

ENGINEERING DOCUMENTATION

Slotted Brushless DC Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-DC-SL04-M001	DRAFT-08 / 28 Aug 2026	Engineering Integration Reference

Integration Overview

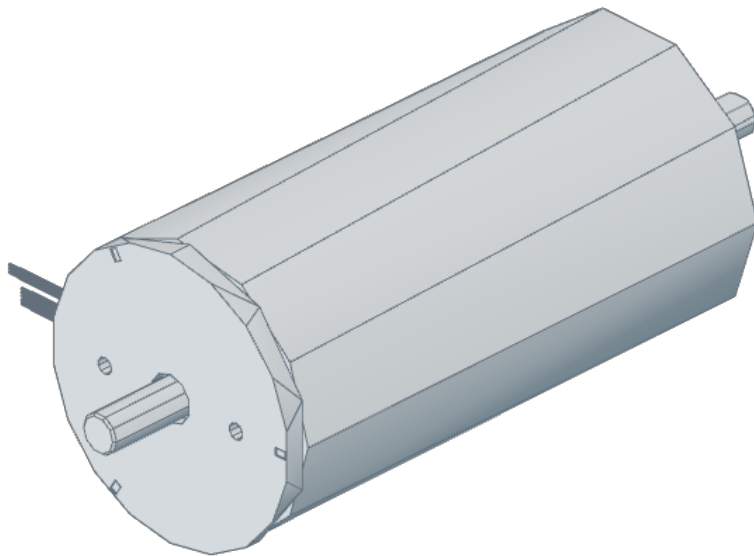
Compact electric motor for specified rotary actuation. This guide supports mounting, shaft, load-path, drive, thermal, cable and commissioning planning for ES-DC-SL04-M001.

Key Integration Facts

INTEGRATION ITEM	VALUE
Rated Torque	0.125 Nm
Rated Speed	10000 rpm
Torque Constant	0.035 Nm/A
Continuous Rated Output Power	130.9 W
Instantaneous Maximum Torque	0.375 Nm
No-Load Rotational Speed	12000 rpm
Cogging Torque	35.5 Nm
Pole Pairs	2

3D Orientation Reference

This axonometric reference provides a quick orientation check for the motor or actuator body, output interface and mounting relationship of ES-DC-SL04-M001.



Axonometric Orientation View

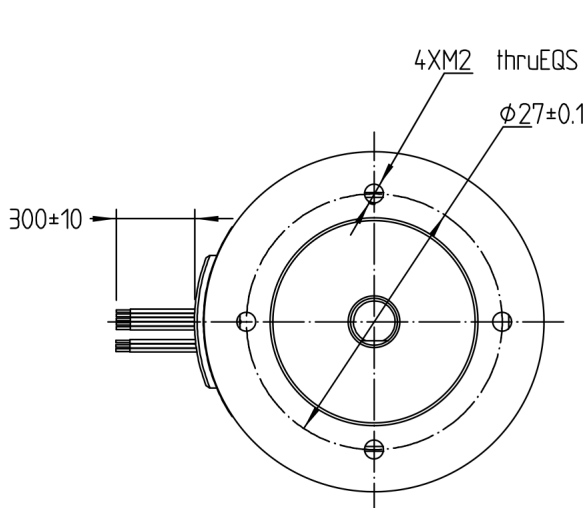
Orientation reference only. Use the exact-SKU parameter table and mechanical drawing for dimensions, hole geometry, fits and machining decisions.

Exact-SKU Interface Cross-Reference

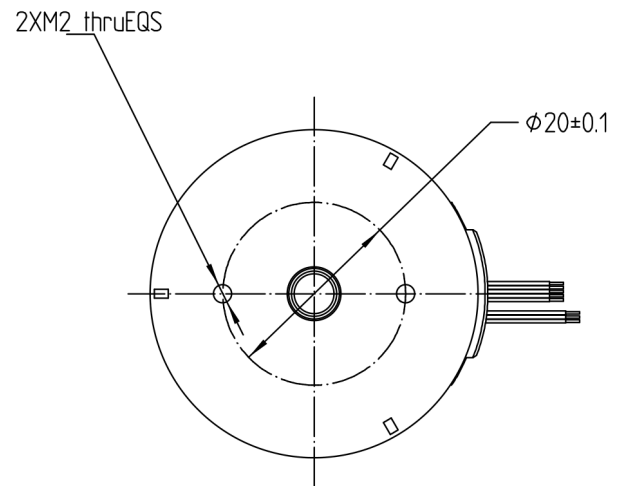
INTEGRATION TOPIC	EXACT-SKU REFERENCE
Motor envelope and output orientation	Body Length: 72 mm. Confirm interface geometry, fits and installation details in the exact-SKU mechanical drawing.
Drive and motion boundaries	Rated Voltage: 48 V; Continuous Rated Current: 3.6 A; Rated Torque: 0.125 Nm; Rated Speed: 10000 rpm. Confirm interface geometry, fits and installation details in the exact-SKU mechanical drawing.
Installed load and thermal reference	Rotor Inertia: 0.037 kgcm ² ; Duty Cycle: S2 . Confirm interface geometry, fits and installation details in the exact-SKU mechanical drawing.

Product Structure & Views

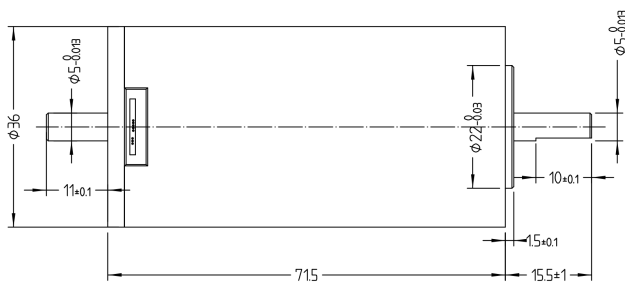
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



Mechanical View 1



Mechanical View 2



Mechanical View 3

VIEW	FIELD	VALUE
Mechanical View 1	Mounting threaded holes specification	4 x M2 through holes, equally spaced
	Mounting bolt circle diameter	27±0.1 mm
	Flange distance or axial dimension	300±10 mm
Mechanical View 2	M2 threaded holes (2 places equally spaced)	2x M2 threaded through holes, equally spaced
	Outer diameter	20±0.1

VIEW	FIELD	VALUE
Mechanical View 3	Left shaft diameter	Diameter 5 mm, lower deviation -0.013 mm
	Main body outside diameter	Diameter 36 mm
	Left shaft extension length	11 ±0.1 mm
	Right step outside diameter	Diameter 22 mm, upper deviation 0 mm, lower deviation -0.03 mm
	Right shaft step length	10 ±0.1 mm
	Right shoulder thickness	1.5 ±0.1 mm
	Main body length	71.5 mm
	Right shaft extension length	15.5 ±1 mm
	Right shaft diameter	Diameter 5 mm, lower deviation -0.013 mm

Technical Specifications

PARAMETER	VALUE	UNIT
Rated Torque	0.125	Nm
Rated Speed	10000	rpm
Torque Constant	0.035	Nm/A
Continuous Rated Output Power	130.9	W
Instantaneous Maximum Torque	0.375	Nm
No-Load Rotational Speed	12000	rpm
Cogging Torque	35.5	Nm
Pole Pairs	2	
Instantaneous Maximum Current	10.8	A
Rotational Back-EMF Constant	3.67	V/krpm
Continuous Rated Current	3.6	A
Dielectric strength	500VAC/1KHz/1mA/1s	
Insulation Resistance	100 MOhm 20C	
Position Feedback Device		
No-load Current	0.5	A
Rated Voltage	48	V

Technical Specifications - Continued

PARAMETER	VALUE	UNIT
Rotor Inertia	0.037	kgcm ²
Body Length	72	mm
Frame size	36	
Winding connection		
Housing shape	Round	
Noise	≤0	dB
Commutation angle	120°	°
Housing-to-Ambient Thermal Resistance	0.24	K/W
Motor efficiency	80	%
Line resistance	0.67	Ω
Maximum Winding Temperature	75	°C
Housing Type	Aluminum housing	
Line inductance	0.37	mH
Ambient temperature	25	°C
Duty Cycle	S2	
Motor Weight	305.6	g

Mounting, Shaft and Load Path

- Support the complete mounting face, preserve locating features and verify fastener engagement without distorting the housing.
- Align the shaft and coupling before tightening, and validate radial load, axial load, overhung distance, belt tension, inertia and shock for the installed mechanism.

Drive, Electrical and Motion Integration

- Coordinate supply, drive current limit, speed, torque and fault protection with the actual load and duty cycle.
- Use applicable wiring data for conductor identity, polarity, phase pairing, shielding and grounding; do not infer these from the product view.

Thermal, Cable and Commissioning Conditions

- Validate housing and winding temperature over the intended operating cycle, ambient condition, mounting heat path and enclosure airflow.
- Provide strain relief and service clearance, then commission at reduced energy and verify direction, current limits, motion response, temperature and fault behavior.

Integration Checklist

- | | |
|----|---|
| 01 | Confirm the exact-SKU drawing and parameter set. |
| 02 | Verify mounting geometry, locating features, shaft engagement, coupling alignment and service clearance. |
| 03 | Validate torque, speed, inertia, radial and axial loads, overhung distance and shock. |
| 04 | Set drive, current, motion, wiring, grounding and thermal boundaries from applicable product documentation. |
| 05 | Commission at reduced energy and verify direction, motion response, temperature and fault behavior. |

[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-DC-SL04-M001 and is intended for dimensional evaluation and preliminary integration. It is not a applicable manufacturing drawing, motor or actuator application approval, wiring definition, drive-selection approval, machinery risk assessment, safety validation or production authorization. Before design freeze, installation or energization, verify all dimensions, mounting and locating features, moving envelopes, shaft or output geometry, permissible loads, alignment, supply and current limits, wiring, motion profile, duty cycle, thermal condition, cable routing, environmental boundaries, maintenance and fault response against the applicable EmbodyStack engineering data for this exact SKU. Validate the complete installed system under intended operating and fault conditions.