

Linear Motion Components

LINEAR | COMPACT | X RAILS | CURVED | LEAD SCREWS | BALL SCREWS | SHAFTS | BEARINGS | CROSSED ROLLER RAILS & TABLES | TELESCOPIC SLIDES

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AN INTRODUCTION TO LINEAR COMPONENTS

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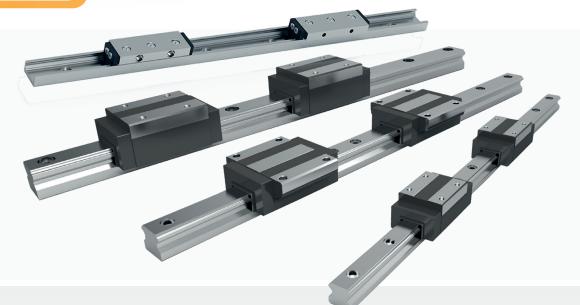


LINEAR RAILS

What is a Linear Rail?

VIEW THE FULL RA	
RANGE	

A linear rail is a system which facilitates linear movement and supporting of the load of a piece of equipment, either vertically or horizontally. As specialists in linear motion systems, we offer a choice of materials and sizes. Whether your application requires lightweight aluminium rails for aviation purposes or stainless steel components for resistance against water and corrosive chemicals, our range caters to diverse needs. Our knowledgeable technical engineers are always on hand to provide assistance.





Miniature Rail Carriages - L1010.C

Standard rail width. Miniature linear guideways are for precise, repeatable linear positioning. Space saving and cost efficient.



Unflanged Carriages - Standard -L1016.U

Blackened. Ball chain linear guideways. Very accurate and can handle high load capacities, providing smooth, consistent linear motion.



Unflanged Carriages - Low -L1016.UL

With retained ball cage. Ball chain linear guideways. Very accurate and can handle high load capacities, providing smooth, consistent linear motion.



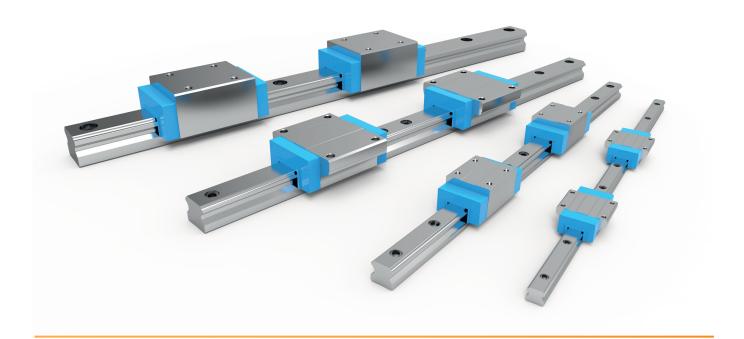
AN OVERVIEW OF LINEAR GUIDES

WHY USE THIS PRODUCT

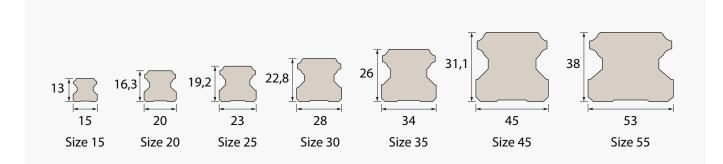
- For their rigidity, precision and high load capacity.
- We stock seven rail profiles of up to 4 metres length with multiple slider options.
- Same day despatch available.

- Cost effective solution compared to other linear guides.
- The system is interchangeable with other manufacturers such as THK, HIWIN, INA, Bosch etc.

LINEAR GUIDES : L1016



RAIL SIZES



AN OVERVIEW OF BLACK LINEAR GUIDES

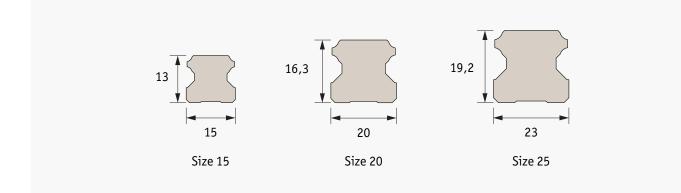
WHY USE THIS PRODUCT

- The black colour version is used for optical machines or aesthetically pleasing applications as the rail blends in with the other component parts on the machine.
- For their rigidity and precision.
- The system is interchangeable with other manufacturers such as THK, HIWIN, INA, Bosch etc.

LINEAR GUIDES : L1016



RAIL SIZES



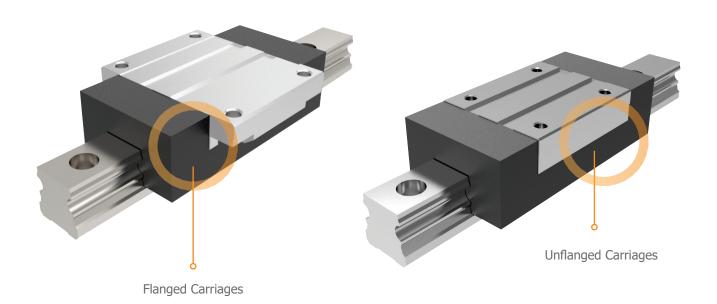


AN OVERVIEW OF ALUMINIUM LINEAR GUIDES

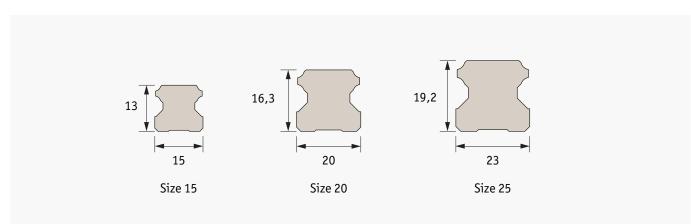
WHY USE THIS PRODUCT

- Compact and lightweight. These weigh approximately 60% less than comparatively sized steel rails.
- Corrosion resistant material. Hardened stainless balls and rail strips to prevent wear.

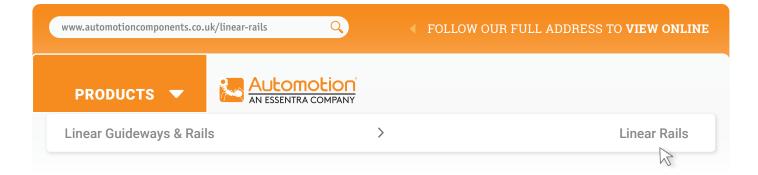
LINEAR GUIDES : L1018



RAIL SIZES













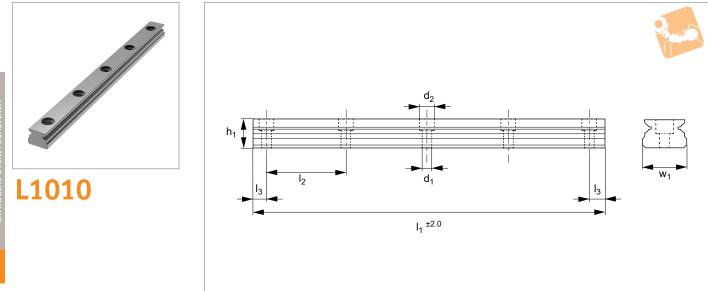




Miniature Linear Rail







Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Supplied with special low profile hex screws.

Select the size and number of carriages to suit the required load (see part L1010.C). Other rail lengths on request.

Important Notes

This size rail has a through thread from underside.

Must be ordered with corresponding sized carriage.

Replace xxxx with desired rail length eg. L1010.03-1000 is 1000mm long.

Order No.	W_1	ا max.	I ₂	l ₃	h ₁	h ₂	d_1	d ₂	For screws
L1010.03-xxxx	3	1000	10	2.5	2.6	-	-	-	M 1.6
L1010.05-xxxx	5	1000	15	5.0	3.5	1.0	2.4	3.5	M 2
L1010.07-xxxx	7	1000	15	5.0	4.7	2.3	2.4	4.2	M 2
L1010.09-xxxx	9	1000	20	7.5	5.5	3.5	3.5	6.0	M 3
L1010.12-xxxx	12	1000	25	10.0	7.5	4.5	3.5	6.0	М З
L1010.15-xxxx	15	1000	40	15.0	9.5	4.5	3.5	6.0	М З

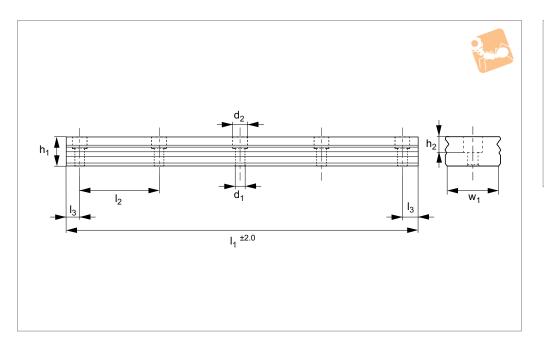




Miniature Linear Rail

wide version

Miniature Linear Guideways





L1012

Material

Corrosion resistant stainless steel, hardened (similar to 440C).

Technical Notes

Select the size and number of carriages to suit the required load (see part L1012.C). Other rail lengths on request. Weight: 0.3 Kg/m. Replace xxxx with desired rail length eg. L1012.10-1000 is 1000mm long.

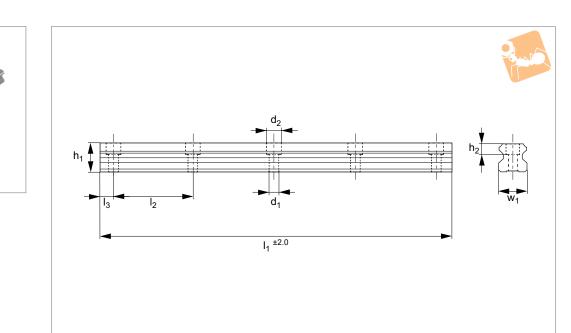
Order No.	 1 max.	I ₂	l ₃	h ₁	h ₂	d ₁	d ₂	For screws	W ₁
L1012.10-xxxx	1000	20	7.5	4.0	1.6	3.0	5.5	M 2.5	10
L1012.14-xxxx	1000	30	10.0	5.2	3.5	3.5	6.0	M 3	14
L1012.18-xxxx	1000	30	10.0	7.3	4.5	3.5	6.0	M 3	18
L1012.24-xxxx	1000	40	15.0	8.5	4.5	4.5	8.0	M 4	24
L1012.42-xxxx	1000	40	15.0	9.5	4.5	4.5	8.0	M 4	42



Linear Guide Rail standard







Material Hardened and ground steel (typically 60 HRc).

Technical Notes

For carriages to suit the required load see part nos. L1016.F (flanged) and L1016.U (unflanged). Other rail lengths on request.

Tips

Plastic screw covers issued with the rails to protect screw holes from debris.

Replace xxxx with desired rail length, eg.L1016.15-1000 is 1000mm long.

d ₁ d ₂	For screws
1.5 7.5	M 4
5.0 9.5	M 5
·.0 11.0) M 6
).0 14.0) M 8
).0 14.0) M 8
4.0 20.0) M 12
6.0 23.0) M 14
6 7 9	4.5 7.5 6.0 9.5 7.0 11.0 9.0 14.0 9.0 14.0 14.0 20.0 16.0 23.0



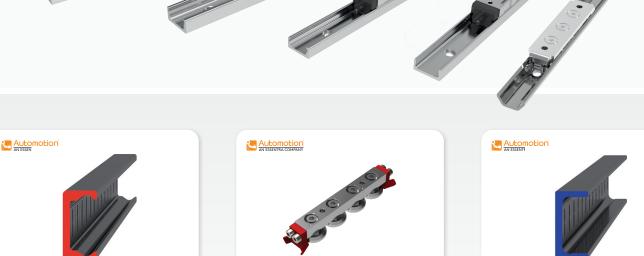


COMPACT RAILS

What is a Compact Rail?



The compact rail system is a unique linear rail, or linear guide system that is very easy to install and allows for some misalignment of the structure in which it is being used. With the pre-load, or stiffness of the system also being adjustable by the user during set up, makes this a very user friendly linear system. Induction hardened raceways on all rails and a precision 'master' rail ensure this is still a high precision system but with minimal set up time, thus offer cost savings during the installation process.



Light Duty T Rails - L1918.18

Light duty, compact rails with counterbored fixing holes. Usually used with a U slave rail to allow for system misalignment.



Light Duty Sliders - Size 18 -L1918.CS

Light duty, compact rail sliders with rubber seals. No side seal. Front fixing. Easy to install. Quiet and fast. The U rail sliders cannot accept axial loads.

Light Duty U Rails - L1918.18

Light duty, compact U-rails with counterbored fixing holes. Usually used with a T master rail and a corresponding T-C rail.



AN OVERVIEW OF COMPACT RAILS

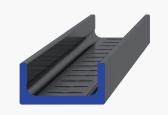
WHY USE THIS PRODUCT

- Misalignment compensation system. Unique master and slave rails allow the system to operate effectively even when a pair of rails are not perfectly parallel.
- Manually adjustable pre-load.
- Ideal product when mounting surfaces are not precision ground, which is a requirement for standard linear guides.



MISALIGNMENT DIAGRAM EXAMPLE





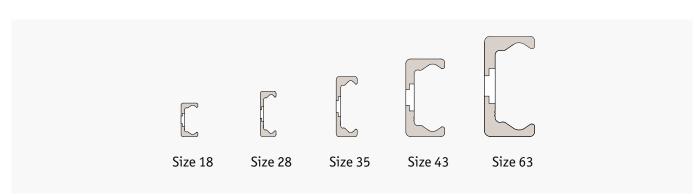
MASTER 'T' RAIL

SLAVE 'U' RAIL

SLIDER OPTIONS

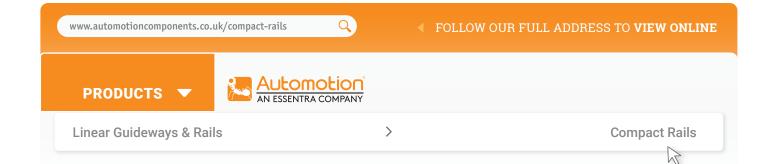


RAIL SIZES





0333 207 4498



Medium Duty T Rails **Medium Duty U Rails** Light Duty Sliders - Size 18 Light Duty Sliders - Size 18 - L1918.CR - L1918.N - L1928.28 - L1928.28 Light duty compact sliders for long linear rails. Side seal. With wipers. Easy to Light duty. Standard. Maintenance free, self-lubricating wipers. Easy to install. Medium duty, compact T-rails with counterbore holes. Usually used with a Medium duty compact U-rails with countersunk holes. Usually used with a corresponding T-V rail. install. Quiet and fast. Quiet and fast. U-C slave rail. Automotion Automotion Automotion Automotion **Medium Duty Sliders - Size** Medium Duty Sliders - Size **Medium Duty Sliders - Size Medium Duty T Rails** 28 - L1928.CS 28 - L1928.CR 28 - L1928.N - L1935.35 Medium duty, compact rail sliders. Front fixing with no side seal, size 28. With wiper. Easy to install. Quiet and fast. Medium duty compact rail sliders. Top fixing, size 28. Cast body. Maintenance free, self-lubricating wipers. Easy to Medium duty compact rail sliders. Top Medium duty compact T-rails with fixing with side seal, size 28. Easy to counterbored holes. Usually used with a install. Quiet and fast. U slave rail. install. Automotion 0

Medium Duty U Rails - L1935.35

Medium duty compact U-rails with countersunk holes. Usually used with corresponding T-V rail.



Medium Duty Sliders - Size 35 - L1935.CS

Medium duty compact rail sliders. Front fixing, size 35 without side seal. Cannot accept axial loads. Easy to install. Quiet and fast.



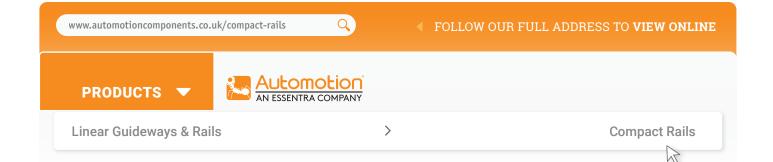
Medium Duty Sliders - Size 35 - L1935.CR

Medium duty compact rail sliders. Top fixing, size 35 with side seal.

Heavy Duty T Rails - L1943.43

Heavy duty compact T-rails with counterbored holes. Usually used with a corresponding U-C rail.



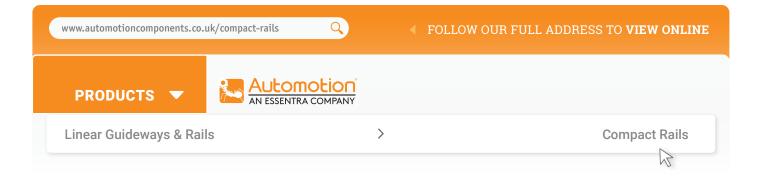






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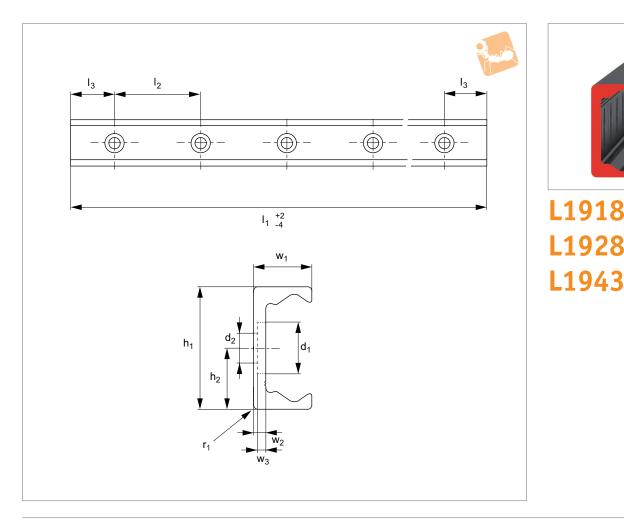






Light Duty T Rail counterbored holes





Material

Carbon steel. Raceways induction hardened and ground. Electrolytic zinc-plated (excluding raceways).

Technical Notes

The T rail is a master rail and is usually used with a U slave rail (allows for system

misalignment).

This is the counterbored rail type (most popular), which is usually used with a corresponding ULC rail. Special low profile Torx head screws provided free of charge. Weight: 0.55 Kg/m.

Tips

Standard carriages are the L1918.N versions (die cast aluminium alloy with wipers). Alternatively the L1918.C type is also available (without wipers).

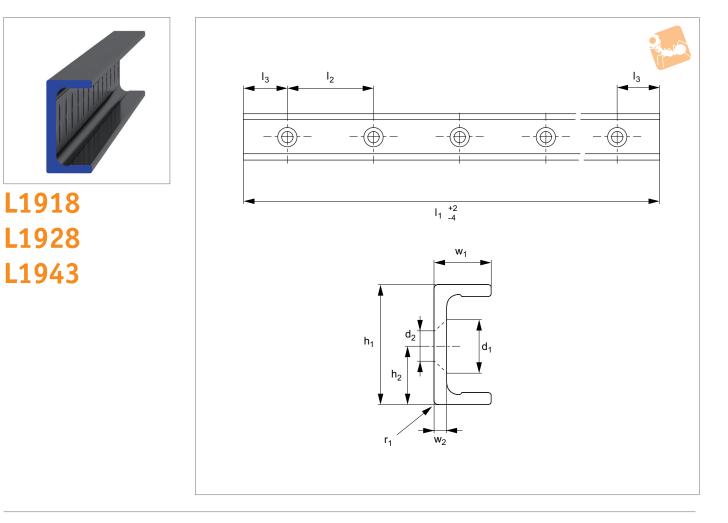
Replace xxxx with desired rail length. E.g L1918.TLC18-1000 is 1000mm long.

Order No.	d_1	d_2 for screws	h ₁	h ₂	Ι ₁ max	۱ ₂	l ₃	r	W_1	W ₂	W ₃
L1918.TLC18-xxxx	9.5	M 4	18	9.0	2000	80	40	1.5	8.25	2.8	2.0
L1928.TLC28-xxxx	11.0	M 5	28	14.0	3200	80	40	1.0	12.3	3.0	2.0
L1943.TLC43-xxxx	18.0	M 8	43	21.5	4080	80	40	2.5	21.0	4.5	3.1









Material

Carbon steel. Raceways induction hardened and ground. Electrolytic zinc-plated (excluding raceways).

Technical Notes

The U rail is a slave rail and is usually used

with a T master rail. This is the ULV countersunk rail type which is usually used with a corresponding TLV rail. For fixing use countersunk DIN 7991 screws. Weight: 0.55 Kg/m.

Tips

Standard carriages are the L1918.N versions (die cast aluminium alloy with wipers). Alternatively the L1918.C type is also available (without wipers).

Replace xxxx with desired rail length. E.g L1918.ULV18-1040 is 1040mm long.

Order No.	d ₂	h ₁	h ₂	Г ₁ max	l ₂	l ₃	r_1	W_1	W ₂
L1918.ULV18-xxxx	M 4	18	9.0	2000	80	40	1	8.25	2.6
L1928.ULV28-xxxx	M 5	28	14.0	3200	80	40	1	12.00	3.0
L1943.ULV43-xxxx	M 8	43	21.5	4080	80	40	1	21.00	4.5





X RAILS

What is an X Rail?

X rails are highly cost-effective systems for linear motion and are excellent for applications such as drawers, protective screens, battery casings etc. They come with a rolled-formed steel section, accommodating structural misalignment and providing durability for diverse applications. Available in zinc-plated steel but also available in stainless steel for added corrosion resistance, suitable for outside and marine environments.







Steel X Rails - T Rails (master) -L1970.T

The X rail system is a cold rolled rail system offering an economical solution to simple linear movement applications. Low-profile and very effective.



Steel X Rails - U Rails (slave) -L1970.U

The X rail system is a cold rolled rail system offering an economical solution to simple linear movement applications. Low-profile and very effective. 

Low Profile Stainless Sliders -L1971.LP

For T rail (master). The X rail system is a cold rolled rail system offering an economical solution to simple linear movement applications. Low-profile and very effective.



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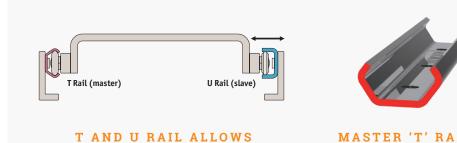
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AN OVERVIEW OF X RAILS

WHY USE THIS PRODUCT

- Cost effective, low precision solution.
- Misalignment compensation system.
- Manually adjustable pre-load.

- Zinc steel or AISI 316 Stainless Steel. Ideal for marine, food or outside applications.
- Same day despatch available.





FOR MISALIGNMENT



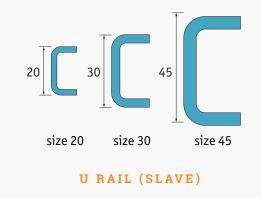
MASTER 'T' RAIL

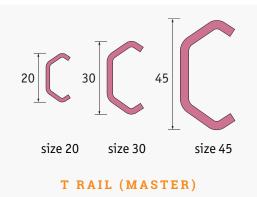


SLAVE 'U' RAIL

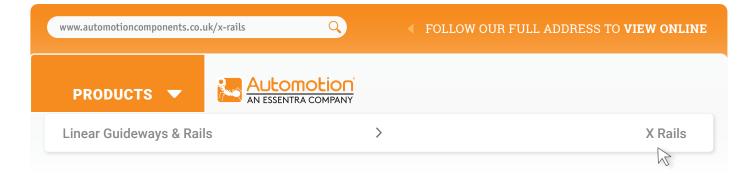
- High grade stainless (316L).
- For wet applications.
- 2RS (splash-proof) seals.

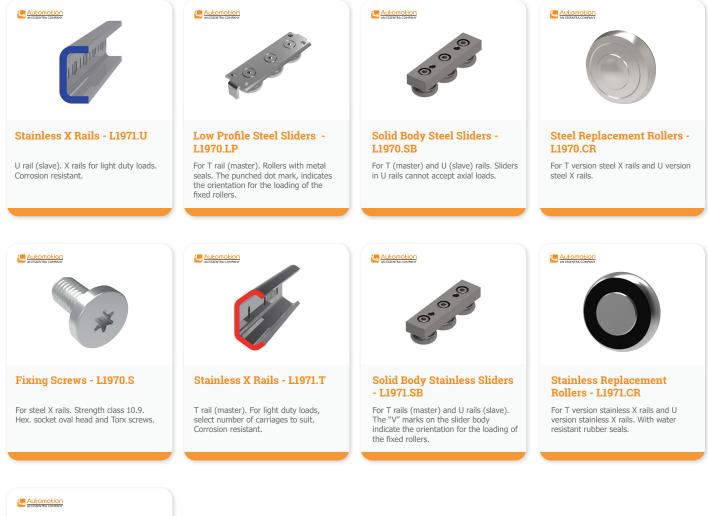
RAIL SIZES













Fixing Screws - L1971.S

For stainless steel X rails.



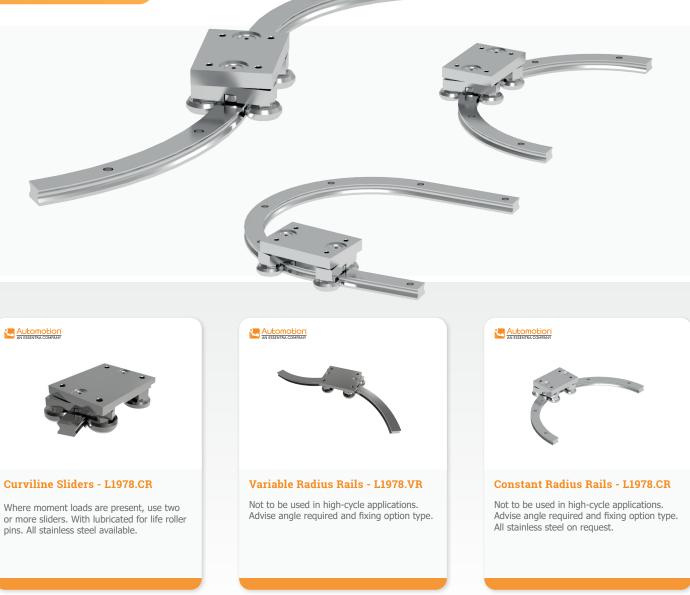


CURVED RAILS

What is a Curved Rail?



Curved rails are unique linear guides that offer a solution for applications where the equipment requires movement along curves, corners, or circular paths. With a minimum radius of 120mm, these rails can be precisely machined into full circles, fractional arcs, straight sections with bends in, or customised shapes according to specific requirements.





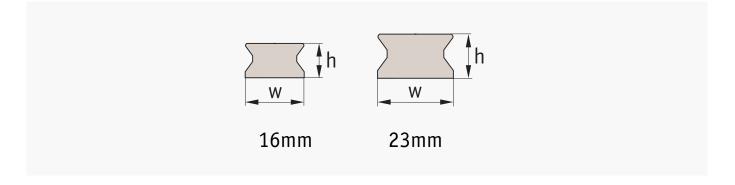
AN OVERVIEW OF CURVED RAILS

WHY USE THIS PRODUCT

- In any application where a bend or curve is required in the linear guide such as a door, sliding table or oval track.
- Manufactured to your specifications.
- Can also be manufactured in aluminium and stainless steel.



RAIL SIZES



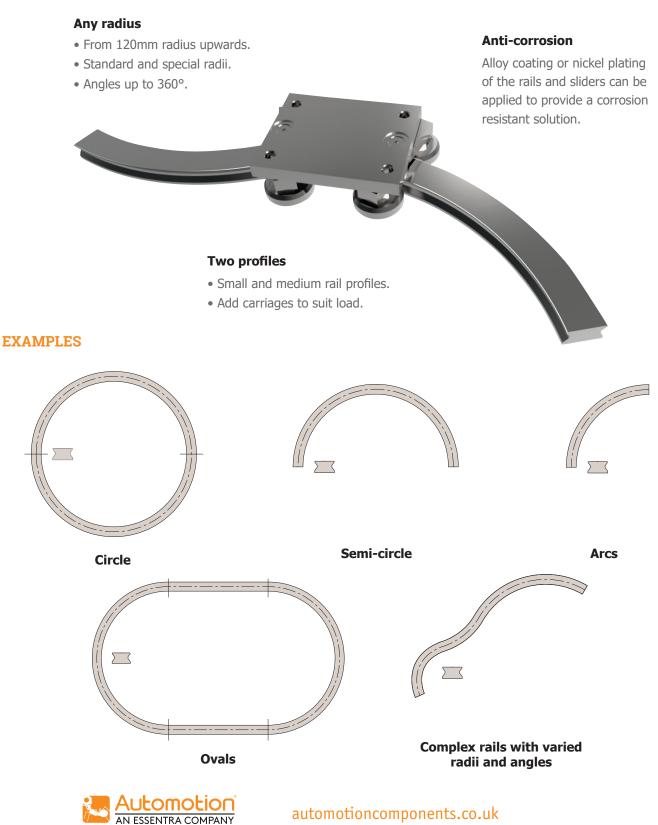


AN INTRODUCTION TO **CURVILINE RAILS**

The Curviline rail system offers a cost-effective solution to curvilinear applications.

FLEXIBILITY WHEN YOU NEED IT

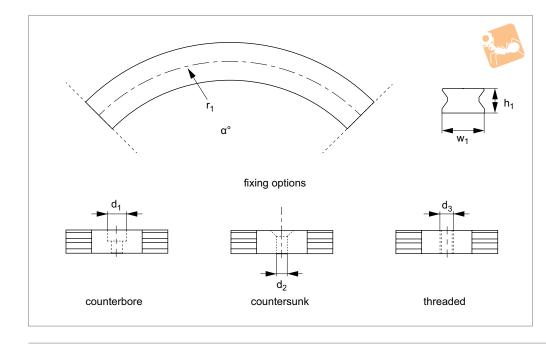
Constant radius, variable radius are available in standard radii, non-standard radii to your drawings are also possible. Straight and curved sections in a single length can be supplied.





Constant Radius Rails

Long Linear Rails





L1978

Material

Steel rail (C43), electrolytic zinc plated. All stainless steel on request.

Technical Notes

Standard radii are shown below but any radius (from $r_1 > 120 \text{ mm}$) can be produced. Advise angle required and fixing option

type.

Temperature range -30°C to +80°C. Rail weight 1,2 Kg/m.

Tips

Combine with curviline sliders L1978.CX16-070.

Recommended hole pitch on rail is 80mm.

Rail tolerance $\pm 0,5$ mm, angle tolerance $\pm 1^{\circ}$.

Recommended rail hole is counterbored (easy to install).

Important Notes

Not to be used in high-cycle applications.

Order No.	W_1	h ₁	r ₁	°	d_1 for	$d_2^{}$ for	d ₃ for
_1978.CRX16-0150-xx	16.5	10.0	150	tba	M 5	M 5	M 6
_1978.CRX16-0200-xx	16.5	10.0	200	tba	M 5	M 5	M 6
_1978.CRX16-0250-xx	16.5	10.0	250	tba	M 5	M 5	M 6
.1978.CRX16-0300-xx	16.5	10.0	300	tba	M 5	M 5	M 6
.1978.CRX16-0400-xx	16.5	10.0	400	tba	M 5	M 5	M 6
.1978.CRX16-0500-xx	16.5	10.0	500	tba	M 5	M 5	M 6
.1978.CRX16-0600-xx	16.5	10.0	600	tba	M 5	M 5	M 6
.1978.CRX16-0700-xx	16.5	10.0	700	tba	M 5	M 5	M 6
.1978.CRX16-0800-xx	16.5	10.0	800	tba	M 5	M 5	M 6
.1978.CRX16-0900-xx	16.5	10.0	900	tba	M 5	M 5	M 6
.1978.CRX16-1000-xx	16.5	10.0	1000	tba	M 5	M 5	M 6
.1978.CRX23-0150-xx	23.0	13.5	150	tba	M 6	M 6	M 8
.1978.CRX23-0200-xx	23.0	13.5	200	tba	M 6	M 6	M 8
.1978.CRX23-0250-xx	23.0	13.5	250	tba	M 6	M 6	M 8
.1978.CRX23-0300-xx	23.0	13.5	300	tba	M 6	M 6	M 8
.1978.CRX23-0400-xx	23.0	13.5	400	tba	M 6	M 6	M 8
_1978.CRX23-0500-xx	23.0	13.5	500	tba	M 6	M 6	M 8
.1978.CRX23-0600-xx	23.0	13.5	600	tba	M 6	M 6	M 8
.1978.CRX23-0700-xx	23.0	13.5	700	tba	M 6	M 6	M 8
.1978.CRX23-0800-xx	23.0	13.5	800	tba	M 6	M 6	M 8
.1978.CRX23-0900-xx	23.0	13.5	900	tba	M 6	M 6	M 8
.1978.CRX23-1000-xx	23.0	13.5	1000	tba	M 6	M 6	M 8





LEAD SCREWS

What is a Lead Screw?

Lead screws are fundamental in translating rotary motion to linear movement and are commonly used in conjunction with parallel linear guides. Lead screws are typically used in applications where movements required are at low speed or with low accuracy and they can be quieter and better in vertical running applications compared with ball screws. They also perform at their best in corrosive or dirty environments where dust and debris is around.





Steel Lead Screws - L1320

Rolled trapezoidal C45 steel lead screws, right hand thread. Lengths of up to 6 metres can be provided. Tr 10 to Tr 120.



Flanged Bronze Nuts - L1331

Flanged bronze lead screw nuts - for trapezoidal threads. For manual or powered applications at medium/low rotation speeds under load.



Square Steel Nut with Holes -L1337

Square steel nut with holes for right handed thread screws. Useful for fixing additional elements onto the lead screw carriage.



AN OVERVIEW OF OUR STANDARD PARTS IN THIS RANGE LEAD SCREWS

Automotion Components offers a large range of trapezoidal lead screws, typically held in stock in large volumes. Machining or custom lead screws regularly manufactured to customer drawing.



L1320 STEEL LEAD SCREWS -RIGHT HAND THREAD

Steel C45 Trapezoidal lead screws from Tr10x2 up to Tr120x16. Standard lengths up to 3 metres with specials available up to 6 metres.

L1322 STAINLESS LEAD SCREWS -RIGHT HAND THREAD

AISI 316 stainless steel Trapezoidal lead screws from Tr10x2 up to Tr70x10. Standard lengths up to 3 metres with specials available up to 6 metres.

MACHINED LEAD SCREW



We can machine the ends of leads screws to customer drawings on request. We also manufacture special lead screws to drawing.

L1321 STEEL LEAD SCREWS -LEFT HAND THREAD

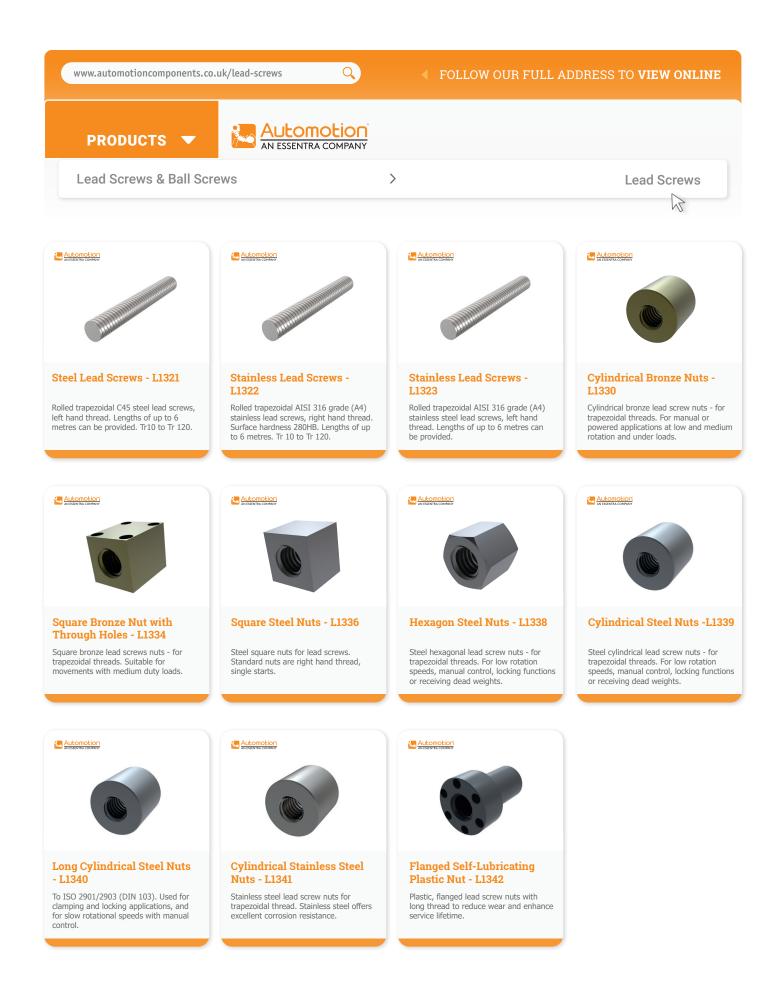
Left Hand thread steel C45 trapezoidal lead screws from Tr10x2 up to Tr120x16. Standard lengths up to 3 metres. Also available in AISI 316 stainless, part number L1323.

L1350 FLANGED HIGH HELIX LEAD SCREW NUTS

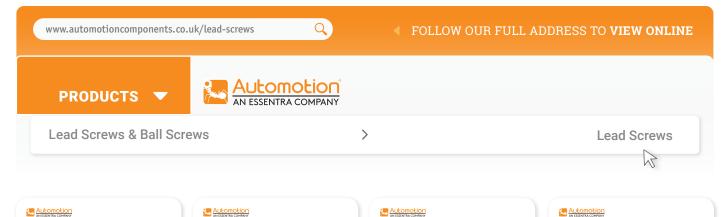
Precision high helix lead screws available in diametres from 4x1 up to 20x10. The ideal product when more accuracy is required that trapezoidal lead screws cannot offer, but the application doesn't warrant the cost of a ball screw.

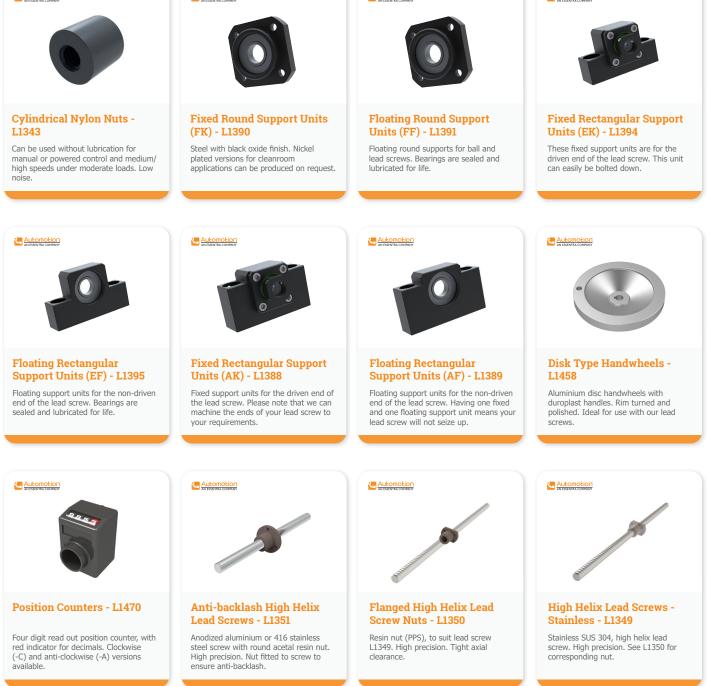


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AN INTRODUCTION TO LEAD AND BALL SCREWS

At Automotion Components, we are very proud of the vast range of products we are able to offer, which includes our range of **Lead & Ball Screws.**



LEAD SCREWS & PRECISION SCREWS

Our commercial and precision are available in steel and 316L stainless. The commercial range has trapezoidal threads in single and twin start. The precision range provides a more accurate fit and higher "leads" - is distance travelled per revolution, offering good solutions to your application needs. The lead screw nuts are provided in brass, steel, plastic resin and stainless steel.

Thread sizes are from Ø8 with a 1mm lead up to Ø120 with a 18mm lead.

Thread types - right hand is of course standard but we offer left hand as well as "combi" lead screws (right hand thread one end and left hand on the other).

PRECISION LEAD SCREWS

Available in smaller diameters (down to 4mm) and up to 20mm with 40mm lead.

We also provide a range of nuts and bearing supports to complement all sizes of lead and ball screws.

END MACHINING

We can also machine the ends of our lead screws to your requirements or particularly to suit our range of fixed and floating lead screw support units.

BALL SCREWS

We offer highly accurate and reliable ball screws with left and right hand threads. Miniature ball screws from 6 to Ø14mm with cylindrical or flanged nuts. Standard ball screws from 12 to Ø80mm along with a range of anti-corrosion ball screws.

ACCESSORIES

All of the above are supported by a range of accessories including ball screw support units, motor brackets, spindle locks, position counters and handwheels.





BALL SCREWS

What is a Ball Screw?

A ball screw is a screw which translates rotary motion into linear motion. Normally used as the driving mechanism in horizontal or vertically driven applications aided by linear guides for supports. They are described by diameter and pitch or lead. The pitch or lead is the amount of travel you get, or distance the nuts travel along the screw for every complete revolution. They can be operated manually or motorised. They differ from lead screws in that they offer greater precision, speeds, efficiency and accuracy. They are a precision screw which cost considerably more than a lead screw of comparable size so it is important to determine if your application really requires a ball screw.







Ball Screws - L1375

Ball screws are highly efficient due to the recirculating ball mechanism which helps the ball nuts minimise friction against the ball screw. From 16 to 80mm diameter, a range of leads - stocked lengths up to 3 metres.



Flanged Ball Nuts - L1370

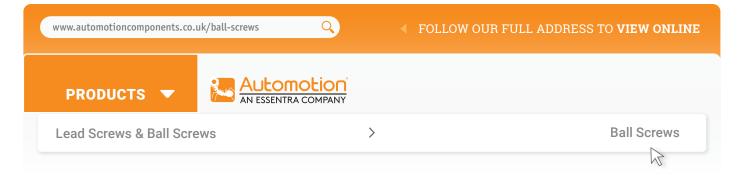
To DIN 69051 form B. To compliment our rolled ball screw range. With lubrication and fixing holes. 

Flanged Ball Nuts - Anti Corrosion - L1377

DIN 69051 form B. Anti corrosion finish consists of a thin layer of black chrome and produces good resistance to wear, and a protective effect against corrosion. Layer thickness 2-10µm.



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Miniature Rolled Ball Screws - L1379

Miniature rolled ball screws and nuts come in 6-14 mm diameter sizes and with lengths up to 1 metre.

Miniature Flanged Ball Nuts - L1379.F

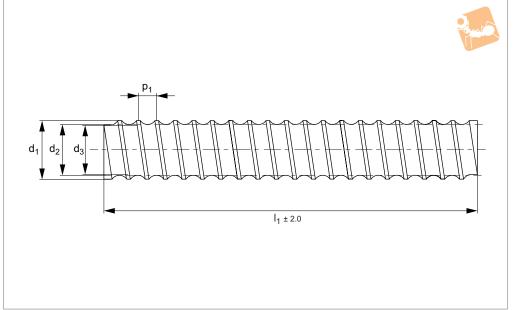
For use with miniature ball screws. Fit the ball nut screw with the sleeve provided.





Ball Screws







Material

Steel (CF53 or C55R), induction hardened to 60 HRC ± 2 , polished.

Technical Notes

Gothic profile with a 5 or 10mm lead. Tolerance T7 - $50\mu/300$ mm. Shorter lengths or longer lengths up to a maximum of 3000mm available.

For ball screw nuts see parts L1370-L1374 & L1377.

For end screw machining to suit ball screw support units see relevant ball screw supports (L1388-L1406). End machining on request.

L in product no. denotes left hand version.

Replace xxxx with desired rail length eg. L1375.16-05-1000 is 1000mm long.

Important Notes

Ensure the ball nut can be fitted to the ball screw after machining. Do not remove the ball nut from the sleeve prior to installation - the balls come free rendering the ball nut unusable.

Order No.	Screw dia. x lead	Lead	d_1	d ₂	d ₃		Mass moment of inertia	Weight
L1375.16-05-xxxx	16x 5	5	17.08	16	13.90	max. 500	<mark>kg·m²</mark> 4.45x10⁻⁵	kg 0.71
		-		16				
L1375.16L-05-xxxx	16x 5	5	17.08	16	13.90	600	4,45x10⁻⁵	0.71
L1375.20-05-xxxx	20x 5	5	21.08	20	17.90	800	1,12x10 ⁻⁴	1.18
L1375.20L-05-xxxx	20x 5	5	21.08	20	17.90	1000	1,12×10-4	1.18
L1375.25-05-xxxx	25x 5	5	26.08	25	22.90	1500	2,62x10 ⁻⁴	1.80
L1375.25L-05-xxxx	25x 5	5	26.08	25	22.90	2000	2,62x10-4	1.80
L1375.32-05-xxxx	32x 5	5	33.08	32	29.90	2500	7,25x10 ⁻⁴	2.99
L1375.32L-05-xxxx	32x 5	5	33.08	32	29.90	3000	7,25x10 ⁻⁴	2.99
L1375.40-05-xxxx	40x10	5	41.08	40	37.90	500	1,81x10 ⁻³	4.72
L1375.40L-05-xxxx	40x10	5	41.08	40	37.90	600	1,81x10 ⁻³	4.72
L1375.50-05-xxxx	50x10	05	52.15	50	45.80	800	4,19x10 ⁻³	7.18
L1375.63-10-xxxx	63x10	10	65.15	63	58.80	1000	1,09x10 ⁻²	11.56
L1375.80-10-xxxx	80x10	10	82.15	80	75.80	1500	2,89x10 ⁻²	18.88





RESOURCES: FREE CAD MODELS

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MADE IN BRITAIN

Established in 1951, the Wixroyd Group supply innovative engineering products with free online CAD models and in-house technical expertise.



Trusted by some of the best known design and manufacturing companies, we pride ourselves on producing the highest quality components at the best value.



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BESPOKE CAPABILITIES

Our in-house manufacturing can make your idea a reality. Call our technical team to discuss.





SHAFTS

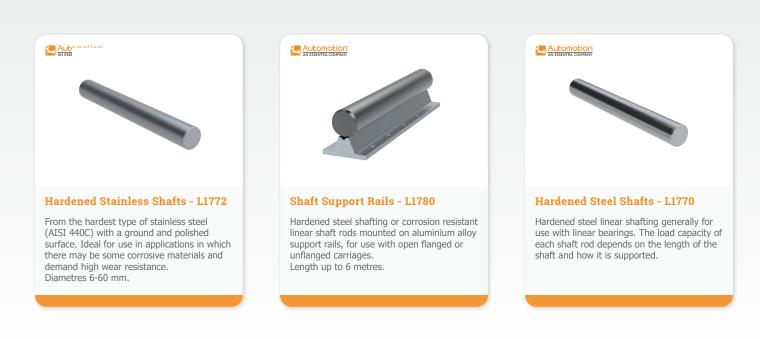
What is a Linear Shaft?

A linear shaft is a straight, precision machined bar on which linear bearings run to create a linear guide system to support or guide the movement of equipment in a linear fashion. Available in hardened steel, hardened stainless, 303 and 316 stainless, and aluminium.

We can also manufacture on short lead times linear shafts to your drawing with custom machining, keyways, circlips grooves, drilled and tapped holes and more.









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AN OVERVIEW OF OUR STANDARD PARTS IN THIS RANGE LINEAR SHAFTS

Our large range of linear shafting includes hardened steel shaft bars, corrosion resistant shaft bars and hollow shaft bars. We can also modify these standard shafts (drilling, tapping etc) to your requirements.



L1771 HARDENED CARBON STEEL HOLLOW SHAFT

Used in applications where weight reduction is important. Available diametres of between 12Ø to 60Ø h6 tolerance. Use with our linear bearings.

L1772 CORROSION RESISTANT 440C SHAFT

This hardened shaft is the one to use if you require corrosion resistance but also need to use linear bearings. Available diametres 06Ø to 60Ø. Use with our stainless steel linear bearings.

L1770 : HARDENED CARBON STEEL LINEAR SHAFT



L1770

Our most popular shaft! Available in diametres of between 05Ø to 60Ø with a surface hardness of 60-66 HRC. Use with our linear bearings. All our linear shafts are made to a standard h6 tolerance. Special tolerances available upon request.



L1773 / L1774 303/316 STAINLESS STEEL SHAFT

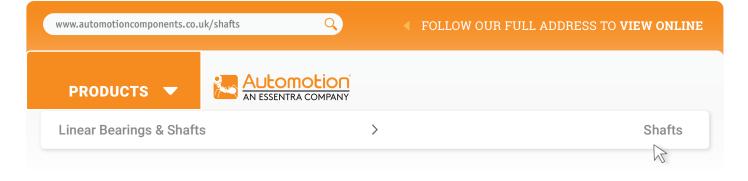
Superior corrosion resistance compared to 440C shafts. These offer ultimate protection when looking for corrosion resistance. Available diametres 06Ø to 60Ø.



L1778 ALUMINIUM SHAFT

With an oxide ceramic coating for where weight saving is a priority. This is also non-magnetic with a surface hardness of >80 HRC. Designed to be used with self-lubricating ceramic bearings (L1764 to L1769).











Aluminium Shafts - L1778

Lightweight aluminium linear shafts, coated with hard aluminium oxide, to increase durability. Non-magnetic. Used with self-lubricating ceramic linear bushes. Ø8 to Ø50.

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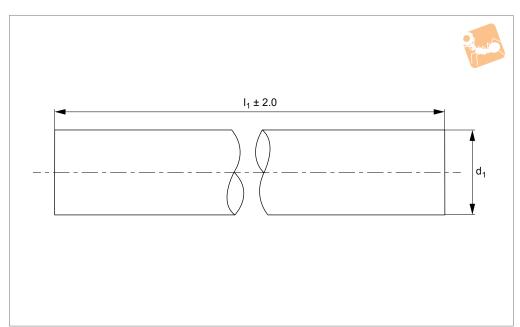
Hardened Steel Shafts

Linear Shaft Bars





L1770



Material

Carbon steel (070M55,Cf53 - DIN 1.1213), Surface hardness 60-66 HRC. Surface finish 0.3-0.6 μ Ra, ground and polished to 8-12 cla.

Yield stress: >325 N/mm², tensile strength: >630 N/mm².

Technical Notes

Tolerance, h6 standard, special tolerances upon request. Suitable for use with linear bearings. Straightness 0.2mm/m.

Tips

Modifications, drilled and tapped holes,

retainer grooves, special coatings etc. are available.

Shaft lengths are cut to typically $\pm 2mm$, ends are not hardened.

Replace xxxx with desired shaft length. E.g L1770.05-1600 is 1600mm long.

Order No.	d,	L,	Depth of hardness	Weight
	tol. ĥ6	māx	min.	kg max
L1770.05-xxxx	5	6000	0.4	0.96
L1770.06-xxxx	6	6000	0.4	1.38
L1770.08-xxxx	8	6000	0.4	2.40
L1770.10-xxxx	10	6000	0.4	3.72
L1770.12-xxxx	12	6000	0.6	5.34
L1770.16-xxxx	16	6000	0.6	9.48
L1770.20-xxxx	20	6000	0.9	14.82
L1770.25-xxxx	25	6000	0.9	23.10
L1770.30-xxxx	30	6000	1.5	33.30
L1770.40-xxxx	40	6000	1.5	59.22
L1770.50-xxxx	50	6000	1.5	92.40
L1770.60-xxxx	60	6000	1.5	133.20





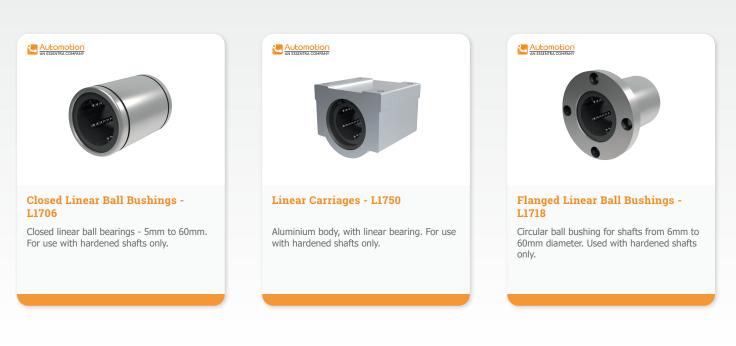
BEARINGS

What is a Linear Bearing?

A Linear Bearing, also known as a linear ball bush or bushing, is a bearing that runs on a hardened linear shaft to help guide or support the movement of a component in a linear fashion. A cost effective method of achieving linear motion where the loads are light enough to not need conventional linear guides or where the guide can only be supported at the ends and not over the entire length.



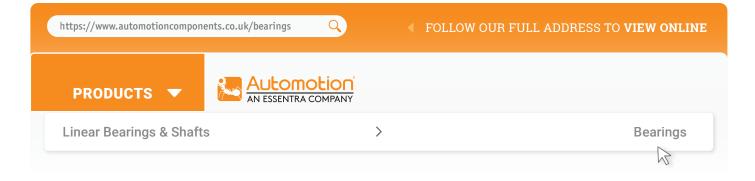






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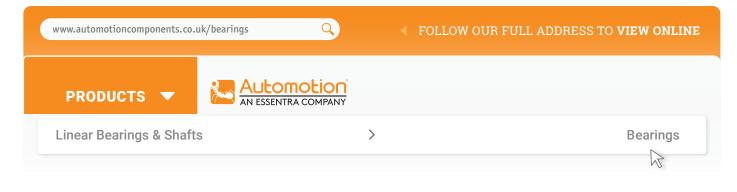
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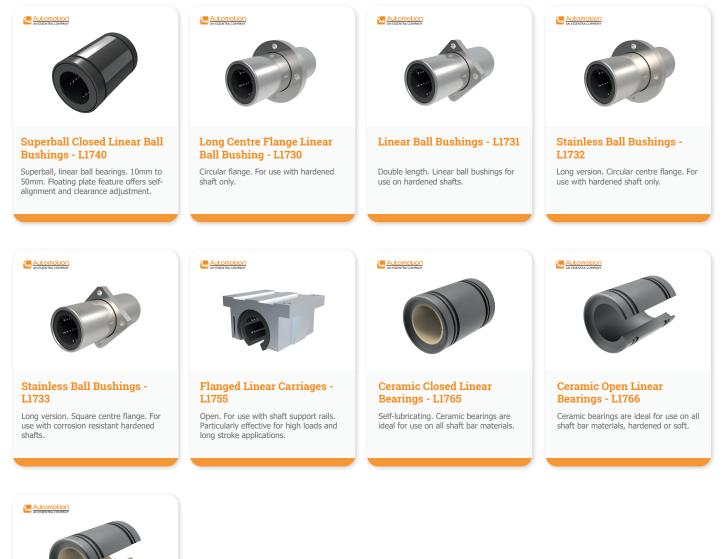






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Self-lubricating. Ceramic bearings are ideal for use on all shaft bar materials, hardened or soft.



TECHNICAL INFORMATION LOAD RATING

Basic dynamic load rating C

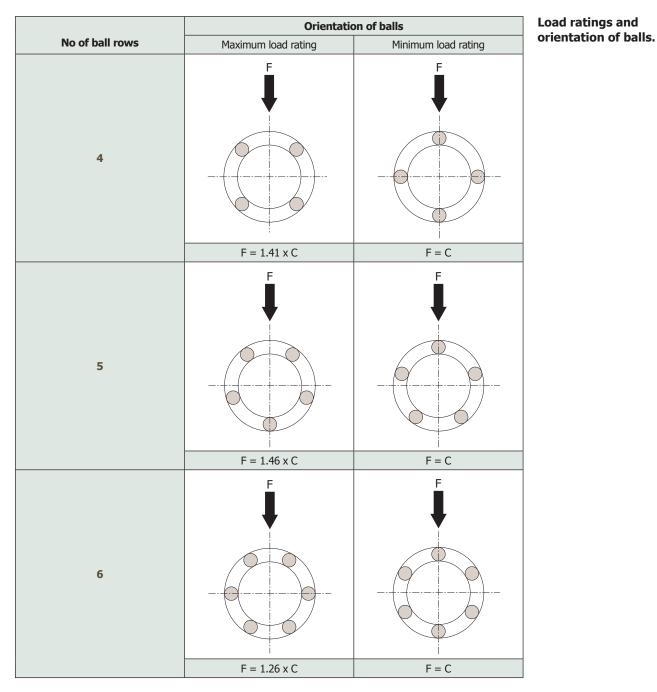
The basic dynamic load rating is defined as the constant load both in direction and magnitude under which a group of identical linear bushings are individually operated. 90% of the units can travel 50Km without failing due to rolling contact fatigue.

Basic static load rating C₀

If a linear bushing is subject to an excessive load or impact, a permanent deformation occurs between the raceway and the rolling element. The basic static load rating is defined as the static load that gives a prescribed constant contact stress at the centre of the contact area between the rolling element and raceway receiving the maximum load.

Relationships between load ratings and the position of ball circuits

Load ratings of linear bushing are affected by the position of the ball circuits as shown below.



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CROSSED ROLLER RAILS & TABLES

What are Crossed Roller Rails & Tables?

Crossed roller rails and tables represent low-profile, high-precision solutions for linear support and guidance, ensuring elevated accuracy, repeatability, and minimal friction. Crossed roller tables, in particular, excel in handling higher loads compared to their ball bearing counterparts of similar dimensions. Whether you need lightweight aluminium rails for use in aviation applications or stainless steel components for when exposure to water or corrosive chemicals is a factor, we have a range of options to a variety of requirements.







Crossed Roller Rail Sets - L1000

Supplied in sets of 4 rails - with 2 roller cages and 8 end screws as standard. Can be cut to length, but this affects load rating.





Anti-friction Coated V Rail -L1006.V

High load capacity. Primarily used as dirtproof units, to reduce system vibration and improve rigidity.



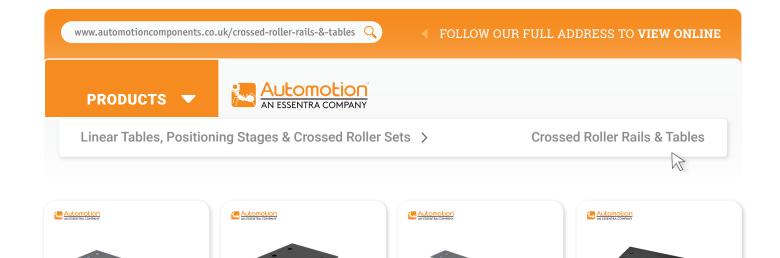
Crossed Roller Tables - L1020

Base and carridge with standard hole pattern. Top can be machined as required.



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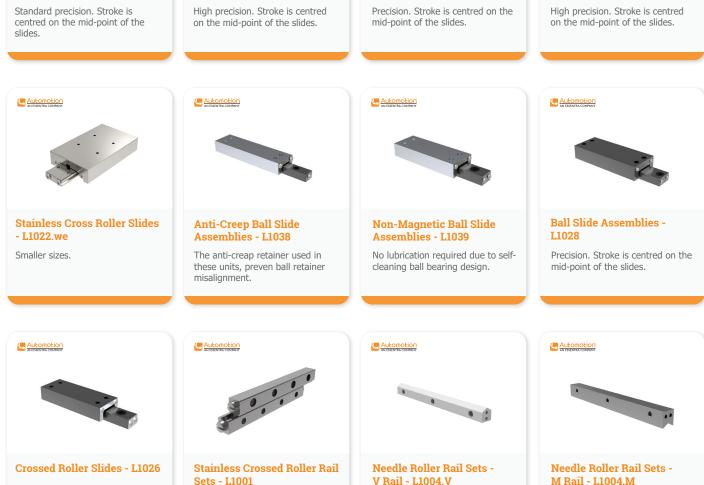
Crossed Roller Slides - L1029

Low Profile Crossed Roller

High load capacity. Usually supplied in a set of 4, with needle rollers in

aluminium cage, GM end stops.

Table - L1032



Standard precision. Stroke is centred on the mid-point of the slides.

Ball Slide Assemblies -

L1024

Sets - L1001

Low Profile Ball Slide

Assemblies - L1030

Supplied in sets of 4 rails - with 2 roller cages and 8 end screws as standard.

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High load capacity. Usually supplied in a set of 4, with needle rollers in

aluminium cage, GM end stops.





TELESCOPIC SLIDES





Telescopic slides, also known as telescopic rails or drawer runners, are most commonly used in pairs. Primarily designed for sliding drawers, doors, and platforms, they find application in scenarios where linear movement is necessary, but standard linear guides are impractical due to length constraints. Whether facilitating horizontal or vertical linear travel, these telescopic slides offer a practical alternative, allowing for smooth and controlled motion without the need for extended guides spanning the entire travel length.





Fully Telescopic Slides - L1986.22

Strong and rigid with high load capacities. Only to be used for horizontal movements.

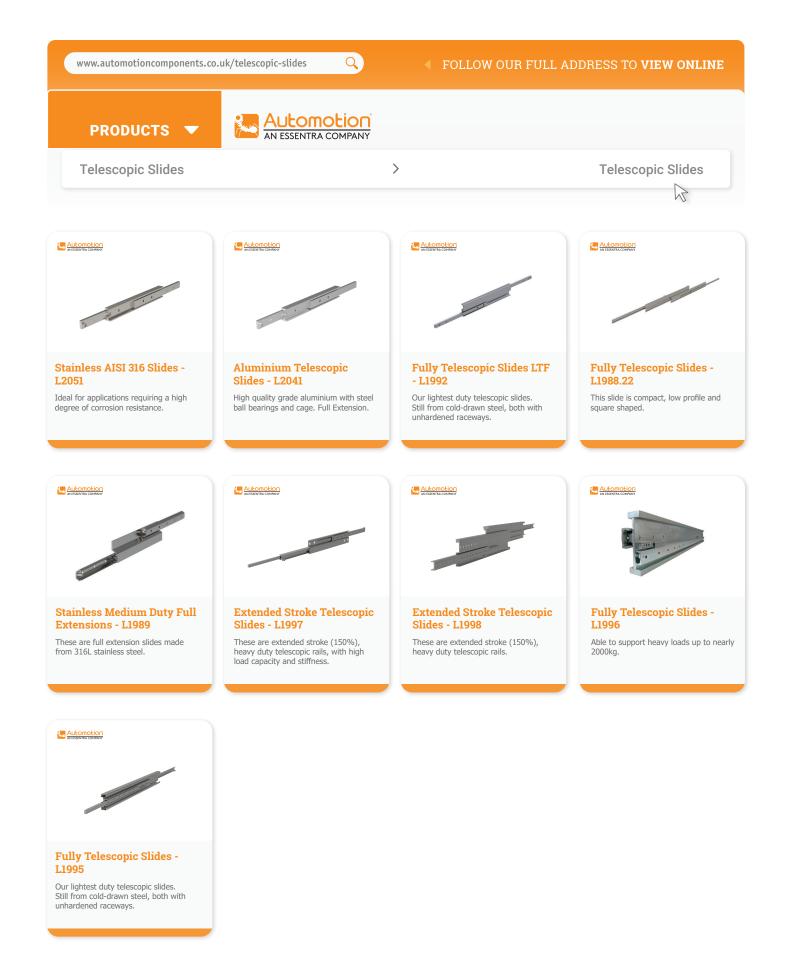


Partially Telescopic Slides -L1994.22 Semi-telescopic rails with high load capacities.

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TELESCOPIC SLIDES

If you are looking for heavy duty, quality telescopic slides for industrial or commercial applications then these are the slides for you!

The best heavy duty telescopic slides on the market

These are unique slides that are not made from pressed steel but from cold-drawn steel section. The slides can take high loads, with very long strokes, with repeated use, low deflection and minimal play.

Commercial applications Very high load capacity. Strokes up to 4 metres. Cold-drawn steel section. Anti-corrosion option Aloy coating or nickel plating of the rails and sliders can be applied to provide a corrosion resistant solution. Quality Smooth running, hardened raceways. Special slides

Rail types

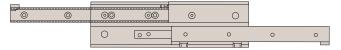
Our range of telescopic rails covers partial, full stroke and over-extension.

For more information refer to our product specifications pages or call our technical department.

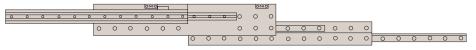


Partial Stroke (~60%)

available.



Full Stroke (~100%)



Over-extension (150%)





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You'll know **Essentra Components as a trusted expert in the manufacture of injection moulded parts for over 65 years**, including protective caps and plugs, wire and cable management and access hardware and over 45,000 other essential components.

The acquisition of the **Wixroyd Group marks an exciting addition for Essentra Components**, consisting of **two leading brands in engineering components; Wixroyd and Automotion**, suppliers of machine accessories, design elements, workholding, mechanical components, linear components and linkages & rotary components with over 100,000 parts in stock.

Take the opportunity to check out just some of the product highlights from the Wixroyd Group in this catalogue and visit their websites for the full range of products. With over 70 years of experience, we have a reputation for high quality components delivered with an excellent level of customer service, and continue to Deliver a Range of Endless Possibilities.



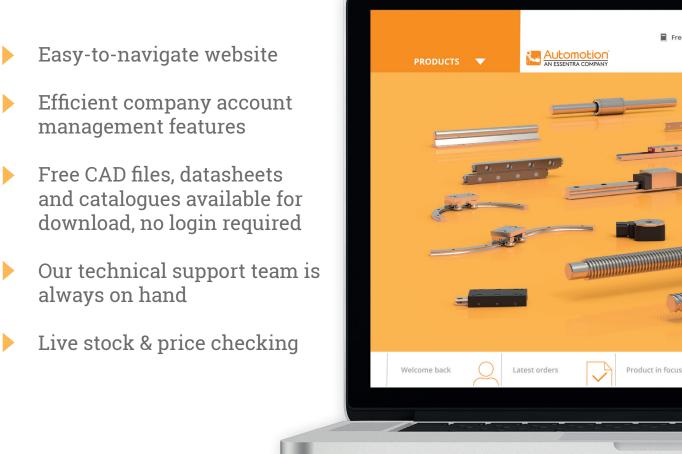
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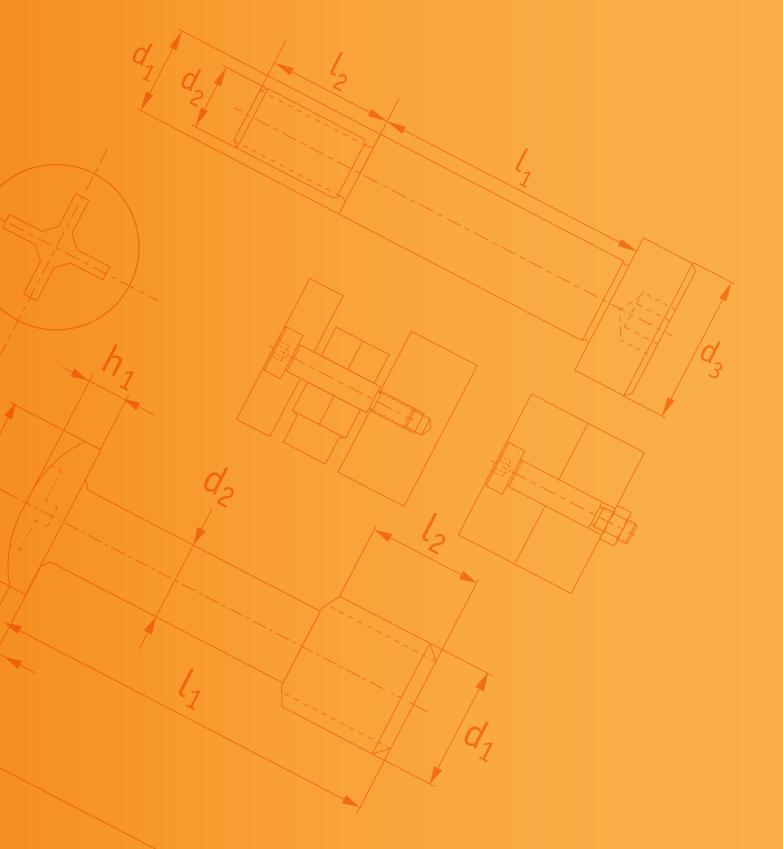




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Automotion Components Ltd Alexia House, Glenmore Business Park Portfield Works, Chichester, PO19 7BJ (UK)

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