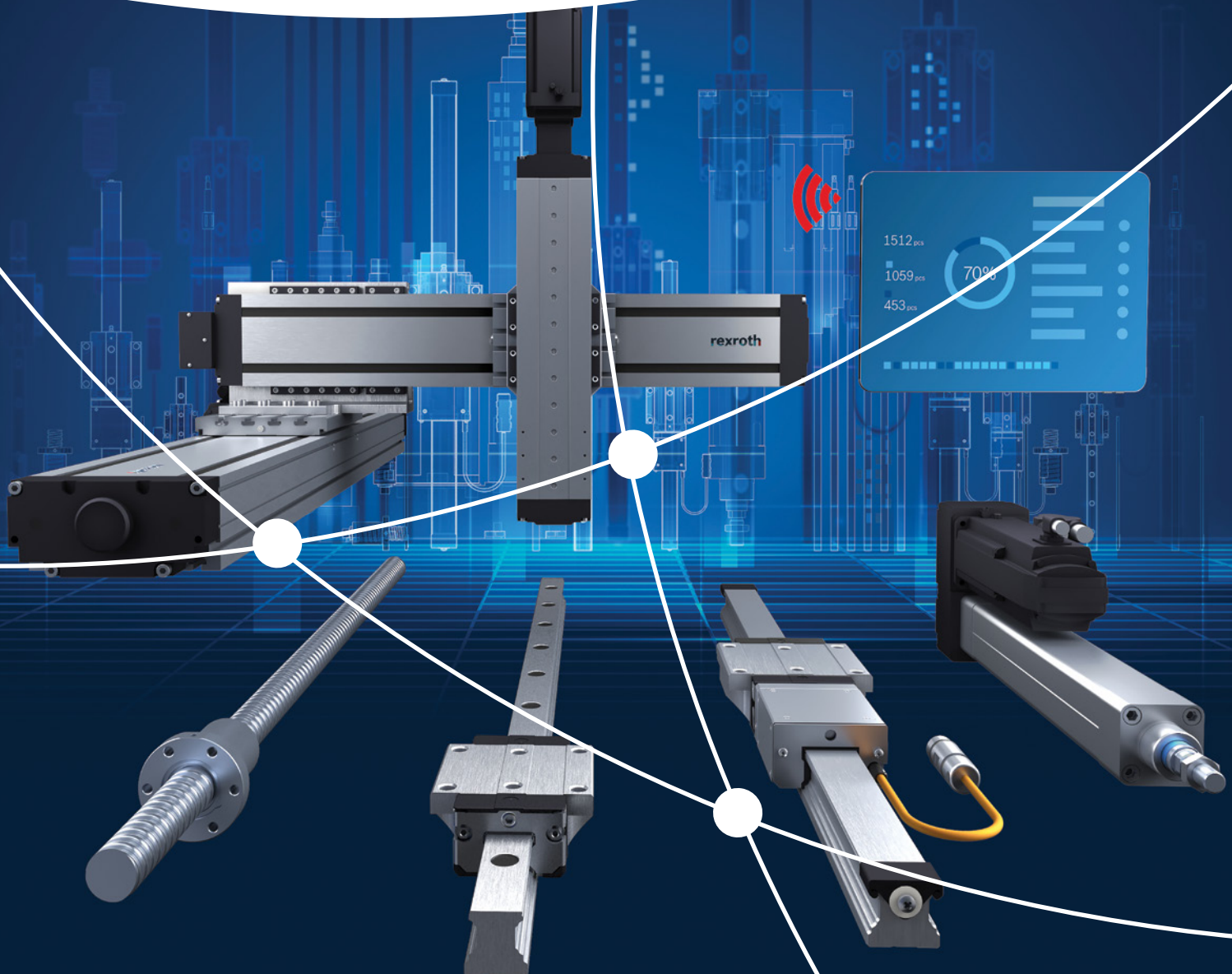
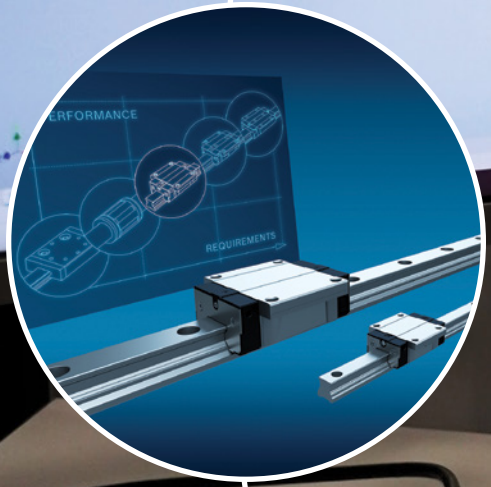
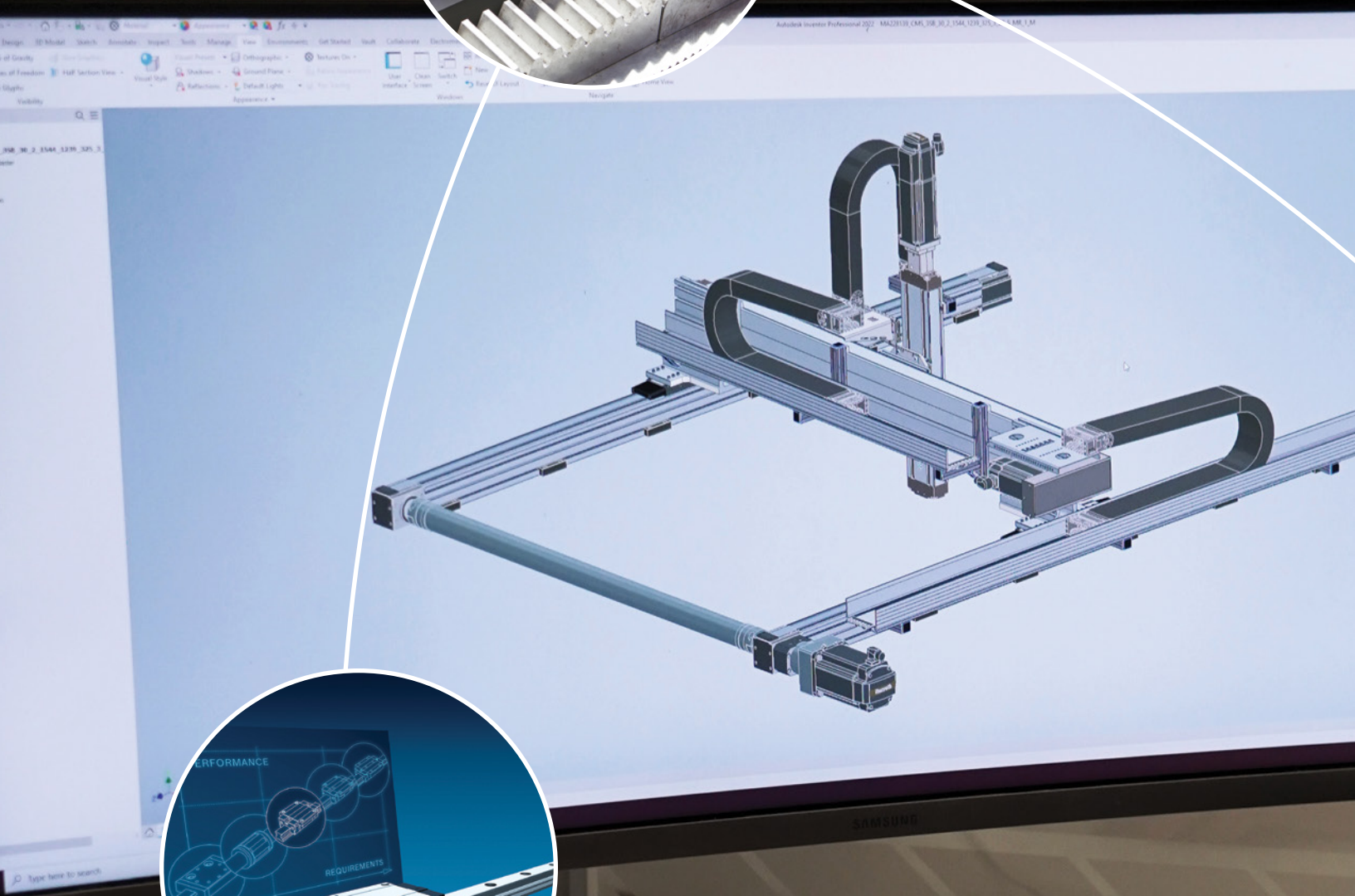


Mechanical Solutions Guide

GUIDED ACTUATORS, PROFILED RAIL BALL SCREWS,
SCREW JACKS, ELECTRIC CYLINDERS, RACK & PINION,
PLANETARY SCREWS, GEARBOXES, & COUPLINGS





Turn TV
Lights ON!!

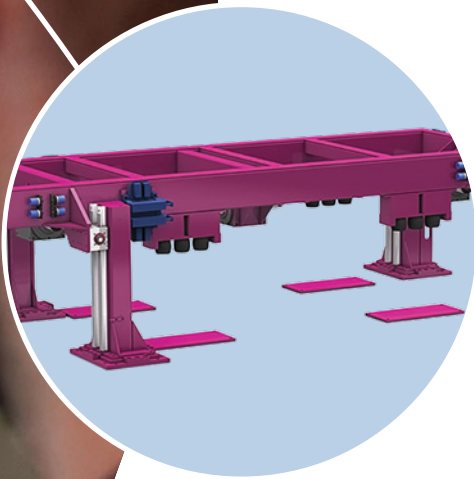
Find Your Right Solutions

We've created this Mechanical Solutions Guide to showcase a wide range of our most popular and versatile products, including linear bearings, gearboxes, ballscrews, and other essential mechanical components. This guide serves as a quick-reference tool to help you identify the right solutions for your applications, making it easier to match performance needs with available options.

To use the guide effectively, browse through the categories to find key specifications, highlights, and product examples that suit your design or engineering requirements. Please note, this is not a complete catalog of all our products: it is a guide intended to give you a solid overview of our capabilities. For more specialized or extensive offerings, we encourage you to contact us directly or visit our website online.

Explore the Comprehensive Guide

Call 866-644-8622 or visit evolutionmotion.com



Solving Your Motion Control Challenges with Ingenuity

Evolution Motion Solutions is a leading engineering partner, systems integrator, and value-added distributor of advanced hydraulic, electromechanical, pneumatic, and automation technologies.

For over 80 years, our innovative solutions have been built on a foundation of technical excellence and industry-leading components designed for factory automation, heavy industrial, and mobile/off-highway applications. We may not manufacture our customers' systems and machines, but we do help them run more efficiently and reliably by optimizing production time and enhancing performance.

More than a Distributor (ESV)



We function as an extension of your engineering team. By delivering tailored solutions that address your specific needs, whether concept engineering, system expertise, or R&D, we ensure success and innovation at every step.

- Application Engineering
- Custom Products & Solutions Designs
- 3D Modeling & FEA Analysis
- Application & Technical Support
- Product & Machine Expertise
- Research & Development
- Product Launch Support



Our engineering expertise extends to integrating new and legacy systems, optimizing them for improved performance, reliability, and longevity by delivering application assistance, subsystem aggregates, and complete system solutions.

- Application Assistance
- Configured Assemblies
- Product Sizing & Selection
- Integrated Products
- Custom System Design & Manufacturing
- Subsystem Aggregates
- Complete System Solutions



We go beyond traditional distribution by offering value-added services such as 24/7 support, product kitting, and inventory management. We provide high-quality components and solutions that meet your needs—every time.

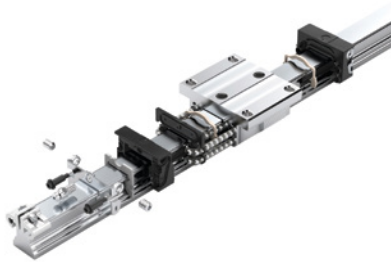
- 24/7 Support
- Customer Service
- Factory Trained Repair Technicians
- Inventory Management
- Configured Assemblies
- Product Kitting
- Product Support
- Service Technicians
- Training
- Advanced Product Training

Linear Motion Solutions



Ball Rails & Blocks

Bosch Rexroth's ball rail systems are designed for machine tool automation, linear motion, and tool manufacturing. These high-performance ball rails feature long service life and are made in plain carbon steel with corrosion-resistant options for harsh conditions. The runner blocks feature excellent static and dynamic loading characteristics and minimal lubrication requirements. All four main loading directions have the same high load ratings.



- Maximum system rigidity due to evenly spaced rolling elements in an O-arrangement
- Excellent dynamic characteristics
- Travel speed: v_{max} up to 10 m/s (32.8 ft/s)
- Acceleration: $a_{max} = 500 \text{ m/s}^2$ (1,640.42 ft/s²)
- Limitless interchangeability
- Lube for Life over several operational kilometers
- Minimum quantity lubrication system with an integrated reservoir for oil lubrication

Lubed for Life

The 20 Million Meter Relubrication Interval allows minimal lubrication consumption due to an integrated slow-release reservoir. Rolling elements are wiped with lubricant every pass.

Ball Rail System Compact Line

The Bosch Rexroth BSCL ball rail and runner blocks offer an economical, compact solution for automation and handling tasks that don't require the ultra-precision of traditional linear guides. Evolution Motion Solutions stocks the BSCL in sizes 15, 25, 35, and 45, available cut-to-size and shipped fast with 2-week standard delivery and 5-day and 2-day delivery options available.

- Max speed: 5 m/s
- Max acceleration: 500 m/s^2
- Lubrication intervals up to 5,000 km
- Lightweight design with smaller rolling elements
- Sealing concept to protect against chips and debris



HP Technology

In bearing runner blocks, each individual bearing transitions from an unloaded to a loaded state, gradually reaching a full load through the optimized bearing raceway design. The extended steel segments act as a leaf spring to dampen the forces generated as the rolling element goes from a loaded to an unloaded state.



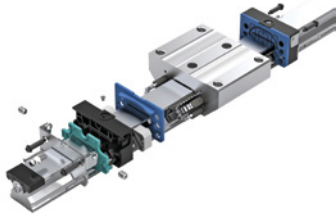
Mini Rails & Blocks

The miniature guide units have the same load ratings in all four high load directions thanks to a design that allows the largest possible ball sizes. A cover strip made of stainless steel to close the rail mounting holes is available. The mini rails and blocks are available in carbon steel and corrosion-resistant materials.

- Speeds of up to 5 m/s (16.4 ft/s)
- Acceleration ranges from $a_{max} = 50 \text{ m/s}^2$ (164.04 ft/s²) to $a_{max} = 250 \text{ m/s}^2$ (820.21 ft/s²)
- Load capacities of up to 7,900 N
- Low friction

Roller Rails & Blocks

Bosch Rexroth roller rail systems are designed for machine tools, industrial robots, and automation motion requirements, which require compact, high load applications in various accuracy classes. All four main loading directions have the same high load ratings. Cover strips and protective caps are available.



- Maximum system rigidity due to preloaded O-arrangement
- Excellent dynamic characteristics
- Travel speed: $v_{max} = 1 - 4 \text{ m/s}$ (3.28 - 13.13 ft/s)
- Acceleration: $a_{max} = 150 \text{ m/s}^2$ (492.13 ft/s²)
- Lubrication system with an internal reservoir for oil lubrication
- Lube fittings with metal threads on all sides

Linear Bushings & Round Shafting

Bosch Rexroth round shaft and bushing combinations run smoothly and quietly. They're offered in a wide range of standard bearing houses, mountings, seals, shaft supports, and end finishes. Variations include closed or open, with or without retaining rings, flanged or flangeless, and solid or tubular shafts. The shafts are available in corrosion-resistant materials with options for induction-hardened, heat-treated, stainless, or hard chrome-plated steel.



- High travel speeds of up to 5 m/s (16.4 ft/s)
- Acceleration up to $a_{max} = 150 \text{ m/s}^2$ (492.13 ft/s²)
- Rugged all-metal design with steel ball retainer for harsh environments and heavy contamination
- Linear sets with cast iron, steel, & aluminum housing for mounting

Ball Rail and Runner Block Stocking Program

Evolution's exclusive stocking program keeps Bosch Rexroth profiled ball rail and runner blocks in stock - available cut-to-size and shipped fast. Two-week standard delivery and 5-day and 2-day shipping options available. Mounting holes on flanged bearings can be used with taps or as through holes. These rails feature a high level of rigidity in all directions, a 20 million meter relubrication interval with eight lubrication points, dual ground reference edges on the guide rail, and high dynamic load capacities for longer bearing life.

- Custom-length rails to the mm
- Custom-cut T1 & T2 dimensions
- Travel speed: v_{max} up to 10 m/s (32.8 ft/s)
- Acceleration: $a_{max} = 500 \text{ m/s}^2$ (1,640.42 ft/s²)
- Common bearing blocks available as flanged, slimline, wide flanged, & wide slim
- Common guide rails available as top mount, bottom mount, & top mount wide rail



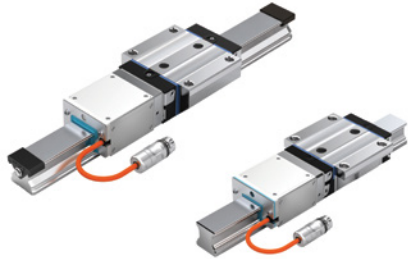
In Stock. Shipped Fast. Competitively. Priced.



SIZE	RAIL PART NO.	T	PRELOAD	FLANGED CARRIAGE PART NO.	SLIMLINE CARRIAGE PART NO.
15	1605-104-31	60	2%	1651-114-20	1622-114-20
20	1605-804-31	60	0%	1651-894-20	1622-894-20
25	1605-204-31	60	0%	1651-294-20	1622-294-20
			2%	1651-214-20	1622-214-20
30	1605-704-31	80	0%	1651-794-20	N/A
			2%	1651-714-20	1622-714-20
35	1605-304-31	80	0%	1651-394-20	N/A
			2%	1651-314-20	1622-314-20
45	1605-404-31	105	0%	1651-494-20	N/A
			2%	1651-414-20	N/A

Bosch Rexroth IMS

The Bosch Rexroth IMS is a completely integrated inductive linear measuring system. It features a scanner, a scale, reference marks, and an absolute code band. The contact-free scanner ensures zero maintenance. Available in ball and roller bearing options. Scanner head is available in both incremental and absolute encoder types.



- Reader resolution in 1, 5, & 10 μm
- Repeatability: $\pm 0.25 \mu\text{m}$
- Resistant to water, oil, dust, & shavings
- One-piece guide rails: standard length up to 4,500 mm (177.17 in)
- Ball travel speed: v_{max} up to 5 m/s ball bearing (16.4 ft/s)
- Roller travel speed: v_{max} up to 4 m/s (13.13 ft/s)
- Ball acceleration: $a_{\text{max}} = 500 \text{ m/s}^2$ (1,640.42 ft/s²)
- Roller acceleration: $a_{\text{max}} = 150 \text{ m/s}^2$ (492.13 ft/s²)

Bosch Rexroth IMSCompact

The Bosch Rexroth IMSCompact is an integrated magnetic measuring system for linear position measurement systems. It's suited for drive-integrated safety technology and simplified assembly. The IMSCompact supplements the highly precise IMS inductive measuring system in automation technology, plastic processes, metal sheet processing, linear direct drive technology, and general machinery.



- Travel speed: v_{max} 5 m/s (16.4 ft/s)
- Acceleration: a_{max} 500 m/s^2 (1,640.42 ft/s²)
- Repeatability: $\pm 1 \mu\text{m}$
- System accuracy: $\pm 20 \mu\text{m/m}$
- Sizes 15, 20, & 25 in six runner block designs
- Max measuring length up to 17.8 m (58.4 ft) across rail joints

eConfigurators and Tools



Runner Blocks with
Integrated Measuring
Systems IMS



Guide Rails with
Integrated Measuring
System IMS



Runner Blocks with
Integrated Measuring
System IMScompact



Guide Rails with
Integrated Measuring
System IMScompact

Moving Technology



Precision Ball Screw Assemblies

Bosch Rexroth ball screw assemblies provide design engineers with solutions for positive linear and positioning tasks. This assembly unit consists of a ball screw shaft and a ball nut that convert rotating motion into a linear motion and vice versa. There is a complete line of ball screw diameters, lead combinations, ball nuts, and end bearings for flexible design. The precision ball screws have an exceptionally long life without relubrication.



- Diameter sizes in mm: 6, 8, 12, 16, 20, 25, 32, 40, 50, 63, 80
- Leads, depending on size: 1, 2, 2.5, 5, 10, 12, 16, 20, 25, 30, 32, 40, 64
- Max speeds & velocities dependent on size
- Max length dependent on sizes up to 1,500 mm (59.05 in), 2,500 mm (98.42 in), & 4,500 mm (177.17 in)
- Front lube unit available for some sizes

eConfigurators and Tools



Ball Screw
Assemblies BASA



Planetary Screw
Assemblies PLSA

Linear PLSA Planetary Roller Screw

Planetary screw assemblies are drive technology designed to transmit high forces. Threaded rollers are housed in a nut with the ends installed in discs arranged equally around a pitch circle. They rotate synchronized axially and parallel to the special threaded screw, causing the nut to move linearly along the screw.



- Diameter sizes in mm: 20, 25, 30, 39, 48, 60, 75
- Leads, depending on size: 5, 10, 20
- Accuracy 1-2 μm depending on tolerance grade selected
- High load ratings, power density, positioning accuracy, & repeatability
- Longer service life



Acme Screw

Joyce acme screws are available in various screw leads from 0.1 to 1.0 inches (2.54 to 25.4 mm) and diameters ranging from 0.5 to 6.0 inches (12.7 to 152.4 mm). Bronze nuts and steel flanges for each size, custom end machining, right- and left-handed screws, and carbon steel and corrosion-resistant constructions are available.

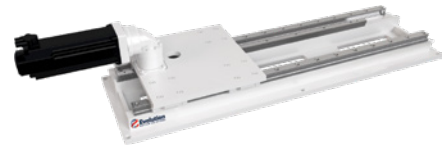
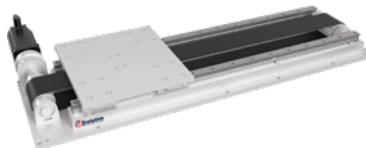


- Heavy lift applications
- Translating design, keyed design, & traveling nut design options available
- Ball screw & machine acme screw options
- Screw jack assemblies with both spur gear & worm gear options
- Metric & inch versions available



Engineered Linear Modules

Evolution's engineered linear modules are a pre-engineered linear motion solution for heavy loads and/or high speeds. This solution readily adapts to your desired specifications and utilizes durable, high-quality components. These modules are available in various drive options for many configurations. When you submit your specs for this linear motion solution, our team of experts designs the best-fit drive, whether belt, ball, or rack and pinion. Get the best accuracy, repeatability, speed, and acceleration possible with our engineered linear modules.



Applications

- Robot transfer units
- Electric battery manufacturing
- Gantry systems

Industries

- Fast-moving consumer goods
- Raw materials
- Industrial components



Expertly Designed

All engineered linear module designs are made with durable and high-quality components. Our team of linear motion experts quickly and efficiently design customer modules based on specs, drive options, and mounting configurations.

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evolutionmotion.com

Dynamics Rack & Pinion

Apex Dynamics precision rack and pinions are ideal for various automation applications. Rack and pinion systems have longer travel and higher force capability without adding inertia. Highly accurate systems for machine tools and measurement systems can be engineered with rack and pinion.

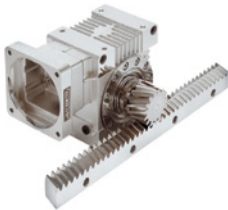


- Helical & straight tooth designs available
- Module no. available: 1, 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10, 12
- Quality classes available: 4, 5H, 5, 6, 6M, 8H, 8, 9, 10
- Available in carbon steel & corrosion-resistant materials



Precision Rack & Pinion Drive Systems

ATLANTA Drive Systems offer a complete range of rack and pinion drive systems. These systems are available in five levels of precision to meet any axis drive requirement. They utilize a wide range of standard rack and pinions with quality levels from DIN 4 to DIN 10 and servo reducers available as in-line and right-angle versions that fit into most designs.



- Helical & straight tooth designs available
- Five levels of system precision: ultra-high, high, medium, medium-soft, & low
- Drive force capacity up to 12,712 kg (28,000 lbf), dependent on size
- Linear speed up to 251.5 mm/min (9.9 in/min), dependent on size
- Planetary & right-angle bevel gearboxes
- Carbon steel & corrosion-resistant options available



Roller Pinion/Rack System

Nexen Roller Pinion System (RPS) starts with a pinion consisting of bearing-supported rollers that engage a unique tooth profile. Two or more rollers engage the teeth in opposition at all times to eliminate backlash. The pinion rollers glide effortlessly along a tangent path and roll smoothly down the tooth face for quiet, low-friction, zero-backlash operation. Carbon steel and corrosion options are available.



- Thrust force of all rack types ranges from 250 to 10,500 N
- Speeds of up to 11 m/s (36.09 ft/s)
- Accuracy: $\pm 30 \mu\text{m}$
- Rated life of up to 30 million contacts
- Unlimited length possible

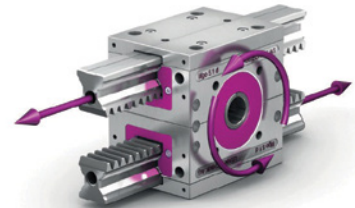
LIFGO, LIFGO LINEAR, & LIFGO DOUBLE



LIFGO



LIFGO LINEAR



LIFGO DOUBLE

Lifgo is a gear rack drive with integrated roller bearings that convert motion into linear motion. It's suited for high forces and exact positioning. These racks perform with exceptional precision while meeting high-speed demands and maintaining synchronization and extended travel applications.

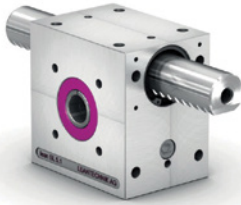
Lifgo Linear can be built on the mounting location of the rack or drive. The rack moves freely. Additional racks can be attached to attain the required length for extended travel requirements.

Lifgo Double drives two racks by the same pinion shaft in opposite directions. This application best functions as grippers or clamping devices.

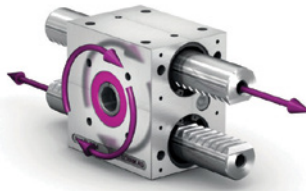
- Helical & straight tooth designs available
- Four pinion shaft options: through hole, male single (RH/LH), & double input shaft
- Speeds up to 3 m/s (9.84 ft/s)
- Acceleration up to 50 m/s² (164.04 ft/s²)
- Lifting power up to 25,000 N, dependent on size



LEAN SL ROUND SHAFT & LEAN SL DOUBLE



LEAN SL



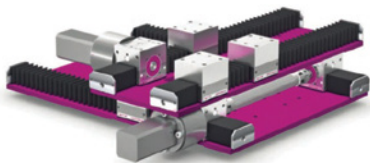
LEAN SL DOUBLE

Lean SL gearbox rack drives are especially suitable for synchronized lifting movements in which cross forces and loads are not present. These gearbox rack drives are available in four sizes, which allows the flexibility to use fewer accessories during the development of applications.

Lean SL double is a gear rack drive for clamping and positioning. It has two racks driven by the same pinion shaft that moves them in opposing directions. The racks glide in bushings and transfer pulling tension and pressure, but transverse forces are impossible. Lean SL double is available in four sizes with four pinion shaft options.

- Four pinion shaft options: through hole, male single (RH/LH), & double input shaft
- Speeds up to 0.6 m/s (1.97 ft/s)
- Acceleration up to 30 m/s² (98.43 ft/s²)
- Lifting power up to 25,000 N, dependent on size

CUSTOM MULTI-AXIS POSITIONING



Leantechnik vertical 2-axis position table is suited for high payloads with fast travel speeds. The 3-axis positioning system provides flexible movement where components are picked up and clamped at the upper end of the Z-axis.

LEANTECHNIK ACCESSORIES

- Guide cars provide guidance and support. They fit on guide rails and gear rack rails within a size category.
- Compensation blocks are spacers that ensure the guide cars and gearboxes are mounted on the same plane.
- Bellows protect the surfaces of the gear racks and bearings.
- Differential couplings are adjustable tie rods. They're installed horizontally or vertically as a connector between two gear racks.
- SHB safety brakes use the failsafe principle. Pre-tensioned cup springs press brake shoes onto the "waist" of the profile rail. The brake mechanism is designed for a relatively large stroke and balances the profile rail manufacturing tolerances without losing braking force.
- The mechanical arrest system (ASS) is a mechanism mounted on the gearbox to prevent uncontrolled motion in the event of a power supply failure.
- Profile shafts provide rotationally rigid connections between several gearboxes (PW version). They are inserted through the pinion shafts of the gearboxes. The profile shaft ensures the synchronicity and alignment of the pinions of connected gearboxes.

SPEEDY RAIL

The Rollon polyamide-coated Speedy Rail is a lightweight, self-supporting linear guide composed of extruded anodized aluminum and steel rollers coated with a plastic compound designed for long-stroke and high-speed applications. The deep, hard anodized surface treatment allows for a long lifespan, and no lubrication or maintenance is needed, ensuring optimal efficiency in dirty or harsh environments. Not only is the Speedy Rail lightweight, quiet, and reliable, but it acts as a beam, allowing it to withstand bending and torsional stresses. This linear guide has high self-alignment properties due to a pivot system with axial clearance mounted on the roller carriages. The bending of the guide rail absorbs the angular distortion.



- Sizes: 35 mm to 250 mm
- Compensation for misalignments up to 8 mm for a configuration of two axes mounted in parallel
- Easy finger-jointing of the rails for the realization of unlimited lengths

O-RAIL

The Rollon O-Rail is a linear guide designed for smooth and silent movement and features a shape with three raceways arranged at 90° angles. The O-Rail is available in various configurations and mounting combinations with other linear guides for handling and automation applications.



- Size: 43 mm
- Accommodates misalignment of up to ± 1 mm axially and 5° rotationally
- Suitable for installation on unmachined surfaces with misalignment compensation up to $\pm 5^\circ$ in rotation and ± 1 mm in axial
- Easy mounting on aluminum or welded structures

MINIROLLER RAIL

The Rollon MiniRoller Rail is a compact linear guide engineered for space-saving applications that demand smooth, silent operation. Its cold-drawn carbon steel profile features induction-hardened and honed raceways, providing durability and precision. The design is both adaptive and customizable, with corrosion-resistant surfaces and sliders equipped with four rollers arranged in pairs. Large rollers enhance performance by resisting dirt and reducing maintenance needs, making it a low-maintenance alternative to recirculating ball systems.



- Max slider operating speed on the rail: 3 m/s
- Max acceleration: 5 m/s²
- Sizes: up to 1950 mm
- Rollers are lubricated for life
- Roller seal/shield: standard 2Z (steel cover disk), 2RS (splash-proof)
- Maximum parallelism deviation: 0.03 mm

V-LINE

The Rollon V-Line is a v-shaped guide with hardened raceways and v-shaped ball bearings that allow high-duty cycle performance even under heavy load capacities. These cold-drawn guide rails with induction-hardened and ground raceways ensure accuracy, performance, and longevity. Sliders are equipped with either ball or tapered roller bearings, enabling high performance even under heavy loads. Their design makes them ideal for dirty environments.



- Sizes: 19 mm to 72 mm
- Available with an integrated rack and pinion

Curved Guides

Rollon curved guides are engineered for applications requiring precision and efficiency in non-linear movements. The curved guides are equipped with ball or roller bearings and provide exceptional durability thanks to hardened raceways, which resist wear and reduce maintenance, ensuring a long product life. The curved guides are available in configurations with either constant or variable radii. Designed to handle heavy loads, they are the ideal solution in various applications where handling heavy loads is a key point. They are reliable even in the most demanding environments, maintaining flawless operation even with dirt and debris.



MULTI-MOTION LINE

The Rollon Multi-Motion Line is a steel rail system featuring induction-hardened raceways joined together with alignment blocks to create a complete circumference, single sectors, or oval and ring circuits. Sliders for circular rails can be configured with V-shaped guide rollers, either fixed in place or mounted on steering arms. The studs of these steering sliders are fitted with needle bearings and seals to retain lubricant and offer protection.

CLT

The Rollon CLT is a highly customizable rail, allowing various circuit configurations with different radii and straight sections. The CLT is capable of high speeds and high acceleration gradients, making it suitable for dynamic applications. It's also designed for reliability in dirty environments, with optional wipers for clean raceways.

CURVILINE

The Rollon Curviline roller guide is available with hardened raceways for long life span and stainless steel for corrosion resistance as well as both constant and variable radius options to meet a wide range of application needs. The slider features ball bearing rollers that are lubricated for life and maintain the desired preload throughout the entire layout, even in cases of complex movement.

Belt Drive Modules

CKR

The Bosch Rexroth CKR is available in five sizes based on a compact precision aluminum profile with two ball rail systems. The CKR has a pre-tensioned tooth belt and belt guides to protect inner components. Extensive accessories for connection and clamping are available. Ready-to-install compact modules are available in any length up to 10,000 mm (393.7 in) Lmax.



- Aluminum adapter plates available in different lengths
- Repeatability of up to ± 0.05 mm (0.001 in)
- Speeds up to 5 m/s (16.4 ft/s), dependent on size
- Acceleration up to 50 m/s^2 (164.04 ft/s²)
- Load rating up to 121,185 N, dependent on size

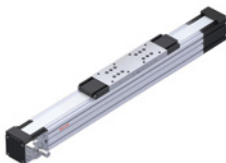
eConfigurators and Tools



Compact Modules
CKK / CKR

MKR

The Bosch Rexroth MKR is a ready-to-install belt drive linear module with an integrated belt tensioning system. It can be sealed by an optional corrosion-resistant steel strip. Integrated ball rail systems provide optimized travel performances, high load capacities, and high rigidity. The five available profile widths range from 40 to 140 mm (1.57 to 5.51 in).



- Travel speeds up to 10 m/s (32.8 ft/s)
- Acceleration up to 50 m/s^2 (164.04 ft/s²)
- Overall lengths up to 9,800 mm usable stroke
- Repeatability of up to ± 0.005 mm (0.0002 in)
- Dynamic load capacity up to 68,200 N

Servo

ACCUDRIVE SERIES W

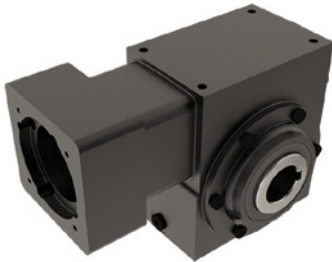
The Accudrive Series W is a high-precision gearbox best suited for demanding motion control applications. Featuring a double-enveloping worm gear set, this gearbox is available in standard, low, and zero backlash versions. The Series W has ingress protection IP65.



- Center distance: 38, 51, 64, 76, 89 mm (1.5, 2.0, 2.5, 3.0, 3.5 in)
- Output torque up to 880 Nm (7,800 lb in)
- Gear ratios from 5:1 to 60:1
- Custom ratios available
- Input options: solid shaft, universal mounting, NEMA, & servo motor interfaces, available in both inch & metric
- Output shaft options: solid, hollow shaft, shrink disc, & end mount, available in both inch & metric

ACCUDRIVE SERIES RG

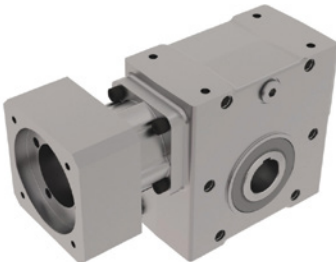
The Accudrive Series RG gearbox is a compact, right-angle precision drive featuring double-enveloping worm technology. This gearbox is a solution for general automation applications, available in standard and low backlash versions. The Series RG has ingress protection IP65.



- Center distance: 38, 51, 64, 76, 89 mm (1.5, 2.0, 2.5, 3.0, 3.5 in)
- Output torque up to 880 Nm (7,800 lb in)
- Gear ratios from 5:1 to 60:1
- Custom ratios available
- Input options: solid shaft, universal mounting, NEMA, & servo motor interfaces, available in both inch & metric
- Output shaft options: solid, hollow shaft, shrink disc, & end mount, available in both inch & metric

ACCUDRIVE SERIES S

The Accudrive Series S is a flexible general-purpose servo-rated gearhead. It's best suited for packaging and general automation due to flexible output shaft configurations: hollow, solid, left, right, and double extended.



- Center distance: 33.78, 39.12, 50.04, 60.45, 76.2, 89.92 mm (1.33, 1.54, 1.97, 2.38, 3.00, 3.54 in)
- Output torque up to 852 Nm (7,541 in lb)
- Gear ratios from 5:1 to 60:1
- Ingress protection: IP55
- Input options: solid shaft, NEMA, & servo motor interfaces
- Backlash options: standard
- Universal mount
- Inch or metric interface

ACCUDRIVE HP SERVO

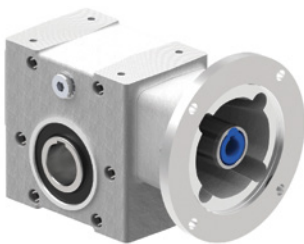
The Accudrive HP servo gearbox is a reducer capable of high torque demands with true double-enveloping worm gear technology.



- Center distance: 76.2, 88.9, 101.6, 127, 152.5, 177.8, 203.2 mm (3.0, 3.5, 4.0, 5.0, 6.0, 7.0, 8.0 in)
- Output torque up to 13,600 Nm (120,374 in lb)
- Gear ratios from 5:1 to 70:1
- Custom ratios available
- Input options: servo interface
- Output shaft options: solid, hollow, & shrink disc
- Backlash options: standard & low
- Inch or metric interface

SERIES B

Series B gearboxes are an economical, flexible, and compact solution for low to medium power requirements. They have a flexible design with lasting performance.



- Center distance: 33.78, 39.12, 44.45, 50.04, 60.45, 66.55, 76.2, 82.55, 89.92 mm (1.33, 1.54, 1.75, 1.97, 2.38, 2.62, 3.00, 3.25, 3.54 in)
- Output torque up to 852 Nm (7,540 in lb)
- Gear ratios from 5:1 to 3600:1
- Ingress protection: IP55
- Input options: solid shaft, NEMA, & IEC motor interfaces
- Output shaft options: solid & hollow
- Backlash options: standard
- Mounting options: universal mount, torque arm, & flange
- Inch or metric interface

DUO DRIVE PINCH ROLL

The Duo Drive Pinch Roll gearbox uses one worm on the power input shaft to turn two gears simultaneously in opposite rotations. The Duo Drive is best suited for applications where high torque is needed to smoothly propel metal through high-pressure mill rollers, like cold-roll forming, tube mills, and wire mills.



- Center distance: 50.8 - 381 mm (2 - 15 in)
- Output torque up to 54,310 Nm (480,646 in lb)
- Gear ratios up to 4,900:1
- Unequal ratio available
- Input options: solid shaft & NEMA interface
- Output shaft options: solid & hollow
- Inch or metric interface

Harmonic Gears

CUP STYLE

Cup style harmonic solutions are suited for high precision and torque density in which the gear extends out from the joint and cables are run externally. Cone Drive harmonic solutions are inline motion control solutions consisting of three main components: wave generator, flexspline, and a circular spline.



- Sizes: 11, 14, 17, 20, 25, 32
- Configurations: component gearset or gearhead, large bore (lightweight), and other options
- Continuous output torque up to 171.9 Nm (1,521 in lb)
- Peak output torque up to 823.9 Nm (7,292 in lb)
- Gear ratios from 50:1 to 160:1
- Ratio offerings are size dependent
- Standard input options: keyed or set screwed, includes Oldham style coupling
- Custom input options: solid input, dowel pins, tapped holes, piloted, stepper/servo motor ready, special materials & coatings

HAT STYLE

Hat style harmonic solutions are suited for high precision and torque density in which cables are passed through the center.



- Sizes: 14, 17, 20, 25, 32
- Configurations: component gearset or gearhead, large bore (lightweight), and other options
- Continuous output torque up to 171.9 Nm (1,521 in lb)
- Peak output torque up to 823.9 Nm (7,292 in lb)
- Gear ratios from 50:1 to 160:1
- Ratio offerings are size dependent
- Standard input options: keyed or set screws
- Custom input options: throughbore, solid input, dowel pins, tapped holes, piloted, stepper/servo motor ready, special materials & coatings

RING STYLE

Ring style harmonic solutions are suited for applications that require axial compactness and cables passed through the gear center.



- Sizes: 14, 17, 20, 25, 32
- Flex spine sizes: single & double input bearing
- Configuration: component set only, no gearhead option
- Continuous output torque up to 136.5 Nm (1,208 in lb)
- Peak output torque up to 329.5 Nm (2,916 in lb)
- Gear ratios from 50:1 to 160:1
- Standard input options: keyed or set screws
- Custom input options: throughbore, solid input, dowel pins, tapped holes, piloted, stepper/servo motor ready, special materials & coatings

CUSTOM HARMONIC SOLUTIONS

Cone Drive harmonic solutions feature a small and powerful actuator package to meet custom design specifications for even the most efficient, torque-dense applications. Custom harmonic actuators are available in both shaft and hollowed shaft orientation.



- Sizes: 11-32
- Reduction ratio from 50:1 up to 160:1, dependent on size
- Motors are compatible with 200/100 VAC & 20-90 VDC
- Torque rating & max average torque: 5.1 Nm to 278 Nm
- Custom options: highly customizable performance specifications & interface design flexibility

Slew Bearings & Drives

SLEW BEARINGS

Slew bearings react to all axial and radial forces and resulting tilting moments for various applications.



- Bearing diameter: 200.66 mm (7.9 in)
- Types: 4-point contact
- Gear tooth options: none, external worm gear teeth, & spur gear teeth
- Corrosion-resistant slew bearings available

Cone Drive Industrial Gearbox Repair & Rebuild

The Cone Drive Service Center specializes in double-enveloping worm gear, helical/bevel industrial, and planetary gearboxes and complete reverse engineering, gearbox rebuilding, gearbox repairing, and inspection services. They can reverse engineer and rebuild just about any gearbox shape, size, and style. Cone Drive uses a state-of-the-art FARO Edge portable CMM to deliver quality results. They can replace other manufacturers' gearing with their Double Enveloping Worm Gear and bring reducers back in service or retrofit reducers and bring them back to life, performing better than ever.

Capabilities

- Videoscope inspection services
- Custom-built gearing
- Gearbox repair and remanufacturing
- Preventative maintenance
- Spare part sales
- Reverse engineering/manufacturing
- Gearbox rebuilds with warranty
- Inspection reports
- Storage maintenance of customer transmission
- Complete run test facility

SERIES S, W & WE SLEW DRIVE



The **S** lightweight open-gearing slewing drive solution is equipped for low-duty cycle, low-speed (< 1 RPM) applications.



The **W** lightweight open-gearing slewing drive solution is equipped for high-duty cycle, medium-speed (< 2.5 RPM) applications.



The **WE** robust enclosed-gearing slewing drive solution is equipped for high-duty cycle, medium-speed (< 2.5 RPM) applications.



- Drive bearing diameter: 7, 9, 12, 4, 17, 21, 25
- Gear ratios from 62:1 to 150:1
- One ratio per size
- Drive style: open, enclosed, & sealed
- Backlash level: precision & standard
- Input style: single or double worm
- Inch or metric interface

SERIES HSE SLEW DRIVE

The HSE Robust enclosed-gearing slewing drive solution is equipped for low-speed (<1 RPM) applications.



- Drive bearing diameter: 9, 14, 25, 25-2
- Gear ratios: 62, 86, 94
- Drive style: open, enclosed, & sealed
- Input style: single or double worm
- Input shaft: keyed quill, spline, solid shaft, & hydraulic motor

SERIES F STAINLESS STEEL SERVO

Thanks to its smooth surface and curved contour, the Series F stainless steel servo gearbox is perfect for sterile manufacturing environments, such as food processing and pharmaceutical. The Series F is NSF certified and IP69k rated, providing the best protection against contamination ingress.

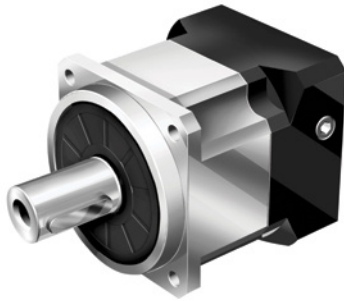


- Sizes: 39, 44, 50, 60, 76
- Standard reduction stages: single
- Output torque up to 721 Nm (6,382 in lb)
- Gear ratios from 5:1 to 60:1
- Custom ratios available
- Input options: servo interface
- Output shaft options: solid, hollow, & shrink disc
- Backlash options: standard & low
- Mounting options: universal mount & output flange
- Inch or metric interface

Dynamics Servo Gears

AB-SERIES

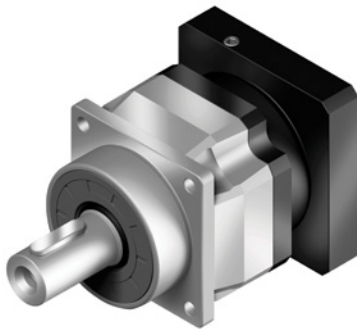
The AB-Series high-precision planetary gearbox is powerful, precise, robust, quiet, and fast, making it suitable for all servo applications. Straddle-mounted high-precision bearings provide the capability for high radial and axial loads. It features low noise, easy mounting, and a compact structure.



- Output torque: 14 Nm - 2,000 Nm
- Ratios
 - 1 stage: 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10
 - 2 stage: 12 / 15 / 16 / 20 / 25 / 28 / 30 / 32 / 35 / 40 / 45 / 50 / 60 / 70 / 80 / 90 / 100
- Low backlash
 - 1 stage: ≤ 1 arcmin / ≤ 3 arcmin / ≤ 5 arcmin
 - 2 stage: ≤ 3 arcmin / ≤ 5 arcmin / ≤ 7 arcmin
- High efficiency
 - 1 stage: $\geq 97\%$
 - 2 stage: $\geq 94\%$
- AB042 / AB060 / AB060A / AB090 / AB090A / AB115 / AB142 / AB180 / AB220

AF-SERIES

The AF-Series high-precision planetary gearbox has high torque with taper and quiet operation due to optimized helical gearing. It features low noise, easy mounting, and a compact structure.



- Output torque: 14 Nm - 2,000 Nm
- Ratios
 - 1 stage: 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10
 - 2 stage: 12 / 15 / 16 / 20 / 25 / 28 / 30 / 32 / 35 / 40 / 45 / 50 / 60 / 70 / 80 / 90 / 100
- Low backlash
 - 1 stage: ≤ 1 arcmin / ≤ 3 arcmin / ≤ 5 arcmin
 - 2 stage: ≤ 3 arcmin / ≤ 5 arcmin / ≤ 7 arcmin
- High efficiency
 - 1 stage: $\geq 97\%$
 - 2 stage: $\geq 94\%$
- AF042 / AF060 / AF060A / AF090 / AF090A / AF115 / AF142 / AF180 / AF220

AE-SERIES

The AE-Series high-precision planetary gearbox is a cylindrical helical stainless steel gearbox. It features low noise, easy mounting, and a compact structure.



- Output torque: 14 Nm - 2,000 Nm
- Ratios
 - 1 stage: 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10
 - 2 stage: 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 60 / 70 / 80 / 90 / 100
- Low backlash
 - 1 stage: ≤ 8 arcmin
 - 2 stage: ≤ 12 arcmin
- High efficiency
 - 1 stage: $\geq 97\%$
 - 2 stage: $\geq 94\%$
- AE042 / AE060 / AE060A / AE090 / AE090A / AE115 / AE142 / AE180 / AE220

ABR-SERIES

The ABR-Series high-precision planetary gearbox features a 90° input with a helical bevel gear. It has a short, light, rigid housing and full compatibility with standard motor adapters. It features low noise and easy mounting.



- Output torque: 9 Nm - 2,000 Nm
- Ratios
 - 1 stage: 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 14 / 20
 - 2 stage: 12 / 15 / 16 / 20 / 25 / 28 / 30 / 32 / 35 / 40 / 45 / 48 / 50 / 60 / 64 / 70 / 80 / 90 / 100 / 120 / 140 / 160 / 180 / 200
- Only ABR042 2-stage offers 15, 20 option
- Low backlash
 - 1 stage: ≤ 2 arcmin / ≤ 4 arcmin / ≤ 6 arcmin
 - 2 stage: ≤ 4 arcmin / ≤ 7 arcmin / ≤ 9 arcmin
- High efficiency
 - 1 stage: $\geq 95\%$
 - 2 stage: $\geq 92\%$

AFR-SERIES

The AFR-Series high-precision planetary gearbox features a 90° input with a helical bevel gear. It has a short, light, rigid housing and full compatibility with standard motor adapters. It features low noise and easy mounting.



- Output torque: 9 Nm - 2,000 Nm
- Ratios
 - 1 stage: 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 14 / 20
 - 2 stage: 12 / 15 / 16 / 20 / 25 / 28 / 30 / 32 / 35 / 40 / 45 / 48 / 50 / 60 / 64 / 70 / 80 / 90 / 100 / 120 / 140 / 160 / 180 / 200
- Only AFR042 2-stage offers 15, 20 option
- Low backlash
 - 1 stage: ≤ 2 arcmin / ≤ 4 arcmin / ≤ 6 arcmin
 - 2 stage: ≤ 4 arcmin / ≤ 7 arcmin / ≤ 9 arcmin
- High efficiency
 - 1 stage: $\geq 95\%$
 - 2 stage: $\geq 92\%$

AER-SERIES

The AER-Series high-precision planetary gearbox is a cylindrical helical stainless steel gearbox. It features low noise, easy mounting, and a compact structure.



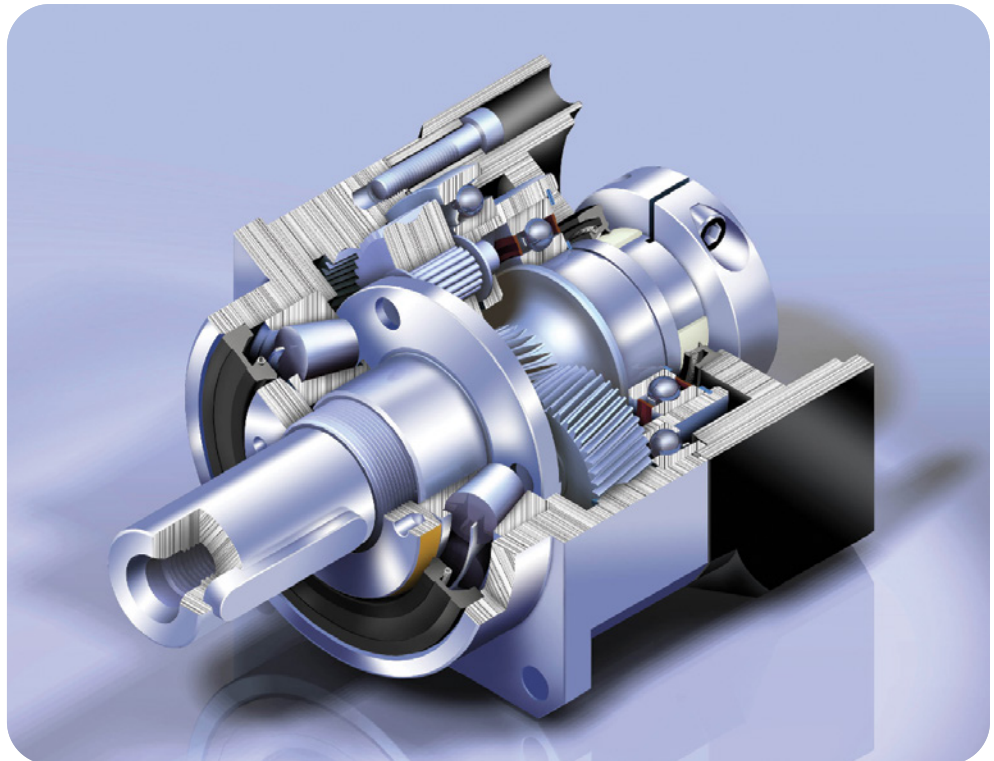
- Output torque: 9 Nm - 2,000 Nm
- Ratios
 - 1 stage: 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 14 / 20
 - 2 stage: 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 60 / 70 / 80 / 90 / 100 / 120 / 140 / 160 / 180 / 200
- Low backlash
 - 1 stage: ≤ 10 arcmin
 - 2 stage: ≤ 14 arcmin
- High efficiency
 - 1 stage: $\geq 95\%$
 - 2 stage: $\geq 92\%$

ADR-SERIES

The ADR-Series high-precision planetary gearbox has a 90° input with a helical bevel gear. It has a short, light, rigid housing and full compatibility with standard motor adapters. It features low noise, easy mounting, and a compact structure.



- Output torque: 14 Nm - 2,000 Nm
- Ratios
 - 1 stage: 4 / 5 / 7 / 10 / 14 / 20
 - 2 stage: 20 / 25 / 35 / 40 / 50 / 70 / 100 / 140 / 200
- Only ADR047 2-stage offers 20 option
- Low backlash
 - 1 stage: ≤ 2 arcmin / ≤ 4 arcmin / ≤ 6 arcmin
 - 2 stage: ≤ 4 arcmin / ≤ 7 arcmin / ≤ 9 arcmin
- High efficiency
 - 1 stage: $\geq 95\%$
 - 2 stage: $\geq 92\%$



Dynamics Spur Gears

PEII-SERIES

The PEII-Series is designed and optimized for high accuracy, low weight, short length, and great motor mounting versatility. It features laser-welded pinions for high-concentricity, two-part assemblies, low noise, easy mounting, and a compact structure.



- Output torque: 9 Nm - 423 Nm
- Ratios
 - 1 stage: 3 / 4 / 5 / 7 / 10
 - 2 stage: 15 / 16 / 20 / 25 / 30 / 35 / 40 / 50 / 70 / 100
- Low backlash
 - 1 stage: $\leq 6, 7, \text{ or } 8$ arcmin
 - 2 stage: $\leq 8, 9, \text{ or } 10$ arcmin
- High efficiency
 - 1 stage: $\geq 97\%$
 - 2 stage: $\geq 94\%$

PGII-SERIES

The PGII-Series features an optimized design for high accuracy, low weight, short length, and great motor mounting versatility. It features low noise, easy mounting, and a compact structure.



- Output torque: 4.3 Nm - 178 Nm
- Ratios
 - 1 stage: 3 / 4 / 5 / 7 / 10
 - 2 stage: 15 / 16 / 20 / 25 / 30 / 35 / 40 / 50 / 70 / 100
- Low backlash
 - 1 stage: $\leq 6, 7, \text{ or } 8$ arcmin
 - 2 stage: $\leq 8, 9, \text{ or } 10$ arcmin
- High efficiency
 - 1 stage: $\geq 97\%$
 - 2 stage: $\geq 94\%$

PSII-SERIES

The PSII-Series is designed and optimized for high accuracy, low weight, short length, and great motor mounting versatility. It features laser-welded pinions for high-concentricity, two-part assemblies.



- Output torque: 4.3 Nm - 178 Nm
- Ratios
 - 1 stage: 3 / 4 / 5 / 7 / 9 / 10
 - 2 stage: 15 / 16 / 20 / 25 / 30 / 35 / 40 / 50 / 70 / 81 / 100
- Low backlash
 - 1 stage: $\leq 6, 7, \text{ or } 8$ arcmin
 - 2 stage: $\leq 8, 9, \text{ or } 10$ arcmin
- High efficiency
 - 1 stage: $\geq 97\%$
 - 2 stage: $\geq 94\%$

PD-SERIES

The PD-Series is an economy rotary flange output precision planetary gearbox. It features low noise, easy mounting, and a compact structure.



- Output torque: 10 Nm - 232 Nm
- Ratios
 - 1 stage: 3 / 4 / 5 / 7 / 10
 - 2 stage: 15 / 16 / 20 / 25 / 30 / 35 / 40 / 50 / 70 / 100
- Low backlash
 - 1 stage: $\leq 6-8$ arcmin
 - 2 stage: $\leq 8-10$ arcmin
- High efficiency
 - 1 stage: $\geq 97\%$
 - 2 stage: $\geq 94\%$
- PD053 / PD064 / PD090 / PD110

PEIIR-SERIES

The PEIIR-Series is a high precision right angle planetary gearhead optimized for high accuracy, low weight, short length, and great motor mounting versatility. It features low noise, easy mounting, little friction, smooth operation, and a compact structure.



- Output torque: 16 Nm - 308 Nm
- Ratios
 - 1 stage: 3 / 4 / 5 / 7 / 9 / 10
 - 2 stage: 15 / 16 / 20 / 25 / 30 / 35 / 40 / 50 / 70 / 81 / 100
- Low backlash
 - 1 stage: $\leq 10-12$ arcmin
 - 2 stage: $\leq 12-14$ arcmin
- High efficiency
 - 1 stage: $\geq 97\%$
 - 2 stage: $\geq 94\%$

PNIIR-SERIES

The PNIIR-Series is a right-angle flanged output precision gearbox. It features low noise, easy mounting, and a compact structure.



- Output torque: 16 Nm - 459 Nm
- Ratios
 - 1 stage: 3 / 4 / 5 / 7 / 10
 - 2 stage: 15 / 16 / 20 / 25 / 30 / 35 / 40 / 50 / 70 / 100
- Low backlash
 - 1 stage: $\leq 10\text{-}12$ arcmin
 - 2 stage: $\leq 12\text{-}14$ arcmin
- High efficiency
 - 1 stage: $\geq 93\%$
 - 2 stage: $\geq 90\%$

PDR-SERIES

The PDR-Series is a right angle rotary flange output precision planetary gearbox. It features low noise, easy mounting, and a compact structure.

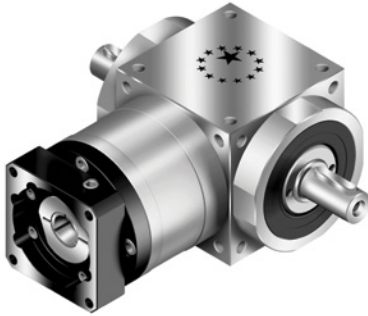


- Output torque: 10 Nm - 232 Nm
- Ratios
 - 1 stage: 3 / 4 / 5 / 7 / 10
 - 2 stage: 15 / 16 / 20 / 25 / 30 / 35 / 40 / 50 / 70 / 100
- Low backlash
 - 1 stage: $\leq 10\text{-}12$ arcmin
 - 2 stage: $\leq 12\text{-}14$ arcmin
- High efficiency
 - 1 stage: $\geq 93\%$
 - 2 stage: $\geq 90\%$
- PDR053 / PDR064 / PDR090 / PDR110

Dynamics Bevel Gears

AT-FL SERIES

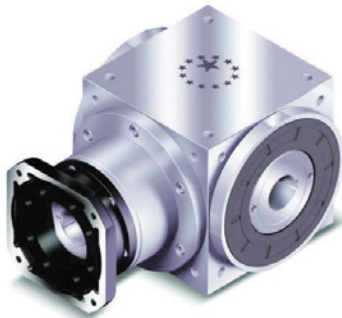
The AT-FL Series is a right-angle spiral bevel gearbox with dual output shafts and a motor flange input configuration. It's best suited for servo applications and power transmission solutions with high radial load capacity and precision requirements. It features low noise, easy mounting, and a compact structure.



- Output torque: 12 Nm - 3,200 Nm
- Ratios
 - 1 stage: 1 / 1.5 / 2 / 3 / 4 / 5
 - 2 stage: 7 / 10 / 15 / 20 / 25 / 35 / 50
 - 3 stage: 75 / 100 / 125 / 150 / 200 / 250 / 350 / 500
- Low backlash
 - 1 stage: ≤ 6 arcmin
 - 2 stage: ≤ 8 arcmin
 - 3 stage: ≤ 10 arcmin
- High efficiency
 - 1 stage: $\geq 98\%$
 - 2 stage: $\geq 94\%$
 - 3 stage: $\geq 94\%$

AT-FH SERIES

The AT-FH Series is a right-angle spiral bevel gearbox with dual output shafts and a motor flange input configuration. It's best suited for servo applications and power transmission solutions. It features low noise, easy mounting, and a compact structure.



- Output torque: 12 Nm - 3,200 Nm
- Ratios
 - 1 stage: 1 / 1.5 / 2 / 3 / 4 / 5
 - 2 stage: 7 / 10 / 15 / 20 / 25 / 35 / 50
 - 3 stage: 75 / 100 / 125 / 150 / 200 / 250 / 350 / 500
- Low backlash
 - 1 stage: ≤ 6 arcmin
 - 2 stage: ≤ 8 arcmin
 - 3 stage: ≤ 10 arcmin
- High efficiency
 - 1 stage: $\geq 98\%$
 - 2 stage: $\geq 94\%$
 - 3 stage: $\geq 94\%$

ATB-FL SERIES

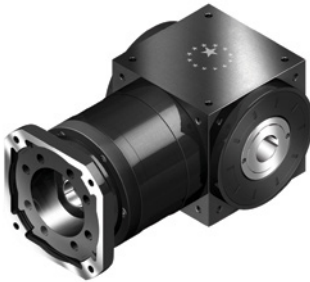
The ATB-FL Series is a spiral bevel gearbox with two output shafts and an input motor adapter. It features a steel output shaft with or without key. It features low noise, easy mounting, and a compact structure.



- Output torque: 12 Nm - 3,200 Nm
- Ratios
 - 1 stage: 1 / 1.5 / 2 / 3 / 4 / 5
 - 2 stage: 7 / 10 / 15 / 20 / 25 / 35 / 50
 - 3 stage: 75 / 100 / 125 / 150 / 200 / 250 / 350 / 500
- Low backlash
 - 1 stage: ≤ 6 arcmin
 - 2 stage: ≤ 8 arcmin
 - 3 stage: ≤ 10 arcmin
- High efficiency
 - 1 stage: $\geq 98\%$
 - 2 stage: $\geq 94\%$
 - 3 stage: $\geq 94\%$

ATB-LH SERIES

The ATB-LH Series is a spiral bevel gearbox with a hollow output shaft with a keyway and an input motor adapter. It features low noise, easy mounting, and a compact structure.



- Output torque: 12 Nm - 3,200 Nm
- Ratios
 - 1 stage: 1 / 1.5 / 2 / 3 / 4 / 5
 - 2 stage: 7 / 10 / 15 / 20 / 25 / 35 / 50
 - 3 stage: 75 / 100 / 125 / 150 / 200 / 250 / 350 / 500
- Low backlash
 - 1 stage: ≤ 6 arcmin
 - 2 stage: ≤ 8 arcmin
 - 3 stage: ≤ 10 arcmin
- High efficiency
 - 1 stage: $\geq 98\%$
 - 2 stage: $\geq 94\%$
 - 3 stage: $\geq 94\%$

Dynamics Hypoid

KF SERIES

The KF-Series has a 90° input via precision ground hypoid gear. It has short, light, rigid housing and full compatibility with standard motor adapters. It features low noise, easy mounting, and a compact structure.



- Output torque: 18 Nm - 1,600 Nm
- Ratios
 - 1 stage: 3 / 4 / 5 / 7 / 10
- Low backlash
 - 1 stage: ≤ 3 arcmin
- High efficiency
 - 1 stage: $\geq 96\%$
- KF060 / KF075 / KF100 / KF140 / KF180 / KF210 / KF240

KH SERIES

The KH-Series high precision right angle gearbox has a 90° input via a hypoid gear set. It has short, light, rigid housing and full compatibility with standard motor adapters. It features low noise, easy mounting, and a compact structure.



- Output torque: 18 Nm - 1,600 Nm
- Ratios
 - 1 stage: 3 / 4 / 5 / 7 / 10
- Low backlash
 - 1 stage: ≤ 3 arcmin
- High efficiency
 - 1 stage: $\geq 96\%$
- KH060 / KH075 / KH100 / KH140 / KH180 / KH210 / KH240



Disc Couplings

Disc servo couplings provide shaft angular and radial misalignment capabilities for mating two shafts together. High torque capability and high rigidity make disc couplings ideal for servo applications. Properly sized couplings eliminate cyclical radial loads caused by misalignment, eliminating support bearing and shaft damage.

Elastomer Coupling

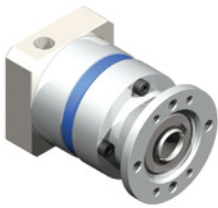
Elastomer servo couplings provide shaft angular and radial misalignment capabilities for mating two shafts together. With five separate elastomer materials, two clamp material options, and multiple connection styles, these couplings can fit almost any application. High torque capability and high rigidity make elastomer couplings ideal for servo applications. Properly sized couplings eliminate cyclical radial loads caused by misalignment, eliminating support bearing and shaft damage.



Gearboxes

EPL-H INLINE GEARBOX

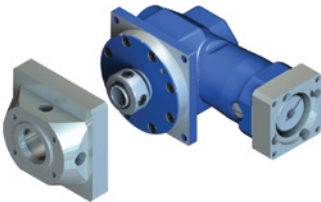
The EPL-H inline gearbox features a hollow output for easy connection between a gearbox and linear actuator. The zero backlash clamping ring design and hollow output are quick, simple, and economical solutions for mounting to any linear belt or ball screw.



- Ratios up to 1000:1
- Frame sizes from 64 to 118 mm (2.5 to 4.65 in)
- NEMA output version with oversized English shaft for improved performance
- Option for larger motor shafts

DL-DC RIGHT ANGLE

The DL-DC right-angle gearbox features a hollow output configuration to mount directly and easily to an actuator. The hollow output shaft uniformly distributes forces to ensure a secure, backlash-free connection with the actuator shaft. It includes an output adapter to mount to any actuator and an input adapter with high-performance couplings to mount to any servo motor.



- Ratios
 - 1 stage: up to 15:1
 - 2 stage: 150:1
- Frame sizes: 55, 75, 90 mm (2.17, 2.95, 3.54 in)

Electric Actuators

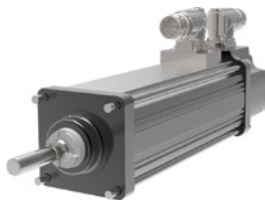
EXLAR®

INTEGRATED SERVO MOTORS

GSX Series – Integrated Motor Actuator

The Exlar GSX Series is a powerful, compact, and robust integrated motor actuator. The GSX design provides smooth, accurate, and programmable linear motion. The roller screw efficiently converts electric motor power to linear motion while accommodating heavy loads at high speeds.

- Continuous force up to 51 kN (11,528 lbf)



- Speeds up to 952 mm/s (37.5 in/s)
- Strokes from 75 to 450 mm (3 to 18 in)
- Voltage ratings from 115 - 460 VRMS
- Class 1, Division 2 options available

Tritex T2X AC Linear Actuator

The Tritex T2X AC roller screw linear actuator is a compact, stand-alone linear motion actuator that integrates an AC-powered servo drive, a digital position controller, and a brushless servo motor. The Tritex T2X takes up little space as it doesn't require a control cabinet, which may also reduce some costs and labor-intensive effort. It's easy to use with mechanical-based configuration software.



- Continuous force up to 3,225 lbf (14 kN)
- Speeds up to 800 mm/s (33 in/s)
- Strokes from 75 to 450 mm (3 to 18 in)
- Voltage classes from 100 - 240 Vac 1-ph
- Class 1, Division 2 options available

KX Series - Electric Linear Actuator

The KX Series is best suited for heavy loads and fast cycles. It has a small system footprint, long functional life, a flexible mounting option, and low maintenance requirements. Multiple models, specialized materials, and coating options are available.



- Continuous force up to 15.6 kN
- Max speeds up to 833 mm/s (32.8 in/s)
- Stroke lengths up to 1,200 mm (47.24 in)
- Sealed to IP65S for harsh industrial environments

FT Series - Electric Linear Actuator

The FT series electric linear actuator has a higher load capacity, higher speed, and longer life than acme and ball screw solutions. It's available in four frame sizes and is compatible with a wide range of standard motors. With high power, exceptional durability, and a small footprint, the FT actuator is a great alternative to hydraulics. It comes in multiple models and sizes with a planetary roller screw, and there are sealed housing options for severe environments.



- Maximum force up to 177 kN (40,000 lbf)
- Speeds up to 1,500 mm/s (59.05 in/s)
- Stroke length up to 1,219 mm (48 in)

FTP Series - High Force Electric Press Actuator

Suitable as a hydraulic press alternative, the FTP Series provides a very high force that ball screw-based electric actuators can't provide. Using standard servo technology, the FTP Series offers accuracy, control, and flexibility not available with hydraulics. The FTP easily retrofits into existing equipment and integrates with third-party gearboxes.



- Maximum continuous force up to 355 kN (80,000 lbf)
- Max speeds up to 352 mm/s (13.86 in/s)
- Stroke length up to 900 mm (35.43 in)
- Sealed to IP65S for harsh industrial environments



Joyce Machine Screw

WORM

Worm gear machine screw jacks lift and precisely position loads up to 250 tons. Upright or inverted jacks operate at full capacity in tension or compression. Single lead jacks are self-locking. Double lead jacks offer increased travel speed and require a brake or external locking device to hold position. Protective boots and anti-backlash accessories are available.



WORM STAINLESS STEEL

Stainless steel machine screws are designed for positioning and lifting up to 25 tons for applications in wet, corrosive, and harsh environments. All exposed surfaces and components are stainless steel or bronze. Protective boots and anti-backlash accessories are available.

- Nitrile rubber seals
- Reliable tapered or ball thrust bearings
- Operates at full capacity in tension & compression

METRIC

Metric machine screws are capable of lifting applications up to 100 kN. These screws are commonly used in OEM machinery and are fully interchangeable with other metric machine screw products. Four models are available with metric mounting hole locations, diameters, and fasteners.



BEVEL

Bevel gear jacks and ball jack screws are available with up to 100-ton static capabilities. They offer higher efficiency and greater speed than other mechanical screw jacks. Bevel gear jacks also act as miter boxes, making them an ideal choice for multi-jack systems. As many as three output shafts may be specified for mounting motors, limit switches, readout devices, and other accessories. Bevel gear jacks with single lead screws provide the benefits of a self-locking screw. Bevel gear jacks with double lead screws offer even greater travel speed.



WORM BALL SCREW

Worm ball machine screws are designed to lift and position up to 50 tons. They require a brake motor or an external locking device to hold their position.



- 1.5 to 35.12 in/min (38.1 to 892.05 mm/min)
- Alloy steel input shafts & aluminum bronze worm gears
- Tapered or ball thrust bearings
- Oversized ball bearings available to limit end play

WORM BEVEL BALL ACTUATOR

Worm bevel ball actuators are designed for near-continuous operation, reaching speeds of 48.6 ft/min, ideal for multi-screw systems. It's available in 7.5 to 100 ton static capacities. A brake or other external locking device is needed to hold position during power loss. The threaded end conditions are standard with load pad, clevis, and plain end condition available.



- More precise positioning & repeatability than hydraulic cylinders
- Right- & left-hand screws available
- Protective boots & other options available

ELECTRIC CYLINDER

Joyce electric cylinder actuators lift and position up to 20 tons (18,143.7 kg), travel speeds up to 546 in/min (13,868.4 mm/min), and raise loads to 100 in (2,540 mm). Joyce electric cylinders are best suited for industrial applications that require lifting screw protection and dependable operation.



- Quiet, clean, & low maintenance
- Operates at charted capacities in tension & compression
- Direct motor mounts increase travel speed for faster output
- AC & DC motor options

ACCESSORIES

Protective Boots

Joyce jacks and actuators can be fitted with optional protective boots that help maintain proper lubrication and protect the lifting screw from dust, dirt, moisture, and corrosive materials. Specific mounting options are available for ball machine screws, actuators, and gear jacks.



- Zippered boots
- Boots for extreme temperatures
- Boots for corrosive atmospheres

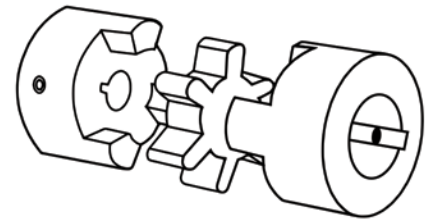
Couplings



Joyce **Model S** geared couplings provide great torque capacity and high durability thanks to inner circumference gear teeth, high tension, and radial and angular stiffness. These couplings are available in flex/rigid and flex/flex configurations.



Model F couplings feature the same qualities but are superior in radial misalignment capability and radial flexibility.



Model J couplings are best suited for many general industrial applications as they don't require lubrication and are resistant to oil, grease, moisture, and other contaminants.

Pillow Blocks

Pillow blocks are needed to support long shafts or the ends of rotating screws. Ductile iron pillow blocks include self-aligning replaceable pre-lubricated bearings, steel retainers, and nitrile rubber seals with steel guards.

- Pillow block supports 12.7 to 50.8 mm (0.5 to 2 in) diameter
- Flange block supports 12.7 to 44.45 mm (0.5 to 1.75 in) diameter



SCREW DRIVEN GUIDED ACTUATOR

SMS

The SMS is a small screw module fully configured and compatible with connecting elements to create multi-axis systems. Ready-to-install compact modules are available in any length.



- Sizes: 30, 40, 50, 80, 120
- Travel ranges: 50 to 1,200 mm
- Max. payload: 88 kg
- Max. speed: 1.92 m/s
- Max. acceleration: 9.6 m/s²
- High repeatability: +/- 0.005 mm

CKK

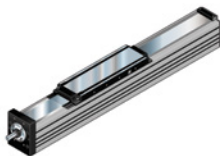
The CKK is available in six fine-tuned sizes based on a compact precision aluminum profile with two integrated preloaded ball rail systems. Ready-to-install compact modules are available in any length up to 10,000 mm (393.7 in) L_{max} .



- Repeatability of up to ± 0.05 mm (0.001 in)
- Speeds up to 5 m/s (16.4 ft/s), dependent on size
- Acceleration up to 50 m/s² (164.04 ft/s²)
- Load rating up to 121,185 N, dependent on size

MKK Ball Screw Linear Actuator

The MKK linear actuator is a linear module capable of high thrust forces suited for applications requiring high load ratings, high positioning accuracy, and repeatability. It has an integrated ball screw drive and a zero-backlash cylindrical single nut. The drive unit may be covered with an optional special plastic strip with integrated steel cords, a corrosion-resistant steel strip, or high-quality bellows.



- Five sizes available up to 5,000 mm (196.85 in)
- Screw support for higher speeds
- Repeatability of up to ± 0.005 mm (0.0002 in)

TKK Ball Rail Tables

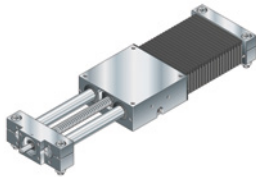
The TKK Ball Rail Tables are precise, compact, and ready-to-mount components with aluminum fixed-bearing end-plates with two-row preloaded angular contact ball bearings. It features a precision machined aluminum or steel profile base plate and a guideway of two ball rail systems with four long runner blocks.



- Load capacity up to 132,500 N
- Longitudinal momentum up to 18,100 Nm
- Torsional momentum up to 19,800 Nm

SGK Motion Slides

The SGK ball screw linear motion slide is constructed of round shaft bushings and is delivered fully assembled. The slides consist of components of varying lengths and assemblies of fixed length. The length-dependent components are cut to size as required for each other. These slides can be custom designed in any desired length. It has large leads, high travel speeds, great flexibility, and extensive range.



- Ready to install in any length up to 4,000 mm (157.48 in), depending on size
- Accessory bellows & protective covers available
- Closed & open types available

PSK Precision Module

The PSK precision module is a compact, precise, high-performance linear motion system. The smooth, rigid steel profile is integrated with Rexroth guideway geometry and machined reference edge. The PSK can have one or two steel runner blocks in either standard or long versions. Depending on size, the PSK is capable of dynamic loads up to 57 kN and speeds up to 16 m/s (52.5 ft/s).



- Normal accuracy: .02 mm
- Precision accuracy: .003 mm
- Cover plate & sealing options available
- Both inline & side drive motor mounting options available
- Flexible usage options with two accuracy classes
- 3 sizes & 4 lubrication options

ELECTROMECHANICAL LINEAR ACTUATORS

EMC

The EMC is an electromechanical cylinder for high performance that can be adapted to various applications. It's chemical resistant with sealing and an optional high IP54 and IP65 enclosure protection class.



- Max axial force: up to 56 kN
- Max travel speed: up to 1.6 m/s (5.25 ft/s)
- Max stroke: up to 1,500 mm (59.06 in)
- 7 sizes available

EMC-HP High Power

The EMC High Power (HP) is a robust and compact electromechanical cylinder for heavy-duty applications. This cylinder has a long service life and high durability even in harsh operating conditions. It features a high-precision planetary screw drive to ensure exact positioning with maximum control accuracy and dynamics.



- Max axial force: 44 kN to 250 kN
- Max travel speed: 0.52 m/s to 0.83 m/s (1.71 ft/s to 2.72 ft/s)
- Max stroke: up to 1,500 mm (59.06 in)
- 5 sizes available

AGK Drive Unit

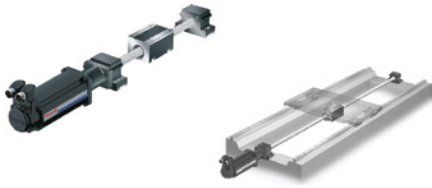
The AGK pre-assembled ball screw assembly is a ready-to-install drive axis with a ball screw drive, nut housings, and pillow blocks. A protective aluminum profile with a cover strip acts as an enclosure. The AGK is driven by a zero-backlash precision ball screw drive.



- Max acceleration speeds up to 50 m/s²
- Dynamic load rating up to 50 kN
- Lengths up to 5 m
- Optional traveling screw supports for horizontal mounting
- High linear speeds due to large leads
- Easy motor attachment

AOK

The AOK drive unit is a ready-to-install ball screw drive assembly with nut housings and pillow block units. When combined with an external linear guide, it functions as a linear motion axis.



- Max acceleration speeds up to 50 m/s²
- Dynamic load rating up to 50 kN
- Lengths up to 5 m
- Freely configurable lengths up to 5,600 mm (220.47 in)
- High positioning accuracy & repeatability
- Zero-backlash, pre-tensioned ball nut system
- 3 sizes available



Custom & Integrated Solutions

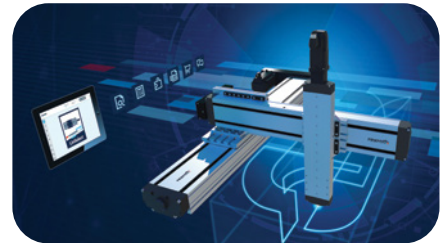
Smart Function Kit for Pressing and Joining

The Bosch Rexroth Smart Function Kit for Pressing and Joining is delivered in a single package and includes pre-installed software. It features a modern and intuitive web-based HMI for easy programming on any PC, tablet, or smartphone. No programming knowledge is needed with the simple graphical process programming. Product selection, sizing, and configuration are fast and easy with pre-selected mechanical, electrical, and software components in each kit. This kit suits many pressing and joining applications with forces up to 70 kN. The modular servo press combines mechanical and electrical Rexroth components delivered in a single package, including pre-installed operating software.



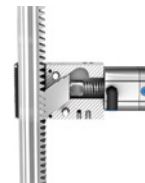
Cartesian Multi-Axis Systems

The Bosch Rexroth Cartesian Multi-Axis Systems allow the assembly of systems with standardized and high-quality components. The ready-to-install scalable positioning and handling system includes all attachments, cable systems, motors, and servo drives. These multi-axis systems are delivered pre-assembled for quick operation.



Mechanical Arrest System

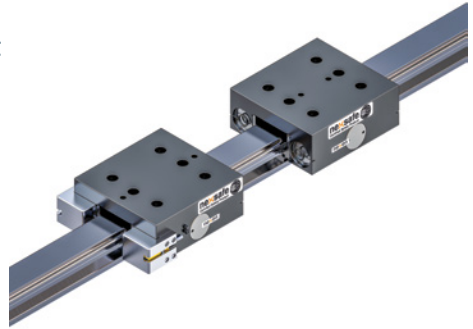
The Leantechnik mechanical arrest system is mounted on a gearbox to prevent any uncontrolled motion during power loss or routine inspections.



Rail Brakes

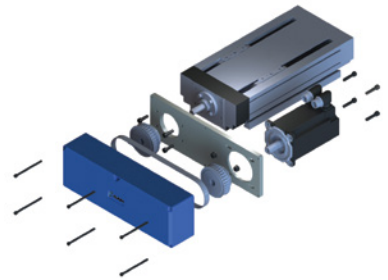
Nexen Profile Rail Brakes clamp directly onto the guide rail to provide positive braking and holding on all axes by using a spring force to secure the load. They feature a large friction-facing contact area for consistent performance and low backlash for accurate position holding.

Bosch Rexroth pneumatic and hydraulic braking elements are positive-locking integrated contact profiles that ensure maximum axial and horizontal rigidity and excellent braking performance. They have up to 1 million clamping cycles and up to 2,000 emergency braking operations.



PMK Parallel Mounting Kit

The GAM PMK Parallel Mounting Kit is a linear mount that can save space and reduce the overall length of an actuator by bringing the motor parallel to the ball screw. The PMK features strong flexibility to connect any motor to any linear actuator. Available in four frame sizes, the PMK comes with a high-torque timing belt and timing pulleys.



Bellows (Rail Covers)

Machinery covered by Joyce bellows may reduce maintenance costs and downtime. A complete line of standard and custom-manufactured bellows and covers are sewn in round, square, rectangular, and C or U shapes with collar flange ends. These bellows offer high durability and excellent abrasion resistance.

Bosch Rexroth standard bellows are made of polyurethane-coated polyester fabric and have an aluminum lubrication plate. Heat-resistant bellows are made of non-combustible and nonflammable Nomex fabric. They are resistant to sparks, welding spatter, and hot chips and can withstand peak temperatures of up to 200 °C (392 °F).



R&W Metal Bellows Couplings

R&W metal bellows couplings are best suited for applications requiring positional accuracy and dynamic motion as they directly connect two coaxial shafts. The metal bellows compensate lateral, axial, and angular shaft misalignment.



- High rotational speeds up to 120,000 RPM
- Highly dynamic cyclic duty applications
- Precise positioning of driven load

R&W Safety Couplings

R&W safety couplings protect against torque overloads with a fast and reliable disconnect between driving and driven components during a torque spike. Complete disconnection occurs in 3 to 5 milliseconds. These couplings operate on the spring-loaded ball-detent principle and serve as overload breakaway devices.



- Rigid, zero backlash transmission during normal operation
- Balls disengage from detents when torque exceeded
- Models & configurations for torque ranges from 0.1 to 450,000+ Nm

R&W Line Shaft Couplings

R&W line shaft couplings span distances up to 6 meters between components without external support. They feature a cut-to-length, high-precision intermediate aluminum, steel, or carbon fiber tube that provides spacing. End hubs with various designs and flexible joints consist of metal bellows or elastomer inserts.



- Flexible bellows & elastomer type line shafts available
- Elastomer shafts up to 4 m (13.12 ft) & torque up to 25,000 Nm
- Metal bellows on end of shaft up to 6 m (19.69 ft) & torque up to 4,000 Nm

R&W Elastomer Couplings

R&W elastomer couplings feature vibration damping, easy installation, zero backlash transmission, and electrical isolation. The elastomer inserts in these couplings compensate for axial, lateral, and angular shaft misalignment.



- Torque from 0.5 to 25,000 Nm
- Elastomer inserts in varying hardness
- Variety of shaft-hub interfaces available

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evolutionmotion.com

GAM Bellows Couplings

Bellows couplings feature high torsional rigidity, low inertia, zero backlash, and misalignment compensation. They have rotational speeds of up to 25,000 RPM without additional balancing and nominal torque capacities from 0.44 to 2,500 Nm.



GAM Elastomer Couplings

Elastomer drive shaft couplings dampen vibration caused by system resonance, ensure zero backlash, and allow easy plug-in assembly. The involute-shaped teeth on the elastomer coupling and jaws are preloaded and won't loosen over time.



GAM Safety Couplings

Safety couplings minimize expensive damage from collisions in high-performance servo drive systems. The safety coupling instantly stops the destructive inertial forces to eliminate downtime and repair costs. They come in elastomer or bellows type.



GAM Distance Couplings

Distance couplings can span axial lengths of 6 meters without additional intermediate bearings. They're precision machined to the required lengths, balanced for high speeds, and designed for simple one-person installation. They also feature zero backlash, torsional stiffness, and compensation for shaft misalignment.



Notes

Grid area for notes.

Engineering & Design Services

LOADS & FORCES	X-Axis	Y-Axis	Z-Axis
L			

ORIENTATION, STRUCTURE, AND CENTERS OF GRAVITY

O			
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SPEED

S			
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TRAVEL

T			
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PRECISION

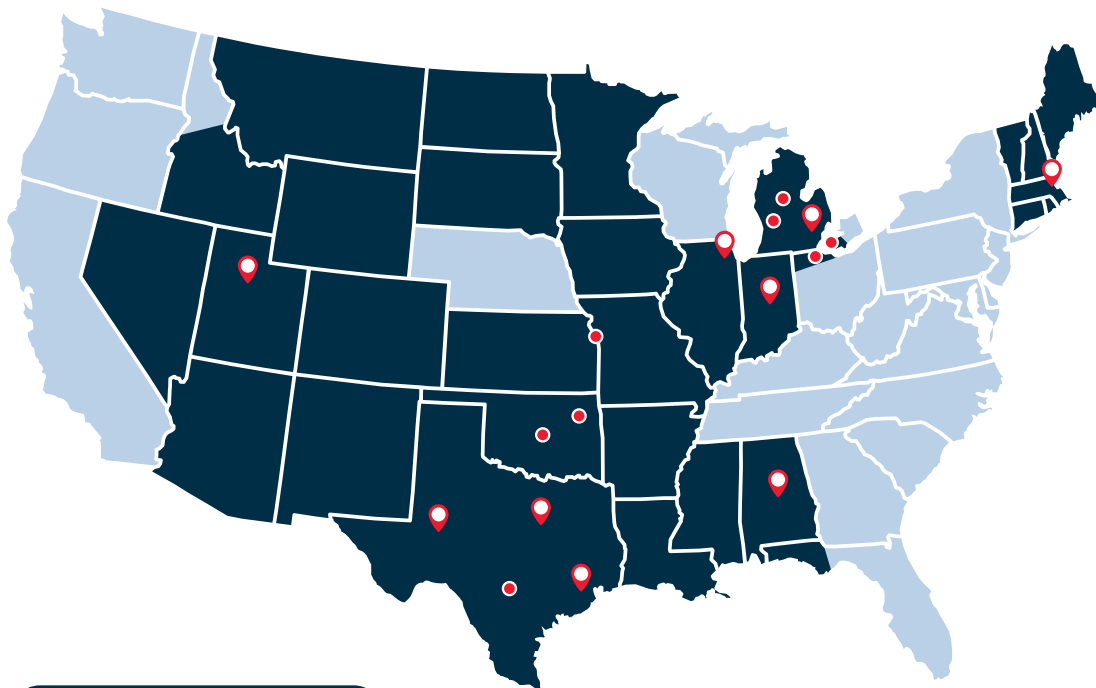
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ENVIRONMENT

E			
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DUTY CYCLE - TOTAL CYCLE TIME:

D	Acceleration Time	Acceleration Time	Acceleration Time
	Constant Speed Time	Constant Speed Time	Constant Speed Time
	Deceleration Time	Deceleration Time	Deceleration Time
	Dwell Time	Dwell Time	Dwell Time



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Glendale Heights, IL 60139
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