

CATEGORY SELECTION GUIDE

Inverted Planetary Roller Screw Category Selection Guide

Inverted planetary roller screws use multiple threaded rollers to share load between the screw and nut while converting rotary motion into linear travel, with an inverted architecture intended for compact linear-actuator integration. The principal SKU differences are nominal diameter, lead, thread count, dynamic and static load, efficiency and mounting interface.

CATEGORY SELECTION GUIDE

CATEGORY	CURRENT CATALOG	REVISION / ISSUE
Inverted Planetary Roller Screws	1 Product Platforms / 12 SKUs	R01 2026-09-04

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01 | Category Scope and Objective

Product catalog and suitable use

Item	Category scope
Product catalog	1 Product Platform / 12 SKUs
Suitable use	Inverted planetary roller screw linear mechanisms where load, lead, diameter, efficiency and mounting interfaces must be considered together.

02 | Operating Principle and Typical Applications

Planetary roller screw principle

Multiple threaded rollers share load between the screw and nut while converting rotary motion into linear travel. Nominal diameter, lead, thread count and roller configuration together influence load, speed, efficiency and interface dimensions and must be confirmed for the exact SKU.

Typical applications

Servo pressing and forming axes For pressing or forming mechanisms requiring high axial load, controlled displacement and repetitive cycles.	High-load electric actuators For compact high-thrust linear actuators where lead, load and mechanical interfaces must be matched.	Precision linear positioning For linear axes requiring high stiffness, repeatable positioning and controlled backdriving behavior.
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03 | Application Record Checklist

Record before shortlisting

01	Load and life	Record continuous load, peak load, shock, cycle count, target life and safety factor.
02	Motion requirements	Record stroke, speed, acceleration, lead, rotational speed and duty cycle.
03	Installation envelope	Record nominal diameter, body diameter, overall length, overall height, mounting holes and interface-thread clearance.
04	Driving and backdriving	Record forward efficiency, reverse efficiency, holding requirement and braking strategy.
05	Environment and lubrication	Record temperature, contamination, lubrication, sealing and maintenance conditions.

04 | Product Platform Directory

1 Product Platform

	Inverted Planetary Roller Screw Product Platform 01 12 SKUs	
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05 | Selection Path

Screen in this order

01	Load and life Calculate continuous, peak and shock load and define target life first.
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02	Lead and speed Select candidate lead by linear speed, rotational speed and efficiency.
03	Nominal diameter and envelope Filter nominal diameter and body dimensions by load, stiffness and installation space.
04	Forward and reverse behavior Check forward efficiency, reverse efficiency and holding or braking requirements.
05	Mounting interfaces Confirm mounting-hole pattern, interface thread, overall length and overall height.
06	Exact SKU confirmation Confirm the complete parameter combination on one exact SKU.

06 | Product Platform Parameter Range

Published standard-parameter ranges

Ranges are summarized from standard display values for 149 SKUs. Values are not necessarily combinable and must be confirmed at SKU level.

Product Platform	SKUs	Nominal diameter (mm)	Lead (mm)	Rated dynamic load (kN)	Rated static load (kN)	Forward theoretical efficiency	Reverse theoretical efficiency	Thread count
Inverted Planetary Roller Screw Product Platform 01	12	12 mm / 15 mm / 18 mm / 24 mm	2 mm / 3 mm / 4.5 mm / 6 mm / 6.5 mm / 5 mm / 8 mm / 10 mm	14.7 kN / 16.5 kN / 17.5 kN / 18.5 kN / 19.2 kN / 29 kN / 29.8 kN / 32.2 kN / 38.5 kN / 37 kN / 76.5 kN / 74 kN	23.9 kN / 27 kN / 26.8 kN / 26.3 kN / 26.5 kN / 51.5 kN / 47 kN / 45.8 kN / 66 kN / 71 kN / 120 kN / 112 kN	0.81 / 0.84 / 0.87 / 0.85 / 0.83 / 0.86 / 0.82 / 0.78	0.77 / 0.81 / 0.85 / 0.82 / 0.8 / 0.84 / 0.78 / 0.72	3

07 | Engineering Trade-offs

Lead versus force and speed Larger lead increases travel per revolution but changes required torque, speed and backdriving behavior; calculate the actual operating point.	Load versus life Dynamic load rating supports life calculation, while static load rating addresses static or low-speed high-load conditions; they are not interchangeable.
Efficiency and holding Forward and reverse efficiency affect driving and backdriving behavior; vertical axes need a separate holding and braking assessment.	Envelope and interfaces Nominal diameter, body diameter, overall length, overall height, mounting holes and interface thread must be confirmed as one SKU combination.

08 | SKU Refinement and Integration Checklist

Five-step SKU refinement

Step	Initial filter	Confirm at SKU	Purpose
Size	Nominal diameter / Lead	Body diameter / Overall length / Overall height	Screen load capability and installation envelope.
Load	Rated dynamic load	Rated static load / maximum-roller load	Check life and static safety separately.
Efficiency	Forward theoretical efficiency	Reverse theoretical efficiency	Check drive, backdrive and holding strategy.
Roller configuration	Thread count	Standard / maximum roller configuration	Confirm which configuration the load record describes.
Interfaces	Mounting hole pattern	Interface thread	Confirm mechanical connection to the assembly.

Integration checklist

01	Alignment and support	Confirm screw support, nut mounting, axial alignment and interference over the full travel.
02	Lubrication and environment	Confirm lubricant, replenishment interval, sealing, contamination and operating temperature.
03	Drive and safety	Confirm motor torque, speed, braking, limits and overload protection.
04	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	Confirm exact-SKU ratings, limits, units and operating conditions.
02	Dimensional & Integration Guide	Confirm screw, nut, mounting holes, interface thread, support, lubrication and installation details.
03	2D and controlled 3D resources	Use for interface, travel-envelope and assembly validation.

Final verification statement

Before design freeze, verify the selected SKU against its current Product Datasheet and Dimensional & Integration Guide, including nominal diameter, lead, dynamic and static load, efficiency, thread count, body dimensions, mounting holes, interface thread, support, lubrication, travel and controlled drawing/CAD revision. Values not stated in the standard parameter set must be resolved from controlled engineering documents and must not be inferred from a public SKU code or another Product Platform.