



### L1770.20

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
L1770.20-0100	20	100	0.9	0.247
L1770.20-0150	20	150	0.9	0.371
L1770.20-0200	20	200	0.9	0.494
L1770.20-0250	20	250	0.9	0.618
L1770.20-0300	20	300	0.9	0.741
L1770.20-0350	20	350	0.9	0.865
L1770.20-0400	20	400	0.9	0.988
L1770.20-0450	20	450	0.9	1.112
L1770.20-0500	20	500	0.9	1.235
L1770.20-0550	20	550	0.9	1.359
L1770.20-0600	20	600	0.9	1.482
L1770.20-0650	20	650	0.9	1.606
L1770.20-0700	20	700	0.9	1.729
L1770.20-0750	20	750	0.9	1.853
L1770.20-0800	20	800	0.9	1.976
L1770.20-0850	20	850	0.9	2.100
L1770.20-0900	20	900	0.9	2.223
L1770.20-0950	20	950	0.9	2.347
L1770.20-1000	20	1000	0.9	2.470
L1770.20-1050	20	1050	0.9	2.594
L1770.20-1100	20	1100	0.9	2.717
L1770.20-1150	20	1150	0.9	2.841
L1770.20-1200	20	1200	0.9	2.964
L1770.20-1250	20	1250	0.9	3.088
L1770.20-1300	20	1300	0.9	3.211
L1770.20-1350	20	1350	0.9	3.335
L1770.20-1400	20	1400	0.9	3.458
L1770.20-1450	20	1450	0.9	3.582
L1770.20-1500	20	1500	0.9	3.705
L1770.20-1550	20	1550	0.9	3.829
L1770.20-1600	20	1600	0.9	3.952



Order No.	d <sub>1</sub> tol. h6	l <sub>1</sub>	Depth of hardness min.	Weight kg
L1770.20-1650	20	1650	0.9	4.076
L1770.20-1700	20	1700	0.9	4.199
L1770.20-1750	20	1750	0.9	4.323
L1770.20-1800	20	1800	0.9	4.446
L1770.20-1850	20	1850	0.9	4.570
L1770.20-1900	20	1900	0.9	4.693
L1770.20-1950	20	1950	0.9	4.817
L1770.20-2000	20	2000	0.9	4.940
L1770.20-2050	20	2050	0.9	5.064
L1770.20-2100	20	2100	0.9	5.187
L1770.20-2150	20	2150	0.9	5.311
L1770.20-2200	20	2200	0.9	5.434
L1770.20-2250	20	2250	0.9	5.558
L1770.20-2300	20	2300	0.9	5.681
L1770.20-2350	20	2350	0.9	5.805
L1770.20-2400	20	2400	0.9	5.928
L1770.20-2450	20	2450	0.9	6.052
L1770.20-2500	20	2500	0.9	6.175
L1770.20-2550	20	2550	0.9	6.299
L1770.20-2600	20	2600	0.9	6.422
L1770.20-2650	20	2650	0.9	6.546
L1770.20-2700	20	2700	0.9	6.669
L1770.20-2750	20	2750	0.9	6.793
L1770.20-2800	20	2800	0.9	6.916
L1770.20-2850	20	2850	0.9	7.040
L1770.20-2900	20	2900	0.9	7.163
L1770.20-2950	20	2950	0.9	7.287
L1770.20-3000	20	3000	0.9	7.410
L1770.20-3050	20	3050	0.9	7.534
L1770.20-3100	20	3100	0.9	7.657
L1770.20-3150	20	3150	0.9	7.781
L1770.20-3200	20	3200	0.9	7.904
L1770.20-3250	20	3250	0.9	8.028
L1770.20-3300	20	3300	0.9	8.151
L1770.20-3350	20	3350	0.9	8.275
L1770.20-3400	20	3400	0.9	8.398
L1770.20-3450	20	3450	0.9	8.522
L1770.20-3500	20	3500	0.9	8.645
L1770.20-3550	20	3550	0.9	8.769
L1770.20-3600	20	3600	0.9	8.892
L1770.20-3650	20	3650	0.9	9.016
L1770.20-3700	20	3700	0.9	9.139
L1770.20-3750	20	3750	0.9	9.263
L1770.20-3800	20	3800	0.9	9.386
L1770.20-3850	20	3850	0.9	9.510
L1770.20-3900	20	3900	0.9	9.633
L1770.20-3950	20	3950	0.9	9.757
L1770.20-4000	20	4000	0.9	9.880
L1770.20-4050	20	4050	0.9	10.004
L1770.20-4100	20	4100	0.9	10.127
L1770.20-4150	20	4150	0.9	10.251
L1770.20-4200	20	4200	0.9	10.374
L1770.20-4250	20	4250	0.9	10.498
L1770.20-4300	20	4300	0.9	10.621
L1770.20-4350	20	4350	0.9	10.745
L1770.20-4400	20	4400	0.9	10.868
L1770.20-4450	20	4450	0.9	10.992
L1770.20-4500	20	4500	0.9	11.115
L1770.20-4550	20	4550	0.9	11.239
L1770.20-4600	20	4600	0.9	11.362
L1770.20-4650	20	4650	0.9	11.486
L1770.20-4700	20	4700	0.9	11.609
L1770.20-4750	20	4750	0.9	11.733
L1770.20-4800	20	4800	0.9	11.856
L1770.20-4850	20	4850	0.9	11.980
L1770.20-4900	20	4900	0.9	12.103
L1770.20-4950	20	4950	0.9	12.227
L1770.20-5000	20	5000	0.9	12.350



## 20Ø Hardened Steel Shafts

## Linear Shaft Bars



Order No.	d <sub>1</sub> tol. h6	l <sub>1</sub>	Depth of hardness min.	Weight kg
L1770.20-5050	20	5050	0.9	12.474
L1770.20-5100	20	5100	0.9	12.597
L1770.20-5150	20	5150	0.9	12.721
L1770.20-5200	20	5200	0.9	12.844
L1770.20-5250	20	5250	0.9	12.968
L1770.20-5300	20	5300	0.9	13.091
L1770.20-5350	20	5350	0.9	13.215
L1770.20-5400	20	5400	0.9	13.338
L1770.20-5450	20	5450	0.9	13.462
L1770.20-5500	20	5500	0.9	13.585
L1770.20-5550	20	5550	0.9	13.709
L1770.20-5600	20	5600	0.9	13.832
L1770.20-5650	20	5650	0.9	13.956
L1770.20-5700	20	5700	0.9	14.079
L1770.20-5750	20	5750	0.9	14.203
L1770.20-5800	20	5800	0.9	14.326
L1770.20-5850	20	5850	0.9	14.450
L1770.20-5900	20	5900	0.9	14.573
L1770.20-5950	20	5950	0.9	14.697
L1770.20-6000	20	6000	0.9	14.820

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>