ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L03-180G-V96-T14P33NM-3000W-001	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

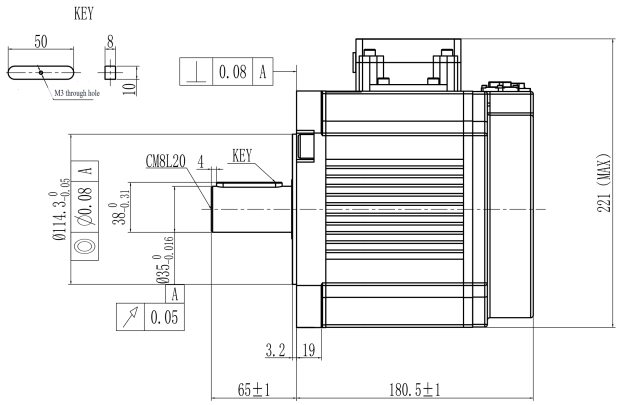
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

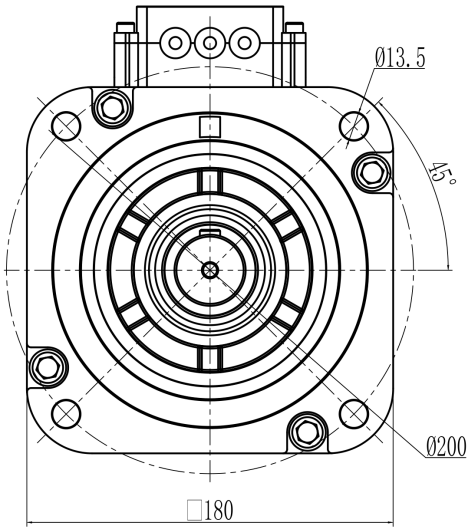
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	14.33 N·m
Rated Speed	2000 rpm
Rated Voltage	96 VDC
Flange Size	180 mm

Product Structure & Views

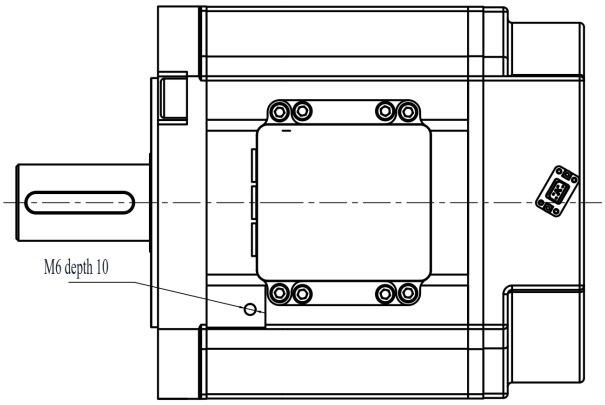
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



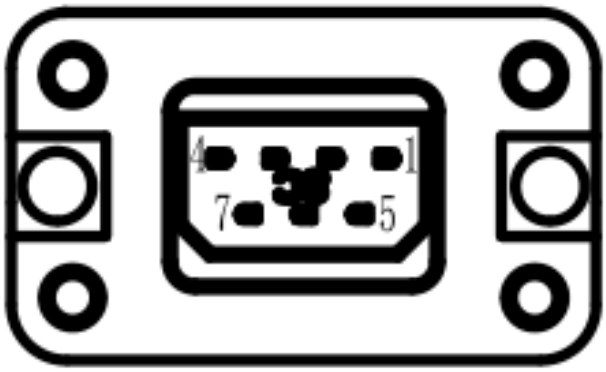
Mechanical View 1



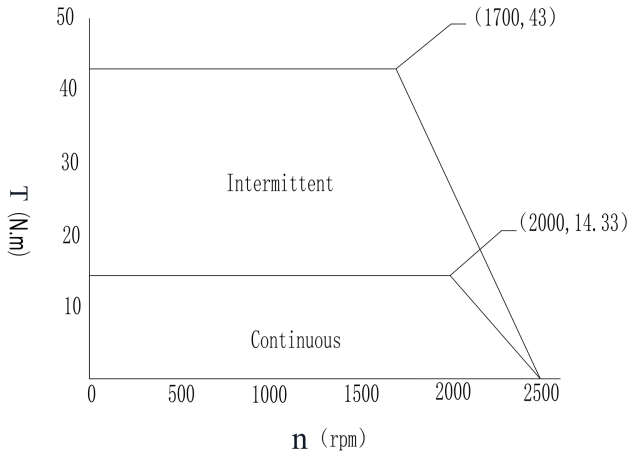
Mechanical View 2



Mechanical View 3



Mechanical View 6



Mechanical View 9

VIEW	FIELD	VALUE
Mechanical View 1	Shaft end diameter	50 mm
	Keyway indicator (shaft end)	Keyway present
	Keyway width	8 mm
	Keyway depth	10 mm
	Position tolerance (relative to datum A)	Position tolerance 0.08 mm relative to datum A
	M3 through hole	M3 through hole
	Quantity or position identifier	4
	Keyway indicator (motor end)	Keyway present
	Datum A	Datum A
	Maximum height	221 mm maximum
	Shaft diameter with tolerance	Ø14.3 0/-0.05 mm
	Perpendicularity tolerance	Perpendicularity 0.08 mm
	Shaft length with tolerance	38 0/-0.31 mm
	Shaft diameter with tolerance	Ø35 0/-0.016 mm
	Flatness or angularity tolerance	Flatness/angularity 0.05 mm
	Mounting dimension	3.2 mm
	Mounting dimension	19 mm
	Length with tolerance	65±1 mm
	Total length with tolerance	180.5±1 mm
Mechanical View 2	Mounting hole diameter	13.5 mm
	Mounting flange bolt circle diameter	200 mm
	Flange overall dimension	180 mm
	Mounting hole angular position	45 degrees
Mechanical View 3	Mounting threaded hole depth	M6 tapped hole, depth 10 mm
Mechanical View 6	Feedback connector pin layout	Mounting hole positions indicated
	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 9	Torque scale value 50 N.m	50 N.m
	Torque scale value 40 N.m	40 N.m
	Torque scale value 30 N.m	30 N.m
	Torque scale value 20 N.m	20 N.m
	Torque scale value 10 N.m	10 N.m
	Origin value 0	0
	Speed scale value 500 rpm	500 rpm

VIEW	FIELD	VALUE
Speed scale value 1000 rpm	1000 rpm	
Speed scale value 1500 rpm	1500 rpm	
Speed scale value 2000 rpm	2000 rpm	
Speed scale value 2500 rpm	2500 rpm	
Intermittent duty zone boundary point (1700 rpm, 43 N.m)	Speed: 1700 rpm, Torque: 43 N.m	
Intermittent/Continuous duty zone transition point (2000 rpm, 14.33 N.m)	Speed: 2000 rpm, Torque: 14.33 N.m	
Intermittent duty zone	Intermittent duty operating zone	
Continuous duty zone	Continuous duty operating zone	
Torque (N.m)	Torque in Newton-meters	
Speed (rpm)	Rotational speed in revolutions per minute	

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·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	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-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.