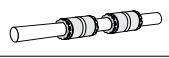
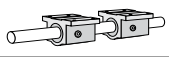
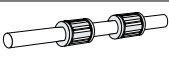
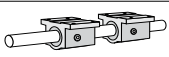
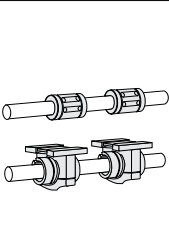
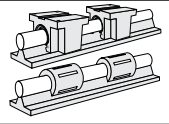
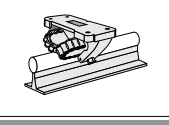
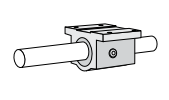




Ball Bushing® Bearings

		Page Number	Imperial (Inch)							
			1/8	3/16	1/4	3/8	1/2	5/8	3/4	1
Super Smart										
	Ball Bushing Bearings corrosion-resistant option available	inch: 21 metric: 133					○	○	○	○
	Ball Bushing Pillow Blocks corrosion-resistant option available	inch: 28 metric: 140					○ STAF	○ STA	○ STAF	○ STAF
Super										
	Ball Bushing Bearings corrosion-resistant option available	inch: 44 metric: 156		●	●	●	○	○	○	○
	Ball Bushing Pillow Blocks corrosion-resistant option available	inch: 53 metric: 160			● STA	● STA	○ STAF	○ STA	○ STAF	○ STAF
Precision Bearings										
	A Bearings and Pillow Blocks available in stainless steel	69			●	● SA	○ SA	○ SA	○ SA	○ SA
	MultiTrac® available in stainless steel	148								
	Instrument	80	●	●	●					
	Die Set	82								●
XR Extra Rigid										
	Ball Bushing Bearings and Pillow Blocks	90								
Specialty										
	Cartridge Bearing	50			● ST	● ST	● ST			
	RoundWay®	97					●			●
FluoroNyliner										
	Bushing Bearings	105			○	○	○	○	○	○
	Pillow Blocks	110			○ ST	○ ST	○ STF	○ ST	○ STF	○ STF

- Closed Type
- Open Type
- ◎ Closed and Open Type
- S Single Configuration
- T Twin Configuration
- A Adjustable Configuration
- F Flanged Configuration

Thomson RoundRail Linear Guides and Components

Imperial (Inch)						Metric (mm)											
1 1/4	1 1/2	2	2 1/2	3	4	5	8	10	12	16	20	25	30	35	40	50	
○	○						●		○	○	○	○	○			○	
○	○						●		○	○	○	○	○			○	
STAF	STAF						STA		STA	STA	STA	STA	STA			STA	
○	○	○					●		○	○	○	○	○			○	○
○	○	○					●		○	○	○	○	○			○	○
STAF	STAF	STA					STA		STA	STA	STA	STA	STA			STA	STA
○	○	○	○	○	○												
SA	SA	SA	SA	SA	SA												
							●		○	○	○	○	○	○	○	○	○
							SA		SA	SA	SA	SA	SA	SA	SA	SA	SA
●	●	●															
		○			○												
		●	●		●	●											
○	○	○															
○	○	○															
STF	STF	ST															



Standard 60 Case® Shaft Size and Availability Chart

Material	Carbon Steel											440C Stainless Steel			52100 Tubular	316 SS	Aluminum			
	60 min.											50 min.		55 min.	58 min.		20-25	70		
Tolerance Class	L					S	N	D	XL	G	L	S	G	Instrument	L	S	L	AL		
Optional Features	L	DC	PD CPPE	CPPE	PD	S	DC	N			L	PD								
1/8"																				
3/16"	•																			
1/4"	•					•		•			•	•		•	•				•	
3/8"	•					•		•			•	•		•	•				•	
1/2"	•		•	•	•	•		•			•	•	•	•	•				•	
5/8"			•	•	•	•		•			•	•	•	•	•				•	
3/4"	•	•	•	•	•	•	•	•			•	•	•	•	•		•	•	•	
7/8"	•	•						•	•											
1"	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	
1 1/8"	•	•						•	•											
1 1/4"	•	•	•	•	•	•	•	•	•			•	•	•					•	
1 3/8"	•																			
1 1/2"	•	•	•	•	•	•	•	•	•			•	•	•			•	•	•	
1 5/8"	•																			
1 3/4"	•	•						•	•											
2"	•	•	•	•	•	•	•	•	•	•		•	•	•			•	•		
2 1/4"	•	•						•	•											
2 1/2"	•	•						•	•	•		•		•			•	•		
3"	•	•						•	•	•							•	•		
3 1/2"	•	•																		
4"	•							•									•	•		
Catalog Page	177	179	178	178	178	179	179	177	177	17	177	180	180	180	181	181	181	181	182	183

Material	Carbon Steel		440C SS
Hardness	60 min.		50 min.
Tolerance Class	MM (ISO h6)		MM (ISO h6)
Optional Features	MM	Tx Predrilled	
5 mm	•		•
8 mm	•		•
10 mm	•		•
12 mm	•	•	•
15 mm	•		•
16 mm	•	•	•
20 mm	•	•	•
25 mm	•	•	•
30 mm	•	•	•
40 mm	•	•	•
50 mm	•		•
60 mm	•		•
80 mm	•		
Catalog Page	191	192	193

Thomson 60 Case shafting is sold as cut-to-length (CTL), random length (RL), special machined (SM) and quick shaft (QS).

Since Thomson grinds and hardens all of its own shafting, diameters and tolerances not listed are available as special grind and are made to order. Minimum lots may apply.

Tolerance Classes:

- L - For use with XA, Open and Adjustable Ball Bushing® Bearings and Pillow Blocks as well as Super Ball Bushing Bearings and Super Smart Ball Bushing Bearings
- S - For use with A Type Ball Bushings
- N - For use with Needle Roller Bearings
- D - For use with Thomson Die Set Ball Bushing Bearings
- G - Ball Grooved for use with Thomson Super Ball Bushing
- XL - For use with XR Bearing (Carbon Steel)
- AL - Aluminum shafting for use with FluoroNyliner® Bearings

Optional Features:

- PD - Predrilled
- CPPE - Chrome-Plated Plain Ends (carbon steel only)
- DC - Deep Case (carbon steel only - random length)
- Tx - Metric Predrilled

Thomson RoundRail Linear Guides and Components

Introduction

Standard Support Rail Size and Availability Chart

Type	SR	SR-PD	SRA	SRA-SS	SRA-TU	LSR	LSR-PD	LSRA	LSRA-CR	XSR	XSRA
Description	Aluminum Support Rail	Aluminum Support Rail with Predrilled Holes	Aluminum Support Rail Assembly Carbon Steel Shaft	Aluminum Support Rail Assembly 440C SS Shaft	Aluminum Support Rail Assembly 51200 Tubular Shaft	Steel Lower Support Rail	Steel Lower Support Rail with Predrilled Holes	Steel Lower Support Rail Assembly Carbon Steel Shaft	Corrosion Resistant Steel Lower Support Rail Assembly 440C SS Shaft	Extra Rigid Cast Steel Support Rail	Extra Rigid Cast Steel Support Rail Assembly
1/2"	•	•	•	•		•	•				
5/8"	•	•	•	•		•	•	•	•		
3/4"	•	•	•	•	•	•	•	•	•		
1"	•	•	•	•	•	•	•	•	•		
1 1/4"	•	•	•	•		•	•	•	•		
1 1/2"	•	•	•	•	•	•	•	•	•		
2"	•	•	•	•	•	•	•			•	•
2 1/2"						•	•				
3"						•	•			•	•
4"						•	•				
Catalog Page	186	186	187	187	187	166	186	187	187	186	187

Standard Support Rail Assembly Size and Availability Chart

Type	SRM	SRMTx	SRAMTx	LSRM	LSRMTx	LSRAM	LSRAM-CR
Description	Aluminum Support Rail	Aluminum Support Rail with Predrilled Holes	Aluminum Support Rail Assembly Carbon Steel Shaft	Steel Lower Support Rail	Steel Lower Support Rail with Predrilled Holes	Steel Lower Support Rail Assembly Carbon Steel Shaft	Corrosion Resistant Steel Lower Support Rail Assembly 440C SS Shaft
12mm	•	•	•	•	•		
16mm	•	•	•	•	•	•	•
20mm	•	•	•	•	•	•	•
25mm	•	•	•	•	•	•	•
30mm	•	•	•	•	•	•	•
40mm	•	•	•	•	•	•	•
Catalog Page	196	196	196	196	196	196	196

Standard Support Block Size and Availability Chart

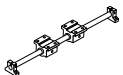
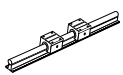
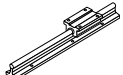
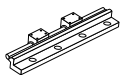
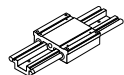
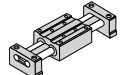
Type	ASB	FSB	SB	WM	Type	ASBM	SBM
Description	Aluminum Support Block	Flanged Aluminum Support Block	Steel Support Block	Waymount Support	Description	Aluminum Support Block	Steel Support Block
1/4"	•		•		8mm	•	•
3/8"	•		•		12mm	•	•
1/2"	•	•	•	•	16mm	•	•
5/8"			•		20mm	•	•
3/4"	•	•	•		25mm	•	•
1"	•	•	•	•	30mm	•	•
1 1/4"		•	•		40mm	•	•
1 1/2"	•		•	•	Catalog Page	197	197
2"				•			
3"				•			
4"				•			
Catalog Page	187	190	187	190			



RoundRail linear guides are the non-driven building blocks for linear slide tables. They offer the customer flexibility to fit specific envelopes by allowing customized separations between shafts and between bearings on shafts to produce higher moment capacity. When combined with ballscrew assemblies, they become a driven slide table.

Because RoundRail linear guides are offered in a wide range of sizes, bearing types and mounting configurations, they are typically selected by the qualitative attributes that are most appropriate for a given application (i.e. environmental considerations, mounting footprint). For this reason, we are providing the following selection chart and selection criteria for consideration:

Systems Quick Reference Guide

Application Criteria		End Support	Continuous Support	FluoroNyliner	Side Mounted	Dual Shaft Rail	Twin Shaft Web
							
		1BA / 1NA	1 CA / 1PA	1 VA	1 DA	2DA	2CA
High Loads			•	•			
Equivalent Loads in All Directions		•				•	
Ultra Compactness		•					•
Extreme Smoothness		•	•		•		•
End Supported		•				•	•
Single Rail							•
Harsh Environment				•			
Low Cost Installation (multiple rail)		•	•	•	•		
Complete Axis Solution							•
Available Sizes:	Inch	4 thru 24	8 thru 24	8 thru 24	•	•	
	Metric	8 thru 40	12 thru 40		8 thru 16	8 thru 16	8 thru 16
Page Number		227/229	232/234	237	240	243	246

Linear Guide Selection Criteria

- Load/Life
- Travel Accuracy
- Rigidity
- Smoothness of Travel
- Speed & Acceleration
- Envelope
- Environment
- Cost of Product
- Cost of Installation
- Cost of Replacement

Application Examples

- Machine Tools
- Packaging Machinery
- Automotive Assembly Equipment
- Semiconductor Equipment
- Medical Equipment
- Food Processing Equipment

Round or Square?

Let Thomson help you choose the right rail type and carriage.

Since the introduction of the square, or profile rail, linear guide in the 1970s, the design engineer has been faced with the pivotal question: **round or square?**

While square rails initially cost many times more than round technology due to the extensive grinding requirements inherent in the design, new manufacturing techniques and economies of scale have allowed square rails to compete effectively in a broader application space. Once subjugated to the realm of machine tools, profile rails can now be found in many of the same applications that were once only supported by round rail. However, ball bushing guides remain popular due to some intrinsically unique and often advantageous characteristics that lend themselves to specific applications.

In order to apply the correct type of linear guide in a particular application, the design engineer must consider the advantages and capabilities of each. The cost of selecting the wrong technology can result in a lot of additional design complexity, poor function and cost in the overall assembly. As a first cut, it is useful to have a general understanding of the strengths and weaknesses of each type of product.

The table below outlines typical performance characteristics of round and profile rails and where one is superior.

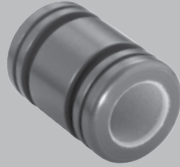
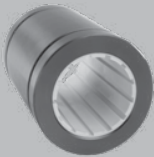

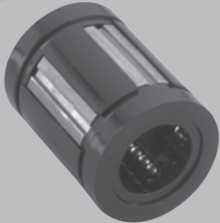

Attribute	Round	Square
Performance		
Load Capacity	medium	high
Accuracy	medium	medium - high
Stiffness	medium	high
Available preload	yes (light)	yes (light - heavy)
Single guide supports moments	no	yes
Same load capacity in all directions	no	available (typical)
Seal effectiveness	high	medium
Smoothness	high	medium - high
Drag	low	medium - high
Total Cost of Ownership		
Ease of installation	high	medium
Required precision of mating component	low	high
Self aligning	yes	no
Life Expectancy	medium	high
Material Cost	low	medium
Design Flexibility		
Ability to span gaps	yes	no
Can be used as structural frame member	yes	no
Ability to use as single rail & guide	no	yes¹
Compactness (load capacity to size)	medium	high
Ease of modification/Interchangeability	high	low
Rail Mounting		
Available end support mounting	yes (preferred)	no
Available continuous support mounting	yes	yes (preferred)
Available mounting from top of rail	yes	yes (preferred)
Available mounting from bottom of rail	yes	yes

1. Depending on the application. Most square rail applications use dual rails.

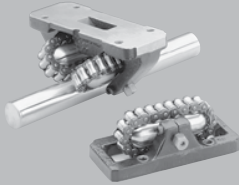
This catalog includes detailed ordering information for RoundRail linear guides. Refer to the separate Thomson profile rail catalog for detailed square rail linear guides information.

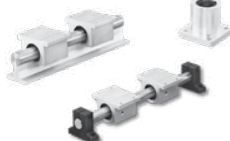


RoundRail Bearings

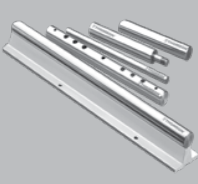



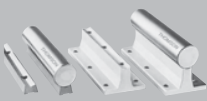
	Description	Product Overview	Comments
<p>Plain Contact - FluroNyliner</p> 	<p>Provides self-lubricating, low friction, smooth motion for high load conditions.</p>	<ul style="list-style-type: none"> • PTFE tape is bonded to the ID of an aluminum housing. • Suitable for wash-down & food applications. • Can withstand high vibration & shock loads. • Extremely smooth running; does not require an overly smooth surface to run on. • Compensated • Sizes ¼" – 2", closed, open, adjustable 	
<p>Plain Contact - Polymer</p> 	<p>Offer reliable and economical, linear motion for machines in which moment load is non-critical or where contamination is a concern.</p>	<ul style="list-style-type: none"> • 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 • Operate in temperatures ranging from - 50°C to 90°C (- 58°F to 194°F) 	
<p>Steel Sleeve (A)</p> 	<p>The steel sleeve anti-friction recirculating ball bushing provides rigid low drag movement – ~100x lower drag coefficient than a plain contact bearing.</p>	<ul style="list-style-type: none"> • A Bearings – all steel (operates up to 450°F/232°C) with 3 grades of precision available (A, XA, B); sizes ¼" – 4", closed, open, adjustable. • MAM (MultiTrac® A Metric) – twin track configuration, sleeve and a Delrin retainer; size 8 – 40 mm, closed open, adjustable. • INST BRGS – precision miniature stainless steel (corrosion resistant) - sizes: 1/8" – 1/4". • Die Sets – designed specifically for die movement applications; size: 1" – 2". 	<ul style="list-style-type: none"> • The patented MAM is the smoothest and highest load capacity A-type bearing in the market. • Corrosion-resistant versions available.
<p>Super</p> 	<p>The self-aligning 52100 bearing plate has a ball conforming groove that, with the Delrin sleeve and retainer provide high load capacity smooth motion.</p>	<ul style="list-style-type: none"> • The ball conforming groove enables the Super bearing to provide 3x the load capacity or 27X the L10 travel life of a conventional steel ball bushing bearing . • Sizes ¼" – 2", 5 – 50mm, open/closed • Ball Groove, Cartridge, Out-Rigger, Segment Bearings, XRs 	<ul style="list-style-type: none"> • Additional seal option on outside of bearing and on the pillow blocks offers sealing preferred over competitors by our customers. • Thomson has the largest installed base in North America. • Competitors have modeled their products after Thomson.
<p>Super Smart</p> 	<p>Truly self-aligning twin track linear bearing.</p> <p>The 52100 Steel plate pitches, rocks and rolls on a precision hardened steel band to provide universal type alignment capability.</p>	<ul style="list-style-type: none"> • 3 industry standards • Imperial Sizes ½" – 1 1/2 " • ISO Metric 16 – 40mm • JIS Metric 16 – 40mm • SS6U, E, J's available 16 – 40mm • Closed and Open 	<ul style="list-style-type: none"> • This patented product provides smooth, quiet, low drag linear movement at 6x the load capacity or 216 x the L10 travel life of a conventional steel linear ball bushing bearing. • Also available in a low cost 6 track version. • Its unique design with the steel band enables the bearing to preserve its ID fit-up and self-aligning capability over extended use.

Thomson RoundRail Linear Guides and Components

	Description	Product Overview	Comments
 <p>Specialty Bearings</p>	There are a multitude of specialty bearings that can be configured or developed to suit almost any customers' needs.	<ul style="list-style-type: none"> RoundWay® - all-steel construction and a chain that connects the rolling elements; Sizes 1/2" – 4". NB (nylon ball) Bearings, Cartridge Bearings, etc. 	<ul style="list-style-type: none"> Highest load rating of the linear bearings. The ratings are based on a longer travel than other linear bearings use. The chain enables the bearing to withstand high speeds and accelerations. Temperatures up to 450°F/232°C. Suitable for extremely harsh environments.

 <p>Accessories/Options</p>	The host of accessories and options associated with RoundRail bearings are multitudinous.	<ul style="list-style-type: none"> Steel Pillow Blocks, Aluminum Pillow Blocks, Singles, Twins, Closed, Opens, Adjustable, Flanged Pillow Blocks, Self-Aligning PBs, XPBs, XPBDs, CRs, wipers, seals, DDs, stainless steel options, resilient mounts, Lube Fittings, etc. 	<ul style="list-style-type: none"> Largest variety in the industry of customized offerings, accessories, and options that allow for new and broader uses of bearings in unusual, harsh, and state-of-the-art applications.
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60 Case® Shafting

	Description	Product Overview	Comments
	60 Case Shafting	AISI 1566 • Sizes: 3/16" – 4" and 3 – 80mm Bolt down from the top Smart Rail	<i>(applies to 60 Case Shafting, 440C & 300 Stainless Steel Shafting, 60 Case Tubular Shafting and their Accessories/Options)</i> <ul style="list-style-type: none"> High grade steel used for standard product – 1566 vs. competitor's 1060. Coil-to-bar mfg. technology permits sourcing of hot rolled material, lower costs, sourcing flexibility, high straightness levels, and controlled sizing prior to induction hardening.
	440C & 316 Stainless Steel Shafting	AISI 440C • Sizes: 1/8" – 2 1/2" and 3 - 60mm AISI 316 • Sizes: 1/4" – 2"	<ul style="list-style-type: none"> Low stress precision grinding techniques to produce: - Dia. tolerance control (<0.0002" - classes D & N) - Roundness variation (<0.000080") - Taper var. on 17' L or 1/2" dia. tolerance (<0.0002") - Surface finish (< 8 Ra) defect free surface - Straightness (capability to < 0.0005" / foot) Value added machining capabilities of hard turning, radial drill and tapping, milling; journal machining to 0.0002" max. dia. variation and <0.001" concentricity variation.
	60 Case Tubular Shafting	AISI 52100 Tubular • Size: 3/4" – 4"	<ul style="list-style-type: none"> Random lengths, cut to length, and special machined forms available. Engineered assembly solutions -- SR(M) and LSR (M). Standard product available for next day shipping.
	Ultra Light Aluminum Shafting	6061-T6 aluminum with HRC 70 hard anodized coating • Sizes 1/4" - 1"	<ul style="list-style-type: none"> Value added machining capabilities of hard turning, radial drill and tapping, milling; journal machining to 0.0002" max. dia. variation and <0.001" concentricity variation. Random lengths, cut to length, and special machined forms available. Engineered assembly solutions -- SR(M) and LSR (M). Standard product available for next day shipping.
	Accessories/Options	<ul style="list-style-type: none"> PD, SM, classes (S, L, D, N, XL, M, MN, G), deep case, SB, ASB, ASBM, FSB, Way Mounts, SR, SRA, LSR, LSRM, SRM, LSRM, XSR's, platings, coatings, metric, etc. 	Includes all of above

- Largest product breadth in the industry.
- Most technically advanced product offering that conforms to extremely stringent tolerance specifications.
- 70+ years of manufacturing experience.
- Thomson brand name known for consistent and unparalleled quality.

