THOMSON
Linear Motion. Optimized.™

# Thomson Linear Motion Components

## The RoundRail Advantage…

### Super Smart Ball Bushing® Bearings

**Thomson Super Smart Ball Bushing Bearings represent a major advancement for linear bearing technology worldwide.**

This patented, self-aligning linear bearing provides twice the load carrying capacity or eight times the travel life of the industry standard Thomson Super Ball Bushing Bearing. This dramatic increase in load capacity allows the use of less expensive drive motors, linkages, gears and ball screws. The unique Super Smart design allows the bearing to maintain its diametrical fit up when installed in housings that are soft or slightly out-of-round. Super Smart Bearings utilize the RoundRail Advantage that eliminates the need for derating factors commonly used with linear guides. The bearings are called "Smart" because their universally self-aligning, double-track design incorporates engineering concepts that literally render old style conventional bearings obsolete. See Page 21.

### Super Smart Ball Bushing Pillow Blocks

**Thomson Super Smart Ball Bushing Pillow Blocks available in closed, adjustable and open styles in both single and twin versions.**

To minimize installation time and cost, the Super Smart Ball Bushing Bearing can be ordered factory installed in an industry standard single or twin pillow block. The closed-type pillow block is used in end-supported applications for spanning or bridging a gap. The open style is used in continuously supported applications when maximum rigidity and stiffness is required. Each Super Smart pillow block is complete with integral double-acting seals that keep out contaminants, retain lubrication and maximize bearing life. Since each pillow block is dimensionally interchangeable with the industry standard Thomson Super Ball Bushing pillow block, system performance improvements can be realized immediately. See Page 28.

### Super Ball Bushing Bearings

**Industry standard, self-aligning Super Ball Bushing Bearings available in 23 sizes and configurations.**

Super Ball Bushing Bearings offer three times the load capacity or 27 times the life of conventional linear bearings. Industry standard, self-aligning Super Ball Bushing Bearings ease installation and minimize wear from minor bore misalignment. Super Ball Bushing Bearings can achieve speeds up to 10 ft./s and accelerations up to 450 ft./s$^2$ without the derating factors commonly found in linear guide products. With a coefficient of friction as low as .001, Super Ball Bushing Bearings provide a quick, easy replacement for high-friction plain bearings. The wear-resistant, engineered-polymer retainers and outer sleeves reduce inertia and noise in critical, high-speed applications. See Page 44.

**. . .The RoundRail Advantage** - The inherent ability of a RoundRail Ball Bushing Bearing system to accommodate torsional misalignment (caused by inaccuracies in carriage or base machining or by machine deflection) with little increase in stress to the bearing components.

## Super Ball Bushing Bearing Pillow Blocks

**Available in closed, adjustable and open styles in both single and twin versions.**

Thomson Super Ball Bushing Bearings are also available factory installed in single or twin pillow blocks. Super Ball Bushing Bearing pillow blocks are provided with integral, double-acting seals that keep out contaminants and retain lubrication, maximizing system performance and life. Twin versions provide up to twice the load capacity or eight times the life of single versions, allowing the use of smaller and less expensive drives, motors and ball screws. When replacing v-ways and flat-ways, the Super pillow block's low coefficient of friction reduces power consumption and provides important design economies. See Page 53.

## Precision Steel Ball Bushing Bearing Products

**Rigid, Precision Steel Ball Bushing Bearing design eliminates binding and chatter found in high friction plain bearings.**

Precision Steel Ball Bushing Bearings are available in an open version for continuously supported applications and a closed version for end-supported applications. Extra precision and adjustable versions are available for end supported applications requiring higher precision and repeatability. Precision Steel Ball Bushing Bearing products are also available factory installed in a self-aligning, malleable iron pillow block, minimizing installation time and cost. The all-steel design makes the Precision Steel Ball Bushing Bearing product line perfect for replacing plain bearings in high-temperature applications. Now available in 440 stainless steel, ideal for harsh and high temperature environments. See Page 69.

## Miniature Instrument Ball Bushing Bearings

**High Accuracy and Compactness for Instrumentation Level Applications.**

The accuracy level and compact size make the Instrument Ball Bushing Bearing ideal for small mechanisms or devices that require high repeatability and responsiveness. When replacing high-friction, plain bearings, the Instrument Ball Bushing Bearings' constant low coefficient of friction eliminates stick-slip and provides smooth linear performance. Each Instrument Ball Bushing Bearing can be provided with a matched 60 Case® LinearRace® shafting for minimum fit-up, optimizing system performance and accuracy. See Page 80.

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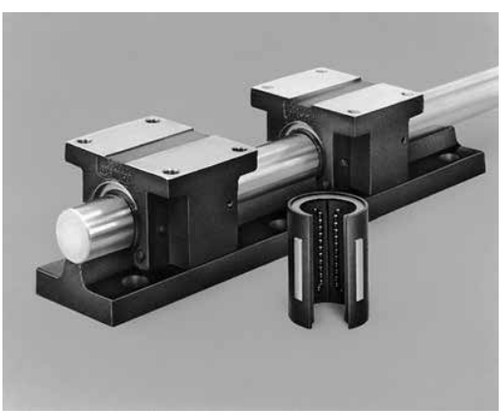
## The RoundRail Advantage…

### Die Set Ball Bushing® Bearings

**Available in two accuracy classes and suitable for a variety of industrial applications.**

Thomson Die Set Ball Bushing Bearings are designed to fit the mounting holes of the punch holder in standard dies. When replacing high-friction, plain bearings in standard dies, the result is less machine downtime and increased efficiency. With steady state speeds up to 10 ft./s, the Die Set bearing will provide faster cycle times with improvements in production rates realized immediately. Matched precision ground 60 Case® LinearRace® allows for a close fit-up between the shaft and the LinearRace shafting and bearing, providing critical die alignment. When normal machine service requires bearing replacement, the Die Set bearing can be removed by simply unbolting the toe clamps. See Page 82.



### XR Ball Bushing Bearing Products

**High load capacity and rigidity combined with the RoundRail Advantage.**

The XR Ball Bushing Bearing provides five times the load capacity or 125 times the life of conventional linear bearings. This increase in bearing performance significantly reduces downtime and maintenance, while increasing machine reliability. When replacing v-ways and flat-ways, XR Ball Bushing Bearings allow travel speeds up to 5 ft./s and accelerations up to 225 ft./s$^2$ without a sharp increase in power consumption. XR Ball Bushing Bearings also provide three times the rigidity of conventional Ball Bushing Bearings, reducing deflection in critical machining applications. Pillow blocks are available with factory installed XR Ball Bushing Bearings and integral seals. 60 Case LinearRace shafting available pre-mounted on standard extra rigid LinearRace support rails. See Page 90.

### RoundWay® Linear Roller Bearings

**Low-friction roller bearings with up to 20 times the load capacity of conventional linear bearings.**

These patented, self-aligning linear roller bearings have more than 20 times the load capacity of a conventional linear ball bearing. This dramatic increase in bearing load capacity allows designers to optimize system compactness and minimize hardware costs. Combining the self-aligning feature with the RoundRail Advantage minimizes installation time and assures trouble-free operation. RoundWay bearings can achieve operating speeds up to 10 ft./s without the derating factors commonly seen with linear guides. When normal machine maintenance is required, RoundWay bearings can be quickly and cost-effectively replaced, without scrapping the entire system – a major problem when servicing some linear guides. See Page 97.

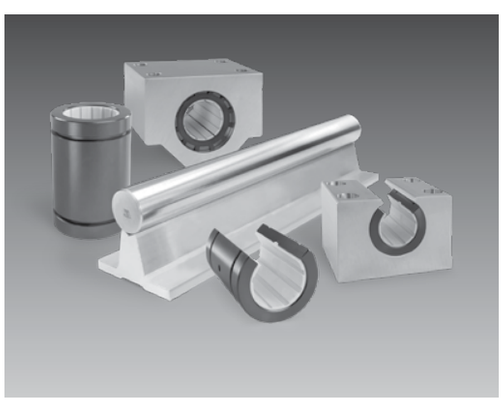
# Thomson Linear Motion Components

## The RoundRail Advantage…

### FluoroNyliner® Bushing Bearings

**Thomson FluoroNyliner Bushing Bearings offer:**

- High performance in contaminated, washdown or submerged environments.
- Proprietary, self-lubricating, composite bearing liner TEP 950.
- Low friction, ideally suited for linear and rotary motion.
- Precision-machined aluminum sleeve.
- Excellent performance in high-vibration and mechanical shock applications.
- Corrosion resistance.
- Product availability in industry standard sizes from 0.25" to 2.00".
- Eight bearing configurations, including closed, open, self-aligning, precision and compensated IDs.
- Load capacities up to 14,000 $lb_f$.
- Integral seals.
- Closed, open, and flanged pillow blocks available in single or twin versions.



### Polymer Bushing Bearings

Thomson polymer bushing bearings offer linear motion designers a reliable, yet economical, option for machines in which moment load is non-critical or where contamination is a concern. These bearings are also useful for applications that require shafting that is incompatible with Thomson Ball Bushing® Bearings such as aluminum or 316 stainless steel.

Handling loads up to 9000 N (2023 lbf), polymer bushing bearings provide a corrosion-resistant option for low-load, low-speed applications. When combined with round rail shafting, pillow blocks or other assembly components, polymer bushing bearings deliver a budget-friendly linear motion solution to a number of applications.

**Polymer Bushing Bearings Applications**

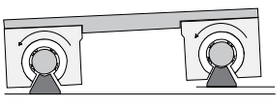
- Factory Automation
- Robotics
- Health and Fitness
- Medical Automation
- Woodworking
- Packaging
- Food and Beverage
- Vending

**Polymer Bushing Bearings Highlights**

- Available in sizes of 6 to 50 mm (closed) and 10 to 50 mm (open)
- Maintenance-free operation
- Polymer liners reduce noise
- Dirt and dust resistant
- Anodized aluminum adapter
- Available with aluminum pillow blocks

# Thomson Linear Motion Metric Components

**The RoundRail Advantage** - The inherent ability of a RoundRail Ball Bushing Bearing system to absorb torsional misalignment caused by inaccuracies in carriage or base machining or machine deflection...with little increase in stress to bearing components.



## Super Smart Ball Bushing Bearings

**Thomson Super Smart Ball Bushing Bearings represent a major advancement for linear bearing technology worldwide.**
This patented, self-aligning linear bearing provides two times the load carrying capacity of the industry standard Thomson Super Ball Bushing Bearing. Super Smart Ball Bushing Bearings also provide eight times the bearing life and up to five times the LinearRace shaft life when used in place of standard Super type bearings. See page 133.



## Super Smart Ball Bushing Pillow Blocks

**Thomson Super Smart Ball Bushing pillow blocks available in closed, adjustable and open styles in both single and twin versions.**
To minimize installation time and cost, the Super Smart Ball Bushing Bearing can be ordered factory installed in an industry standard single or twin pillow block. The closed-type pillow block is used in end-supported applications for spanning or bridging a gap. The open style is used in continuously supported applications when maximum rigidity and stiffness is required. Each Super Smart pillow block is complete with integral double-acting seals which keep out contaminants, retain lubrication and maximize bearing life. Since each pillow block is dimensionally interchangeable with industry standard pillow blocks, system performance improvements can be realized immediately. See page 142.

## MultiTrac Ball Bushing Bearings

**Rigid, high load capacity, linear bearings**
Extremely rigid MultiTrac Ball Bushing Bearings give you less deflection and twice the load capacity or eight times the travel life of conventional Ball Bushing Bearings. This increased bearing performance significantly reduces downtime and maintenance, while increasing machine reliability. The improvement in bearing capacity permits designers to optimize system compactness and minimizes hardware costs. The bearing's patented ball control technology eliminates binding and chatter (stick-slip) common to high-friction, plain bushings. See page 148.

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### Super Ball Bushing® Bearings and Pillow Blocks

**High performance from superior design.**

A coefficient of friction as low as 0.001. This allows the use of smaller, less expensive motors, belts, gears and ball screws when replacing high-friction, plain bearings. A self-aligning capability up to 0.5° compensates for inaccuracies in base flatness or carriage machining. Achieved with Thomson Super Bearing plates, which have defined radius crowns for maximized self-alignment accuracy. Accelerations as high as 150 m/s$^2$ and steady state travel speeds up to 3 m/s without the derating factors commonly required with linear guides. Quick to ship, drop-in replacement parts for existing applications. Twin version with two Super Ball Bushing Bearings providing twice the load capacity or eight times more travel life than the single version. See page 160.

# Application

Thomson products are engineered to world-class performance standards so that you can specify them with confidence worldwide. This Engineering Support section provides charts, formulas and technical information for:

- Ball Bushing Bearing selection
- Load considerations for horizontal-, side- and vertical-mounted applications
- Shaft deflection
- Installation
- Tolerance zones for internal and external diameters