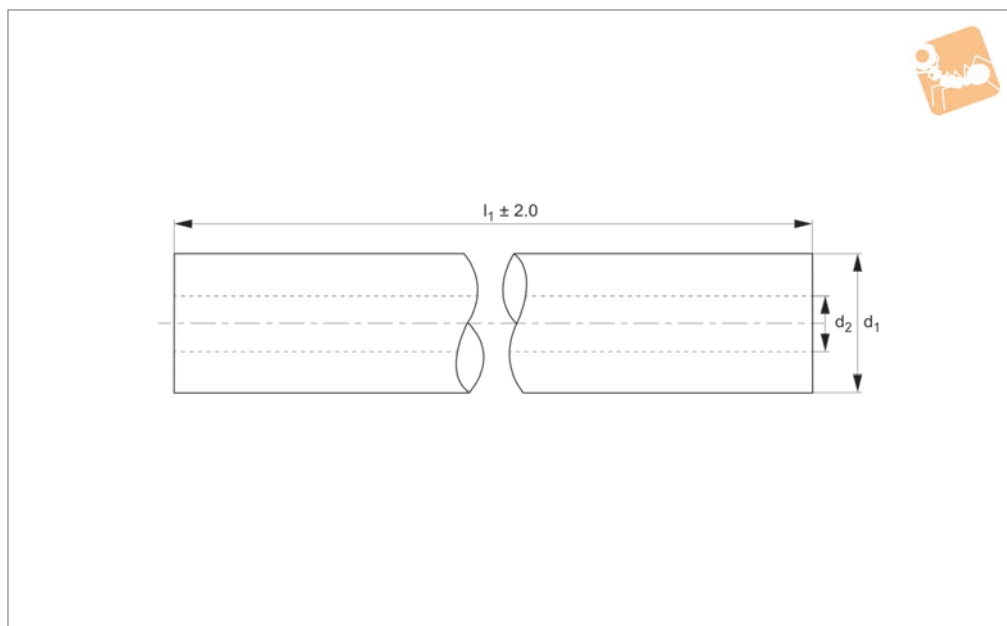




# 12Ø Hardened Hollow Shafts for linear bearings

## Linear Shaft Bars



**L1771.12**

LINEAR SHAFT BARS

### Material

Carbon steel (C60), surface hardness 60-65 HRC. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.

### Technical Notes

Used in linear bearing and guideway

systems where weight reduction is important.

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 ± 2mm, ends are not hardened.

Order No.	d <sub>1</sub> tol. h6	l <sub>1</sub>	d <sub>2</sub>	Depth of hardness min.
L1771.12-0100	12	100	4	0.4
L1771.12-0150	12	150	4	0.4
L1771.12-0200	12	200	4	0.4
L1771.12-0250	12	250	4	0.4
L1771.12-0300	12	300	4	0.4
L1771.12-0350	12	350	4	0.4
L1771.12-0400	12	400	4	0.4
L1771.12-0450	12	450	4	0.4
L1771.12-0500	12	500	4	0.4
L1771.12-0550	12	550	4	0.4
L1771.12-0600	12	600	4	0.4
L1771.12-0650	12	650	4	0.4
L1771.12-0700	12	700	4	0.4
L1771.12-0750	12	750	4	0.4
L1771.12-0800	12	800	4	0.4
L1771.12-0850	12	850	4	0.4
L1771.12-0900	12	900	4	0.4
L1771.12-0950	12	950	4	0.4
L1771.12-1000	12	1000	4	0.4
L1771.12-1050	12	1050	4	0.4
L1771.12-1100	12	1100	4	0.4
L1771.12-1150	12	1150	4	0.4
L1771.12-1200	12	1200	4	0.4
L1771.12-1250	12	1250	4	0.4
L1771.12-1300	12	1300	4	0.4
L1771.12-1350	12	1350	4	0.4
L1771.12-1400	12	1400	4	0.4
L1771.12-1450	12	1450	4	0.4
L1771.12-1500	12	1500	4	0.4
L1771.12-1550	12	1550	4	0.4
L1771.12-1600	12	1600	4	0.4



Order No.	d <sub>1</sub> tol. h6	l <sub>1</sub>	d <sub>2</sub>	Depth of hardness min.
L1771.12-1650	12	1650	4	0.4
L1771.12-1700	12	1700	4	0.4
L1771.12-1750	12	1750	4	0.4
L1771.12-1800	12	1800	4	0.4
L1771.12-1850	12	1850	4	0.4
L1771.12-1900	12	1900	4	0.4
L1771.12-1950	12	1950	4	0.4
L1771.12-2000	12	2000	4	0.4
L1771.12-2050	12	2050	4	0.4
L1771.12-2100	12	2100	4	0.4
L1771.12-2150	12	2150	4	0.4
L1771.12-2200	12	2200	4	0.4
L1771.12-2250	12	2250	4	0.4
L1771.12-2300	12	2300	4	0.4
L1771.12-2350	12	2350	4	0.4
L1771.12-2400	12	2400	4	0.4
L1771.12-2450	12	2450	4	0.4
L1771.12-2500	12	2500	4	0.4
L1771.12-2550	12	2550	4	0.4
L1771.12-2600	12	2600	4	0.4
L1771.12-2650	12	2650	4	0.4
L1771.12-2700	12	2700	4	0.4
L1771.12-2750	12	2750	4	0.4
L1771.12-2800	12	2800	4	0.4
L1771.12-2850	12	2850	4	0.4
L1771.12-2900	12	2900	4	0.4
L1771.12-2950	12	2950	4	0.4
L1771.12-3000	12	3000	4	0.4
L1771.12-3050	12	3050	4	0.4
L1771.12-3100	12	3100	4	0.4
L1771.12-3150	12	3150	4	0.4
L1771.12-3200	12	3200	4	0.4
L1771.12-3250	12	3250	4	0.4
L1771.12-3300	12	3300	4	0.4
L1771.12-3350	12	3350	4	0.4
L1771.12-3400	12	3400	4	0.4
L1771.12-3450	12	3450	4	0.4
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L1771.12-3600	12	3600	4	0.4
L1771.12-3650	12	3650	4	0.4
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L1771.12-3750	12	3750	4	0.4
L1771.12-3800	12	3800	4	0.4
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L1771.12-3900	12	3900	4	0.4
L1771.12-3950	12	3950	4	0.4
L1771.12-4000	12	4000	4	0.4
L1771.12-4050	12	4050	4	0.4
L1771.12-4100	12	4100	4	0.4
L1771.12-4150	12	4150	4	0.4
L1771.12-4200	12	4200	4	0.4
L1771.12-4250	12	4250	4	0.4
L1771.12-4300	12	4300	4	0.4
L1771.12-4350	12	4350	4	0.4
L1771.12-4400	12	4400	4	0.4
L1771.12-4450	12	4450	4	0.4
L1771.12-4500	12	4500	4	0.4
L1771.12-4550	12	4550	4	0.4
L1771.12-4600	12	4600	4	0.4
L1771.12-4650	12	4650	4	0.4
L1771.12-4700	12	4700	4	0.4
L1771.12-4750	12	4750	4	0.4
L1771.12-4800	12	4800	4	0.4
L1771.12-4850	12	4850	4	0.4
L1771.12-4900	12	4900	4	0.4
L1771.12-4950	12	4950	4	0.4
L1771.12-5000	12	5000	4	0.4



# 12Ø Hardened Hollow Shafts for linear bearings

## Linear Shaft Bars

Order No.	d <sub>1</sub> tol. h6	l <sub>1</sub>	d <sub>2</sub>	Depth of hardness min.
L1771.12-5050	12	5050	4	0.4
L1771.12-5100	12	5100	4	0.4
L1771.12-5150	12	5150	4	0.4
L1771.12-5200	12	5200	4	0.4
L1771.12-5250	12	5250	4	0.4
L1771.12-5300	12	5300	4	0.4
L1771.12-5350	12	5350	4	0.4
L1771.12-5400	12	5400	4	0.4
L1771.12-5450	12	5450	4	0.4
L1771.12-5500	12	5500	4	0.4
L1771.12-5550	12	5550	4	0.4
L1771.12-5600	12	5600	4	0.4
L1771.12-5650	12	5650	4	0.4
L1771.12-5700	12	5700	4	0.4
L1771.12-5750	12	5750	4	0.4
L1771.12-5800	12	5800	4	0.4
L1771.12-5850	12	5850	4	0.4
L1771.12-5900	12	5900	4	0.4
L1771.12-5950	12	5950	4	0.4
L1771.12-6000	12	6000	4	0.4

LINEAR SHAFT BARS



### Hardened steel linear shafting (L1770 – L1771)

Carbon steel to BS 070M55 hardened to 60-65 HRC. Carbon Steel B.S. 070M55 is a medium carbon steel which is used when greater strength and hardness is desired than in its as rolled condition. Extreme size accuracy, straightness and concentricity are combined to minimise wear in high speed applications. Suitable for use with all types of linear bushings.

### Corrosion resistant steel (L1772)

440C is a high carbon chromium martensitic stainless steel, generally supplied in the annealed condition with a maximum hardness of 50-55 HR<sub>C</sub>. Characterised by good corrosion resistance in mild domestic and industrial environments, including fresh water, organic materials, mild acids, various petroleum products, coupled with extreme high strength, hardness and wear resistance when in the hardened and tempered condition. Used for parts requiring a combination of excellent wear resistance, plus reasonable corrosion resistance. Typical applications are: ball bearings and races, bushings, cutlery, chisels, knife blades, pump parts, surgical instruments, valve seats etc. Material magnetic in all conditions. Suitable for use with all types of linear bushings.

### Stainless steel AISI 303 (L1773)

303 is a free machining chromium-nickel austenitic stainless steel with good strength and good corrosion resistance, as supplied in the annealed condition. Characterised by excellent machinability and non galling properties due to its higher sulphur content, which has the effect of slightly lowering its corrosion resistance. It is however, fairly resistant to general atmospheric corrosion, general foodstuffs, sterilizing solutions, dyestuffs, most organic chemicals, plus some inorganic chemicals. But has very limited resistance to acids. 303 cannot be hardened by thermal treatment, but strength and hardness can be increased substantially by cold working, with subsequent reduction in ductility. It is used primarily for production runs involving extensive machining, or complex parts requiring excellent machinability. Typical uses are: architectural components, food processing equipment, dairy equipment, dyeing industry, hardware and kitchenware manufacturing and allied industries. Commonly used to manufacture bolts and nuts, bushes, gears, shafts, valve bodies and fittings etc. Material is non magnetic in the annealed condition, but can become mildly magnetic following heavy cold working. Annealing is required to rectify if necessary.

**Not suitable for use with linear ball bushings, please use ceramic bearings.**







### Stainless steel AISI 303 (L1774)

316 is a chromium-nickel-molybdenum austenitic stainless steel with good strength and excellent corrosion resistance, as supplied in the annealed condition. Characterised by high corrosion resistance in marine and industrial atmospheres, it exhibits excellent resistance to chloride attack and against complex sulphur compounds employed in the pulp and paper processing industries. The addition of 2% to 3% of molybdenum increases its resistance to pitting corrosion and improves its creep resistance at elevated temperatures. Also it displays good oxidation resistance at elevated temperatures and has excellent weldability. AISI 316 cannot be hardened by thermal treatment, but strength and hardness can be increased substantially by cold working, with subsequent reduction in ductility. It is used extensively by the marine, chemical, petrochemical, pulp and paper, textile, transport, manufacturing and allied industries. Typical uses are: architectural components, textile equipment, pulp and paper processing equipment, marine equipment and fittings, photographic equipment and x-ray equipment etc. Material non magnetic in the annealed condition, but can become mildly magnetic following heavy cold working. Annealing is required to rectify if necessary.

**Note: Optimum corrosion resistance is achieved in the annealed condition. Not suitable for use with linear ball bushings; please use ceramic bearings.**



## Linear Shafts from Automation Components

<p><b>L1770 - Hardened steel shafts</b></p>  <p>For use with linear bearings.</p> <p>Ø6 to Ø60</p>	<p><b>L1771 - Hardened hollow shafts</b></p>  <p>For use with linear bearings. Hollowed for lighter weight.</p> <p>Ø12 to Ø50</p>
<p><b>L1772 - Hardened Stainless shafts</b></p>  <p>For use with linear bearings Anti-corrosion.</p> <p>Ø6 to Ø60</p>	<p><b>L1773 - Stainless 303 shafts</b></p>  <p>Soft stainless, high anti-corrosion. Not for use with ball bush linear bearings.</p> <p>Ø6 to Ø60</p>
<p><b>L1774 - Stainless 316 shafts</b></p>  <p>Soft stainless, very high anti-corrosion. Not for use with ball bushing linear bearings.</p> <p>Ø6 to Ø60</p>	<p><b>L1778 - Aluminium shafts</b></p>  <p>Light weight, non-magnetic.</p> <p>Ø10 to Ø50</p>



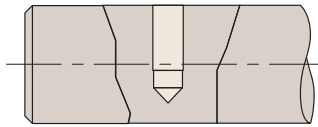
As well as standard cut to length shafting, Automotion can offer many specials including imperial shafts, different tolerances and non-standard diameters.

We can also machine shafts to your requirements so if you have a specific requirement, please contact our Sales team. Below are examples of just some of the machining we can do to shafting on a quick turnaround.

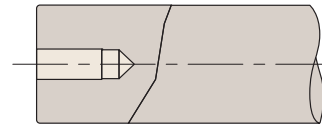
## Linear Shafts from Automotion Components

LINEAR SHAFT BARS

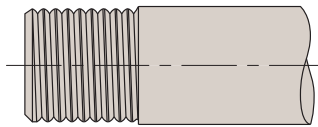
Drilled and tapped radial hole



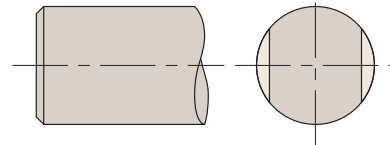
Drilled and tapped coaxial hole



Threaded diameters



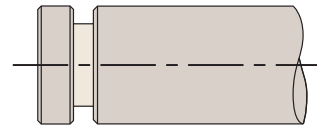
Flats



Reduced diameter



Circlip groove



Keyways

