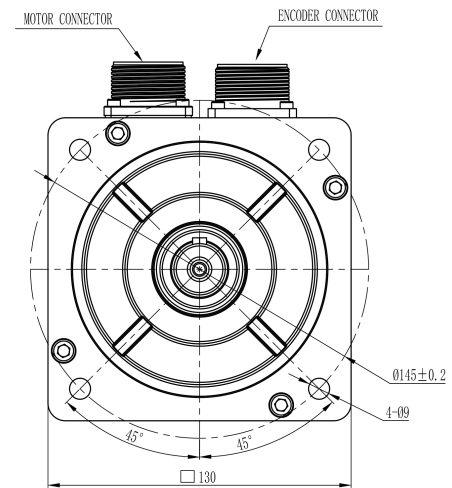
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	11.45 Nm
Rated Speed	1500 rpm
Rated Voltage	220 VAC
Flange Size	130 mm

Product Structure & Views

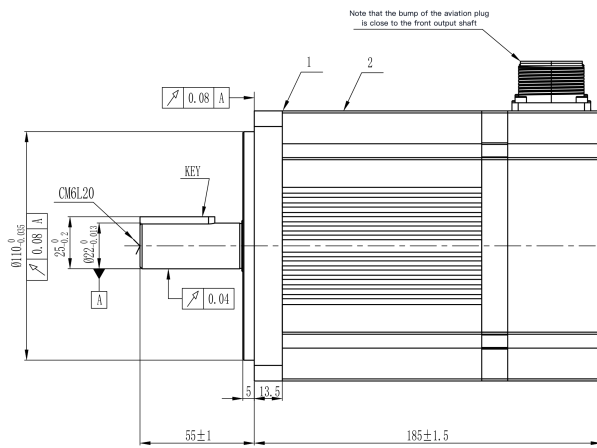
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



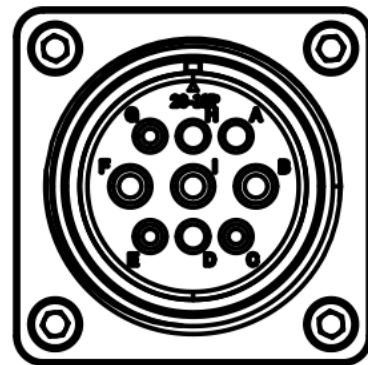
Mechanical View 1



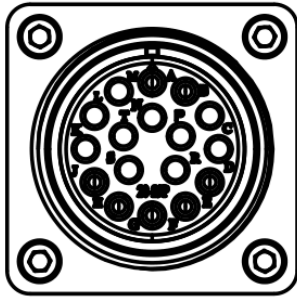
Mechanical View 2



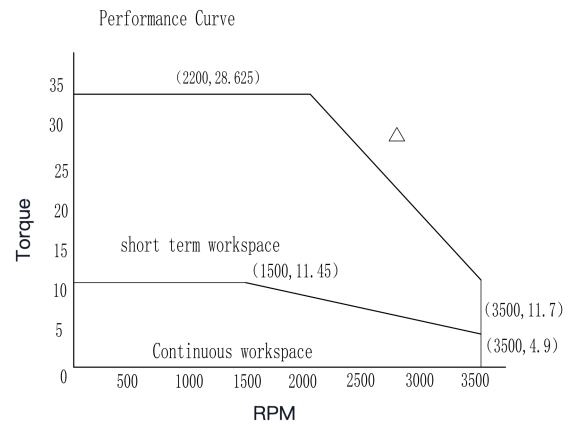
Mechanical View 3



Mechanical View 5



Mechanical View 7



Mechanical View 10

VIEW	FIELD	VALUE
Mechanical View 1	Keyway identifier	KEY
	Keyway length	36
	Keyway width	7
	Keyway depth	8
Mechanical View 2	Motor connector label	Motor connector
	Encoder connector label	Encoder connector
	Mounting hole bolt circle diameter	Ø145±0.2 mm
	Mounting hole count and diameter	4 holes × Ø9 mm
	Mounting hole angular spacing (lower left)	45°
	Mounting hole angular spacing (lower right)	45°
	Flange width	130 mm
Mechanical View 3	Aviation plug bump orientation	Bump oriented toward front output shaft
	Position tolerance	Position 0.08 relative to datum A
	Keyway designation	Keyway present
	Datum A	Datum A
	Perpendicularity tolerance	Perpendicularity 0.08
	Shaft diameter with tolerance	Ø22 +0/-0.013
	Shaft length with tolerance	25 +0/-0.2
	Mounting flange diameter	Ø110 +0/-0.035
	Position tolerance	Position 0.04 relative to datum A
	Boss height	13.5
	Overall length (front section)	55±1
	Overall length	185±1.5
	End step dimensions	5
Mechanical View 5	Connector Contact Letter Designation	A, B, C, D, ...
Mechanical View 7	Connector Contact Letter Designation	A, B, C, D, ...
Mechanical View 10	Chart Title	Performance Curve
	Y-axis Label - Torque	Torque
	X-axis Label - Speed	RPM
	Torque Scale - 35 Nm	35 Nm
	Torque Scale - 30 Nm	30 Nm
	Torque Scale - 25 Nm	25 Nm
	Torque Scale - 20 Nm	20 Nm
	Torque Scale - 15 Nm	15 Nm
	Torque Scale - 10 Nm	10 Nm
	Torque Scale - 5 Nm	5 Nm

VIEW	FIELD	VALUE
Torque Scale - 0 Nm	0 Nm	
Speed Scale - 500 rpm	500 rpm	
Speed Scale - 1000 rpm	1000 rpm	
Speed Scale - 1500 rpm	1500 rpm	
Speed Scale - 2000 rpm	2000 rpm	
Speed Scale - 2500 rpm	2500 rpm	
Speed Scale - 3000 rpm	3000 rpm	
Speed Scale - 3500 rpm	3500 rpm	
Short-term Workspace Upper Limit Point	2200 rpm, 28.625 Nm	
Short-term to Continuous Workspace Transition Point	1500 rpm, 11.45 Nm	
Continuous Workspace Upper Limit Point	3500 rpm, 11.7 Nm	
Continuous Workspace End Point	3500 rpm, 4.9 Nm	
Short-term Workspace	Short-term workspace	
Continuous Workspace	Continuous workspace	

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 ()	Kg·cm 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
Rated Voltage	220	VAC
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	11.45	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	1500	rpm
Rated Torque	11.45	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-A03-130G-T11P45NM-1800W-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.