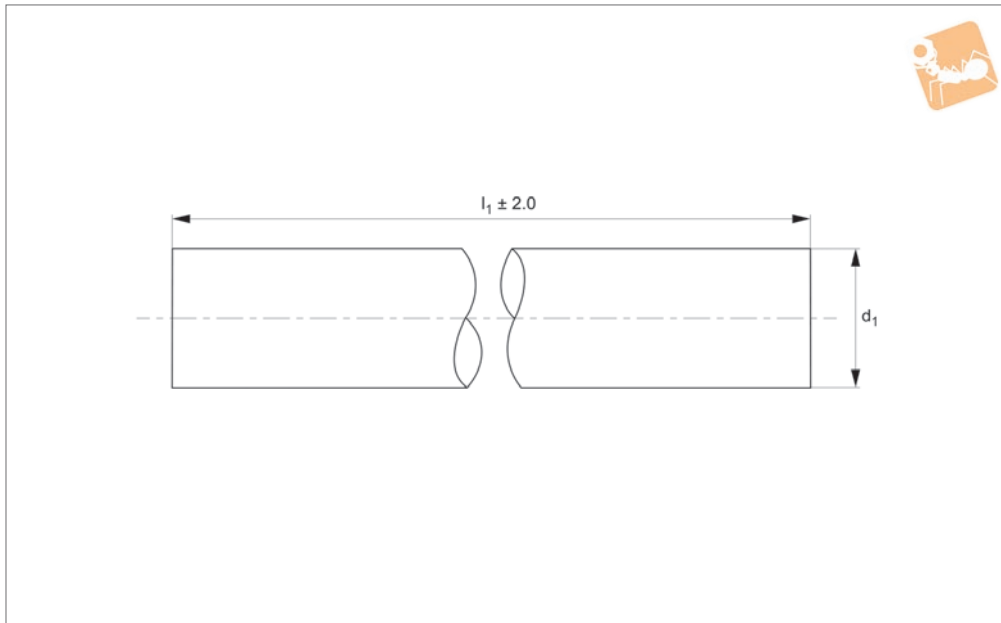




# 10Ø Hardened Steel Shafts

## Linear Shaft Bars



**L1770.10**

LINEAR SHAFT BARS

### Material

Carbon steel (070M55,Cf53 - DIN 1.1213), Surface hardness 60-66 HRC. Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla. Yield stress: >325 N/mm<sup>2</sup>, tensile strength: >630 N/mm<sup>2</sup>.

### 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 ± 2mm, ends are not hardened.

Order No.	d <sub>1</sub> tol. h6	l <sub>1</sub>	Depth of hardness min.	Weight kg
L1770.10-0100	10	100	0.4	0.062
L1770.10-0150	10	150	0.4	0.093
L1770.10-0200	10	200	0.4	0.124
L1770.10-0250	10	250	0.4	0.155
L1770.10-0300	10	300	0.4	0.186
L1770.10-0350	10	350	0.4	0.217
L1770.10-0400	10	400	0.4	0.248
L1770.10-0450	10	450	0.4	0.279
L1770.10-0500	10	500	0.4	0.310
L1770.10-0550	10	550	0.4	0.341
L1770.10-0600	10	600	0.4	0.372
L1770.10-0650	10	650	0.4	0.403
L1770.10-0700	10	700	0.4	0.434
L1770.10-0750	10	750	0.4	0.465
L1770.10-0800	10	800	0.4	0.496
L1770.10-0850	10	850	0.4	0.527
L1770.10-0900	10	900	0.4	0.558
L1770.10-0950	10	950	0.4	0.589
L1770.10-1000	10	1000	0.4	0.620
L1770.10-1050	10	1050	0.4	0.651
L1770.10-1100	10	1100	0.4	0.682
L1770.10-1150	10	1150	0.4	0.713
L1770.10-1200	10	1200	0.4	0.744
L1770.10-1250	10	1250	0.4	0.775
L1770.10-1300	10	1300	0.4	0.806
L1770.10-1350	10	1350	0.4	0.837
L1770.10-1400	10	1400	0.4	0.868
L1770.10-1450	10	1450	0.4	0.899
L1770.10-1500	10	1500	0.4	0.930
L1770.10-1550	10	1550	0.4	0.961
L1770.10-1600	10	1600	0.4	0.992



Order No.	d <sub>1</sub> tol. h6	l <sub>1</sub>	Depth of hardness min.	Weight kg
L1770.10-1650	10	1650	0.4	1.023
L1770.10-1700	10	1700	0.4	1.054
L1770.10-1750	10	1750	0.4	1.085
L1770.10-1800	10	1800	0.4	1.116
L1770.10-1850	10	1850	0.4	1.147
L1770.10-1900	10	1900	0.4	1.178
L1770.10-1950	10	1950	0.4	1.209
L1770.10-2000	10	2000	0.4	1.240
L1770.10-2050	10	2050	0.4	1.271
L1770.10-2100	10	2100	0.4	1.302
L1770.10-2150	10	2150	0.4	1.333
L1770.10-2200	10	2200	0.4	1.364
L1770.10-2250	10	2250	0.4	1.395
L1770.10-2300	10	2300	0.4	1.426
L1770.10-2350	10	2350	0.4	1.457
L1770.10-2400	10	2400	0.4	1.488
L1770.10-2450	10	2450	0.4	1.519
L1770.10-2500	10	2500	0.4	1.550
L1770.10-2550	10	2550	0.4	1.581
L1770.10-2600	10	2600	0.4	1.612
L1770.10-2650	10	2650	0.4	1.643
L1770.10-2700	10	2700	0.4	1.674
L1770.10-2750	10	2750	0.4	1.705
L1770.10-2800	10	2800	0.4	1.736
L1770.10-2850	10	2850	0.4	1.767
L1770.10-2900	10	2900	0.4	1.798
L1770.10-2950	10	2950	0.4	1.829
L1770.10-3000	10	3000	0.4	1.860
L1770.10-3050	10	3050	0.4	1.891
L1770.10-3100	10	3100	0.4	1.922
L1770.10-3150	10	3150	0.4	1.953
L1770.10-3200	10	3200	0.4	1.984
L1770.10-3250	10	3250	0.4	2.015
L1770.10-3300	10	3300	0.4	2.046
L1770.10-3350	10	3350	0.4	2.077
L1770.10-3400	10	3400	0.4	2.108
L1770.10-3450	10	3450	0.4	2.139
L1770.10-3500	10	3500	0.4	2.170
L1770.10-3550	10	3550	0.4	2.201
L1770.10-3600	10	3600	0.4	2.232
L1770.10-3650	10	3650	0.4	2.263
L1770.10-3700	10	3700	0.4	2.294
L1770.10-3750	10	3750	0.4	2.325
L1770.10-3800	10	3800	0.4	2.356
L1770.10-3850	10	3850	0.4	2.387
L1770.10-3900	10	3900	0.4	2.418
L1770.10-3950	10	3950	0.4	2.449
L1770.10-4000	10	4000	0.4	2.480
L1770.10-4050	10	4050	0.4	2.511
L1770.10-4100	10	4100	0.4	2.542
L1770.10-4150	10	4150	0.4	2.573
L1770.10-4200	10	4200	0.4	2.604
L1770.10-4250	10	4250	0.4	2.635
L1770.10-4300	10	4300	0.4	2.666
L1770.10-4350	10	4350	0.4	2.697
L1770.10-4400	10	4400	0.4	2.728
L1770.10-4450	10	4450	0.4	2.759
L1770.10-4500	10	4500	0.4	2.790
L1770.10-4550	10	4550	0.4	2.821
L1770.10-4600	10	4600	0.4	2.852
L1770.10-4650	10	4650	0.4	2.883
L1770.10-4700	10	4700	0.4	2.914
L1770.10-4750	10	4750	0.4	2.945
L1770.10-4800	10	4800	0.4	2.976
L1770.10-4850	10	4850	0.4	3.007
L1770.10-4900	10	4900	0.4	3.038
L1770.10-4950	10	4950	0.4	3.069
L1770.10-5000	10	5000	0.4	3.100



# 10Ø Hardened Steel Shafts

## Linear Shaft Bars

Order No.	d <sub>1</sub> tol. h6	l <sub>1</sub>	Depth of hardness min.	Weight kg
L1770.10-5050	10	5050	0.4	3.131
L1770.10-5100	10	5100	0.4	3.162
L1770.10-5150	10	5150	0.4	3.193
L1770.10-5200	10	5200	0.4	3.224
L1770.10-5250	10	5250	0.4	3.255
L1770.10-5300	10	5300	0.4	3.286
L1770.10-5350	10	5350	0.4	3.317
L1770.10-5400	10	5400	0.4	3.348
L1770.10-5450	10	5450	0.4	3.379
L1770.10-5500	10	5500	0.4	3.410
L1770.10-5550	10	5550	0.4	3.441
L1770.10-5600	10	5600	0.4	3.472
L1770.10-5650	10	5650	0.4	3.503
L1770.10-5700	10	5700	0.4	3.534
L1770.10-5750	10	5750	0.4	3.565
L1770.10-5800	10	5800	0.4	3.596
L1770.10-5850	10	5850	0.4	3.627
L1770.10-5900	10	5900	0.4	3.658
L1770.10-5950	10	5950	0.4	3.689
L1770.10-6000	10	6000	0.4	3.720

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 Automotion 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>