

ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L03-180G-V96-T14P33NM-3000W-002	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

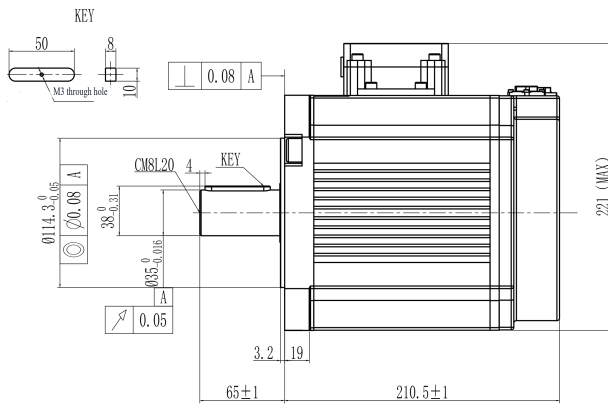
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

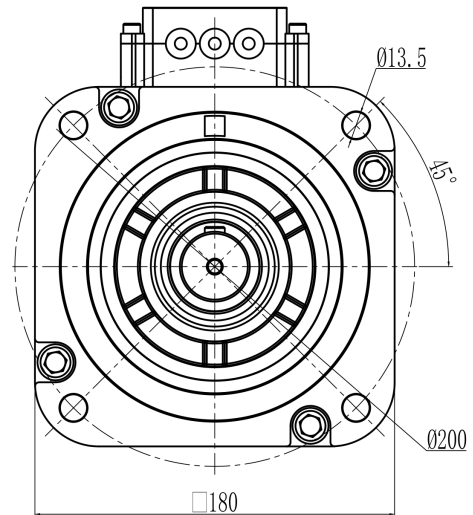
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	14.33 Nm
Rated Speed	2000 rpm
Rated Voltage	96 VDC
Flange Size	180 mm

Product Structure & Views

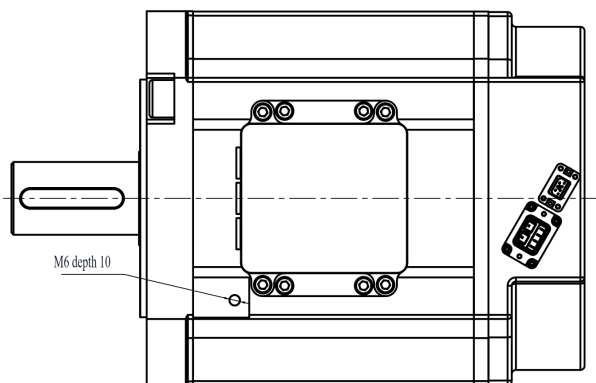
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



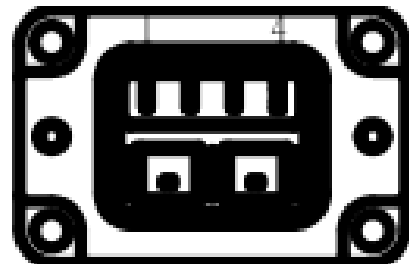
Mechanical View 1



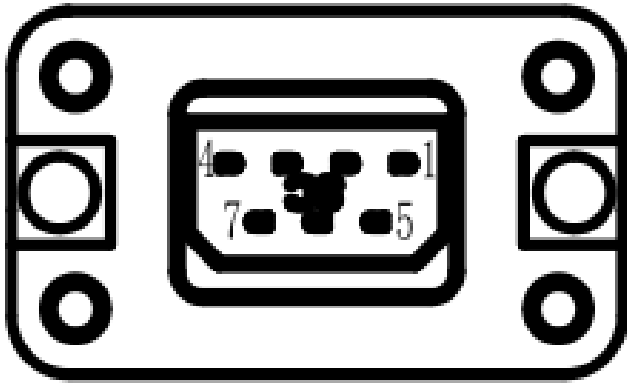
Mechanical View 2



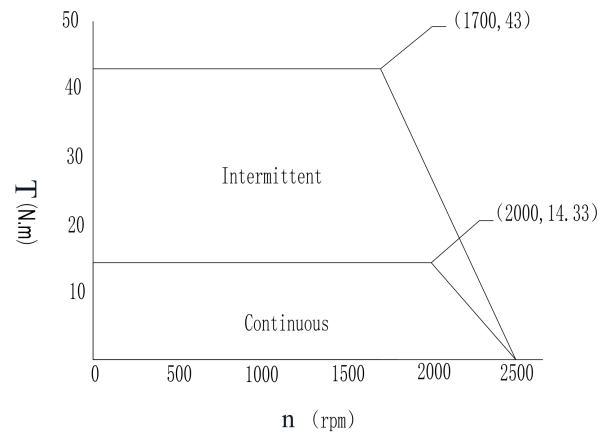
Mechanical View 3



Mechanical View 6



Mechanical View 8



Mechanical View 10

VIEW	FIELD	VALUE
Mechanical View 1	Keyway identification	KEY
	Keyway length	50 mm
	Keyway depth	8 mm
	Runout tolerance (datum A)	0.08 mm runout relative to datum A
	M3 through hole	M3 through hole
	M3 through hole position dimension	10 mm
	Connector quantity	4
	Datum A	Datum A
	Maximum overall length	221 mm maximum
	Shaft diameter with lower tolerance	38 -0.31 mm
	Runout tolerance	Ø0.08 mm runout
	Mounting flange diameter with lower tolerance	Ø114.3 -0.05 mm
	Shaft diameter with bilateral tolerance	Ø35 0/-0.016 mm
	Position tolerance (datum A)	0.05 mm position tolerance relative to datum A
	Dimension callout	3.2 mm
	Dimension callout	19 mm
	Overall length dimension (first section)	65±1 mm
	Overall length dimension	210.5±1 mm
Mechanical View 2	Mounting hole diameter	Ø13.5
	Flange PCD (Pitch Circle Diameter)	Ø200
	Flange square side length or overall width	180
	Mounting hole angular position	45 degrees
Mechanical View 3	Threaded mounting hole specification	M6 threaded hole, depth 10mm
Mechanical View 8	Connector pin number	Pin label: 4
	Connector pin number	Pin label: 1
	Connector pin number	Pin label: 7
	Connector pin number	Pin label: 5
Mechanical View 10	Y-axis maximum torque	50
	Intermittent operation zone boundary point	1700 rpm, 43 Nm
	Y-axis scale value 40	40
	Y-axis scale value 30	30
	Intermittent operation zone label	Intermittent operation zone
	Y-axis label	Torque (Nm)
	Continuous operation zone boundary point	2000 rpm, 14.33 Nm
	Y-axis scale value 20	20
	Y-axis scale value 10	10

VIEW	FIELD	VALUE
Continuous operation zone label	Continuous operation zone	
X-axis origin value	0	
X-axis scale value 500	500	
X-axis scale value 1000	1000	
X-axis scale value 1500	1500	
X-axis scale value 2000	2000	
X-axis scale value 2500	2500	
X-axis label	Speed (rpm)	

Overall Dimensions and Mounting Interface

PARAMETER	PUBLISHED VALUE	UNIT
Flange Size	180	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	47.34 / 51.43()	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	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	14.33	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	2000	rpm
Rated Torque	14.33	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-L03-180G-V96-T14P33NM-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.