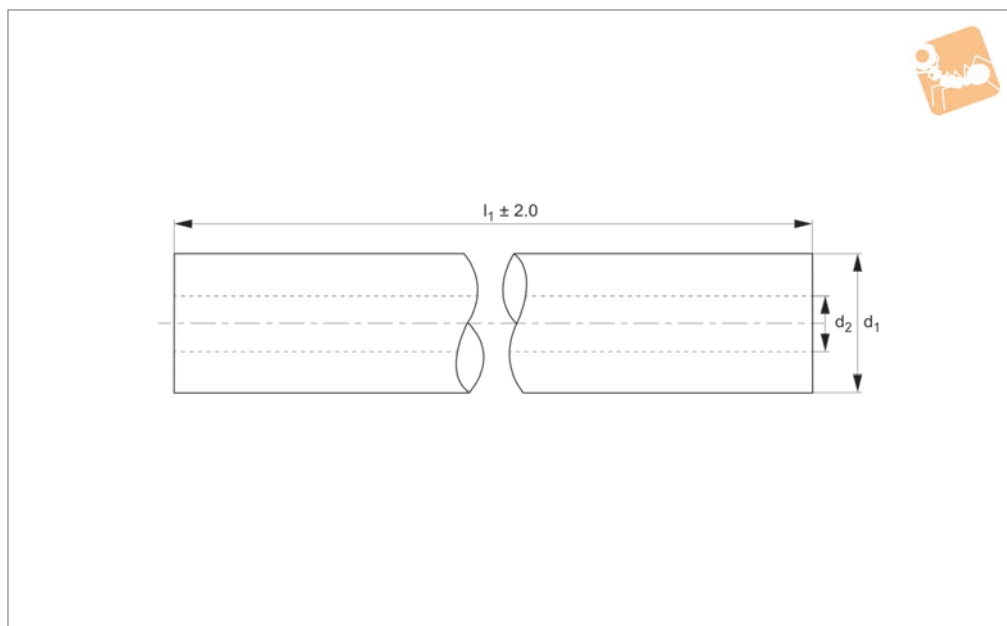




# 16Ø Hardened Hollow Shafts for linear bearings

## Linear Shaft Bars



**L1771.16**

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> tol. h6	Depth of hardness min.
L1771.16-0100	16	100	7	0.4
L1771.16-0150	16	150	7	0.4
L1771.16-0200	16	200	7	0.4
L1771.16-0250	16	250	7	0.4
L1771.16-0300	16	300	7	0.4
L1771.16-0350	16	350	7	0.4
L1771.16-0400	16	400	7	0.4
L1771.16-0450	16	450	7	0.4
L1771.16-0500	16	500	7	0.4
L1771.16-0550	16	550	7	0.4
L1771.16-0600	16	600	7	0.4
L1771.16-0650	16	650	7	0.4
L1771.16-0700	16	700	7	0.4
L1771.16-0750	16	750	7	0.4
L1771.16-0800	16	800	7	0.4
L1771.16-0850	16	850	7	0.4
L1771.16-0900	16	900	7	0.4
L1771.16-1000	16	1000	7	0.4
L1771.16-1050	16	1050	7	0.4
L1771.16-1100	16	1100	7	0.4
L1771.16-1150	16	1150	7	0.4
L1771.16-1200	16	1200	7	0.4
L1771.16-1250	16	1250	7	0.4
L1771.16-1300	16	1300	7	0.4
L1771.16-1350	16	1350	7	0.4
L1771.16-1400	16	1400	7	0.4
L1771.16-1450	16	1450	7	0.4
L1771.16-1500	16	1500	7	0.4
L1771.16-1550	16	1550	7	0.4
L1771.16-1600	16	1600	7	0.4
L1771.16-1650	16	1650	7	0.4



Order No.	d <sub>1</sub> tol. h6	l <sub>1</sub>	d <sub>2</sub> tol. h6	Depth of hardness min.
L1771.16-1700	16	1700	7	0.4
L1771.16-1750	16	1750	7	0.4
L1771.16-1800	16	1800	7	0.4
L1771.16-1850	16	1850	7	0.4
L1771.16-1900	16	1900	7	0.4
L1771.16-1950	16	1950	7	0.4
L1771.16-2000	16	2000	7	0.4
L1771.16-2050	16	2050	7	0.4
L1771.16-2100	16	2100	7	0.4
L1771.16-2150	16	2150	7	0.4
L1771.16-2200	16	2200	7	0.4
L1771.16-2250	16	2250	7	0.4
L1771.16-2300	16	2300	7	0.4
L1771.16-2350	16	2350	7	0.4
L1771.16-2400	16	2400	7	0.4
L1771.16-2450	16	2450	7	0.4
L1771.16-2500	16	2500	7	0.4
L1771.16-2550	16	2550	7	0.4
L1771.16-2600	16	2600	7	0.4
L1771.16-2650	16	2650	7	0.4
L1771.16-2700	16	2700	7	0.4
L1771.16-2750	16	2750	7	0.4
L1771.16-2800	16	2800	7	0.4
L1771.16-2850	16	2850	7	0.4
L1771.16-2900	16	2900	7	0.4
L1771.16-2950	16	2950	7	0.4
L1771.16-3000	16	3000	7	0.4
L1771.16-3050	16	3050	7	0.4
L1771.16-3100	16	3100	7	0.4
L1771.16-3150	16	3150	7	0.4
L1771.16-3200	16	3200	7	0.4
L1771.16-3250	16	3250	7	0.4
L1771.16-3300	16	3300	7	0.4
L1771.16-3350	16	3350	7	0.4
L1771.16-3400	16	3400	7	0.4
L1771.16-3450	16	3450	7	0.4
L1771.16-3500	16	3500	7	0.4
L1771.16-3550	16	3550	7	0.4
L1771.16-3600	16	3600	7	0.4
L1771.16-3650	16	3650	7	0.4
L1771.16-3700	16	3700	7	0.4
L1771.16-3750	16	3750	7	0.4
L1771.16-3800	16	3800	7	0.4
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L1771.16-3900	16	3900	7	0.4
L1771.16-3950	16	3950	7	0.4
L1771.16-4000	16	4000	7	0.4
L1771.16-4050	16	4050	7	0.4
L1771.16-4100	16	4100	7	0.4
L1771.16-4150	16	4150	7	0.4
L1771.16-4200	16	4200	7	0.4
L1771.16-4250	16	4250	7	0.4
L1771.16-4300	16	4300	7	0.4
L1771.16-4350	16	4350	7	0.4
L1771.16-4400	16	4400	7	0.4
L1771.16-4450	16	4450	7	0.4
L1771.16-4500	16	4500	7	0.4
L1771.16-4550	16	4550	7	0.4
L1771.16-4600	16	4600	7	0.4
L1771.16-4650	16	4650	7	0.4
L1771.16-4700	16	4700	7	0.4
L1771.16-4750	16	4750	7	0.4
L1771.16-4800	16	4800	7	0.4
L1771.16-4850	16	4850	7	0.4
L1771.16-4900	16	4900	7	0.4
L1771.16-4950	16	4950	7	0.4
L1771.16-5000	16	5000	7	0.4
L1771.16-5050	16	5050	7	0.4



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## Linear Shaft Bars

Order No.	d <sub>1</sub> tol. h6	l <sub>1</sub>	d <sub>2</sub> tol. h6	Depth of hardness min.
L1771.16-5100	16	5100	7	0.4
L1771.16-5150	16	5150	7	0.4
L1771.16-5200	16	5200	7	0.4
L1771.16-5250	16	5250	7	0.4
L1771.16-5300	16	5300	7	0.4
L1771.16-5350	16	5350	7	0.4
L1771.16-5400	16	5400	7	0.4
L1771.16-5450	16	5450	7	0.4
L1771.16-5500	16	5500	7	0.4
L1771.16-5550	16	5550	7	0.4
L1771.16-5600	16	5600	7	0.4
L1771.16-5650	16	5650	7	0.4
L1771.16-5700	16	5700	7	0.4
L1771.16-5750	16	5750	7	0.4
L1771.16-5800	16	5800	7	0.4
L1771.16-5850	16	5850	7	0.4
L1771.16-5900	16	5900	7	0.4
L1771.16-5950	16	5950	7	0.4
L1771.16-6000	16	6000	7	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>



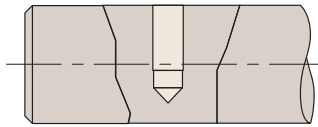
As well as standard cut to length shafting, Automotion can offer many specials including imperial shafts, different tolerances and non-standard diameters.

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.

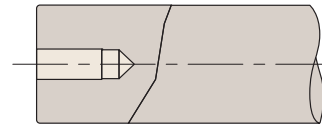
## Linear Shafts from Automotion Components

LINEAR SHAFT BARS

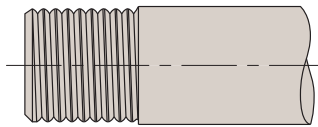
Drilled and tapped radial hole



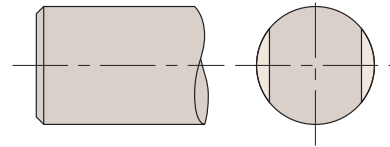
Drilled and tapped coaxial hole



Threaded diameters



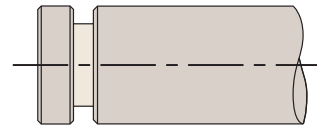
Flats



Reduced diameter



Circlip groove



Keyways

