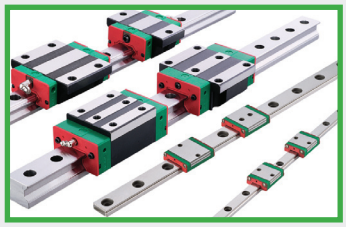
HIWIN®
Motion Control and System Technology

Distributed by Tech Spec Inc.

Linear Guideways



Ball Type Guides:

- **HG** - Heavy-Load
- **EG** - Low-Profile
- **WE** - Wide Rail
- **MG** - Miniature Guide
- **CG** - High Moment Capacity w/ Cover Strip Guide NEW!
- **QH** - Heavy Load Synchmotion (Caged Ball)
- **QE** - Low-Profile Synchmotion (Caged Ball)
- **QW** - Wide Rail Synchmotion (Caged Ball)
- **PG** - Positioning Guide/Measurement System

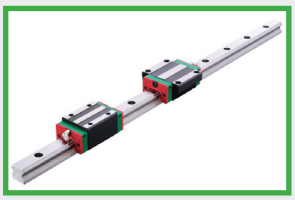
Roller Type Guides:

- **RG** - High-Rigidity Roller
- **QR** - High-Rigidity Roller Synchmotion (Caged Roller)

Linear Guide Accessories:

- **E2** - Self-Lubrication Kit
- **SE** - High-Temp Environment Metal End Cap
  Service temperatures up to 150°C and instance temperatures up to 200°C.
- **RC** - Reinforced Rail Caps + O-Ring
- **DD, ZZ, KK, SH, DH, ZH, KH, SW, ZW** - Dust-Proof Kits (Double-Seals, Scrapers, Top/Bottom Seals)

Product Spotlight: HG Series Heavy-Load Guides



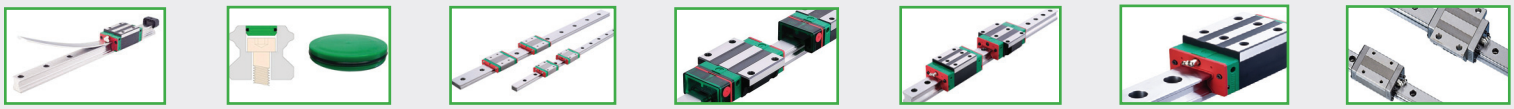
HG series linear guideways are designed with circular-arc groove and structure optimization for high load capacity and rigidity better than similar guideway offerings.

- Size: 15mm to 65mm
- Accuracy: C to UP
- Basic Dynamic Load: 11.38kN - 208.36kN
- Equal load ratings in radial, reverse-radial and lateral directions
- Self-alignment to absorb installation-error
- Heavy loads, high speed, high accuracy

Tech Spec is the largest stocking-distributor for Hiwin products in the USA

Many items in stock & ready-to-ship + quick processing times on cut-to-length rails. TSI is able to fulfill your job requirements quickly and efficiently.

- *No cutting charges on Hiwin Linear Guide rails*
- *Standard rail caps are included with rail purchases*



Complimenting Products Supplied by Tech Spec:

ZIMMER group

Zimmer Group offers clamps & brakes for many profiled guides including Hiwin. Pneumatic, hydraulic, electric, and custom units available.

ARMOLOY
THE SCIENCE OF PRECISION COATINGS

Armoloy provides corrosion-resistant coatings when stainless steel is not an option. Thin Dense Chrome (TDC) can be applied to guides and blocks to prepare in corrosive environments.

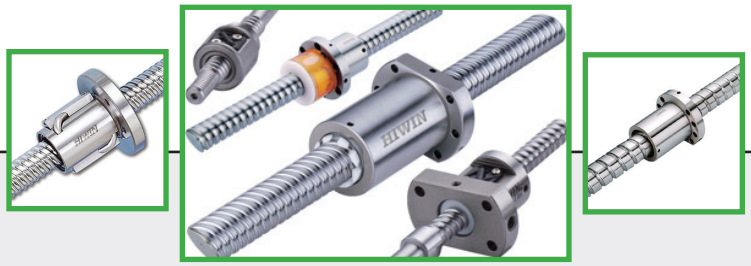
HIWIN®
Motion Control and System Technology

Distributed by Tech Spec Inc.

Hiwin provides a wide range of ballscrew options to accommodate many applications and job requirements.

Hiwin has the manufacturing capability of producing JIS C0 class ground ballscrews, and DIN 5 class (up to 23 microns) for precision rolled ballscrews.

Ballscrew O.D. ranging from 4mm to 120mm, and with Dm-N values up to 220,000.

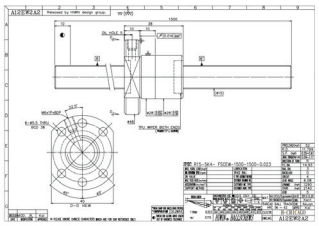


Precision Ground Ballscrews are used in applications requiring high positioning accuracy and repeatability, smooth movement, and long service life.

Standard Rolled Ballscrews are used for applications with lower accuracy requirements, but still requiring high efficiency and long service life.

Precision Grade Rolled Ballscrews have an accuracy between the standard grade rolled ballscrews and the higher grade precision ground ballscrews. They can be used to replace certain precision ground ballscrews with the same grade in many applications.

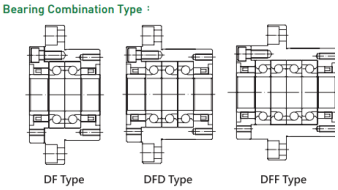
- Drawings are available for Hiwin ballscrew specs and measurements.
- Custom machining available to meet specific job requirements.



Retrofit kits for manual milling machines are kept in stock for quick replacement. The complete kit would provide both the X and Y axis ballscrew assemblies with yoke.

Hiwin Ballscrew Support Units:

AF • AK • BF • BK • EF • EK
FF • FK • LF • LK • LFA

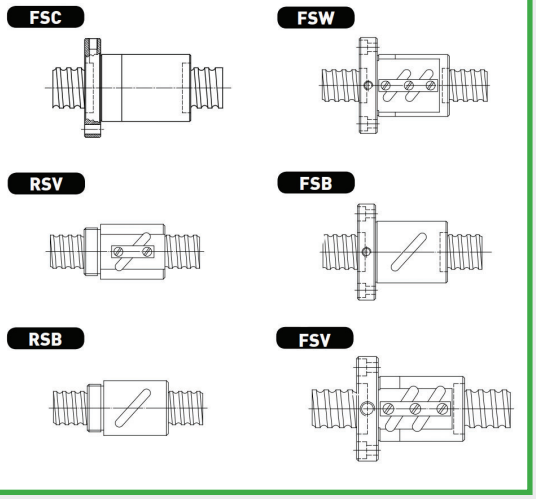


Hiwin Heavy-Duty Support Units:

WBK-DF
WBK-DFD
WBK-DFF

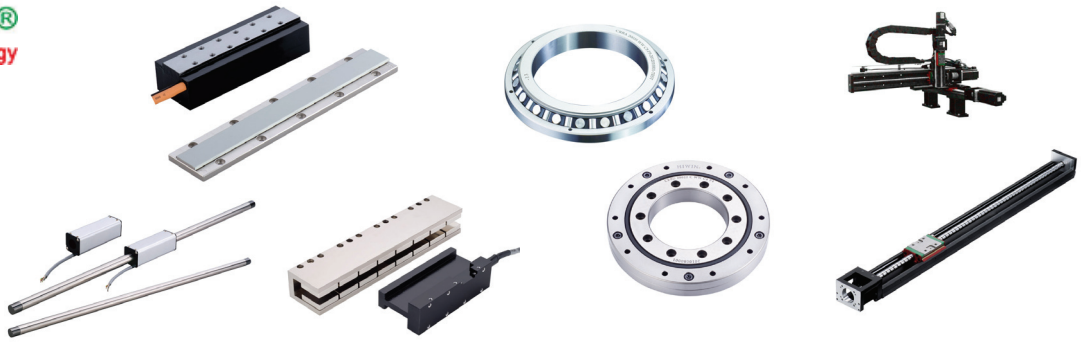
Hiwin DIN Stocked Ballscrews - Precision Rolled
(Most units with zero-backlash)

Hiwin E Series Part Number	Backlash (B) Zero Backlash (0)	Max Shaft Length (mm)	Accuracy Grade
R15-5K4-FSCEW	0	1500	C6(0.023)
2R15-10K3-FSCEW	0	1500	C6(0.023)
4R15-16K3-FSCEW	B	3000	C7(0.05)
R20-5K4-FSCEW	0	1500	C6(0.023)
R20-5T4-RSI	0	600	C6(0.023)
4R20-20K3-FSCEW	B	3000	C7(0.05)
R25-5K4-FSCEW	0	2500	C6(0.023)
R25-10K4-FSCEW	0	2500	C6(0.023)
R32-5K6-FSCEW	0	3000	C6(0.023)
R32-10K5-FSCEW	0	2500	C6(0.023)



HIWIN®
Motion Control and System Technology

Distributed by Tech Spec Inc.

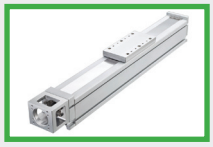


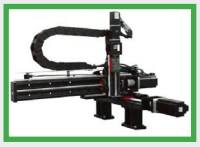
Single Axis Robots utilize a combination of a motor driven ballscrew or belt and linear guideway system. These compact and lightweight units are customizable and can be easily transformed into a multi-axis system, making them suitable for a wide range of industrial applications.

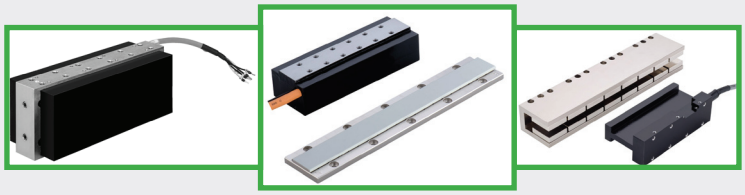
The **KK Single Axis Robot** combines both ballscrew and guideway to achieve better performance on accuracy, stiffness, rapid installation, and space saving. The optimized U-rail not only guides the movement of the slider being driven by the ballscrew, but also can be used as a structural component when assembled into a multi-axis motion system.

The **SK Single Axis Robot** is identical to the KK series but incorporates Hiwin's patented SyncMotion™ Technology for quieter and smoother movement, superior lubrication and longer service life.

Also available:
KA, KS, KU, KE, KM







Hiwin **Linear Motors** are direct drive, plug and play solutions. Linear motors are capable of fast accelerations and high speeds, while providing unmatched precision and accuracy. Hiwin offers standardized linear motor designs but customizable options are available. Aside from single axis linear motors, these stages can be combined together to form cross tables or even gantry systems.

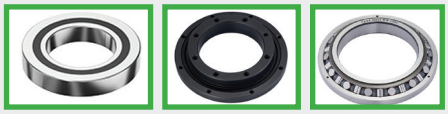
Available Components: LMS, LMSC, LMC, LMF, LMT

Available Stages: LMX1E-C, LMX1L-S, LMX1L-SC, LMX1E-T, LMX1, LMG2A, LMSP, LMDX

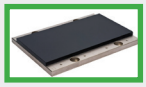
Crossed Roller Bearings consist of an outer ring, an inner ring, and a plurality of rollers and spacers. The roller lies between the inner and outer ring with the spacers placed between the rollers to prevent the mutual friction between them thereby decreasing the torque resistance for rotation.

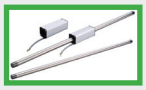
Hiwin Crossed Roller Bearings:

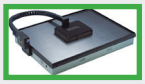
- Split outer ring type **CRBA**
- Split inner ring type **CRBB**
- High rigidity type **CRBC**
- Split outer ring with mounting holes **CRBD**
- High rigidity with mounting holes **CRBE**
- Customized type **CRBX**



- Patented high rigidity and high load capacity
- Higher accuracy than the ISO standard
- Space saving construction
- Supports combination of both radial and thrust loads
- Easy installation
- Smooth rotation
- High rigidity
- Various bearing types and sizes to accommodate your requirements with custom options available







Ironcore Motors
- High thrust 20,827N
- Max. acceleration 10G
- Machine tool

Ironless Motors
- Lower velocity ripple
- No cogging force
- Semiconductor industry

Planar Motors
- Air bearing for wear-free operation
- Built-in position feedback system
- Magnetoresistive stepping motor

Shaft Motors
- Circle stator
- No cogging force
- Smooth motion profile application

Complete Motion Systems Features:
- Customized design
- The deviation in synchronization movement ‹ 5μm
- Total system can have up to 18 axes
- Best positioning feedback system resolution 50nm
- Max. Velocity 5 m/s
- Max. Acceleration 3.5G

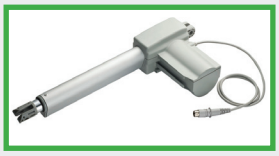
HIWIN®
Motion Control and System Technology

Distributed by Tech Spec Inc.

Linear Actuators are compact, lightweight and highly flexible products that can be found in a wide range of applications. Linear actuators utilize a gear system that is connected to a screw and is driven by a motor. As the motor operates, the gearing translates to the screw shaft, converting rotary motion into linear motion.

Hiwin Corporation can supply a complete solution that includes actuators, controllers and keypads for a single or multiple axis system. Hiwin offers a wide range of linear actuator designs to fit your specific application.

Available Options: LAM, LAI, LAS, LAN, LAC Actuators, Controllers, Batteries/Chargers, Over Current Protection Box, Keypads.



Hiwin offers **AC Servo Motors** and **Stepper Motors**, which can be used with linear components from their line up converting rotary motion into linear motion. Our motors complement our product offerings and can be a complete linear motion solution when our servo drive is incorporated. Hiwin's servo drive solution is compatible with: high performance drives for linear motors, shaft motors, torque motors, and AC servo motors.

AC Motors

- Encoders to 17 bits
- High resolution and positional accuracy
- Low heat generation
- Low noise and vibration
- Motor sizes: 50W to 1KW
- Optional brake

HIWIN **Torque Motor** and **Rotary Tables** ensure excellent acceleration capabilities and high precision uniform movements.

Hiwin torque motor and rotary tables are backlash free, extremely rigid, optimized for high torques, have robust dynamics and are especially well suited for tasks in a wide range of automation processes.

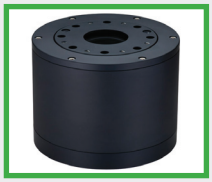
Various sizes in diameter and height are available with the option to add a servo drive for a complete plug and play solution.

TMS Torque Motor

- Inner rotating structure
- Resolution 4,320,000 counts/rev
- Maximum Torque 450 N-m
- High rigidity cross-roller-bearing
- Hollow shaft
- No gear transmission losses
- Compact
- Maintenance free
- Brush-free
- Meet IP65 enclosure standards as an option
- Integrated brake is available as an option

TMN Torque Motor

- Outer rotating structure
- Low profile and easy installation
- Suited for high resolution and low torque applications
- Encoder or resolver is optional
- Resolution 4,320,000 counts/rev
- Hollow shaft



Hiwin **Six-Axis Articulated Robots** are used when complex motions, faster cycle time, and high repeatability are priorities. These robots consist of six rotary axis with absolute encoders. This allows for unlimited orientations and point combinations while maintaining up to 20µm repeatability.

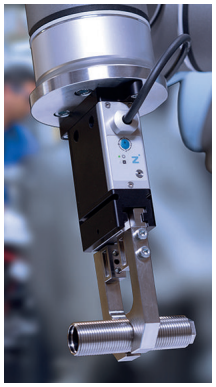
Applications include pick - and - place, part handling, assembly, light machining, inspection, scanning, and many more. Hiwin can supply complete solutions, with a Hiwin electric gripper, adapter plate, controller, and teach pendant.

ZIMMER group

Distributed by Tech Spec Inc.

Handling Technology

Products in catalog: 3,000. Customer solutions: infinite.



Handling Technology 1

Components: grippers, swivel and rotary modules, separators, etc.
Systems: gripper systems, vacuum systems, robotools, positioning systems

Handling Technology 2

Components: robotics accessories
Systems: robotools

Handling Technology 3

Components: vacuum products and accessories
Systems: vacuum systems

Gripper Product Line Up:

2-JAW PARALLEL GRIPPERS
PNEUMATIC
- Series GPP1000
- Series MGP800
- Series GP
- Series GP400
- Series GP200
- Series GPP5000

ELECTRICAL
- Series GEP9000
- Series GEP1400
- Series GEP5000

2-JAW PARALLEL GRIPPERS LONG STROKE
PNEUMATIC
- Series MGH8000
- Series GH6000
- Series GH7000

ELECTRICAL
- Series GEH6000IL
- Series GEH8000

3-JAW CONCENTRIC GRIPPERS
PNEUMATIC
- Series MGD800
- Series GD
- Series GD300
- Series GPD5000

ELECTRICAL
- Series GED1300
- Series GED5000

3-JAW CONCENTRIC GRIPPERS LONG STROKE
PNEUMATIC
- Series GD500

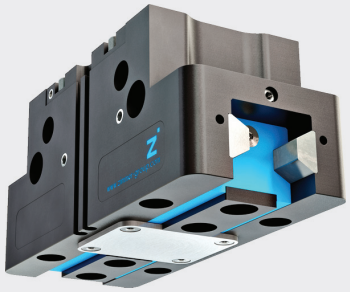
2-JAW ANGULAR GRIPPERS
PNEUMATIC
- Series GZ1000 368
- Series MGW800 376
- Series GG1000 394
- Series GPW5000

2-JAW RADIAL GRIPPER
PNEUMATIC
- Series GK
- Series GG4000

GRIPPERS FOR SPECIFIC TASKS
PNEUMATIC
- Series LGS
- Series LG1000
- Series LGG
- Series RG
- Series ST
- Series SCH
- Series GS
- Series GSI
- Series HM1000

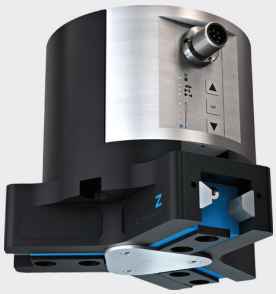
ELECTRICAL
- Series GEN9100
- Series HEM1000

ROTARY GRIPPERS
PNEUMATIC
- Series DGK
- Series DGP400



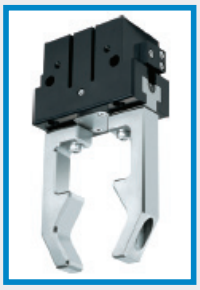
GPP5000

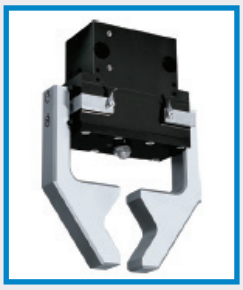
- Up to 30% more gripping force than the benchmark
- Sealed guide IP64 / Protector version IP67 (with purged air)
- Up to 30 million cycles without maintenance



GED5000

- Self locking mechanism in case of power drop
- IP64
- Brushless DC motor – up to 30 million cycles without maintenance





HRC - *Collaborative & Cooperative Robot Grippers*
- *2-Jaw Parallel Grippers*
- *2-Jaw Parallel Grippers w/ Long Stroke*
- *2-Jaw Angular Grippers*

GEP5000

- Plug and play – single-cable solution, supports incredibly easy control using I/O signals or IO-Link
- Integrated ACM control module: option of configuring gripping force, travel time, and switching points

ZIMMER group

Distributed by Tech Spec Inc.

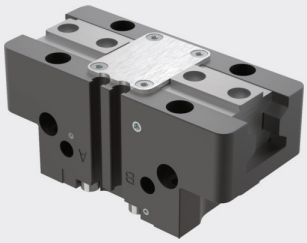
Pneumatic Grippers
- 2-Jaw Parallel Grippers
- 2-Jaw Grippers Long Stroke
- 3-Jaw Concentric Grippers
- 3-Jaw Grippers Long Stroke
- 2-Jaw Angular Grippers
- Internal Grippers
- External Grippers
- Needle Grippers
- O-Ring Grippers
- Magnetic Grippers

Electric Grippers
- 2-Jaw Parallel Grippers
- 2-Jaw Grippers Long Stroke
- 3-Jaw Concentric Grippers
- Magnetic Gripper
- Needle Gripper

Pneumatic Intelligent Grippers
- 2-Jaw Parallel Grippers
- 3-Jaw Concentric Grippers

ZIMMER GRIPPER SERIES 5000

- Most precise guide on the market
- Now available with steel / steel and steel / aluminum guide
- Optional with IP40 / IP64 / or IP67 sealing



Steel Linear Guide – Superior Guidance System Concept

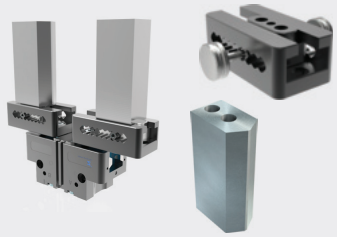
The steel / steel guide stands for lasting precision, durability and a long service life - featuring maintenance intervals of up to 30 million gripping cycles.

**NEW* Aluminum Linear Guide - Alternate Option to Steel*

The steel / aluminum guide variant offers significantly better performance when compared to a similar gripper with a T-groove travel guide.

Leakproof and Corrosion Protected – Universal Gripper

Suitable for virtually all ambient conditions, with a sealed guide up to IP67 and corrosion protection as standard.

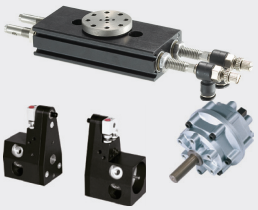


Gripper Accessories Available:

- Gripper Jaw Blanks
- Adjustable Jaws
- Changeable Jaw Accessory
- Sensors & Holders

SCH Pneumatic Needle Gripper

- Adjust the needle stroke individually and smoothly via the direct needle setting.
- Flat structure, compact design, saves space in your machine.
- Detecting the end position allows you to have faster cycle times and an integrated control system using magnetic field sensor technology.
- 6mm needle stroke adjustment max.



Additional Products Offered:

Swivel and Rotary Modules
- Rotary Cylinder
- Flat Swivel Units
- Angle Pivot Units
- Swivel Jaws

Robot Accessories
- Tool Changers
- Rotary Distributor
- Axis Compensation Modules
- Collision Protection
- Energy Elements
- Angle Flange

Linear Modules
- Linear Cylinders
- Linear Slide Rail
- Lifting Cylinders

Vacuum Components
- Suction Cups
- Adapters / Compensation Modules
- Vacuum Generator
- Accessories

Cutting Tongs

Separators

Ball Joints

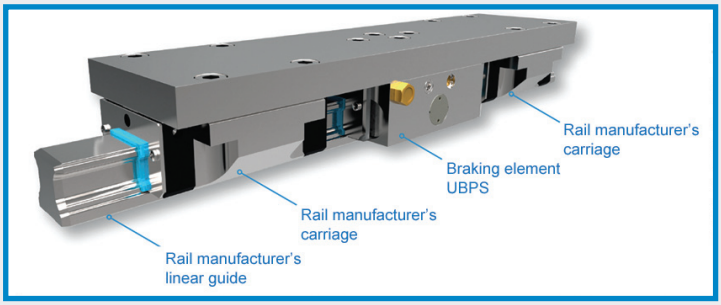
ZIMMER group

THE KNOW-HOW FACTORY

Distributed by Tech Spec Inc.

Clamping and Braking Elements

Zimmer offers more than 4,000 types of clamp and brake units for profiled and round rails for a variety of guide systems from all manufacturers. Components available as manual, pneumatic, electric, or hydraulic drive.



HK
Manual Clamp

miniHK
Manual Clamp

MK
Pneumatic Clamp

MKS
Pneumatic Clamp

MBPS
Pneumatic Clamp/ Brake

UBPS
Pneumatic Clamp/ Brake

LKP
Pneumatic Clamp

LKPS
Pneumatic Clamp

LBPS
Pneumatic Clamp/ Brake

MCP
Pneumatic Clamp

MCPS
Pneumatic Clamp

KWH
Hydraulic Clamp

KBH
Hydraulic Clamp/ Brake

KBHS
Hydraulic Clamp/ Brake

LCE
Electric Clamp

HKR
Manual Clamp

MKR
Pneumatic Clamp

MKRS
Pneumatic Clamp

RBPS
Pneumatic Clamp/ Brake

TPS
Pneumatic Clamp

Zimmer offers adapting plate options for height compensation of clamps & brakes when necessary.

Provide us with the full part number of the linear guide to see if your set-up requires an adapter plate.

Zimmer Clamp & Brake Benefits:

- ► Very high holding force on small dimensions
- ► No relative movement for the work piece
- ► No clamping forces transferred to the guide block
- ► High positional accuracy
- ► High stiffness
- ► Virtually wear free
- ► Straightforward installation
- ► Outstanding price/performance ratio
- ► Available for all common guide manufacturers
- ► Custom solutions
- ► Emergency stop-capable series with integrated special surface for braking

Function:

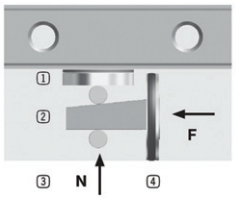
The MK / MKS / MBPS / UBPS / LKP / LKPS / LBPS / MKR and MKRS series are constructed with two parallel (synchronized) running wedge-type gears, i.e. the stroke movement of the contact profiles is performed from both sides. Therefore (assuming the proper connection structure), the clamping process is not expected to produce relative movements.

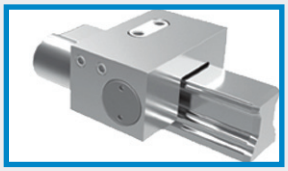
HK / MK / MKS / LKP / LKPS / miniHK / MCP / MCPS / KWH / KBH / KBHS / LCE / HKR / MKR / MKRS and TPS series are designed exclusively for static clamping processes.

Series MBPS / UBPS / LBPS / KBHS and RBPS permit the use of corresponding contact profiles for dynamic use (braking) as a safety feature.

Wedge slide gear in longitudinal direction

[1] Contact section
[2] Wedge slide gear
[3] Resulting transverse movement
[4] Piston





Zimmer Clamps & Brakes work with the manufacturer guides below. The list continues to grow!

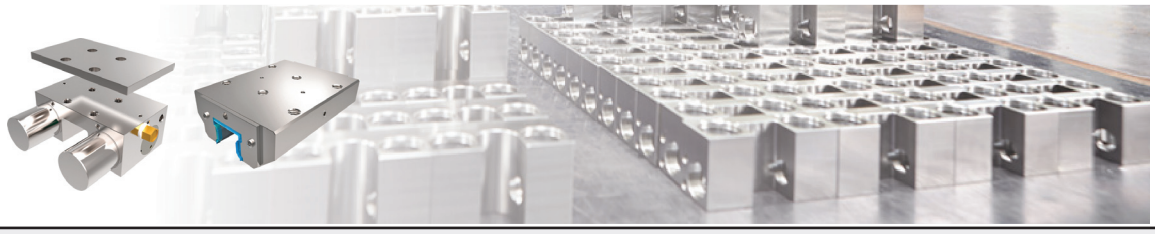
Select models also available for round shafting up to 60mm. **Limited availability in Imperial / Inch shaft sizes as well.*

HIWIN NSK THK INA SCHNEEBERGER IKO Rexroth Bosch Group SKF ROLLON PMI

Zimmer offers a comprehensive range of clamping and braking elements for a variety of linear guide systems from practically all manufacturers in the industry.

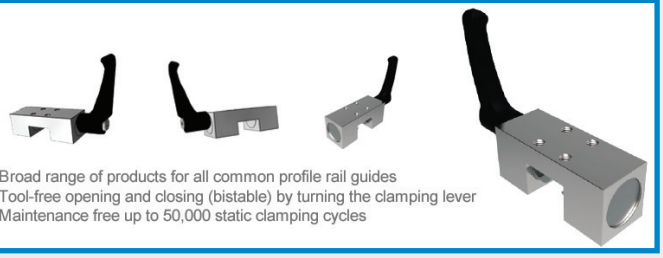
Over 4,000 standardized clamping and braking elements and accessories for profile rail guides and shaft guides. Custom solutions are also available.

Distributed by Tech Spec Inc.



HK | Clamping Element
[Manual Clamp]

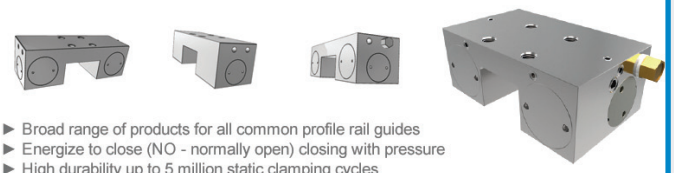
Rail size	12 - 100 mm
Holding force	1200 - 2000 N
Fastening torque clamp lever	4 - 22
Spring-loaded energy storage	non-existent
Clamping cycles	up to 50,000
Braking cycles	not suitable
Operation	manual



- Broad range of products for all common profile rail guides
- Tool-free opening and closing (bistable) by turning the clamping lever
- Maintenance free up to 50,000 static clamping cycles

MK | Clamping Element
[Pneumatic Clamp]

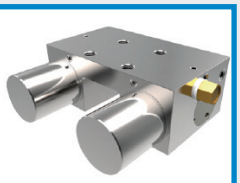
Rail size	12 - 100 mm
Holding force	350 - 2250 N
Pressure minimum	3 bar
Pressure maximum	6 bar
Spring-loaded energy storage	non-existent
PLUS connection	no
Clamping cycles	up to 5 million
Braking cycles	not suitable
Operation	pneumatic



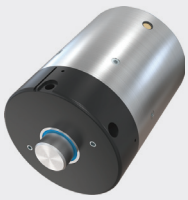
- Broad range of products for all common profile rail guides
- Energize to close (NO - normally open) closing with pressure
- High durability up to 5 million static clamping cycles

MKS | Clamping Element
[Pneumatic Clamp]

Rail size	12 - 100 mm
Holding force	250 - 1450 N
Pressure minimum	5.5 bar
Pressure maximum	6 bar
Spring-loaded energy storage	existing
PLUS connection	yes
Clamping cycles	up to 5 million
Braking cycles	not suitable
Operation	pneumatic

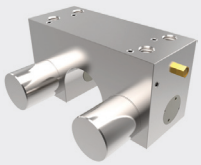


- Broad range of products for all common profile rail guides
- Energize to open (NC - normally closed) through spring-loaded energy storage
- High durability up to 5 million static clamping cycles
- Higher clamping forces via activation with PLUS air
- Safe clamping in case of energy failure / pressure loss



Series RBPS Pneumatic Clamp/Brake Unit
for metric shafting

- Sensing with process reliability
- Sensing of opened/closed state (optional)
- Energize to open (NC) through spring-loaded energy storage
- High durability
- Up to 5 million static clamping cycles
- Safety element
- Safe braking in case of energy failure
- Available in 5mm to 60mm sizing



Series MKRS Pneumatic Clamp Unit
for metric shafting

- For circular guides and shaft guides size 12mm to 60mm *(some Inch sizes available)*.
- Energize to open (NC) through spring-loaded energy storage
- High durability
- Up to 5 million static clamping cycles
- Safety element
- Safe clamping in case of energy failure

Zimmer Damping Technology
Shock Absorbers

Special solutions and systems:
- Soft close, complete systems (with self-closing)
- Customer-specific solutions for industrial and soft close damping technology

- Highest quality for the most extreme requirements and loads
- High power consumption thanks to maximum utilization in each piston position
- Low-vibration and precise braking due to the constantly narrowing spiral groove
- Less wear thanks to the hydrostatic piston guide
- Longer service life and high operating safety with the oil reserve
- Suitability for use in a pressure chamber up to 10 bar (only applies to the high energy variant)

Zimmer's innovative damping technology with its patented spiral groove technology ensures kinetic energy is absorbed in the production process and wear is kept to a minimum.

Axial Advanced Basic Stop

Axial Standard Basic Stop

Radial Standard Basic Stop

- Increased service life of the machinery through reduction of damaging force peaks and fluctuations, which reduces failure times and maintenance costs and increases the operational velocities of the machine
- Increased safety for collisions and stops caused by emergencies
- Increased productivity and efficiency of the machinery
- Reduction of noise levels by reducing noise emissions in production

Centryco

Distributed by Tech Spec Inc.

Prolonging the lives of machines and protecting the people who operate them is Centryco's mission.

Headquartered in Burlington, NJ, Centryco offers over 50 years experience in protecting industrial equipment with their custom-made solutions.

Centryco Bellows are available in a wide variety of construction, sizes, and fabrics to accommodate your application.

Sewn Bellows - *Sewn construction (BS) is utilized for general-purpose bellows to protect moving rods, shafts, screws, or other linear mechanisms from environments with dust to weld spatter.*

Sewn bellows are made from a series of stamped annular rings, sewn together to form the individual convolutions. Special "split" bellows are available with a zipper closure to eliminate machine disassembly and downtime. Able to accommodate various applications including protection from most industrial contaminants, high-temperature, and welding sparks to name a few.

Molded Bellows - *Molded (BM) are available for watertight, aesthetics, strict compression, and other specialty applications.*

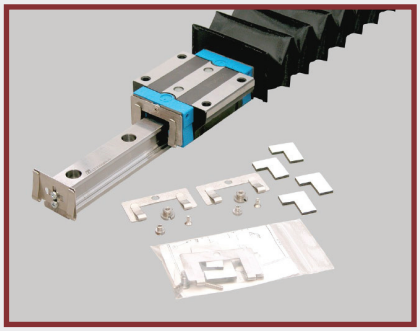
Molded Polyurethane Bellows (Black) are available in stock sizes (1 or 2 foot lengths) or non-standard sizes. Material has excellent resistance to abrasion, environment temperature range from -60F to +225F, minimum resistance to movement, with long life & very good mechanical strength. Ideal for ultra light motor applications. Allows for minor misalignment without deformation. Good chemical resistance to Ozone, Hydrocarbons, moderate chemicals, UV rays, oils, fuels, and greases. Excellent for a broad range of interior and exterior applications.

RF Welded Bellows - *RF Welded (RF / BW) Bellows are available for watertight, aesthetics, strict compression, and other specialty applications. Offering many of the same advantages as our molded bellows and are ideal for a broad range of applications.*

Individually welded pieces of black polyurethane film resulting in outstanding extension to compression ratios (ideal for applications with limited space). Providing a leak-tight seal with excellent resistance to abrasion. Temperature range from -60 to +225F. Flaccid with minimum resistance to movement. Long life with very good mechanical strength. Inhibits vibration transmission. Ideal for ultra light motor applications. Allows for minor misalignment without deformation. Good chemical resistance to Ozone, Hydrocarbons, moderate chemicals, UV rays, oils, fuels, and greases. Excellent for a broad range of interior and exterior applications.

Information required for quotations on Bellows Covers:

- Determine the bellows size for your application
- Include sizing limitations (min/max compression/ extension, height limits, etc.)
- Describe your environment to select the proper materials (fine dust, weld splatter, high-temp, etc.)
- Select your choice of mounting
- Describe any other features you would require for your application



Linear Way Covers

Protect linear rails and bearings with Centryco fully-welded or Dual Guard covers.

Available in standard or high temperature materials. Using your rail model, manufacturer, travel and height restriction, a custom quote can be prepared for your needs.

Way covers fit most OEM bearing carriages

- Available in *Standard Duty*, *Spark-Resistant*, and *"Walk-On" Construction*
- Easy to install (attach/re-attach covers)
- Stock sizes available
- Your choice of construction and materials to suit your application:
  - Standard duty application
  - Folded/ Welded (WW) construction provides the ultimate in appearance and a strong seamless surface. Thickness: 0.009″.

Spark-resistant application

Available in Folded / Welded (WW) construction, 0.014″ thickness or Folded/Sewn (WM) traditional construction, 0.008″ thickness with high-stress capabilities.

Heavy-duty spark and extended wear applications

Our ultimate Walk-On (WO) cover offering fully sewn, weld resistant, long-life construction able to withstand the weight of a typical worker.

Centryco

Distributed by Tech Spec Inc.

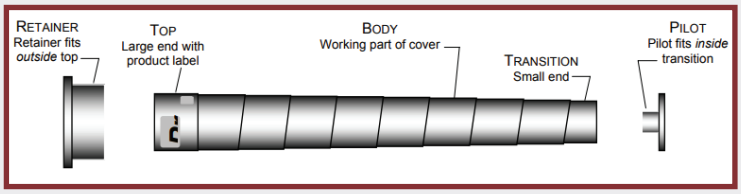
Centryco's product line covers custom designs of the following: Bellows, Centry Covers, Linear Way Covers, Flat Bellows, Screen Covers, Milling Machine Kits, Way Wipers, Vacuum Formed Covers, and Hi-Temp Welding Protective Covers.

Centry Covers - Telescopic spring covers (Centry Covers) made of 1095 polished blue carbon steel provide long life and maximum protection of your rods, shafts, and screws from chips and other destructive elements. An equally important use is as a safety barrier to seal off pinch points and other hazards to prevent operator injury.

These helical metal covers surround and protect critical cylindrical mechanisms: their overlapping coils seal out the contaminants while wiping away dirt and debris with each thrust. The spring action holds the unit in place as it expands and compresses between two parallel surfaces. Simple flanges may be used to position the cover, which is normally installed over the end of a rod, shaft or screw assembly. However, "open wound" models are available to be wound onto the rod, shaft or screw without the necessity of partially disassembling the host machine.

Covers are also available in stainless steel to address applications subject to rusting or pitting. Sizes range from Internal Diameters of 7 to 300mm with extended lengths of up to 4500mm.

Over 2,000 custom sizes are available with delivery normally between 1 and 2 weeks. A large catalog of Centry Covers are available from stock and ship quickly.



Centry Cover Features:

- Self Cleaning
- Self Adjusting
- 2500 sizes available
- Virtually indestructible
- One piece construction
- Can be used in any direction
- No installation tools required
- Can outlast fabric bellows 20:1
- Can withstand hot and sharp chips
- Standard and custom materials available
- Free from operator snag and pinch points
- Available in both metric and imperial sizes
- Can withstand a dropped tool or work piece

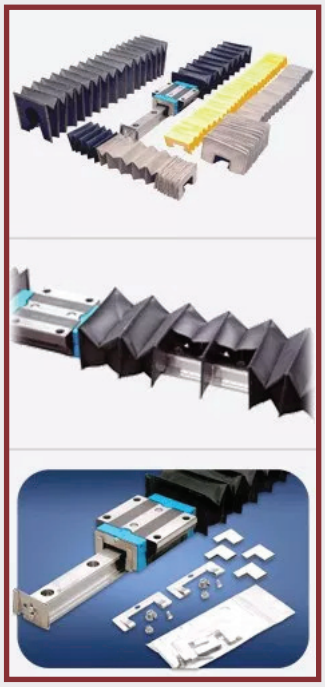
Centry Covers offer protection for:

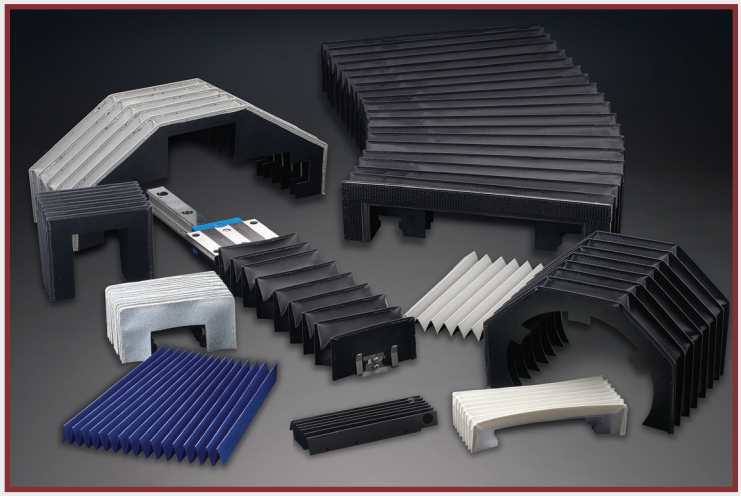
- Jacks
- Lathes
- Robots
- Die sets
- Presses
- Milling machines
- Machine Operators
- Lead screws
- Laser beams
- Splined shafts
- Smooth shafts
- Welding machines
- Hydraulic cylinders
- Pneumatic cylinders

Protect your equipment with Centryco covers!

Tech Spec provides linear components for industrial applications, *PLUS custom-made* protective covers to prolong the life of your equipment in debris-filled environments.

*Bellow taps/machining for installation also available.





DYNATECT®
DYNAMIC EQUIPMENT PROTECTION

Distributed by Tech Spec Inc.

DYNAMIC PROTECTION = *DYNATECT*

The name comes from the words 'dynamic' and 'protection' because it is the accumulation of over 70 years of experience producing flexible protection for equipment in motion.

Dynatect *(formerly A&A Manufacturing)* delivers custom protection for machines with a diverse product offering. Dynatect provides engineering and manufacturing for custom applications which improve human-machine safety and machine uptime.

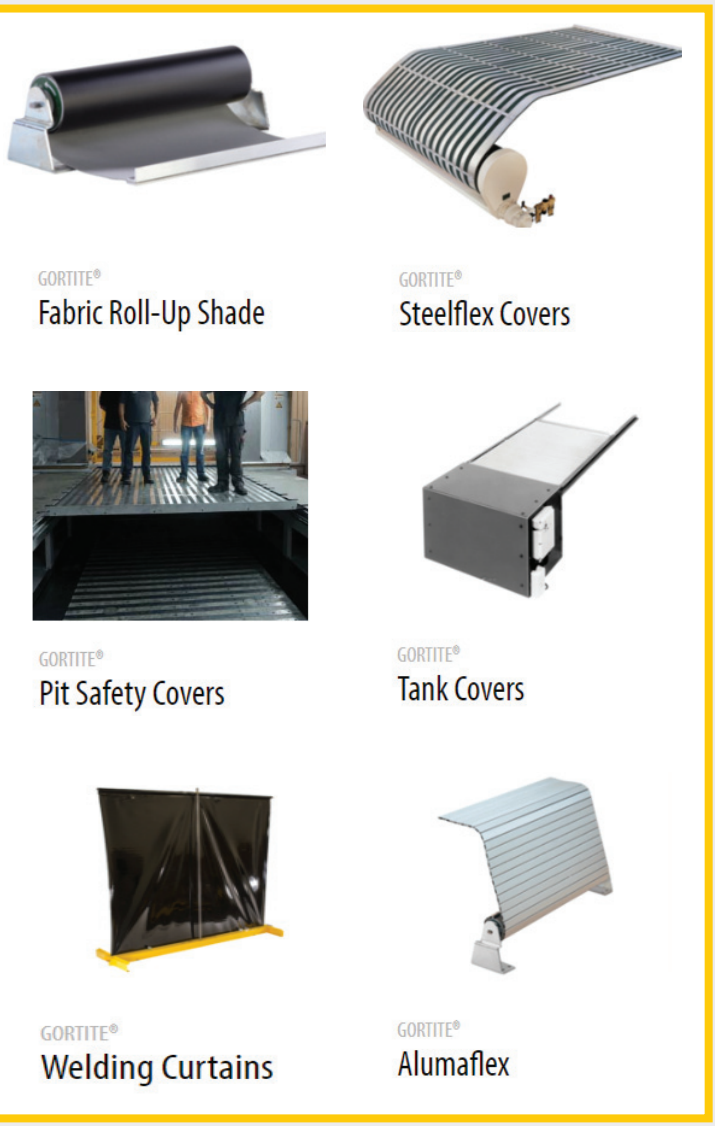
Gortite® Roll-Up Covers

Roll-up protective covers consist of a metal or coated fabric shade and a roll-up mechanism. Several styles are available including aluminum slats, reinforced fabric shade, or reinforced metal.

Roll-up covers are available with mounting brackets or a protective canister. Different take-up and drive methods are available depending on the type of cover.

Dynatect offers repair/ refurbishment options and replacement options for all brands of roll-up product.

Typical applications: way protection, machine access, tank covers, multi-axis roll up shields, safety pit covers, and portable welding protection.



SHADE ROLLER
- Fabric shade; light-duty protection
- Spring-loaded roller; optional protective housing
- Uses: guard against involuntary hand contact, dust guard, prevent contamination
- Suitable for high speeds/acceleration

ALUMAFLEX
- Made of interlocking aluminum extrusions
- Medium-duty protection; upgrade from fabric
- Good for chip loads, some oil and coolant
- Available as free-hanging apron cover (shade only), roller mounted, or in a protective canister

STANDARD-DUTY STEELFLEX
- Stainless steel shade with 0.25" aluminum support ribs
- Medium-duty protection
- For moderate hot chips, oil and coolant loads
- Minimal deflection over wide spans
- Mounted to roller; optional protective housing

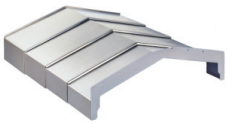
HEAVY-DUTY STEELFLEX
- Stainless steel shade with aluminum or steel support ribs starting at 5/8" thick or larger
- Suitable as a walk-on surface for open pits and machine ways
- For heavy chip loads, oil and coolant.
- Minimal deflection over wide spans

SPECIAL ROLL-UP COVER ASSEMBLY
Dynatect will customize a roll-up assembly for your application, such as:

- Manual or motorized tank cover
- Modular weld curtains
- Multi-axis face shields

DYNATECT®
DYNAMIC EQUIPMENT PROTECTION

Distributed by Tech Spec Inc.



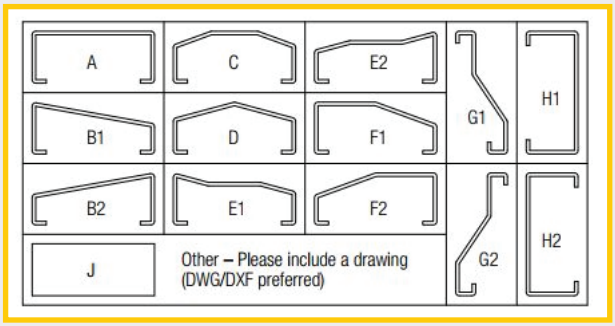
Manufacturing protective guarding under the Gortite brand, which includes a full line of fabric and metal covers in various styles such as: bellows, roll-up, telescopic, multi-axis shields. Dynatect protective covers are for both new OEM designs and replacement.

These product lines allow coverage for a range of common applications like machine way covers, lift covers, cylinder rod boots, flexible ducting, and articulated bus bellows. Manufacturing capabilities allow one-of-a-kind custom applications.

Telescopic Cover Shapes and Profiles:

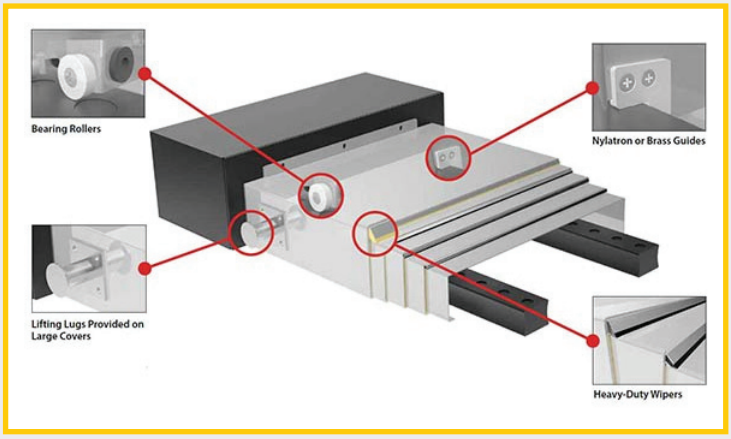
- *Flat* (common)
  – orientation can be horizontal, vertical, cross-rail, or dual axis.
- *Peaked* or *Slanted* (to deflect coolant)

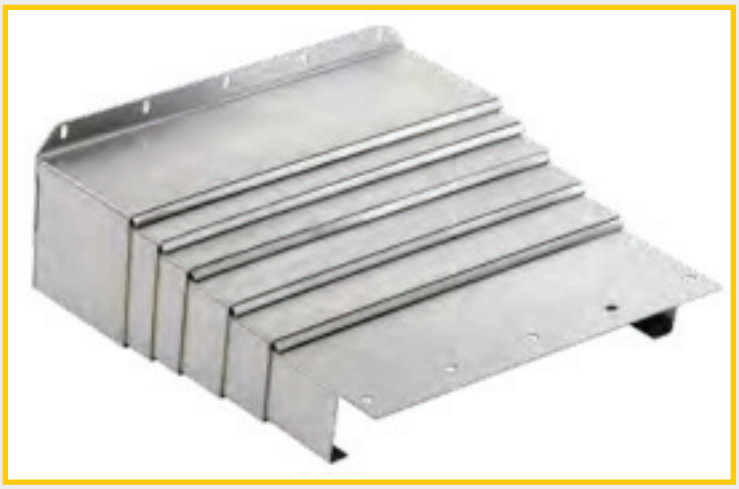
See below for additional shapes and orientations:



Design Features

- Top section tread plate or tool tray available
- Section material 18 ga. through 1/4″ cold rolled steel (stainless steel option available)
- Way extensions can be provided if necessary
- Standard oiled finished (bright buffed option available)
- Durable wiper options for wet or dry operation
- Options include: nylon or brass guides, bearing rollers, lift lugs





TELAFLEX®

TELESCOPIC STEEL WAY COVERS

HEAVY-DUTY PROTECTION FOR MACHINE WAYS AND SCREWS

Telaflex covers are ideal for any machine tool application requiring complete protection of machine ways and screws.

Telescopic covers provide the ultimate protection against dropped tools, heavy chip loads, cutting oils and coolants.

Covers can be designed to move along any machine axis. They are engineered and designed with the utmost precision, in a wide range of shapes, to your specifications.

In addition, Dynatect refurbishes all brands of telescopic covers and has a full inventory of replacement wipers and components.

Dynatect Way Cover Repair is for All Types of Damaged Covers

Replacing metal way covers can be costly and is often unnecessary. Dynatect can repair your damaged cover to OEM specs or better – at a fraction of the cost.

Repair service is for telescopic and roll-up style covers, as well as multi-axis shields.

EMCOR

Distributed by Tech Spec Inc.

Manufacturer of Standard and Custom Linear Motion Components

Fully equipped design and production shop for individual and short-run ballscrew assemblies. High precision engineering for custom applications, refurbish/repair worn parts, develop screw assemblies for new applications, and reverse engineering of existing components.

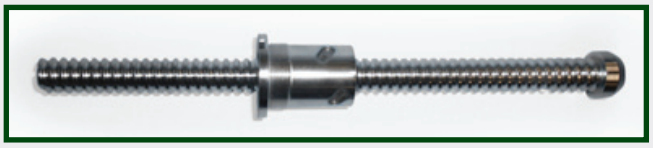
Engineered for Your Production Requirements

Unlike mass-produced parts and components, Emcor manufactures ballscrews and other linear motion components to meet your true production requirements, solve problems, and save you time & money in the long run.

- Deeper heat treatment makes units regrindable and repairable
- Extra circuits and more balls in the unit increase load capacity and durability
- Use of metal, never plastic, enhances service life

Emcor can provide complete design and engineering for parts, whole components, and kits based on your application and performance requirements.

- Refurbish worn parts
- Recreate a new part from a failed part
- Up-design a new part from a failed part
- Develop new parts or assemblies for new applications
- Up-design to high-durability internal return system for applications that need higher load capacity and longer service life



Emcor Incorporated's Bay City, Michigan, headquarters is one of the finest, best-equipped and best staffed facilities of its kind.

- We are well equipped and staffed to both design and produce individual and short-run parts and components
- Our design and production areas are clean, well lit and well organized
- Customer inventory areas are appropriately segregated and protected
- Safety and environmental procedures are carefully followed at all times

Distributed by Tech Spec Inc.

Material Specifications

Our standard materials are hardened to a depth that permits regrinding two times for extended service life.

- Gothic ball groove design form
- Ball Screw: Induction-hardened 4150, hardness of 60 Rockwell C minimum
- Ball Nuts: SAE 8620 carburized to 60 Rockwell C minimum
- Ball Bearings: 52100 chrome steel, grade 25 or better
- Other specifications are available

If necessary, your project can move forward without specs or blueprints. Emcor can:

- Rapidly reverse engineer and develop traceable inspection for existing parts, utilizing our state-of-the-art Platinum FaroArm® portable coordinate measuring machine
- Refer to our unmatched collection of CAD files for engineering details and assembly specifications for typical and custom designs

Exclusive High-Durability Design

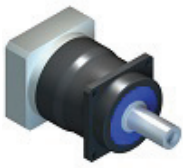
Emcor has developed an exclusive internal return design ballscrew for high-durability applications. Offering load capacity, durability, and service life beyond mass-produced ballscrews. Many major manufacturers are up-designing to realize the economic benefits of this system.

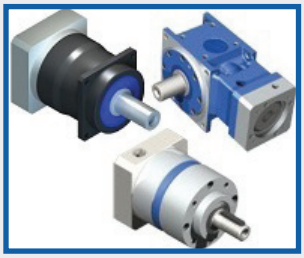
- Proven track record; request service life data
- Hardened steel internal return system
- Hardened steel crossover block and added ball bearings
- Manufactured entirely of steel; no plastic parts
- Easier to repair or refurbish than crossover, button-style return system
- Original equipment or retrofit for most applications

GAM, USA owned and operated is a manufacturer of Gear Reducers, Servo Couplings, Rack & Pinion Systems, Linear Mounting Kits, and other precision mechanical drive solutions used in motion control and automation technology.

With a wide range of standard products as well as the engineering expertise and manufacturing capabilities to provide customized solutions, GAM can help with your motion control applications.

Distributed by Tech Spec Inc.



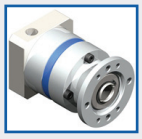
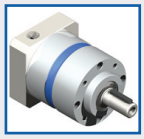
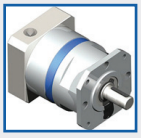
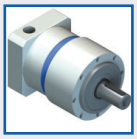
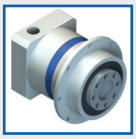


In-Line
High precision inline planetary gear reducers (helical and straight tooth gearing)

Right-Angle
High precision right angle gear reducers (hypoid and spiral bevel planetary gearing)

Spiral Bevel
Performance right-angle gear reducers with spiral bevel gearing, backlash as low as ≤8 arcmin, nominal torques up to 4,640Nm, radial loading up to 34,200N, and efficiencies up to 98%.

Robotic Gearboxes
Highest precision gearboxes for robotic applications. Backlash less than 1 arcmin.

EPL-H

EPL-W

EPL-X

EPL-A

EPL-F


EPR-F

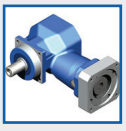
EPR-H

EPR-W

EPR-X

PER-W / PER-N

DL-DH

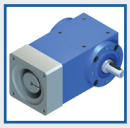
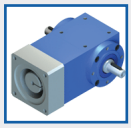
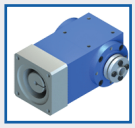
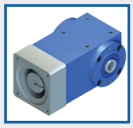
DL-PW

DL-DC

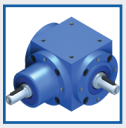
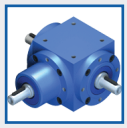
DL-DW

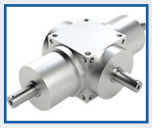
SSP

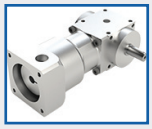
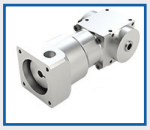
PE-N

PE-W

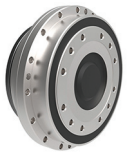
VC-W

VC-T

VC-S

VC-K

V-J0

V-C0

V-D0

V-E0

VP-G0 / VP-H0

VP-B0 / VP-C0

VPC-W / VPC-T

VPC-S


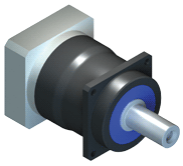
Zero-Backlash Robotic Gear Reducers



GPL-F / GPL-H
Robotic Planetary Gearbox
- Backlash <0.1 arcmin
- Seven sizes with nominal output torque of 445 to 3505 Nm and ratios of 50:1 to 200:1

GCLC-F / GCLC-H
With Motor Mount: GCL-F
Robotic Cycloidal Gearbox
- Backlash <1.0 arcmin
- High impact resistance
- Flange output in 7 sizes with nominal output torque of 167 to 4410 Nm and ratios of 57:1 to 192.4:1

Highest Precision Gear Reducers



SPH-W / SPH-K
SPH-C / SPH-F
Inline Helical Gearbox
- Helical gearing for smooth torque transmission
- Backlash 2-6 arcmin
- Max Acc Torque 23 - 1350 Nm

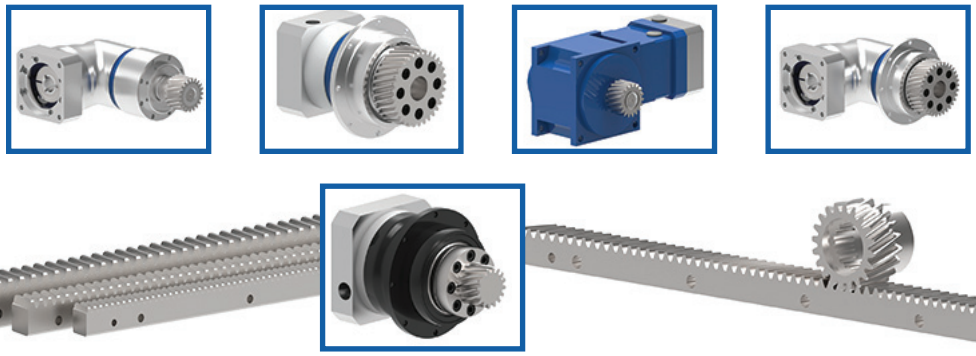
DS-W / DS-H / DS-T / DS-F
Dyna Series Right Angle Hypoid Gearbox
- Hypoid Gearing for demanding applications
- Backlash 1-6 arcmin
- Max Acc Torque 32 - 2160 Nm

Mini Spiral Bevel Gearboxes

VC Series
- Mini Spiral Bevel Gearbox
- Includes motor mount
- 35 & 45 mm frame sizes
- Max Acc Torque 5-11 Nm
- Formerly LL-Series

V-035 & V-045
- Mini Spiral Bevel Gearbox
- 35 & 45 mm frame sizes
- Max Torque 16 Nm
- Formerly L-Series

Distributed by Tech Spec Inc.



BELLOWS COUPLINGS

GAM Bellows Couplings are zero-backlash and the most torsionally stiff solution for dynamic applications, while still compensating for shaft mis-alignments. Wear and maintenance free even in high temperatures.

Series Options:
KM / KP / KLC / KG / KR / KSD / KHS / KSS / KGH / KPP / KPS

ELASTOMER COUPLINGS

GAM Elastomer couplings are zero-backlash and provide vibration/ resonance dampening while still compensating for shaft mis-alignments. A lower cost alternative to bellows style couplings.

Series Options:
EKM / EKC / ESM-A / EKS

SAFETY COUPLINGS

GAM Safety couplings provide mechanical crash protection while still retaining positioning. Safeguard your investment.

Series Options:
SKB-KP / SKY-KS / SKB-EK / SKY-ES / SKB / SKG / SKX-L

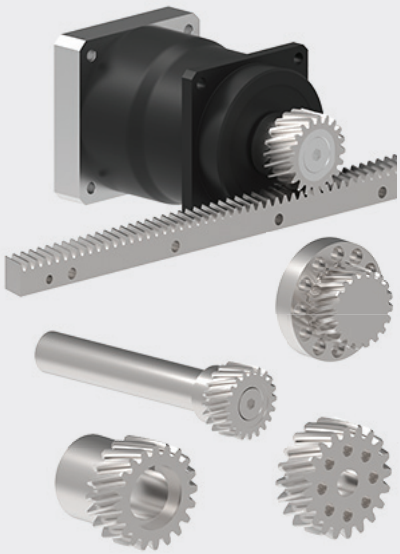
DISTANCE COUPLINGS

GAM Distance couplings are zero-backlash and can span distances of 20ft. High speeds and low inertias with bellows and elastomer styles available.

Series Options:
WDS / EDC

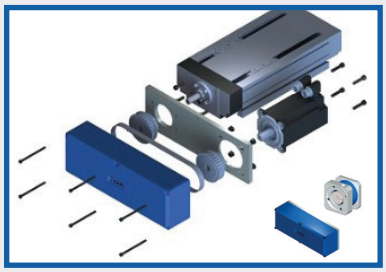
GAM Rack & Pinion

Helical Rack and Pinion series, along with a broad gearbox offering, provide a complete linear solution.



Rack and Pinion Features:

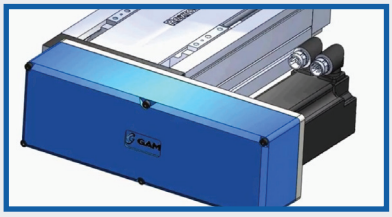
- High precision helical rack for smooth, quiet operation
- Precision pinions easily mount to GAM gearboxes
- Pinion can be pre-mounted to the gearbox
- Racks and pinions are matched to GAM gearboxes for optimized system performance
- Inline and right-angle systems available
- Pinions are hardened work with either ISO 6 or 10 hardened rack
- Optional mounting tool and felt gear (for lubrication) available



PMK (Parallel Mount Kit)

The latest addition to GAM's innovative linear mount product line is the new PMK - Parallel Mount Kit series. The PMK can help save space and reduce the overall length of an actuator by bringing the motor parallel to the ball screw. Unlike similar products available on the market, the PMK was designed for flexibility enabling you to connect virtually any motor to any linear ball screw actuator.

- 4 frame sizes
- Sturdy housing machined from aluminum and then anodized
- High torque rubber timing belt and timing pulleys provided
- Horizontal and Vertical mounting options



RINGFEDER

GERWAH®

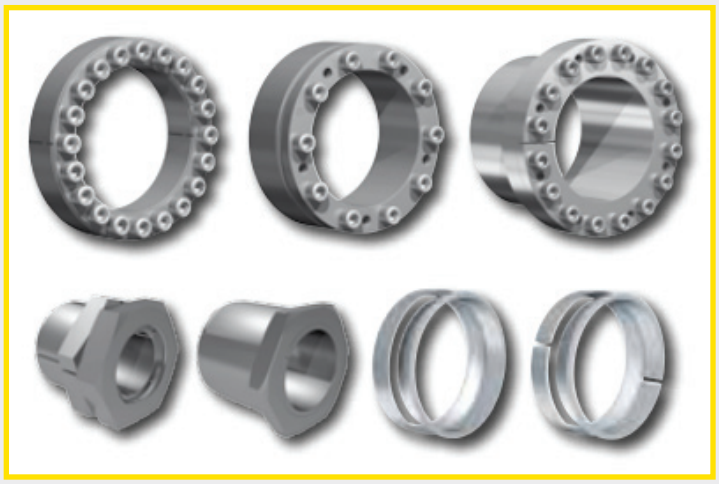
Distributed by Tech Spec Inc.

RINGFEDER POWER TRANSMISSION is well regarded for its customer-specific, application-oriented solutions that ensure excellent and failure-free operation for its clients.

Offering locking devices, couplings, bearing housings, and damping technology for many application types under their brand names RINGFEDER, TSCHAN, HENFEL and GERWAH.

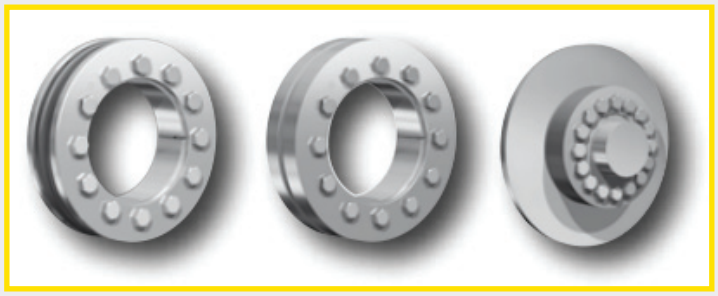
RINGFEDER® Locking Devices are suitable for securing all types of hubs onto shafts and axles. Replacing traditional shrink fits, keys and polygon connections, splined shafts etc..

This way when the following are attached they will be secured and reliable; cog wheels and sprockets, levers, lifters, cam discs, pulleys or brake discs, balance wheels, couplings, slip on gear mechanisms, flanges, pulley wheels and rotors.



Locking Assembly Features:

- Internal clamping connection
- Wide range of standard Locking
- Assemblies from 6-1000 mm shaft diameter
- Safe transmission of high torque loads
- Custom made solutions
- Backlash-free
- Optional stainless steel



Shrink Disc Features:

- External clamping connection
- Wide range of standard Shrink Discs from 12-500 mm shaft diameter
- Safe transmission of high torque loads
- Optional stainless steel

Friction Spring Features:

- High spring work combined with low weight and volume
- High damping potential
- Overload-safe in blocked position
- Independent of loading rate
- Diagram independent of ambient temperature
- Maintenance-free

RINGFEDER

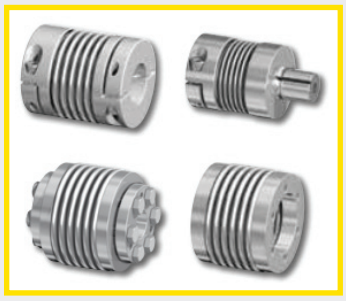
GERWAH®

Distributed by Tech Spec Inc.

GERWAH® Backlash-free Metal Bellows Couplings are used in the field of mechanical engineering to transmit torque or movement from shaft to shaft with maximum torsional rigidity.

For more than 30 years, GERWAH has specialized in trail-blazing couplings for driving technology and conveying engineering.

From industrial machinery of all kinds to servo systems, linear or high-speed drivers: Customers from all around the globe rely on the precision of our components.

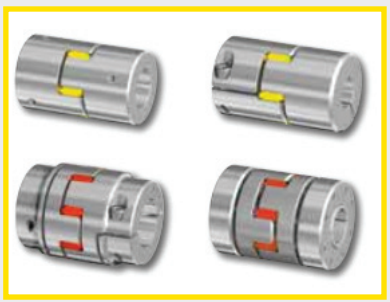


Metal Bellows Couplings:

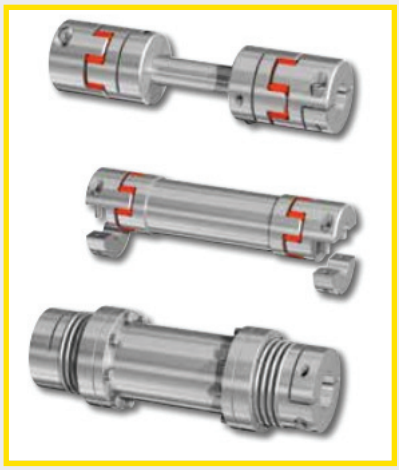
- Backlash-free
- Low moment of inertia
- Compensation of shaft-misalignment
- Torque from 0,4–5000 Nm
- Optional stainless steel

Servo-Insert Couplings:

- Backlash-free
- Vibration damping
- Plug-in mounting
- Compensation of shaft-misalignment
- Torque from 0,5–650 Nm
- Optional stainless steel

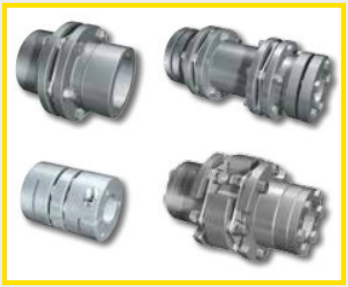


Line Shafts:



- Backlash-free
- Compensation of axial, radial and angular misalignment
- Maintenance-free, no wear
- Excellent power transmission
- High torsional stiffness and misalignment compensation
- Optimal moment of inertia
- Temperature range -30 °C to +100 °C
- Installation length up to 4m possible

Torsionally Rigid Disc Couplings:



- High torsional stiffness
- High transmissible torques
- Maintenance-free operation
- Can be used up to temperatures of approx. 240 °C/460 °F

Distributed by Tech Spec Inc.

Solutions for special applications:

- Long distances without troughs
- Systems for vertical movements
- Alternatives for cable drums
- *And many other solutions*

Energy chains for confined installation spaces

Energy chains for smallest installation spaces and bend radii and smallest dimensions for smallest installation spaces. In one or two parts. Openable or simply press in or pull out cables using the “easy design”.

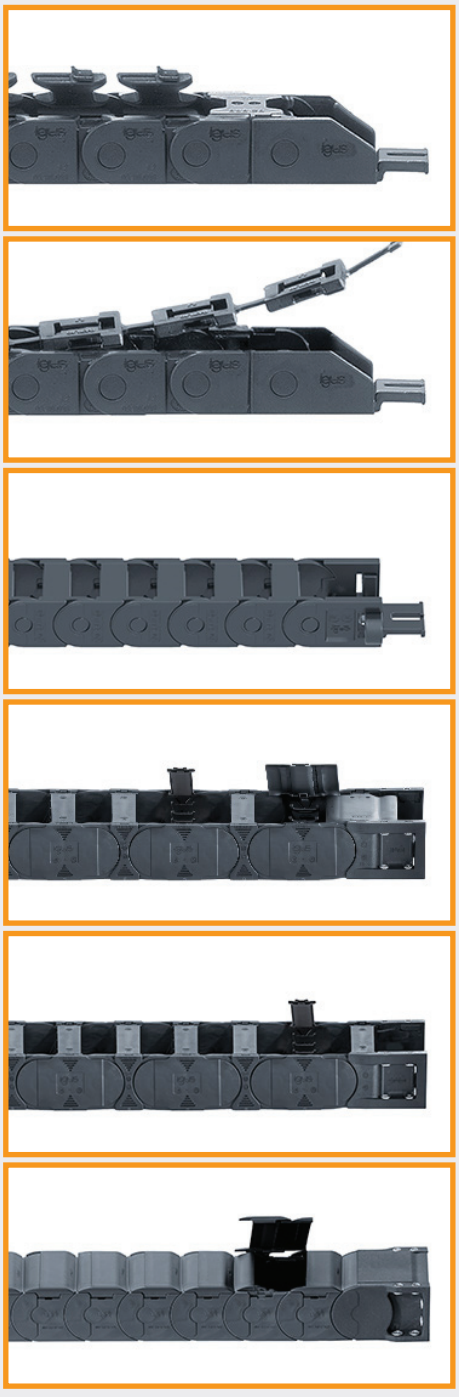
Energy chains for medium loads

The standard for mechanical engineering all over the world. All the product refinements made over many years have now been combined into the new generation of series E2.1, and with it a new standard has been set. More usable installation space with the same outer dimensions but even quieter and providing increased service life and strength. The E2/000 and E2.1 families are the most popular energy chains in the medium load segment.

Energy chains for high loads

The E4.1 and E4.1L families are to high loads what the E2/000 and E2.1 are to the medium load segment. The most versatile e-chain® modular kit on the market. Can be expanded virtually at will using accessories. Enormous range of dimensions and unique technical specifications for all types of machines and branches of industry. Can be opened and filled extremely quickly, provides high torsional stability and strength thanks to “undercut design” and “double stop-dog system”. Quiet running thanks to integrated “brake” in the stop-dog system.

Energy Chain Cable Carriers



Distributed by Tech Spec Inc.

Moving energy made easy

Today, millions of igus® e-chains® are used in applications around the world – from beverage dispensers to steelworks. They have a modular design and are easy to assemble. Not only are they resistant to various media and designed for very small bending radii, e-chains® are also ideal for confined installation spaces as well as large, heavy and rigid cables and hoses.

Energy chains for robots

Guide energy along all axes, specifically for robot applications. For axis 1, twisterchain offers ideal cable protection for rotary and spiral movements. Axes 2–6 are the field of application for the triflex® R system. Impact-resistant, torque-resistant with external stop-dog and twistable by +/- 10° per chain link – these are the properties that make triflex® R the perfect and best possible robot e-chain®.

Triflex® R

Twisterchain

Energy chains for protection against dirt and swarf

The primary task of the family of closed tubes is to protect cables from dirt, dust and swarf. Being openable thanks to hinged or removable lids, stop-dogs encapsulated and protected against dirt and high stability mean that the tube product range becomes standard when it gets dirty.

Carriers for all requirements:

- ESD/ATEX Avoidance of static
- Long travel possible
- FDA Compliant
- Circular movements up to 7000° for robots
- Extremely quiet
- More options available!

IKO

Distributed by Tech Spec Inc.

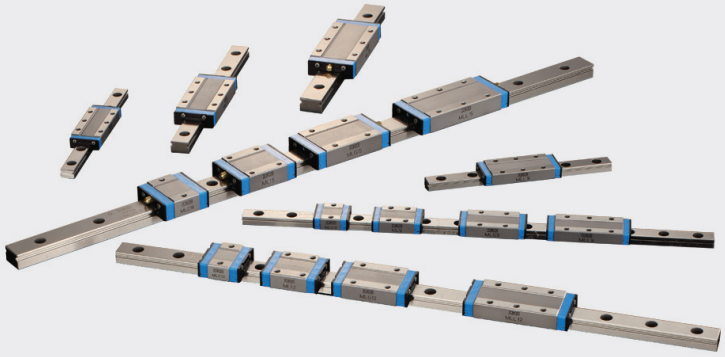
Innovation.
Our employees constantly develop new technologies.

Know-how.
Our extensive technical knowledge is applied to every situation for an optimal solution.

Originality.
Our creativity allows us to continuously improve the performance of our products.

IKO manufactures a wide range of products including cam followers, linear way and linear roller way systems, ball splines, crossed roller guides, and rotary bushings.

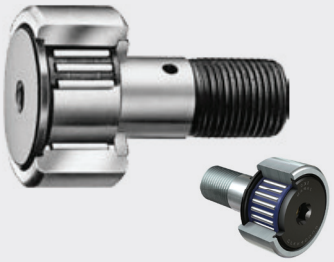
Many available with the C-Lube option which reduces maintenance by self-lubricating the linear components. C-Lube is not in contact with the guide rail, permitting a smooth motion without increasing the rolling resistance.

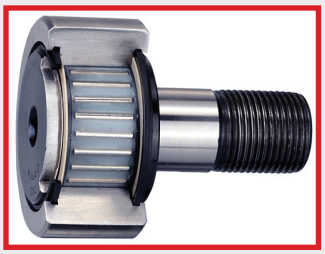


IKO designs and manufactures a variety of crossed roller bearings that can handle radial, thrust and moment loads at the same time. These compact bearings feature rollers crossed at right angles between inner and outer rings.

Widely used in machine tools, industrial robots and medical equipment because of their high rotational accuracy.

Sealed and open designs are available. Sealed bearings incorporate synthetic rubber seals to protect against dust, dirt and grease.





IKO provides a broad selection of cam followers to meet the diverse needs of applications including machine tools, industrial robots, electronic parts production, and office automation equipment.

- Small coefficient of friction.
- Excellent rotational performance designed for outer ring revolution.
- High load capacity by design—radial gap is smaller than within the general needle roller bearings, alleviating impact load and increasing lifetime.
- Easy attachment with either hexagon sockets or screw driver slots.
- Followers are available with a cage or full complement design, shield or sealed versions, and either spherical or cylindrical outer rings.
- Ranging from miniature and standard models to eccentric styles and those with thrust disks. Stainless steel versions resist corrosion and are suitable for clean room applications.

IKO

Distributed by Tech Spec Inc.

At IKO, we design and manufacture linear guides, needle roller bearings and positioning stages to meet your highest quality and performance standards. Our motion devices deliver the precision and accuracy you expect over long maintenance-free life cycles.

Radial style bearings for high speeds and heavy loads

IKO manufactures a wide range of radial needle roller bearings to meet the needs of different applications and machine profiles. These include shell type bearings, needle roller cages for both general use and within engine connecting rods, and machined type needle roller bearings.

Shell Type Needle Roller Bearings

Lightweight bearings with large load ratings. They employ a shell type outer ring made from a thin special-steel plate which is accurately drawn, carburized and quenched, thus providing the lowest sectional height among the needle roller bearings.

There are two types of bearings available in this series; the caged type and the full complement type. The appropriate type can be selected according to the operating conditions. The caged type has a structure in which the needle rollers are accurately guided by the cage and thrust rings. It is useful for applications at high-speed rotation. The full complement type needle roller bearing, on the other hand, is suitable for heavy-load applications at low-speed rotation.

Since these bearings are press-fitted into the housing, no fixtures for axial positioning are needed. They are ideal for use in mass-produced articles that require economy, and have a wide variety of applications.

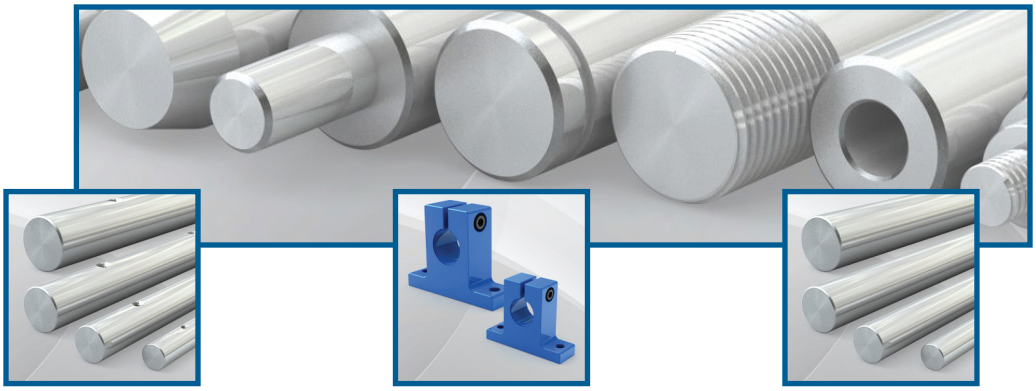
Machined Type Needle Roller Bearings

Machined type needle roller bearings feature low sectional height and large load ratings. A highly rigid outer ring makes these bearings ideal for light alloy housings as well. Three styles are available: Caged, Guided and Capilube.

- Metric and inch versions available.
- Caged and full complement design options.
- Suitable for a wide range of conditions including heavy loads requiring either high-speed or low-speed rotation.
- Design choices include bearings with or without inner rings.
- Ringless style uses a shaft as the raceway for a streamlined, compact footprint.

LEE® LINEAR

Distributed by Tech Spec Inc.



60 Plus® Precision Linear Shafting

60 Plus Precision Linear Shafting provides the highest machine-ability of case hardened and ground steel shafting. Manufactured from C1060 carbon steel, 60 Plus® is available in inch and metric sizes with lengths up to 184″. Custom machining and chrome plating can be special ordered.

Hard Chrome Plating – Stainless Alternative

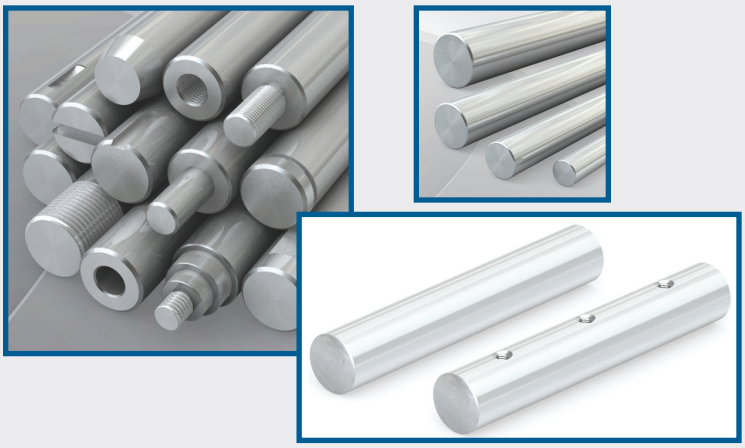
- Enhanced corrosion resistance
- Improved appearance
- Replacement for stainless shafting
- Longer product life
- Pre-plate diameter compensates for chrome thickness

50 Plus® 440C Stainless Shafting

Available in inch and metric diameters, Rockwell hardness of 50/55 “C”. Custom machined shafts are also available. The shafting is available in lengths up to 158″. For longer lengths, shafts can be butt or dowel jointed.

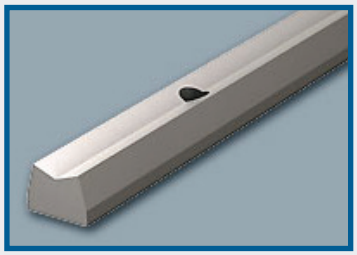
Pre-Drilled Shafting

60 Plus® and 50 Plus® 440C Stainless Steel - Available in ½” to 3″ diameters, these shafts are pre-drilled with a standard industrial hole pattern to meet most applications. For longer lengths, shafts can be butt or dowel jointed.



Custom Shaft Machining Options:

- Threading
- Diameter reduction
- Coaxial holes in end of shaft
- Radial holes drilled and/or tapped through shaft
- Shafts joined for longer lengths
- Keyways
- Flats
- Deep hole drilling

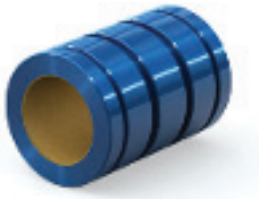


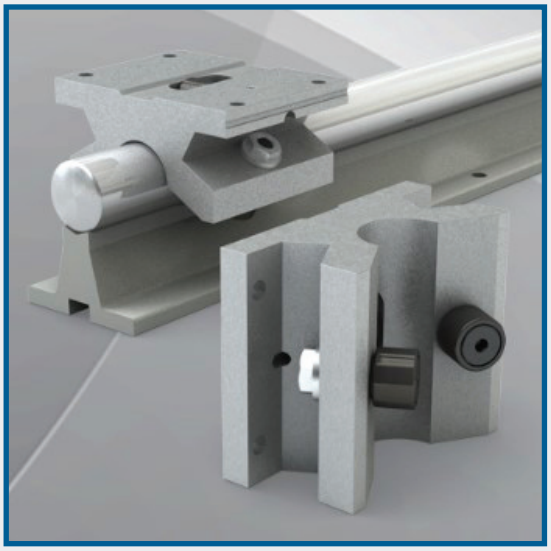
Supports for Lee shafts are available. Standard and low-height support rails, and support blocks.

For both metric and inch sized shafts.

LEE LINEAR

Distributed by Tech Spec Inc.



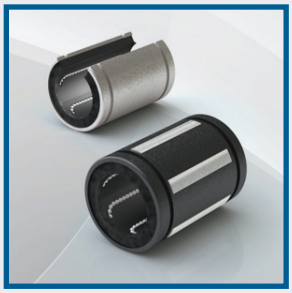


Roller Pillow Blocks

Lee offers single, twin, and double Roller Pillow Block types in various shaft diameters. Roller Pillow Blocks are truly free-rolling. The unique design of the patented Roller Pillow Block incorporates a larger 'rolling' diameter than conventional linear ball bearing pillow blocks. The large rolling diameter enables the bearing to operate at significantly higher speeds and acceleration. Constructed with an aluminum body and rollers with black oxide finishing, this rugged bearing has no plastic parts to melt or wear out. Additionally, the Roller Pillow Block system is re-buildable.

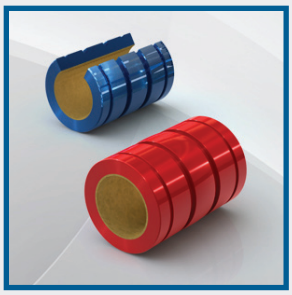
Roller Pillow Block Options:

- Top Grease Fitting - to achieve full bearing life in contaminated environments
- Rebuild Kits - contain all the parts required for a complete bearing rebuild
- Scraper Option - reduces accumulation
- Floating Option - for non-parallel shafting and aligning long shafts



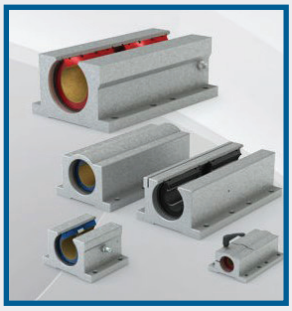
Ball Bearings

Precision Plus Linear Ball Bearings provide superior life with superb accuracy, while maintaining high load capabilities. Self-aligning with integral seals.



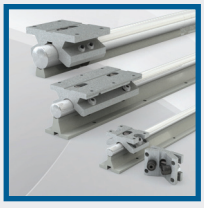
Plain Bearings

Frelon® liner within a precision bearing creates a size interchangeable, self-lubricating, long life linear plain bearing capable of moving in linear, oscillating, rotary, or any combination of motions at speeds exceeding 4m/s (165 in/s).



Pillow Blocks

Precision Plus Linear Ball Bearing Pillow Blocks have all the advantages of Precision Plus Linear Ball Bearings, with the added bonus of mountability. They are available in opened and closed style to fit a wide variety of applications.



NIPPON BEARING
North America

Distributed by Tech Spec Inc.

The **NB BALL SPLINE** is a linear motion mechanism utilizing the recirculating motion of ball elements. It can be used in a wide variety of applications including robotics and transport type equipment.

High Load Capacity and Long Travel Life
The raceway grooves are machined to a radius close to that of the ball elements. The large ball contact area results in high load capacity and long travel life.

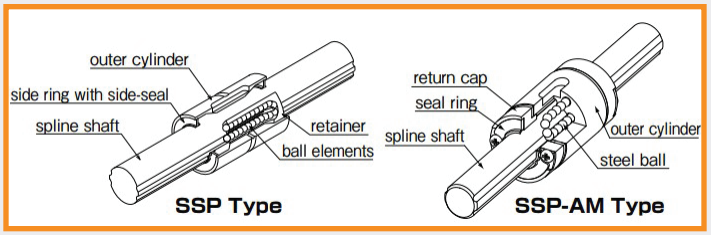
Wide Variety of Configurations
Spline shaft sizes with diameters from 4mm to 100mm are available. Several types of Spline nut are available: cylindrical types (SSP/SSPM), and flange types (SSPF/SSPT). Material option of Stainless steel (SUS440C or equivalent) is also available.

High Accuracy Torque Transmission
Due to the effective contact angle between the raceway grooves and the balls, the NB ball spline can transfer large torque. By adjusting preload it is possible to obtain a higher rigidity and a higher positioning accuracy.

Ease of Additional Custom Machining
Since a round shaft with raceway grooves is used, NB ball spline shafts can be easily machined to customized specifications.

High-Speed Motion and High-Speed Rotation
The outer cylinder is compact and well balanced, resulting in good performance at high speed.

Light Weight and Compact
The NB ball spline SSP-AM type has a smaller spline nut diameter compared to the conventional SSP type nut on the same shaft diameter. The SSP-AM type is best suited for the chip-mounter head device and the multi-axial applications. Anti-corrosion type is also available.

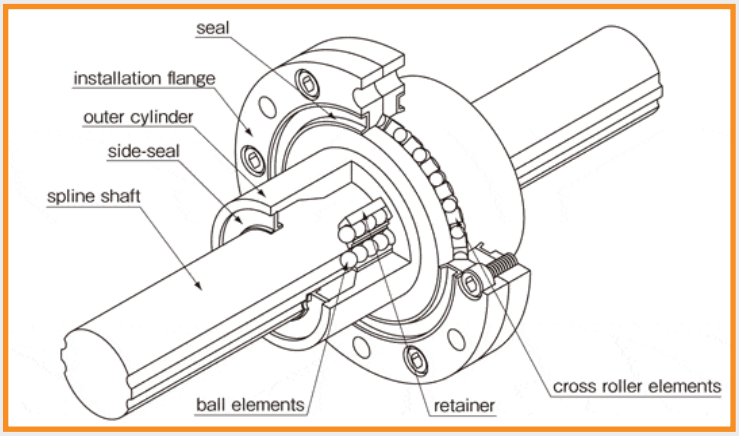


NB ROTARY BALL SPLINE can be used for both rotational and linear motion. It can be used in SCARA robots, the vertical shaft of assembly equipment, and tool changers and loaders.

Increased load capacity
The rotary to linear mechanism of NB ball splines can typically handle 10 times the load of conventional ball bushings, which only maintain a single point of contact at any given time.

Compact and High Rigidity (SPR type)
The cross rollers are directly attached to the ball spline's outer cylinder, resulting in a compact and light design. SPR type has high rigidity despite its compactness. The tool changer is one typical application.

High Rigidity and High Speed (SPB type)
SPB type is a combination of a spline nut and angular contact bearings. The rotary portion is a set of angular contact bearings which are aligned in the back-to-back duplex manner. SPB type can bear radial, axial, and moment loads in a well-balanced way, thus best suited to high speed rotational applications.



NIPPON BEARING
North America

Distributed by Tech Spec Inc.

Advanced Machining Technology

NB performs a wide variety of highly accurate machining processes to provide the custom shafting from relatively simple machining, such as tapping and shaft stepping, to the high-speed rotating shafts and spindles. NB can also answer the special grinding and bore machining requirements.

LINEAR BUSHINGS provide smooth linear motion using the rolling motion of ball bearings.

SW / SM / KB series are the standardized linear bushings with closed, open and adjustable type with single and double wide in Inch, Asian metric and European Metric sizes.

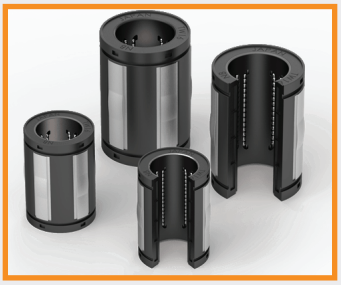
A wide range of pillow block type housings are available for NB linear bushings, including both resin and machined steel components. When properly paired, you can count on NB linear bushings and pillow block assemblies to deliver high-accuracy, low-cost performance.

TOPBALL® Ultimate TW-H Type

4x the Load & 64x the Life of NB's Standard Slide Bush Series. Self-aligning load plates to avoid problems caused by mounting or machining errors, or by shaft deflection, TOPBALL load plates feature tapered ends that compensate for slight misalignments. This ensures more accurate performance with fewer adjustments when installing the product.

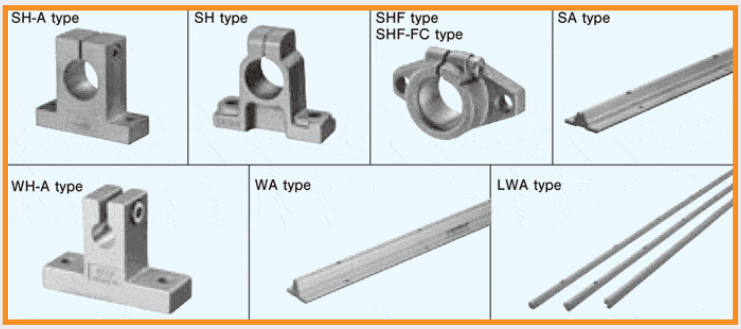
Key Benefits:

- Floating seals
- Adjustable clearance
- Longer travel life
- Higher load capacity
- Higher speed



LINEAR SHAFT can be used in a wide range of applications as a mechanical component from straight shaft to spindle shaft.

- **SFW / SFWS** type (Inch Series)
- **SF / SNS / SNT** type (Metric Series)
- **SFW-PD / SFWS-PD** type (Inch Series Pre-Drilled Shaft)
- **SNB / SNSB** type(Metric Series Pre-Drilled Shaft)
- **SFW-PD** and **SFWS-PD** types are standardized series that can be used with the **WA** shaft support rails
- **WH-A / WA / LWA** type (Inch Series)
- **SH-A / SH / SHF, SHF-FC / SA** type (Metric Series)



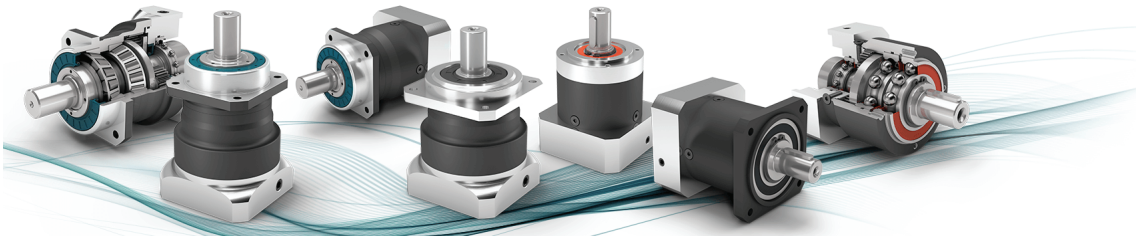
NB SLIDE GUIDE high-precision and high-rigidity linear guide designed to utilize the motion of rolling elements. They have numerous advantageous characteristics including low friction, no stick/slip, and smooth linear motion even under high load conditions.

- **Needle Roller Guide – EXRAIL®**
- **Linear Guides – SGL Type**
- **Linear Guide – SGW Type**
- **Miniature Linear Guides – SEB Type**
- **Miniature Crossed Roller Linear Guides – SER Type**

NEUGART

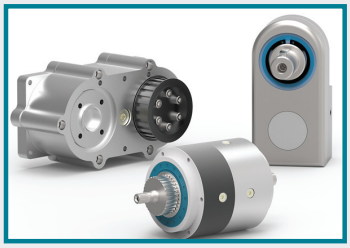
Distributed by Tech Spec Inc.

Neugart is recognized as one of the leading manufacturers of standard planetary gearboxes. We have also made a name for ourselves on the market as an expert manufacturer of custom gearboxes.



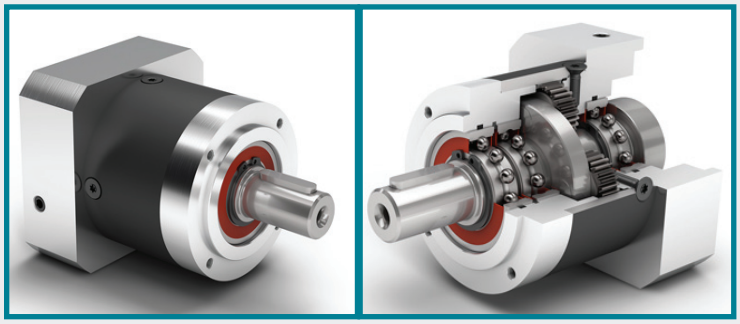
Customer-Specific Solutions

As one of the leading manufacturers of planetary gearboxes, we are always searching for new solutions that benefit our customers. That's why we also develop, design, and produce custom products in the form of planetary, spur, and bevel gearboxes.



Our experienced engineers always find the optimal solution for your application. Close collaboration with our customer is important to us even in the early development phase. No matter what the special requirements of your application, we can develop a custom made gearbox to match your needs.

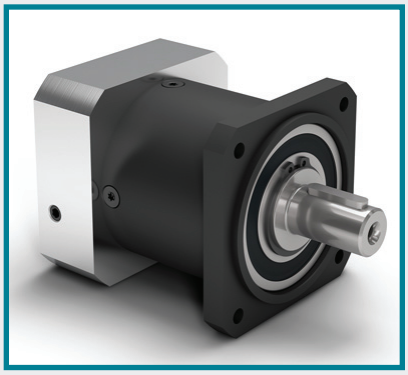
PLE - Economy Planetary Gearbox



It is notably light, extremely powerful, yet suitable for complex production cycles due to its low-friction bearing design and optimized lubrication.

This planetary gearbox maintains its maximum efficiency even at the highest speeds.

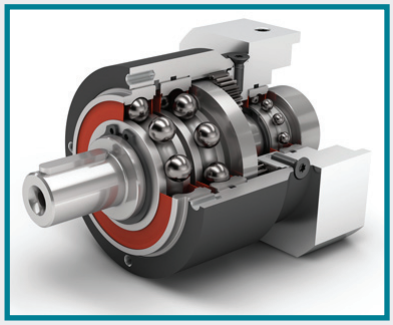
A genuine powerhouse at an attractive, fair price.



The ***PLQE*** gearbox is uncomplicated and powerful. It can be connected directly to your installation without the need for an intermediate flange. The large deep groove ball bearing at the output can absorb large axial and radial forces. In the process, only little heat is generated, so reliable operations are assured even in complex production cycles.

Our ***PLPE*** unites the best properties of the Economy Line with a performance advantage. It is cost effective, yet powerful, and generates minimal heat. The optimized output bearing has been designed for high radial and axial forces.

The large deep groove ball bearings in the ***PLPE*** can absorb large radial and axial forces. Your drive elements can therefore be installed directly on the output shaft without the need for additional bearing components. This makes it easy to use and flexible.

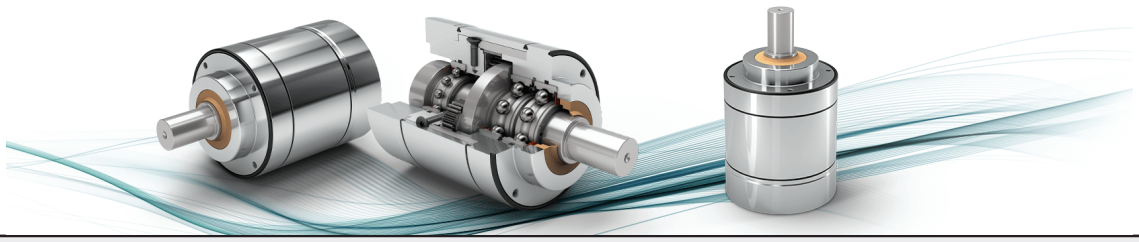


Neugart distinguishes itself with advanced, innovative technology and high-precision production technology. Worldwide, renowned customers put their trust in our vast experience.

NEUGART

Distributed by Tech Spec Inc.

The stainless steel HLAE gearbox was specifically developed and constructed for use in hygiene and food applications. As the world's first hygienic design planetary gearbox, it fulfills a need amid the stringent requirements for production in sensitive industry sectors.



Neugart gearboxes are world-class products.

Unique possibilities are available for countless industries as we continuously optimize all technologies and services related to our products. We invite you to benefit from our competitive advantages.

Neugart's fully developed product portfolio can handle virtually all applications with controlled motion.

Automation and robotics
- Cost-effective gearbox solutions
- Smart software for all product aspects

Packaging machines
- Dynamic and hard-wearing gearboxes
- Cost-effective gearbox solutions

Machine tools
- Extensive application experience
- Reliable and long-lasting gearboxes

Food and beverage industry
- Certified products
- Worldwide, comprehensive application knowledge

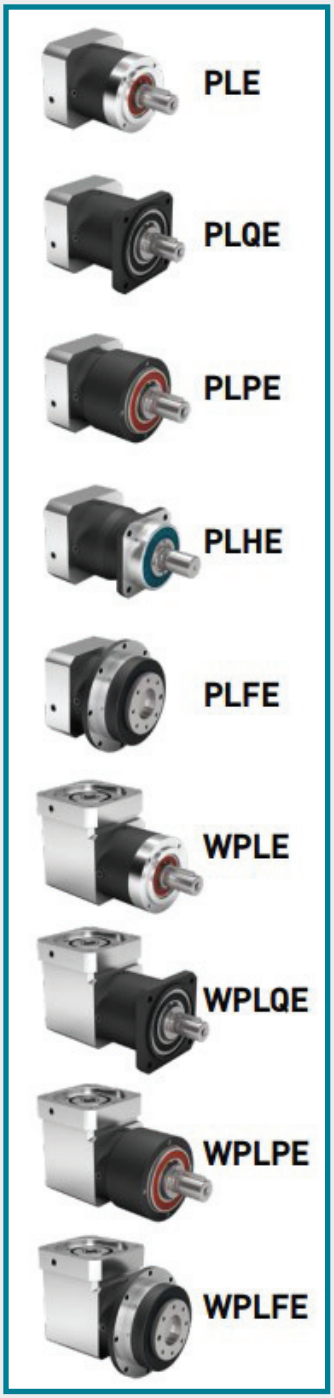
Medical engineering and pharmaceuticals
- Smart software for all product aspects
- Certified products

Printing industry
- Extensive application experience
- Higher quality end product

Agricultural machinery
- Reliable and long-lasting gearboxes
- Suitable for use in harsh conditions

Precision Gearboxes

Economy Gearboxes



MOTION & CONTROL™

NSK

Distributed by Tech Spec Inc.

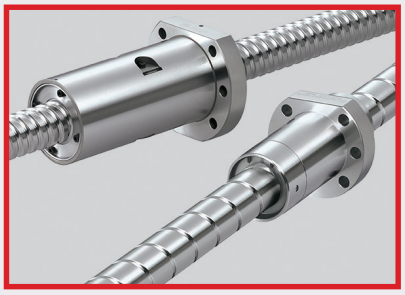
Enabling Automation in Motion and Control

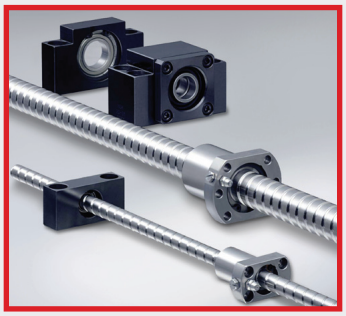
NSK enables customers to achieve advancement in performance, enhancement in quality, reduction in space or maintenance, and improvement of life cycles in their equipment. NSK provides high quality products and integrated system solutions using precision ground ball screws, linear actuators, ball and roller bearings and direct drive motors to enable smooth and precise motion and control in our customer's equipment.

NSK employs cutting-edge friction control technology and precision accuracy to ensure consistently reliable, smooth and precise movement and positioning in the most challenging applications.

Ball Screws

- Highest accuracy, durability, rigidity and smoothest motion
- Range include miniature ball screws to ultra-large sizes, with C0 to C7 accuracy grades
- Fully customizable ball screws manufactured locally in Franklin, IN
- Employs revolutionary tribology (friction control) technology





Corrosion Protection for Ball Screws and Linear Guides

Covering components with surface treatment *fluororesin coating* as electrolytic anti-rust black film is the optimal rust prevention coating for linear guides and ball screws.

Compact FA Series

Available for immediate delivery of BSS Series high-speed, low-noise Ball Screws offering quiet, high-speed operating performance

BSS Series

Offering High-Speed and Low-Noise, BSS is quiet and compact, with unparalleled high-speed performance. Suitable for an extensive range of uses, from transportation equipment to machine tools.

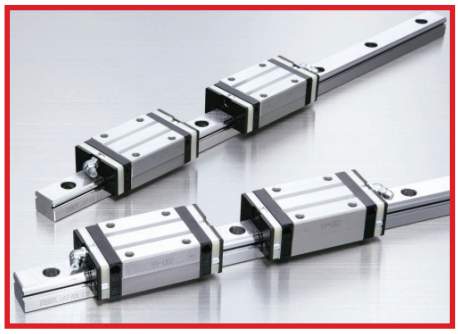
FSS Series Ball Screws

Designed with a fixed machined shaft end which can be cut to a desired stroke. A simple support unit can be installed at the un-machined shaft end to create a ball screw with a flexible stroke setting in combination with a fixed simple support configuration.

MOTION & CONTROL™

NSK

Distributed by Tech Spec Inc.



LH/LS Series (except for LH08,LH10, LH12) are discontinued for new machine designs.

LH/LS is replaced with the improved NH/NS series which is dimensionally equivalent.

NH/NS Series Linear Guides offer maximum precision combined with extremely high load capacity. Outstanding accuracy means that the moving object is positioned precisely and moves optimally guaranteeing smooth, even running.

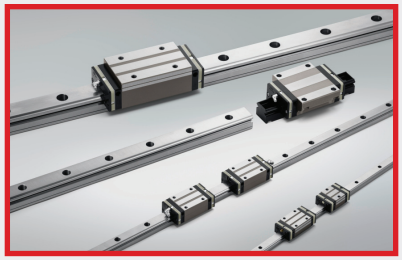
NH/NS linear guides are used for a wide variety of tasks, including applications in medical technology, semiconductor industry, measuring machines and machine/plant construction.

PU/PE-Series Miniature Linear Guides offers outstanding stability. The PU / PE's high performance features improved dynamic friction, offers smoother motion, noise reduction, enhanced dust-proofing and high corrosion resistance.

Miniature PU and PE series support diverse applications, from semiconductor manufacturing devices to medical equipment.

Condition Description

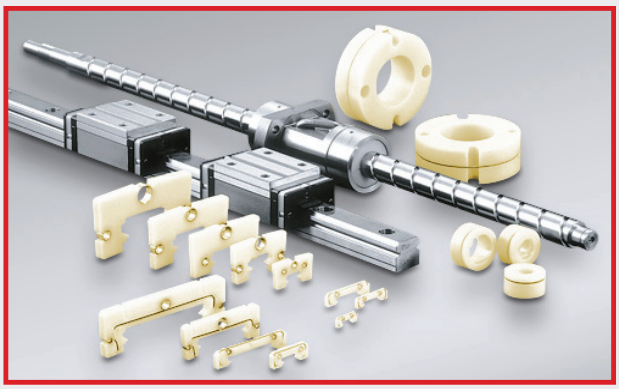
- High Accuracy
- High Load
- High Speed
- Low Noise
- Misalignment



Features

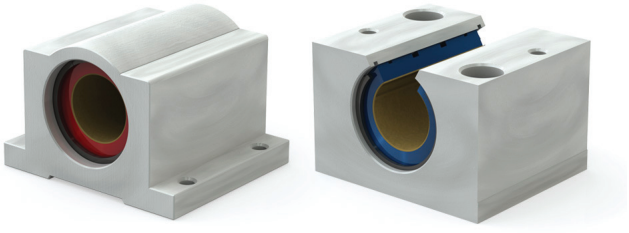
- High-speed design
- Extremely high load rating
- High level of precision in different classes
- Self-aligning feature accommodating misalignment and minimizes internal loads
- Optional extras:
- K1 maintenance free lubrication unit
- Various wipers
- High-temperature design
- Special materials and coatings
- Quiet running
- Various preload categories

NSK's K1 Lubrication Unit is a uniquely designed system that not only lubricates but also helps minimize contamination.



PBC Linear

Distributed by Tech Spec Inc.



RST Round Shaft Technology

Linear Bearings and Shafting

- Self-lubricating PTFE linear plain bearings and linear ball bearings
- Round shafting in steel, stainless steel, and ceramic coated aluminum

GST Gliding Surface Technology

Plain Bearing Linear Guideways

- Low profile modular designs
- Self-lubricating PTFE liners and polymer inserts
- Tolerates washdowns and harsh environments

IVT Integral-V™ Technology

Linear Guide Systems

- Anodized aluminum with an embedded hardened stainless steel raceway
- Adjustable pre-load
- Ideal for all types of t-slot aluminum framing

CRT Cam Roller Technology

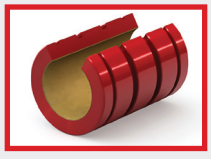
Roller Bearings and Linear Guideways

- Radial ball bearings of diverse profiles and engineering materials
- High speeds, acceleration, and long travel lengths

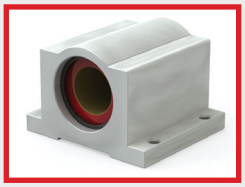
Mechatronics Enabled

The Mechatronics Enabled product line offers a broad range of mechatronic solutions for small, medium, large, and extra-large applications. Choose from belt, ball screw, lead screw or un-driven systems complete with a number of mounting and performance accessories.

90% of applications do not require seals when using Simplicity bearings. The liner has a natural ability to wipe particles from the shafting. Any particulate (metal, sand, etc.) that does enter the bearing will embed itself into the soft liner not scoring the shafting or locking mechanical parts.

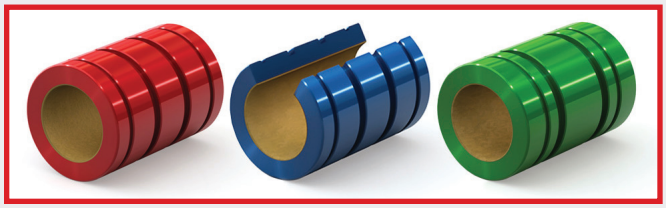


Simplicity bearings DO NOT tolerate misalignment. They simply stop moving without any damage to the shafting. Self-aligning housings aid in misalignment – up to 1/2° from center line.

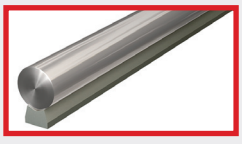


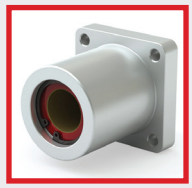
RST - Round Shaft Technology

- Self-lubricating, maintenance-free, no external lubricants
- Low wear and friction, patented PTFE liner
- High strength, 20x more load capacity than a ball bearing
- Wide temp. range (-400°F/+400°F) (-240°C/+204°C)
- Corrosion-resistant, excels in dirty environments
- No rolling elements prevents catastrophic failure



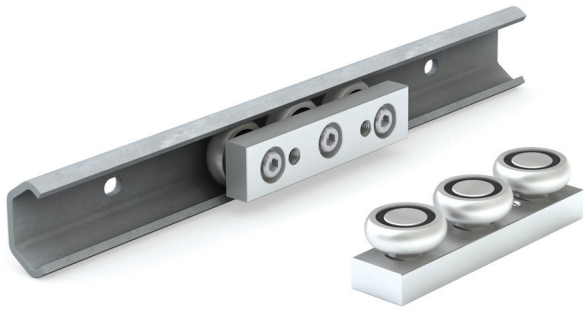
- Steel shafts are made of polished, case hardened steel and suitable for Simplicity® plain & ball bearings
- Ceramic coated aluminum rails, non-magnetic, lightweight, and chemical resistant
- Aluminum alloy support rails available in one or two-piece design and pre-assembled
- End-joinable for longer travel lengths
- Available in both Metric and Inch sizing





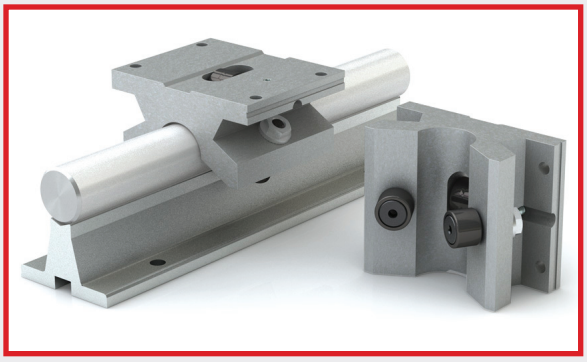
PBC Linear™

Distributed by Tech Spec Inc.



Roller Pillow Blocks are comprised of aluminum and coated steel rollers, with a recommended shaft of carbon steel. They have an ease of installation when compared to THK products, and are an excellent product solution for situations that require:

- Long runs with butt joints in the shaft. Shock handling of the joint is better than ball bearings due to higher surface areas.
- High speeds. Roller Pillow Blocks can travel 2.5x faster than ball bearing types, with a maximum speed of ~8m/s.
- High loads. Higher load ratings mean Roller Pillow Blocks tolerate shock better. They can effectively use a smaller size roller pillow block saving money on shafting.



Well-suited for harsh environments including:

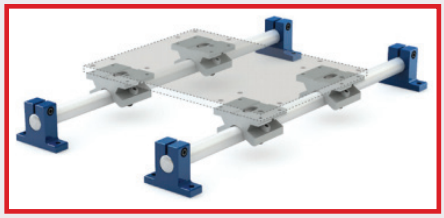
- Dirty/Contaminated. Roller pillow blocks out-perform ball bearing, which are not suitable in dirty conditions
- Higher temperatures. Standard rollers can handle maximum temperatures up to 250°F, and high temp rollers up to 392°F.

Product highlights include:

- Loads up to 12,500 pounds
- Self-aligning
- Adjustable clearance
- Corrosion resistant
- High speeds
- Standard mounting holes
- Re-buildable
- Interchangeability with industry standards

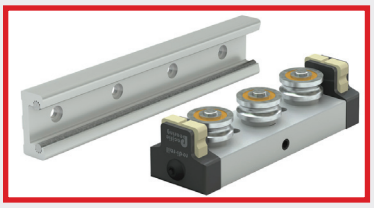
Roller Bearings move smoothly over misaligned and joined shafts over long travels.

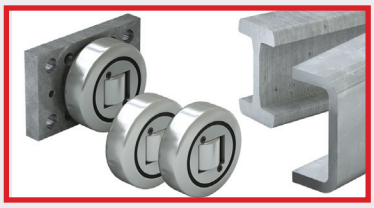
Shaft and Rail Systems

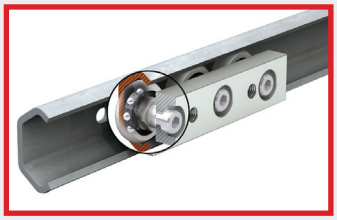


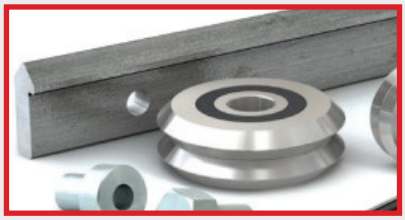
Offering shaft and rail systems composed of world-class linear motion components in six standard configurations in four different sizes. These systems also come with the option of carriage plates—with or without mounted pillow blocks.

- SPB (Inch) Single Roller Pillow Block
- MSPB (Metric) Single Roller Pillow Block
- MSPB (Metric) Single Roller Pillow Block
- MDPB (Metric) Double Roller Pillow Block
- TWN (Inch) Twin Roller Pillow Block
- MTWN (Metric) Twin Roller Pillow Block
- FUBK (Inch) Pillow Block Rebuild Kits









Cam Roller Technology

- REDI-RAIL® & LOW PROFILE REDI-RAIL
- COMMERCIAL RAIL
- HARDENED CROWN ROLLER
- V-GUIDE
- HEVI-RAIL®
- Hardened Crown Rollers, Rails and Brackets

Distributed by Tech Spec Inc.

ALL CLEAN ELECTRIC

- *No hydraulic oil*
- *No leakage*
- *No contamination of the environment*

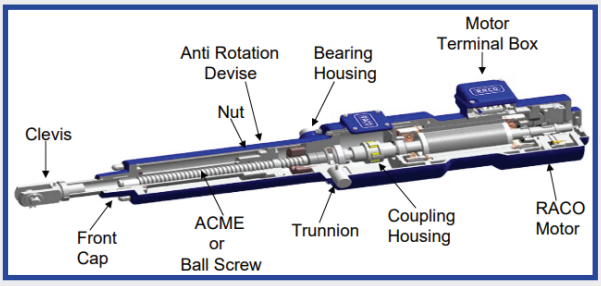
RACO International, LP is a leading manufacturer of linear and rotary electromechanical systems and the true pioneer of standard and custom electric actuators.

Patented RACO actuators are reliable, economical, and environmentally safe replacements for outdated hydraulic or pneumatic systems and are in high demand for applications in industrial automation.

RACO electric actuators are ideal components or subsystems for demanding applications and include modular actuators, linear modules, rotary modules, compact actuators, and the newly developed RACOmatic. We also produce an electromechanical spring-loaded brake actuator for light rail mass transportation vehicles.

RACO Covers Many Industries:

- ***Aggregates:*** Coal, Gravel, Copper, Ore, Organic Compounds
- ***Material Handling:*** Gates, Flop Gates, Diverter Gates
- ***Automation:*** Machine Components, Press Applications, Positioning
- ***Marine:*** Moveable Bridges, Lock and Dam, Flood Control
- ***Transportation:*** Monorail, People Mover
- ***Government:*** DOT, DOD, DOE, NASA

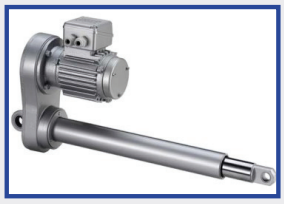


The rotational energy, produced by the electric motor, will be converted into a linear movement by the ACME or Ball Screw installed within the thrust unit. ACME screws are typically self-locking. Based on a low lead selection and the resulting large surface area between the nut and the screw provides a robust power transfer assembly and a high capability for shock loading. Static loads, which can always be higher than the nominal thrust, can be safely maintained in all positions.

Modular Actuator MA Main Features

- Heavy-Duty
- Eight Sizes Available (4 to 11)
- From 550 lbs to 225,000 lbs
- Stroke from 3.9” to 263”
- High Energy Efficient
- Huge Selection of Accessories
- Environmentally Friendly
- Pure Electro-Mechanic
- No Fluids
- Five Arrangement Types A, C, N, M, T
- Temperature Range from -40ºF to 180ºF
- Explosion Proof Version Available
- Anti Rotation Device, Standard in all Actuators

Compact Actuator Main Features



- Shortest Overall Dimension by Longest Stroke
- Four Sizes Available (2, 4, 6, 7)
- From 112 lbs to 9,000 lbs
- Speed from 0.08”/sec to 3.5”/sec
- Stroke from 3.9” to 39.3”
- Four Arrangement Types A, C, N, M
- Huge Selection of Accessories
- Temp. Range from -4ºF to 150ºF

Rotary Actuator Main Features

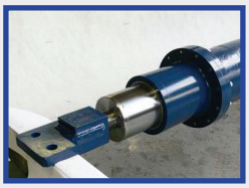
- Seven Sizes from 300 to 10,300 lb-ft
- ¼, ½, ¾, Full, Multiple or Custom Turns
- Speed from 1 to 30 sec for ¼ turn
- Rugged Flange Mounting Standard
- Hollow or Solid Output Shaft
- Standard Configuration Features the RACO Motor
- Other Motors (DC, Servo) Available
- Full Range of Position Feedback Devices:
  1. Limit Switches
  2. Potentiometer
  3. Electronic Digital Positioning, EPS 02 / 06
- Temperature Range from -40ºF to 180ºF
- Explosion Proof Version Available
- Environmentally Friendly
- High Energy Efficient

RACO

Distributed by Tech Spec Inc.

Accessories

- Trunnion Brackets
- Cardanic Trunnion Mount
- Front Flange
- Rear Eye
- Clevis
- Spherical Rod Eye
- Threaded Male Stud
- Trunnion Cradle Mount
- Spring Loaded Front Clevis



Rod Cover Features

- Neoprene/Nylon -40ºF to 185ºF
- Teflon/Fiberglas -40ºF to 300ºF
- Flexible Accordion
- Air Breather
- Solid PVC Rod Cover
- Stainless Steel Rod Cover

Function:

Protection against dust, rain, salt water, ice buildup, varmints, radiant heat, water run off, mechanical protection of thrust tube and wiper seal.

Electrical Accessories

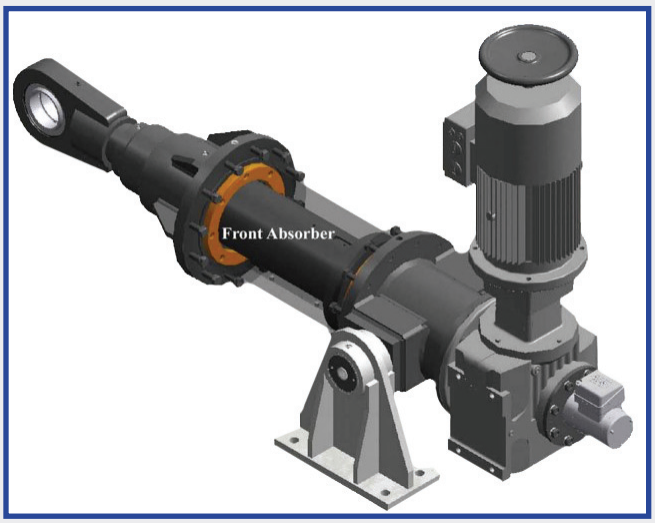
- Thrust Overload Protection
- Current Monitoring
- Power Monitoring
- Position Controller
- Single Actuator
- Synchronized Movement
- Electrical Engineering
- Programming
- Variable Frequency Drives, VFD
- Control Panel Construction
- Power Plug & Control Plug IP65
- On Board Control, Plug & Play

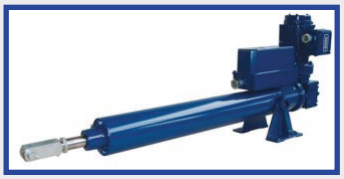
NEW - Over Stroke Protection!

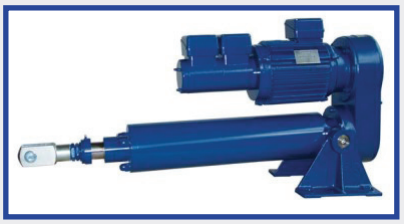
RACO's high-performance elastomer impact shock absorbing rings. The ultimate equipment protection for accidental over travel.

Features:

- High tear resistance
- High impact resilience
- Reduced compression set
- Almost constant shear modulus
- Reduced temperature dependence
- Excellent dynamic resistance to wear
- Good resistance to UV-radiation, ozone, fats & oils



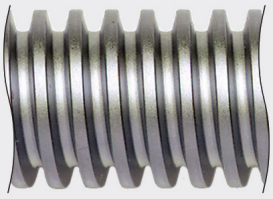




Distributed by Tech Spec Inc.

Roton Products is a manufacturer of high-quality Acme Lead Screws, Ball Screws, and Lead Screw Nuts. For nearly 40 years, customers have trusted Roton as their power transmission screw supplier.

With their large inventory of American-made products they're able to offer fast shipping for your prototype, production or repair needs.



Many screw shafts are available in both standard steel and stainless steel as stocked options for selection.

Right-hand and Left-hand screws are also an option to select from stock.

RH / LH Acme Sleeve Nut
Available in Bronze Material

RH / LH Acme Sleeve Nut
Available in Plastic Material

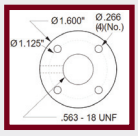
RH / LH Acme Threaded Nut
Available in Bronze Material

RH / LH Acme Threaded Nut
Available in Plastic Material

RH / LH Acme Square Nut
Available in Steel Material

RH / LH Acme Hex Nut
Available in Steel Material

RH / LH Acme Round Nut
Available in Steel Material



RH / LH Acme Flange for Nut
Available in Plastic and Steel

Acme Lead Screw Advantages and Features

Roton's rolled thread Acme lead screws and high performance Acme nuts are combined to provide the optimum performance available in this type of lead screw. The highly burnished surface finish of the acme screw and low friction bronze and plastic acme nuts yield a smoother, less abrasive action than conventional cut Acme screws or lead screws. Improved wear and surface properties provide users longer service life and quieter operation, requiring less power in a wide variety of applications.

Materials and Processes

All Acme lead screws, 1-3/4 inches in diameter and larger, are made of special quality medium carbon steel. Acme lead screws smaller than 1-3/4 inches are made from special quality low carbon steel.

Sizes with Material listed as "Stainless Steel" are made from 304 type stainless steel. Alternate acme lead screw materials are aluminum alloys, other stainless grades, and high machinability grades of carbon steel.

Acme lead screws are cold formed using a unique, highly accurate thread rolling process which guarantees a smooth, accurate, high quality thread. Roton's thread rolling process eliminates the interrupted grain flow of conventional cut threads, thereby increasing yield and fatigue strengths.

Acme Nut Selection

Bronze Acme lead nuts provide superior service at high working loads. They should be well lubricated with a good quality Extreme Pressure (EP) grease, compatible with the operating environment.

Plastic acme lead nuts can be used without lubrication and are popular with stainless steel Acme lead screws for wash-down applications.

Product Options:

- **Screw Size Range: 3/16" to 3-1/2" Diameters**
- **Lead Range: 0.05" to 6"**
- **From 1 to 24 Starts on a Single Screw**

ROTON

Distributed by Tech Spec Inc.

Quality Screws & Nuts for Power Transmission

MADE IN THE USA!

AVAILABLE ROTON PRODUCTS:

ACME SCREWS & NUTS
Roton's rolled thread Acme screws and high performance Acme nuts are combined to provide the optimum performance available in this type of power screw.

HI-LEAD® SCREWS & NUTS
Roton's rolled thread Hi-lead® screws and high performance Hi-Lead® nuts provide faster linear travel than Acme screws and nuts.

TORQSPLINE® SCREWS & QUIKNUTS
Roton's rolled thread Torqspline® screws and high performance Quiknuts® provide the fastest linear travel available in a power screw.

TRAPEZODIAL SCREWS & NUTS
Trapezoidal screws and nuts are power transmission screw threads similar to the Acme series but made to metric dimensions and standards.

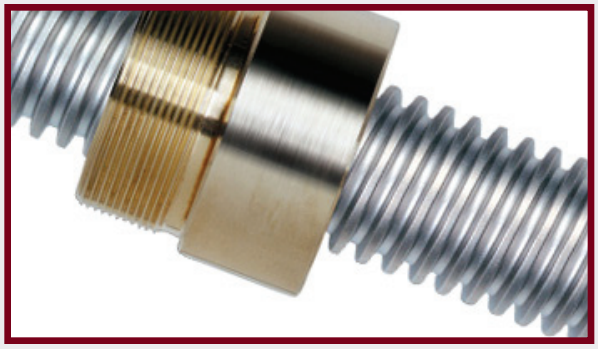
BALL SCREWS & BALL NUTS
Roton's rolled thread Ball Screws and high performance Ball Nuts replace the sliding friction of Acme, Hi-Lead®, and Torqspline® leadscrews with the rolling friction of ball bearings placed between the screw and nut.

FREEWHEELING BALL SCREWS & BALL NUTS
Freewheeling Ball Screws (sometimes referred to as epicyclic or planetary Ball Screws) are used with stop pins at each end of the travel

MOUNTING FLANGES
Steel mounting flanges provide a quick, convenient method for mounting T-Nose nuts and Ball Nuts.

Typical Applications for Acme Lead Screws:
Roton's Acme lead screws and acme nuts are widely used and well suited for both manual and power drive applications including:

- Machinery slide drives
- Shop & office table lifts
- Clamps
- Valve stems
- Medical device drives
- Farm machinery
- Scaffolding support legs
- Trailer jacks & jackstands
- General purpose jacks
- Screw press drives



Additional Option:

Acme Speed Ball Wing Nut
Cast Iron Material

Additional Option:

Acme Anti-Backlash Flange Nut
Plastic Material

Distributed by Tech Spec Inc.

Wörner is the specialist for stopping and positioning modules in assembly technology and automation

Our portfolio includes damped and undamped separating stops, angle dampers, index cylinders and anti-bounce stops - both pneumatically or electrically driven. We also develop tailor-made, customized solutions and provide related accessories.

Introducing Woerner separating, damping, stopping and positioning modules for transfer systems in production and assembly lines.

These system components are critical to the performance pallet transfer systems.

Separating stops are key components in pallet transfer systems and are responsible for stopping and separating the pallets at the accumulation sections or for positioning at assembly and machining stations.

Separating stops are available for applications with pallet weights of 3-3000 kg and impact speeds of 6 to 36 m/min and can be provided with and without damping.

Separating stops are available in pneumatic or electric actuation and are compatible with such transfer manufacturers such as Bosch, Flexlink, Stein and Sigma.

SEPARATING STOPS WITH DAMPING

Stopping one or more accumulated pallet holders at defined stop areas. Application for conveying shock-sensitive or fragile parts. Pneumatic activation with infinitely adjustable damping. The impact force is reduced up to 95%.

SEPARATING STOPS WITHOUT DAMPING

Stopping one or more accumulated pallet holders at defined stop areas. Use of the separating stop in automatic assembly and handling systems. Activated pneumatically. Separating stop without damping.

INDEX CYLINDERS

The indexing cylinder serves for precisely positioning and raising the pallet holder. The work pieces can be processed exactly.

ELECTRIC SEPARATING STOPS

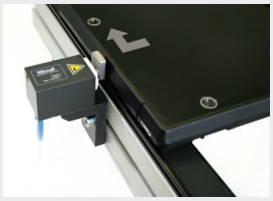
Electrical separating stop without pneumatic connection with infinitely adjustable damping. Integrated sensor system for detecting the upper and lower position of the stopping place.

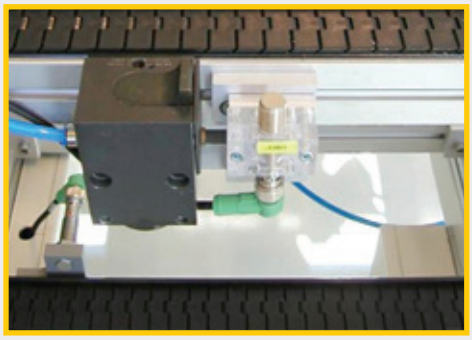
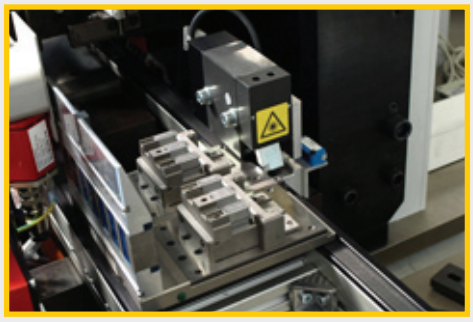
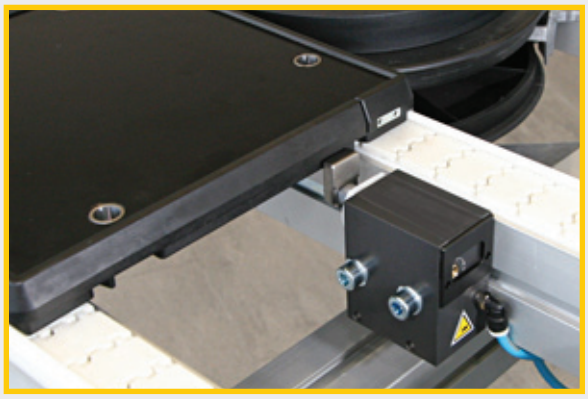
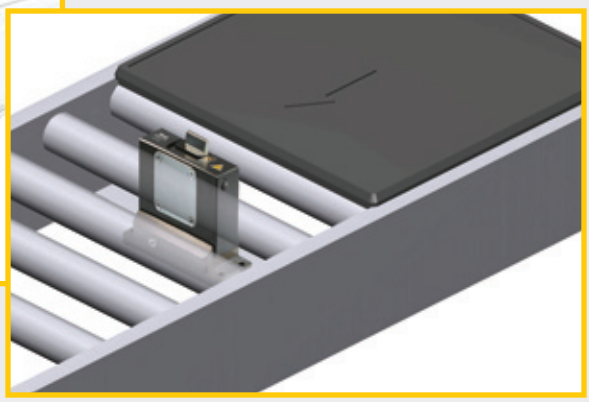
ANGLE DAMPERS

Angled dampers are employed to cushion the impact of a pallet holder on arrival during the transition from a conveyor cross belt to a conveyor long belt, or from a conveyor long belt into a conveyor cross belt.

ANTI-BOUNCE STOPS

Together with an undamped separator, the anti-bounce stop prevents bounce of the pallet holder after stopping. The pallet can be pushed back when wanted with the pneumatically sinkable anti-bounce stop reverse mode.



WörneR

Distributed by Tech Spec Inc.