

CATEGORY SELECTION GUIDE

Ultra Thin Frameless Torque Motor Category Selection Guide

Ultra-thin frameless torque motors integrate the rotor and stator directly into the host mechanism to provide direct drive within a short axial envelope for robot joints, rotary tables and other space-constrained axes. Product Platform and SKU selection must consider outer diameter, rotor size, stator-core height, continuous power, speed, voltage, feedback, thermal path and mechanical integration.

CATEGORY SELECTION GUIDE

CATEGORY	CURRENT CATALOG	REVISION / ISSUE
Ultra Thin Frameless Torque Motors	11 Product Platforms / 20 SKUs	R01 2026-09-04

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01 | Category Scope and Objective

Product catalog and suitable use

Item	Category scope
Product catalog	11 Product Platforms / 20 SKUs
Suitable use	Compact direct-drive mechanisms where envelope, continuous power, speed, electrical conditions, feedback and rotor/stator integration must be considered together.

02 | Operating Principle and Typical Applications

Frameless motor integration principle

The rotor and stator are separate components integrated directly into the mechanism, avoiding the extra envelope of a conventional motor housing and transmission. Usable performance depends on concentric mounting, stack length, thermal path, feedback and drive matching, which must be confirmed for the exact SKU.

Typical applications

Robot joints and direct-drive axes For rotary joints that need compact packaging, low transmission compliance and a clear central aperture.	Gimbals and stabilized platforms For stabilized mechanisms where rotor/stator concentricity, inertia and feedback interfaces must be resolved together.	Precision rotary positioning For rotary positioning that requires controlled speed, continuous power and a feedback loop.
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03 | Application Record Checklist

Record before shortlisting

01	Installation envelope	Record body outer diameter, rotor inner diameter, stack length, pilots, fasteners and lead-exit clearance.
02	Motion profile	Record target speed, acceleration, cycle time, dwell time and reversal frequency.
03	Power and thermal conditions	Record continuous power, peak power, DC-link voltage, continuous current and thermal path.
04	Feedback and interfaces	Record feedback type, sensors, lead exit, drive interface and control resolution.
05	Mechanical integration	Record rotor inertia, stator support, concentricity, air-gap control and assembly sequence.

04 | Product Platform Directory

11 Product Platforms

 Frameless Torque Motor Product Platform 01 2 SKUs	 Frameless Torque Motor Product Platform 02 1 SKUs
 Frameless Torque Motor Product Platform 03 3 SKUs	 Frameless Torque Motor Product Platform 04 1 SKUs
 Frameless Torque Motor Product Platform 05 1 SKUs	 Frameless Torque Motor Product Platform 06 4 SKUs
 Frameless Torque Motor Product Platform 07 1 SKUs	 Frameless Torque Motor Product Platform 08 3 SKUs
 Frameless Torque Motor Product Platform 09 1 SKUs	 Frameless Torque Motor Product Platform 10 2 SKUs
 Frameless Torque Motor Product Platform 11 1 SKUs	

05 | Product Platform Selection Path

Screen in this order

01	Installation envelope Filter by body outer diameter, rotor inner diameter and stack length first.
02	Continuous power and speed Match continuous rated output power, rated speed and maximum speed.
03	Voltage and drive Confirm DC-link voltage, rated current and drive operating range.
04	Feedback and interfaces Check feedback, temperature sensor, lead exit and mounting interfaces.
05	Product Platform navigation Use the directory to organize candidates; overlapping ranges are not automatic exclusions.
06	Exact SKU confirmation Confirm the exact SKU and its complete parameter set before design freeze.

06 | Product Platform Parameter Comparison

Published standard-parameter ranges by Product Platform

Values are distinct standard display values or spans derived from SKU records. Values in one row are not necessarily combinable; confirm the exact SKU.

Product Platform	SKUs	Body Outer Diameter	Rotor Inner Diameter	Axial Stack Length	Continuous Rated Output Power	Rated Speed	Maximum Rotational Speed	DC link voltage
Frameless Torque Motor Product Platform 01	2	57 / 57 mm / 57 mm / 57	28 mm	5 mm / 7 mm	75 / 117	3000 / 3500	3800 / 4300	48
Frameless Torque Motor Product Platform 02	1	60 mm / 60	28 mm / 28	12 mm / 12	146	3100	3400	48

Product Platform	SKUs	Body Outer Diameter	Rotor Inner Diameter	Axial Stack Length	Continuous Rated Output Power	Rated Speed	Maximum Rotational Speed	DC link voltage
Frameless Torque Motor Product Platform 03	3	68 mm / 68 / 68 / 68 mm	34 mm / 34 / 34 / 34 mm	5 mm / 8 mm / 13 mm	101 / 157 / 251	3000	3900	48
Frameless Torque Motor Product Platform 04	1	76 mm / 76	38 mm / 38	5 mm / 5	117	3000	4300	48
Frameless Torque Motor Product Platform 05	1	77 mm / 77	35 mm	30 mm	750	3000	3800	48
Frameless Torque Motor Product Platform 06	4	85 mm / 85 / 85 / 85 mm	42 mm / 42 / 42 / 42 mm	5 mm / 8 mm / 13 mm / 18 mm	157 / 314 / 470 W / 628	3000 / 3000 / 3000 rpm	3900 / 4100 / 5000	48 / 48 / 48 VDC
Frameless Torque Motor Product Platform 07	1	91 mm / 91	46 mm / 46	14 mm / 14	630 W	3000 rpm / 3000	—	48 VDC / 48
Frameless Torque Motor Product Platform 08	3	104 / 104 mm / 104 mm / 104	55 mm / 47 mm / 43 mm	14 mm / 22 mm / 29 mm	720 W / 1000 W	3000 rpm / 2500 rpm	—	48 / 48 VDC / 48 VDC / 48
Frameless Torque Motor Product Platform 09	1	123 mm / 123	60 mm / 60	30 mm / 30	1000 W	2000 rpm / 2000	—	48 VDC / 48
Frameless Torque Motor Product Platform 10	2	127 / 127 mm / 127 mm / 127	65 mm / 57 mm	18 mm / 30 mm	900 W / 1600 W	2400 / 2400 rpm / 2400 rpm / 2400	—	48 / 48 VDC / 48 VDC / 48
Frameless Torque Motor Product Platform 11	1	132 mm / 132	43 mm / 43	24 mm / 24	1180 W	3200 rpm / 3200	—	48 VDC / 48

07 | Platform Comparison and Engineering Trade-offs

Envelope versus continuous power A larger stack or outer diameter may support more continuous power, but changes the envelope and thermal path; performance must not be inferred from size alone.	Speed versus thermal conditions Rated and maximum speed describe different conditions; continuous current, cooling and duty cycle define the usable operating point.	Feedback and mechanical integration Feedback, lead exit, air gap and concentricity must be checked together as integration constraints.
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08 | SKU Refinement and Integration Checklist

Four-step SKU refinement

Use these dimensions after the Product Platform shortlist. Parameter values remain SKU-specific and must not be recombined across rows.

Refinement step	Initial filter	Confirm at SKU	Selection purpose
Mechanical fit	Body Outer Diameter / Rotor Inner Diameter / Axial Stack Length	Pilots / Fasteners / Air gap	Retain SKUs that fit the mechanism envelope and rotor/stator installation.
Power and speed	Continuous Rated Output Power / Rated Speed	Maximum Rotational Speed / Rated Current	Match continuous operation, then confirm peak and thermal conditions.
Electrical conditions	DC link voltage	Wire specification / Temperature Sensor	Confirm drive and power interfaces.
Feedback interface	Motor Version / Sensor	Feedback and Lead Exit	Confirm the closed-loop control and wiring plan.

Integration checklist

01	Confirm operating point	Confirm the exact SKU against continuous power, rated speed, maximum speed, current, duty cycle and thermal conditions.
02	Confirm mechanical fit	Confirm rotor/stator support, concentricity, air gap, fasteners, lead exit and clearances.
03	Confirm feedback and sensors	Check feedback, temperature sensor, leads and drive interfaces.
04	Request controlled documents	Obtain the current SKU Product Datasheet, Dimensional & Integration Guide, 2D drawing and controlled 3D resources.

09 | Engineering Use and Verification Notice

Controlled engineering documents

01	SKU Product Datasheet	Use the current datasheet for exact-SKU ratings, limits, units and operating conditions.
02	Dimensional & Integration Guide	Use the current guide for dimensions, tolerances, rotor/stator mounting, air gap, feedback, thermal path and installation details.
03	2D and controlled 3D resources	Use released 2D drawings and controlled STEP or native CAD resources for interface validation and packaging checks.

Final verification statement

Before design freeze, verify the selected SKU against its current Product Datasheet and Dimensional & Integration Guide, including installation envelope, rotor/stator fit, air gap, continuous and peak power, speed, voltage, current, feedback, temperature sensor, thermal path, lead exit and controlled drawing/CAD revision. Values not stated in the standard parameter set must be resolved from controlled engineering documents; they must not be inferred from a public SKU code or another Product Platform.