

ENGINEERING DOCUMENTATION

Iron-Core Brushed DC Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-DC-IC03-M001	DRAFT-08 / 28 Aug 2026	Engineering Integration Reference

Integration Overview

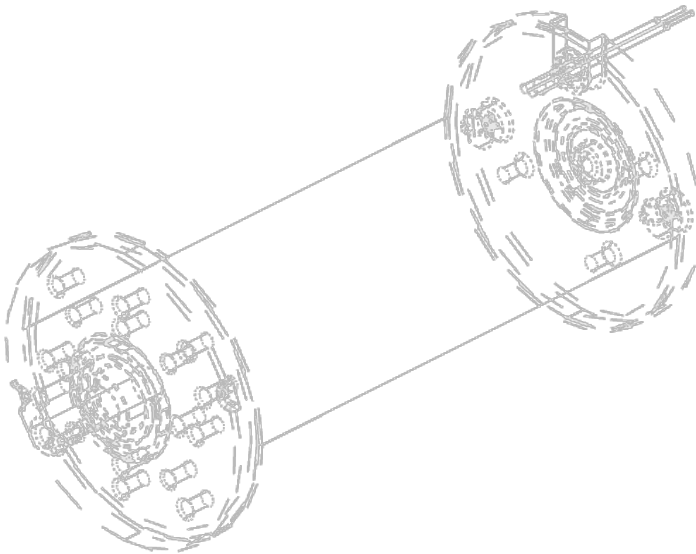
Compact electric motor for specified rotary actuation. This guide supports mounting, shaft, load-path, drive, thermal, cable and commissioning planning for ES-DC-IC03-M001.

Key Integration Facts

INTEGRATION ITEM	VALUE
Rated Torque	0.27 Nm
Rated Speed	3200 RPM
Torque Constant	62 mNm/A
Continuous Rated Output Power	90 W
No-Load Rotational Speed	3650 RPM
Rotational Back-EMF Constant	6.01 V/Krpm
Continuous Rated Current	6 A
Phase Inductance	1.6 mH

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-IC03-M001.



Axonometric Orientation View

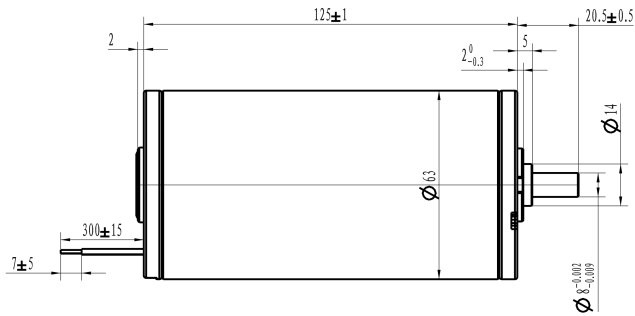
Orientation reference only. Use the exact-SKU parameter table and mechanical drawing for dimensions, hole geometry, fits and machining decisions.

Exact-SKU Interface Cross-Reference

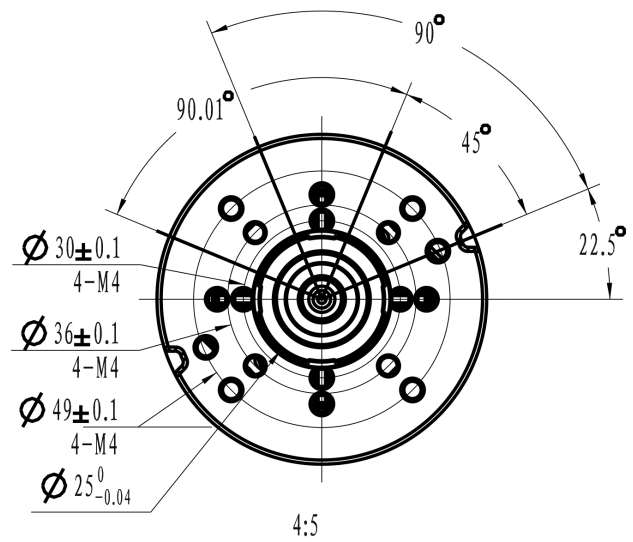
INTEGRATION TOPIC	EXACT-SKU REFERENCE
Motor envelope and output orientation	Frame Size: 63 mm; Body Length: 125 mm; Motor Body Length: 125±1 mm; Motor Body Diameter: Diameter 63 mm; Shaft Outer Diameter: $\varnothing 5.0 / -0.04$ mm. Confirm interface geometry, fits and installation details in the exact-SKU mechanical drawing.
Drive and motion boundaries	Rated Voltage: 24 VDC; Continuous Rated Current: 6 A; Rated Torque: 0.27 Nm; Rated Speed: 3200 RPM. Confirm interface geometry, fits and installation details in the exact-SKU mechanical drawing.
Installed load and thermal reference	Rotor Inertia: 0.8 kgcm ² ; Insulation Class: B/130°C; Duty Cycle: S1. Confirm interface geometry, fits and installation details in the exact-SKU mechanical drawing.

Product Structure & Views

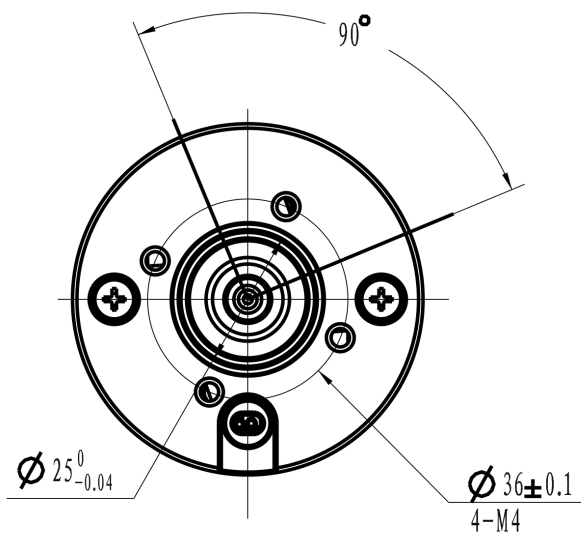
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



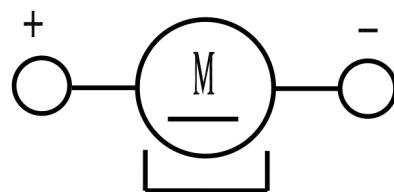
Mechanical View 1



Mechanical View 2



Mechanical View 3



Mechanical View 5

VIEW	FIELD	VALUE
Mechanical View 1	Motor body length	125 ±1
	Output shaft extension length	20.5 ±0.5
	Left end step length	2
	Right end step length	5
	Shaft shoulder diameter	Diameter 14
	Motor outside diameter	Diameter 63
	Output shaft diameter with tolerance	Diameter 8, upper deviation -0.002, lower deviation -0.009
Mechanical View 3	Bolt hole angular spacing	90°
	Bolt hole angular spacing (precise)	90.01°
	Bolt hole angular spacing	45°
	Bolt hole angular spacing	22.5°
	Mounting hole pitch circle diameter (smallest)	∅30±0.1
	Number and specification of threaded holes (smallest circle)	4×M4
	Mounting hole pitch circle diameter (middle)	∅36±0.1
	Number and specification of threaded holes (middle circle)	4×M4
	Mounting hole pitch circle diameter (largest)	∅49±0.1
	Number and specification of threaded holes (largest circle)	4×M4
	Shaft diameter with tolerance	∅25 0/-0.04
	Angular dimension	90°
Mechanical View 5	Output shaft diameter	∅25 0/-0.04
	Mounting flange diameter	∅36±0.1
	Mounting holes specification	4× M4 threaded holes

Technical Specifications

PARAMETER	VALUE	UNIT
Rated Torque	0.27	Nm
Rated Speed	3200	RPM
Torque Constant	62	mNm/A
Continuous Rated Output Power	90	W
No-Load Rotational Speed	3650	RPM
Rotational Back-EMF Constant	6.01	V/Krpm
Continuous Rated Current	6	A
Phase Inductance	1.6	mH

Technical Specifications - Continued

PARAMETER	VALUE	UNIT
Insulation Class	B/130°C	
Insulation Resistance		
CONDITION	VALUE	UNIT
Configuration-specific; confirm the selected configuration	100MΩ250V	MΩ
test_voltage: 250 V		
No-load Current	1	A
Rated Voltage	24	VDC
Rotor Inertia	0.8	kgcm ²
Body Length	125	mm
Loaded Current	<6	A
Frame Size	63	mm

Technical Specifications - Continued

PARAMETER	VALUE	UNIT
Loaded Power	90	W
Largest Mounting Hole Pitch Circle Diameter	49±0.1	mm
Housing shape	Round	
Output Shaft Extension Length	20.5±0.5	mm
Noise	<50	dB
Lead Wire Length	300±15	mm
Motor Body Length	125±1	
Smallest Mounting Hole Pitch Circle Diameter	30±0.1	
Drawing No-load Current	<1	A
Mounting Flange Diameter	36±0.1	mm
Line-to-line resistance	0.82	Ω
Drawing No-load Speed	3650±10%	RPM
Motor Body Diameter	Diameter 63	mm
Shaft Outer Diameter	25.0/-0.04	
Service Life Hours	>3000	h
Motor Construction	Slotted brushed DC motor (ferrite)	

Technical Specifications - Continued

PARAMETER	VALUE	UNIT
Loaded Torque	0.27	N·m
Output Shaft Diameter	25.0/-0.04	mm
Drawing Insulation Resistance	100/250V	MΩ
Housing Type	Stainless steel / iron housing	
Withstand Voltage	600V AC/50HZ/5mA/1S	
Rotation Direction	CW	
Duty Cycle	S1	
Mounting Threaded Holes	4× M4 threaded holes	
Mounting Hole Angular Spacing	22.5°	degree
Loaded Speed	3200±10%	RPM
Middle Mounting Hole Pitch Circle Diameter	36±0.1	mm
Motor Weight	1.6	kg
Stall Current	29	A
Starting Torque	0.042	N·m
Customization Number	1	
Stall Torque	1.6	N·m

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-IC03-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.