

CATEGORY SELECTION GUIDE

Hollow-Shaft Stepper Motors Category Selection Guide

Hollow-shaft stepper motors combine indexed rotary motion with a through bore that can carry a suction path, cables or other services through the motor axis. The catalog covers eight frame-based Product Platforms and 14 SKUs from 14 mm to 86 mm. Select by through-bore and installation envelope, load and torque-speed duty, drive current, stack length, shaft arrangement and feedback requirements before confirming the SKU.

CATEGORY SELECTION GUIDE

CATEGORY	CURRENT CATALOG	REVISION / ISSUE
Hollow-Shaft Stepper Motors	8 Product Platforms / 14 SKUs	R01 2026-09-04

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01 | Category Scope and Objective

Product catalog and suitable use

Item	Current category
Product catalog	8 Product Platforms / 14 SKUs
Suitable use	Compact rotary axes that need a central passage for suction, cables or other services, including pick-and-place modules, electronic handling and other space-constrained positioning mechanisms.

02 | Through-Bore Motion Role

Rotary motion with axial service routing

The hollow shaft allows a service path through the rotation axis while the stepper motor provides indexed motion. This can shorten external routing in compact pick-up mechanisms, but the through-bore, shaft interface and cable or suction path must be confirmed from the exact SKU drawings.

Central service passage Use the through bore where suction, cabling or another service must pass through the rotary axis.	Indexed rotary positioning Use the stepper architecture for commanded incremental motion, then verify holding torque and the application torque-speed point.	Feedback option Where closed-loop positioning is required, confirm a compatible hollow-shaft encoder and controller interface.
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03 | Typical Applications and Selection Inputs

Typical applications

Pick-and-place modules Route a suction line or other service through the axis while keeping the rotary pick-up module compact.	Electronic component handling Use the central passage and compact frames in electronic-picking mechanisms where moving mass and routing space are constrained.	Closed-loop compact positioning Combine the motor with a compatible hollow-shaft encoder when the application needs position feedback through a compact axis package.
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Inputs to record before shortlisting

01	Through-bore and service path	Required passage diameter, suction fitting or cable bundle, bend radius, sealing and rotating-interface requirements.
02	Installation envelope	Frame size, body length, shaft arrangement, mounting face, coupling and cable clearance.
03	Torque-speed duty	Load torque, holding requirement, operating speed, acceleration, inertia, start-stop frequency and duty cycle.
04	Drive and feedback	Drive current, bus voltage, phase compatibility, lead-wire connection and open-loop or closed-loop control requirement.

04 | Product Platform Architecture

Frame-based navigation groups

The public catalog groups Product Platforms by installation scale. These groups organize the directory and do not define torque or accuracy grades; retain candidates by the real envelope and operating point before using the group as navigation.

Compact frame group 14, 20 and 28 mm Product Platforms for the smallest published installation envelopes.	Medium frame group 35, 42 and 57 mm Product Platforms for intermediate installation envelopes.	Large frame group 60 and 86 mm Product Platforms for the largest current installation envelopes.
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05 | Product Platform Directory

Current Product Platforms

The complete eight-platform catalog is shown below. Use frame size for initial mechanical navigation, then compare body length, current, torque-speed duty and integration details before confirming the SKU.

	14 mm Hollow-Shaft Stepper Motor Product Platform · ES-ST-HS01 1 SKU		20 mm Hollow-Shaft Stepper Motor Product Platform · ES-ST-HS02 2 SKU
	28 mm Hollow-Shaft Stepper Motor Product Platform · ES-ST-HS03 2 SKU		35 mm Hollow-Shaft Stepper Motor Product Platform · ES-ST-HS04 2 SKU
	42 mm Hollow-Shaft Stepper Motor Product Platform · ES-ST-HS05 2 SKU		57 mm Hollow-Shaft Stepper Motor Product Platform · ES-ST-HS06 2 SKU
	60 mm Hollow-Shaft Stepper Motor Product Platform · ES-ST-HS07 2 SKU		86 mm Hollow-Shaft Stepper Motor Product Platform · ES-ST-HS08 1 SKU

06 | Platform Comparison and Trade-offs

SKU-level envelope and electrical comparison

Values within a Product Platform are SKU-specific and are not freely combinable. Holding torque and running torque must be checked against the exact SKU and applicable torque-speed curve.

Group	Product Platform	SKU	Envelope	Current and step	Shaft
Compact frame	14 mm · ES-ST-HS01	ES-ST-6HS2030-4 D-030-100	NEMA Size: 6 / Body Length: 30 mm	Continuous Rated Current: 0.3 A RMS / Step Angle: 1.8 °	Shaft Configuration: Double shaft
Compact frame	20 mm · ES-ST-HS02	ES-ST-08HS2028-4D-050	NEMA Size: 8 / Body Length: 28 mm	Continuous Rated Current: 0.5 A RMS / Step Angle: 1.8 °	Shaft Configuration: Double shaft
Compact frame	20 mm · ES-ST-HS02	ES-ST-08HS2038-4D-050	NEMA Size: 8 / Body Length: 38 mm	Continuous Rated Current: 0.5 A RMS / Step Angle: 1.8 °	Shaft Configuration: Double shaft
Compact frame	28 mm · ES-ST-HS03	ES-ST-11HS2033-4 D-100	NEMA Size: 11 / Body Length: 33 mm	Continuous Rated Current: 1 A RMS / Step Angle: 1.8 °	Shaft Configuration: Double shaft
Compact frame	28 mm · ES-ST-HS03	ES-ST-11HS2045-4 D-100	NEMA Size: 11 / Body Length: 45 mm	Continuous Rated Current: 1 A RMS / Step Angle: 1.8 °	Shaft Configuration: Double shaft
Medium frame	35 mm · ES-ST-HS04	ES-ST-14HS2033-4D-100	NEMA Size: 14 / Body Length: 33 mm	Continuous Rated Current: 1 A RMS / Step Angle: 1.8 °	Shaft Configuration: Double shaft
Medium frame	35 mm · ES-ST-HS04	ES-ST-14HS2045-4D-100	NEMA Size: 14 / Body Length: 45 mm	Continuous Rated Current: 1 A RMS / Step Angle: 1.8 °	Shaft Configuration: Double shaft
Medium frame	42 mm · ES-ST-HS05	ES-ST-17HS2034-4D-100	NEMA Size: 17 / Body Length: 34 mm	Continuous Rated Current: 1 A RMS / Step Angle: 1.8 °	Shaft Configuration: Double shaft
Medium frame	42 mm · ES-ST-HS05	ES-ST-17HS2048-4D-250	NEMA Size: 17 / Body Length: 48 mm	Continuous Rated Current: 2.5 A RMS / Step Angle: 1.8 °	Shaft Configuration: Double shaft
Medium frame	57 mm · ES-ST-HS06	ES-ST-23HS2045-4D-200	NEMA Size: 23 / Body Length: 45 mm	Continuous Rated Current: 2 A RMS / Step Angle: 1.8 °	Shaft Configuration: Double shaft
Medium frame	57 mm · ES-ST-HS06	ES-ST-23HS2065-4D-250	NEMA Size: 23 / Body Length: 65 mm	Continuous Rated Current: 2.5 A RMS / Step Angle: 1.8 °	Shaft Configuration: Double shaft
Large frame	60 mm · ES-ST-HS07	ES-ST-24HS2047-4D-400	NEMA Size: 24 / Body Length: 47 mm	Continuous Rated Current: 4 A RMS / Step Angle: 1.8 °	Shaft Configuration: Double shaft

Group	Product Platform	SKU	Envelope	Current and step	Shaft
Large frame	60 mm · ES-ST-HS07	ES-ST-24HS2068-4D-400	NEMA Size: 24 / Body Length: 68 mm	Continuous Rated Current: 4 A RMS / Step Angle: 1.8 °	Shaft Configuration: Double shaft
Large frame	86 mm · ES-ST-HS08	ES-ST-34HS2076-4D-300	NEMA Size: 34 / Body Length: 76 mm	Continuous Rated Current: 3 A RMS / Step Angle: 1.8 °	Shaft Configuration: Double shaft

07 | Selection Path

From application inputs to SKU

01	Define the through-bore function Record the service routed through the axis, required passage, fittings, cable motion and sealing constraints.
02	Retain by installation envelope Use the published frame name, NEMA Size, Body Length and shaft arrangement to retain mechanically compatible Product Platforms and SKUs.
03	Check holding and running duty Check holding torque, operating speed, load inertia and acceleration against the exact torque-speed curve and driver conditions.
04	Match drive and wiring Confirm Continuous Rated Current, Phase Count, Lead Wire Configuration, bus voltage and driver capability.
05	Confirm feedback and the SKU Confirm open-loop or closed-loop operation, encoder interface, through-bore integration and the exact SKU documents.

08 | SKU Refinement

Parameters used to move from Product Platform to SKU

Standard parameter	Selection role	Published values
NEMA Size	Use the published NEMA size with the metric frame name to navigate the installation envelope.	6 / 8 / 11 / 14 / 17 / 23 / 24 / 34
Body Length	Distinguish stack-length options within a retained Product Platform.	30 mm / 28 mm / 38 mm / 33 mm / 45 mm / 34 mm / 48 mm / 65 mm / 47 mm / 68 mm / 76 mm
Continuous Rated Current	Match the motor winding to the drive current and thermal duty.	0.3 A RMS / 0.5 A RMS / 1 A RMS / 2.5 A RMS / 2 A RMS / 4 A RMS / 3 A RMS
Step Angle	Confirm the commanded increment and motion-control strategy.	1.8 °
Shaft Configuration	Confirm the mechanical shaft arrangement and through-axis integration.	Double shaft
Lead Wire Configuration	Confirm winding connection and driver wiring.	Bipolar, 4 flying leads
Phase Count	Confirm motor and drive phase compatibility.	2

Lightweight SKU refinement sequence

01	Confirm stack length Within the retained Product Platform, use Body Length to distinguish the available SKU envelopes.
02	Confirm drive current Match Continuous Rated Current, phase count and lead-wire connection to the drive.
03	Confirm motion performance Check holding torque and the torque-speed curve at the intended voltage, current, speed, acceleration and duty.

04 Confirm through-axis integration

Confirm through-bore diameter, shaft arrangement, suction or cable path, encoder option, mounting and controlled drawings before confirming the SKU.

09 | Engineering Information Checklist

Record before RFQ or engineering evaluation

01	Through-bore route	Passage diameter, suction fitting or cable bundle, sealing, bend radius and rotating-interface needs.
02	Mechanical envelope	Frame, body length, shaft, mounting face, coupling, payload and available cable clearance.
03	Motion profile	Holding load, running torque, speed range, acceleration, inertia, start-stop frequency and duty cycle.
04	Drive and wiring	Bus voltage, drive current, phase count, lead-wire connection, driver type and control mode.
05	Feedback and accuracy	Open-loop or closed-loop requirement, encoder type, resolution, controller interface and homing strategy.
06	Environment and documents	Ambient conditions, contamination, thermal path, SKU Product Datasheet, Dimensional & Integration Guide, 2D drawing and controlled 3D resources.

10 | Engineering Use and Verification Notice

Controlled engineering documents

01	SKU Product Datasheet	Use the current document for exact SKU parameters and configuration verification.
02	Dimensional & Integration Guide	Use the applicable guide and 2D drawing for through-bore, shaft, mounting, wiring and installation details.
03	Controlled 3D resources	Request STEP or native CAD for the exact SKU through the controlled engineering-file process.

Final verification statement

This guide supports preliminary Product Platform and SKU selection. Before design freeze, procurement or use, verify the exact SKU, through-bore and shaft interfaces, mechanical envelope, holding and running torque, torque-speed curve, drive conditions, feedback, environment and current controlled engineering documents. Do not derive missing torque, speed, current, accuracy, compatibility or performance values from a SKU code, Product Platform name, adjacent frame or a single rated value.