

## LINEAR MOTION TECHNOLOGIES



## LINEAR MOTION SOLUTIONS

# PRODUCT SELECTION GUIDE



### RST

#### ROUND SHAFT TECHNOLOGY

- Self-lubricated PTFE linear plain bearings & rolling element ball bearings
- Round shafting - steel, stainless steel & ceramic coated aluminum

Food Processing  
Heavy Industrial  
Machine Tool  
Military & Defense  
Packaging



### CRT

#### CAM ROLLER TECHNOLOGY

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

Food Processing  
Light Commercial  
Machine Tool  
Military & Defense  
Packaging



### IVT

#### INTEGRAL V™ TECHNOLOGY

- Durable anodized aluminum with a precision embedded hardened steel raceway
- Flexible & customizable fit
- Ideal for types of t-slot aluminum framing

Ergonomic Designs  
Food Processing  
Heavy Industrial  
Machine Tool  
Packaging



### GST

#### GLIDING SURFACE TECHNOLOGY

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

Digital Print & Scan  
Food Processing  
Machine Tool  
Medical Precision  
Packaging

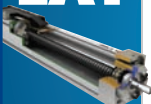


### LAT

#### LINEAR ACTUATOR TECHNOLOGY

- Linear modules with self-contained carriage, rail & frame
- Belt, acme or ball screw driven
- Miniature linear actuators

Food Processing  
Machine tool  
Medical Precision  
Packaging



### PRT

#### PROFILE RAIL TECHNOLOGY

- High performance re-circulating ball bearings
- High load capacities & speeds
- Accurate & repeatable travel

Machine Tool  
Medical Automation

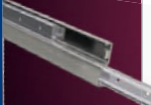


### TGT

#### TELESCOPIC GUIDING TECHNOLOGY

- Two rail system & an intermediate member designed to allow one rail to extend relative to the fixed rail while supporting a cantilevered load

Drawers  
Racks  
Shelving  
Packaging



*\*Publication intended only for use in the Americas.*

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## LINEAR MOTION SOLUTIONS

PBC Linear has always maintained our commitment to bringing improved linear motion solutions to market. Going back to 1985, when we first introduced the Simplicity® self-lubricated bearing to address the persistent application problem of failing linear ball bushings, PBC has always strived to design solutions based around the needs of the customer.

Whatever your linear motion application requires, from heavy industrial foundries to hygienic clean-rooms, we dedicate ourselves to producing a solution. Our diverse staff of engineers stem from decades of combined industry domain expertise and are ready to work with your team to create a collaborative, high performance linear motion assembly .

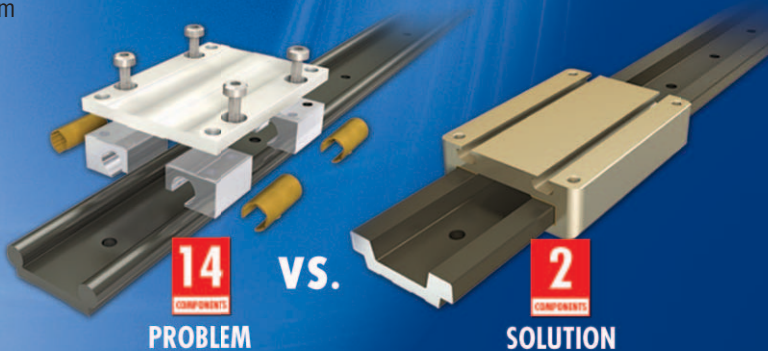
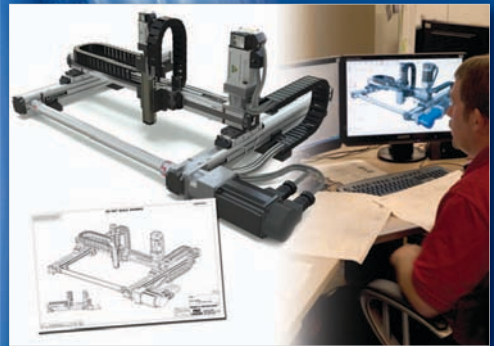
From best-in-class components to complete concept-to-creation systems, PBC Linear actively designs game-changing linear motion solutions that provide our customers with the competitive advantage by streamlining assembly, improving application performance and implementing innovative ideas that put you on the path to success.

### DESIGN ON A DIET™

*We create products that solve design problems*

Utilizing our breadth of resources in product, engineering expertise and manufacturing capabilities to align our customers with a game-changing solution to give them the market advantage.

- Improve Life & Reliability
- Enhanced Performance
- Faster Time to Market
- Lower Overall Costs
- Reduce Risks
- Streamline Assembly



RANGE OF TECHNOLOGY

COLLABORATIVE ENGINEERING

MANUFACTURING AGILITY



## simplicity<sup>®</sup> PLAIN BEARING

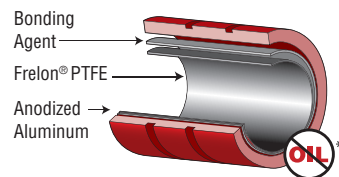
- Self-lubricating - maintenance-free, no external lubricants
- High strength - 20x more load capacity than a ball bearing
- Low wear & friction - patented Teflon<sup>®</sup> liner Frelon<sup>®</sup> GOLD or J
- Wide temperatures range (-400°F / +400°F) (-240°C / +204°C)
- Corrosion-resistant - excels in dirty environments
- Prevents catastrophic failure

PLAIN	PILLOW BLOCK	FLANGE
<p>Self lubricating bearing with patented compound of Teflon developed for improved performance over other bearings. Standard sizes in stock.</p>	<p>Self aligning &amp; ease of mounting. Standard sizes in stock.</p>	<p>Ease of mounting. Compact design.</p>
<b>OPEN</b>	✓	✓
<b>CLOSED</b>	✓	✓
<b>TWIN</b>		✓
<b>FLANGE</b>		✓
<b>SIZES</b>	Inch, ISO Metric, JIS	
<b>MATERIAL</b>	Anodized aluminum alloy steel or stainless steel housing with Frelon Gold or Frelon J liner	Anodized aluminum alloy housing Inner plain bearing with Frelon Gold or Frelon J liner



**Frelon<sup>®</sup> GOLD** is a dark gold colored high performance material with gold-colored fillers.

**Frelon<sup>®</sup> J** is a yellow colored material specially formulated to provide optimum performance.



DIE SET	SLEEVE	THIN WALL	SQUARE
<p>Mounting precision. Size interchangeable with ball-bearing version.</p>	<p>Replaces oilite &amp; plastic bearing. Ideal for slow or moderate speeds for oscillating or rotary motion.</p>	<p>Interchangeable with all European metric sizes, including thin wall ball bushings</p>	<p>Resists torque &amp; eliminates extra costly components in parallel shafts.</p>
✓	✓	✓	✓
✓			✓
✓	✓		
Inch, ISO Metric, JIS			Inch
Steel black oxidized or aluminum housing with inner plain bearing (Frelon Gold or Frelon J liner)	Aluminum alloy with Frelon Gold or Frelon J liner	Anodized aluminum alloy housing with Frelon Gold or Frelon J liner	Anodized aluminum alloy housing with (Frelon Gold or Frelon J plug)

\*NOTE: At break-in Frelon deposits a microscopic film on the shaft and fills the valleys in the surface finish creating a "frelon-on-frelon" running condition that is true self-lubrication.

### BALL BEARING



- Polymer cage fits more balls per track than steel cage
- Delivers quiet operation & higher load capacity
- Built-in double seals
- Industry interchangeable

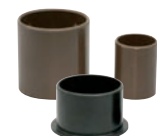
#### CONFIGURATION:

Open  
Flange

**MATERIAL:** Steel

**SIZES:**  
Inch  
ISO Metric

### POLYMER BEARING



- Economical & lightweight
- Self lubricating - no maintenance
- Multitude of applications
- Seven (7) compound materials available

#### CONFIGURATION:

Closed  
Flange  
Seals

**MATERIAL:**  
Compounds vary. Ask for details.

**SIZES:** ISO Metric

### SHAFTING



- Steel shafts are made of polished, case hardened steel & suitable for Simplicity plain & ball bearings

- Ceramic coated aluminum rails - non-magnetic, lightweight & chemical resistant

### SHAFT ASSEMBLY & SUPPORT RAILS



- Support rails available in one or two-piece design with pre-assembled aluminum alloy support rails & steel shafting

- Lengths up to 4'

- End-joinable for longer travel lengths

#### MATERIAL:

RC60 steel  
300/400 series stainless steel  
Ceramic coated aluminum

#### SIZES:

Inch  
ISO Metric

#### SPECIAL MACHINING

Solid  
Pre-drilled  
Tapped



**redi-rail® LINEAR GUIDES**

- Low cost precision
- Carriage lengths up to 5.79mm
- Rail lengths up to 5800mm
- High load capacities - gothic arch rollers with double row bearings
- Ease of assembly & installation - patented side pre-load adjustment
- Corrosion-resistant - excels in dirty environments
- End-joinable for long travel lengths



Hardened Steel Raceway Insert

**SIZES:**  
Inch, ISO Metric

**MATERIAL:**  
aluminum alloy with hardened steel raceways

**redi-rail® LOW PROFILE GUIDE**

- Compact design - 19mm height profile
- High load capacities - up to 115lbs/510N
- Sealed double row Gothic arch rollers
- Lengths up to 3m (10ft)
- Three (3) carriage options for mounting application and flexibility
- Ideal for material transfer in unattended kiosks, & applications requiring precise linear motion within a confined area.



**SIZES:**  
ISO Metric

**SYSTEM COMPONENTS:**  
Aluminum alloy rail with steel or stainless steel raceways

**HARDENED CROWN ROLLERS, RAILS & BRACKETS**

- Simple solution for point-to-point applications
- Rolling element bearing with 9/16 hex head
- Rollers, angle brackets & end stops sold separately
- Rails available up to 10' in bare steel or black powder coated



**Hevi-Rail® HIGH LOAD BEARING SYSTEM**  
Heavy Duty Bearing Systems

Ideal for telescoping applications & heavy-duty material handling

- Handles loads up to 60 tons
- Fixed or adjustable bearings

**Profile Rail**

- Lengths up to 6m
- U or I channel design
- Sandblasted or lightly oiled

**Flange Plate**

- Available pre-welded to bearing

**Adjustable Clamp Flange**

- Eliminates welding & straightening



**V-GUIDE SYSTEM**

Ideal for high speed requirements, accuracy & repeatability

**V-Rails**

- Simple mounting and alignment
- Induction hardened polished rail
- Rails available in (4) sizes

**V-Guide Wheels**

- Permanently lubricated
- Precision ground dual row bearing

**Wheel Bushings**

- Mount into v-guide wheels for fixed or adjustable applications



**SIZES:**  
Inch, ISO Metric

**MATERIALS:**  
Stainless steel or carbon steel

**COMMERCIAL RAIL**

- Low cost effective solution for automation or sliding door applications

- Speeds up to 1.5 m/s

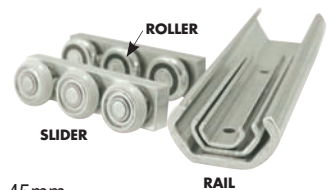
- Three (3) rail sizes 20, 30 & 45mm

- Rails available in hardened steel or stainless steel

- Aluminum alloy slider with optional chrome, stainless steel or polymer rollers

- Rollers lubricated for life & sealed against contamination

- Left or right hand mountable

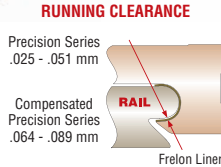


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**mini-rail** **MINIATURE LINEAR GUIDE**

- Compact design, small footprint
- Self-lubricating Frelon® liner
- No rolling elements
- Available in five (5) sizes
- Lengths up to 3600mm
- Corrosion-resistant - ideal in harsh environments
- Optional running clearances for misalignments
  - Precision Series (Standard)
  - Compensated Precision Series
- Ideal applications: medical precision, automation, packaging, food processing, electronics etc.

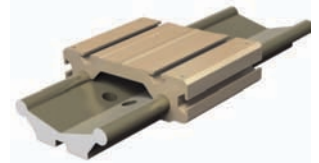


**SIZES:** ISO Metric

**MATERIAL:**  
Ceramic coated rail  
Aluminum alloy carriage with Frelon liner

**Uni-guide**  
**POSITIONING TABLES & SLIDES**

- Two piece assembly - eliminates tolerance stack up
- Self-lubricating Frelon® Gold liner
- Low friction & wear
- Optimal strength
- Easy drop in unit - no alignment
- T-slots for ease of installation
- Drive options - ball or lead screw



**SIZES:**  
Inch & ISO Metric

**MATERIAL:**  
Ceramic coated rail  
Aluminum alloy carriage with Frelon® liner

**SYSTEM COMPONENTS:**  
*(Optional)*

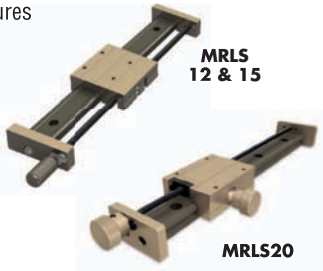
- Motor Driven
- Hand Brake
- Hand Crank
- End Blocks



**mini-rail** **LEAD SCREW & MOTOR DRIVEN LINEAR GUIDES**

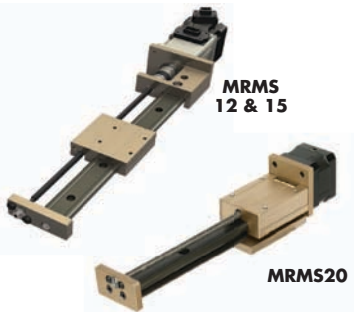
**LEAD SCREW (MRLS)**

- Same proven Mini-Rail® features
- Available in (3) sizes
- Self-lubricating polyacetal, anti-backlash nut
- Stainless steel lead screw with TFE coating
- Lead Screw Mount Side - (MRLS12 & 15)
- Center - (MRLS20)
- Optional hand knobs, hand brakes & motor mounts



**MOTOR SYSTEM (MRMS)**

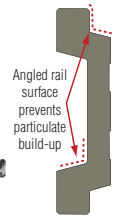
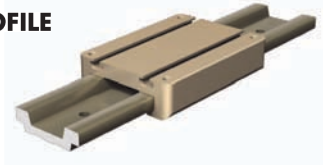
- Robust design - reliability
- Preloaded drive nut - eliminates backlash
- Lengths up to 640mm
- Lead Screw Mount Side - (MRLS12 & 15)
- Center - (MRLS20)
- Omron servo & stepper motor options



PATENT PENDING

**Uni-guide** **LOW PROFILE**

- Compact design - 24mm height profile
- Washdown optimized - angled rail prevents build-up of particulates & chemicals
- Frelon® liner provides low wear, friction & maintenance-free
- SIMO® precision machined surfaces
- Mounting flexibility - pre-drilled tapped holes & t-slots



**SIZES:** ISO Metric

**MATERIAL:**  
Hard anodized aluminum rail & carriage  
Aluminum alloy carriage with Frelon® liner

**LOW PROFILE MINI-RAIL - LPM**

- Low profile for small, compact spaces
- Available in five (5) sizes
- Economical polymer slider
- Molded SS threaded inserts - ease of installation
- Double rail track available
- Ideal in harsh environments

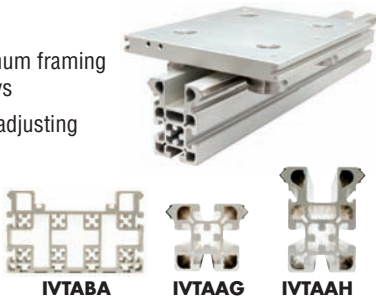


**SIZES:** ISO Metric

**MATERIAL:**  
Anodized aluminum rail  
Polymer slider

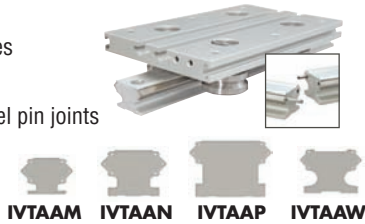
### INTEGRATED

- Structural t-slot aluminum framing with integral v-raceways
- Eliminate extra fitting, adjusting & assembly time
- Drive capabilities
- Ready to mount screws or rack



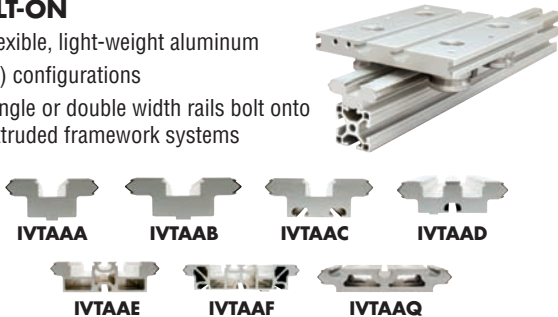
### COMPACT GUIDE

- Ideal in compact spaces
- (4) rail configurations
- End-joinable with dowel pin joints
- Standard or extended carriages with preload & lube options



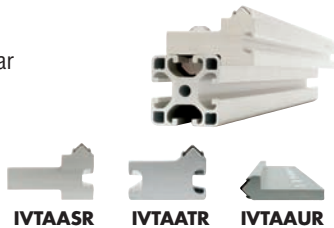
### BOLT-ON

- Flexible, light-weight aluminum
- (7) configurations
- Single or double width rails bolt onto extruded framework systems



### MODULAR BOLT-ON

- Available in four (4) modular configurations
- Modular design allows for multiple orientations & wide application use
- Design your own carriage



### CUSTOM EXTRUSIONS

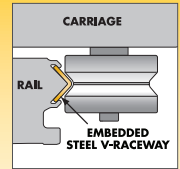
Work with our engineers to design Integral V guides to your requirements.

Call an application engineer at 1-800-777-1498.



### WHAT IS INTEGRAL V?

Integral V™ runs along a patent pending, precision machined anodized aluminum rail with high-speed v-wheel cam rollers. Eliminating mounting components and cutting assembly time in half. Ideal for contamination, high speed/acceleration applications.



Using PBC Linear's patent pending SIMO® process (Simultaneous Integral Milling Operation), an IVT extrusion can be precisely machined on all critical edges with little to no added costs to the end user.



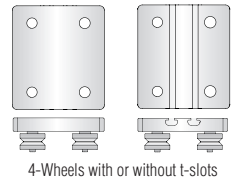
SIMO® takes an ordinary aluminum extrusion and machines all critical sides concurrently and consistently in one, quick pass. This creates precise mounting and alignment surfaces - ensuring straightness, parallelism and flatness.



### CARRIAGES & ACCESSORIES

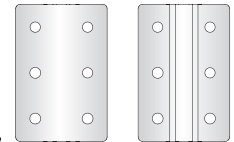
- Standard or extended carriage
- Lube holders & wheel covers
- Preload adjustments fixed, side hex socket & hex wrench adjustable

#### STANDARD FLAT PLATE



4-Wheels with or without t-slots

#### EXTENDED FLAT PLATE



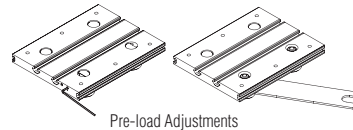
6-Wheels with or without t-slots



Polymer Lubricator



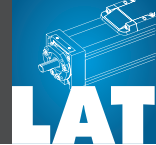
Rail scraper (Removable)



Pre-load Adjustments

CARRIAGE & ACCESSORIES	INTEGRATED	BOLT-ON	COMPACT
Standard Flat Plate Carriage	•	•	•
Extended Flat Plate Carriage	NA	NA	•
Lube Holder or Wheel Covers	•	•	NA
Pre-Load Adjustments	•	•	•





**PL SERIES**

**BALL OR LEAD SCREW DRIVEN ACTUATOR**

- High speed cam roller design creates smooth precision guidance
- Enclosed aluminum housing with Integral V™ raceway
- Sealed against contamination
- SIMO® precision machined surfaces
- Multiple accessories (servo & stepper motors, cable carriers, sensors, mounting brackets etc.)



**MT SERIES**

**BELT DRIVEN LINEAR ACTUATOR**

- High acceleration, speeds & rigidity
- Long travel lengths
- Fully enclosed aluminum housing
- Male & female drive shaft configurations
- Strong yet lightweight & corrosion-resistant
- SIMO® precision machined surfaces



- **MTB** - belt driven, available in 42mm, 55mm & 80mm
- **MTC** - flat profile design for compact spaces
- **MTD** - bi-directional movement, flat profile design
- **MTE** - light carriage, ideal for vertical lift applications
- **MTF** - strong carriage, ideal for vertical lift applications

**ML SERIES**

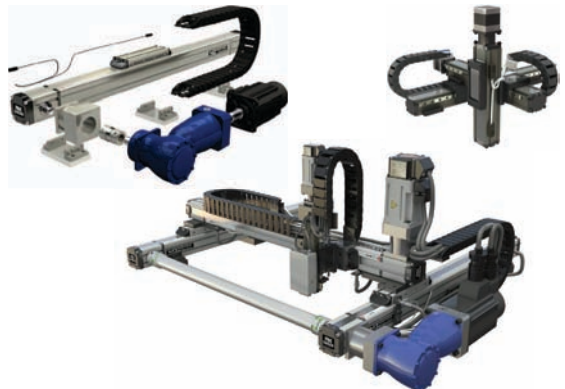
**MINIATURE LINEAR ACTUATOR**

- Compact profile 28 x 32mm
- High speed precision, enhanced load capacities & precise repeatability
- Linear guide supports - increases load & moment capacities. Available in single or dual rails with runner blocks
- Long travel lengths - up to 650mm
- SIMO® precision machined surfaces
- Designed to excel in biotech, medical & small-scale automation that requires compact space & precise motion



- **MLB** (Integrated Motor) - Includes motor mount, coupling & selection of pre-mounted Omron® servo or Fastech® stepper motors.
- **MLC** (Motor Mount Only) - includes motor mount with coupling. Ready to mount on any motor.
- **MLD** (Hand Driven) - adjustable hand operated knob & optional brake for precision control

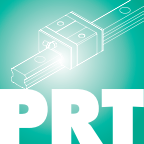
**PBC Linear offers a full selection of actuator and actuator accessories from single-axis to complete cartesian systems.**



- Over 30+ Videos in Motion
- 2D & 3D CAD Downloads
- Product & Technical Information
- Application & Case Studies

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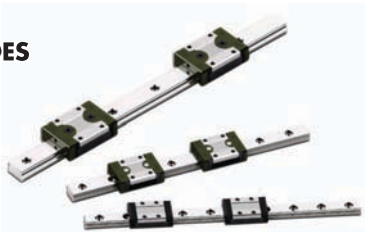


## PROFILE RAIL TECHNOLOGY LINEAR BALL GUIDES

### BALL LINEAR GUIDES

- High performance re-circulating ball
- Full range of profile sizes (miniature (MR) to standard (AR/HR): 3mm-30mm)
- Accurate & repeatable travel
- Precision options: normal (N), high (H), precise (P), super (SP)\* & ultra (UP)\*
- Dust proof design
- Internal Eco-lube system – longer life
- Stainless steel reinforcement end-plates – enhanced structural design

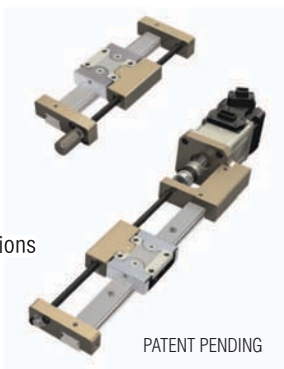
\*Available in AR/HR series



**cpc** IN COOPERATION WITH  
CHIEFTEK PRECISION CO., LTD.

### NEW - DRIVEN SERIES

- Flexible design platforms
- High precision travel
- Low noise & coefficient of friction
- Lead screw side mount
- Handcrank or driven design options
- Omron servo & stepper motor options
- Ideal applications: medical sample transfer, precision tool adjustment, small format multi-axis positioning



PATENT PENDING

**cpc** IN COOPERATION WITH  
CHIEFTEK PRECISION CO., LTD.



## TELESCOPIC GUIDING TECHNOLOGY DRAWER SLIDES

### HEAVY-DUTY DRAWER SLIDES

- S-shaped stainless steel frame
- Aluminum rail with embedded hardened steel raceway
- Strokes range from 16" to 48" (500mm to 1250mm)
- Sealed steel bearings
- Available in inch & metric

