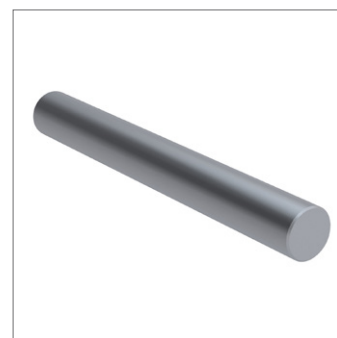
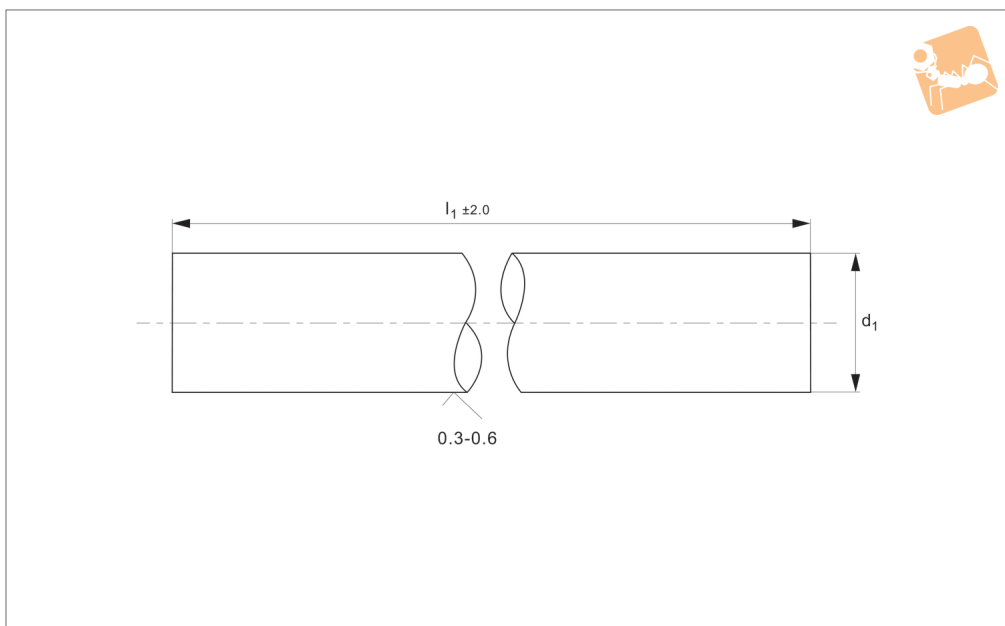




# Ø6 Hardened Stainless Shafts for linear bearings

## Linear Shaft Bars



**L1772.06**

LINEAR SHAFT BARS

### Material

Corrosion resistant stainless steel (440C, DIN 1.4112, X90 CrMo18) hardened.  
Surface hardness 53-56 HRC, Rht 450Hv2.  
Surface finish 0.3-0.6µ Ra, ground and polished to 8-12 cla.  
Yield stress: >420 N/mm<sup>2</sup>.

Tensile strength: >785 N/mm<sup>2</sup>.

### Technical Notes

Suitable for use with linear bearings.  
Tolerance, h6 standard, special tolerances on request.  
Straightness 0,1mm/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><br>tol. h6 | l <sub>1</sub> | Depth of hardness<br>min. | Weight<br>kg |
|---------------|---------------------------|----------------|---------------------------|--------------|
| L1772.06-0100 | 6                         | 100            | 0.4                       | 0.023        |
| L1772.06-0150 | 6                         | 150            | 0.4                       | 0.035        |
| L1772.06-0200 | 6                         | 200            | 0.4                       | 0.046        |
| L1772.06-0250 | 6                         | 250            | 0.4                       | 0.058        |
| L1772.06-0300 | 6                         | 300            | 0.4                       | 0.069        |
| L1772.06-0350 | 6                         | 350            | 0.4                       | 0.081        |
| L1772.06-0400 | 6                         | 400            | 0.4                       | 0.092        |
| L1772.06-0450 | 6                         | 450            | 0.4                       | 0.104        |
| L1772.06-0500 | 6                         | 500            | 0.4                       | 0.115        |
| L1772.06-0550 | 6                         | 550            | 0.4                       | 0.127        |
| L1772.06-0600 | 6                         | 600            | 0.4                       | 0.138        |
| L1772.06-0650 | 6                         | 650            | 0.4                       | 0.150        |
| L1772.06-0700 | 6                         | 700            | 0.4                       | 0.161        |
| L1772.06-0750 | 6                         | 750            | 0.4                       | 0.173        |
| L1772.06-0800 | 6                         | 800            | 0.4                       | 0.184        |
| L1772.06-0850 | 6                         | 850            | 0.4                       | 0.196        |
| L1772.06-0900 | 6                         | 900            | 0.4                       | 0.207        |
| L1772.06-0950 | 6                         | 950            | 0.4                       | 0.219        |
| L1772.06-1000 | 6                         | 1000           | 0.4                       | 0.230        |
| L1772.06-1050 | 6                         | 1050           | 0.4                       | 0.242        |
| L1772.06-1100 | 6                         | 1100           | 0.4                       | 0.253        |
| L1772.06-1150 | 6                         | 1150           | 0.4                       | 0.265        |
| L1772.06-1200 | 6                         | 1200           | 0.4                       | 0.276        |
| L1772.06-1250 | 6                         | 1250           | 0.4                       | 0.288        |
| L1772.06-1300 | 6                         | 1300           | 0.4                       | 0.299        |
| L1772.06-1350 | 6                         | 1350           | 0.4                       | 0.311        |
| L1772.06-1400 | 6                         | 1400           | 0.4                       | 0.322        |
| L1772.06-1450 | 6                         | 1450           | 0.4                       | 0.334        |
| L1772.06-1500 | 6                         | 1500           | 0.4                       | 0.345        |
| L1772.06-1550 | 6                         | 1550           | 0.4                       | 0.357        |
| L1772.06-1600 | 6                         | 1600           | 0.4                       | 0.368        |



| Order No.     | d <sub>1</sub><br>tol. h6 | l <sub>1</sub> | Depth of hardness<br>min. | Weight<br>kg |
|---------------|---------------------------|----------------|---------------------------|--------------|
| L1772.06-1650 | 6                         | 1650           | 0.4                       | 0.380        |
| L1772.06-1700 | 6                         | 1700           | 0.4                       | 0.391        |
| L1772.06-1750 | 6                         | 1750           | 0.4                       | 0.403        |
| L1772.06-1800 | 6                         | 1800           | 0.4                       | 0.414        |
| L1772.06-1850 | 6                         | 1850           | 0.4                       | 0.426        |
| L1772.06-1900 | 6                         | 1900           | 0.4                       | 0.437        |
| L1772.06-1950 | 6                         | 1950           | 0.4                       | 0.449        |
| L1772.06-2000 | 6                         | 2000           | 0.4                       | 0.460        |
| L1772.06-2050 | 6                         | 2050           | 0.4                       | 0.472        |
| L1772.06-2100 | 6                         | 2100           | 0.4                       | 0.483        |
| L1772.06-2150 | 6                         | 2150           | 0.4                       | 0.495        |
| L1772.06-2200 | 6                         | 2200           | 0.4                       | 0.506        |
| L1772.06-2250 | 6                         | 2250           | 0.4                       | 0.518        |
| L1772.06-2300 | 6                         | 2300           | 0.4                       | 0.529        |
| L1772.06-2350 | 6                         | 2350           | 0.4                       | 0.541        |
| L1772.06-2400 | 6                         | 2400           | 0.4                       | 0.552        |
| L1772.06-2450 | 6                         | 2450           | 0.4                       | 0.564        |
| L1772.06-2500 | 6                         | 2500           | 0.4                       | 0.575        |
| L1772.06-2550 | 6                         | 2550           | 0.4                       | 0.587        |
| L1772.06-2600 | 6                         | 2600           | 0.4                       | 0.598        |
| L1772.06-2650 | 6                         | 2650           | 0.4                       | 0.610        |
| L1772.06-2700 | 6                         | 2700           | 0.4                       | 0.621        |
| L1772.06-2750 | 6                         | 2750           | 0.4                       | 0.633        |
| L1772.06-2800 | 6                         | 2800           | 0.4                       | 0.644        |
| L1772.06-2850 | 6                         | 2850           | 0.4                       | 0.656        |
| L1772.06-2900 | 6                         | 2900           | 0.4                       | 0.667        |
| L1772.06-2950 | 6                         | 2950           | 0.4                       | 0.679        |
| L1772.06-3000 | 6                         | 3000           | 0.4                       | 0.690        |
| L1772.06-3050 | 6                         | 3050           | 0.4                       | 0.702        |
| L1772.06-3100 | 6                         | 3100           | 0.4                       | 0.713        |
| L1772.06-3150 | 6                         | 3150           | 0.4                       | 0.725        |
| L1772.06-3200 | 6                         | 3200           | 0.4                       | 0.736        |
| L1772.06-3250 | 6                         | 3250           | 0.4                       | 0.748        |
| L1772.06-3300 | 6                         | 3300           | 0.4                       | 0.759        |
| L1772.06-3350 | 6                         | 3350           | 0.4                       | 0.771        |
| L1772.06-3400 | 6                         | 3400           | 0.4                       | 0.782        |
| L1772.06-3450 | 6                         | 3450           | 0.4                       | 0.794        |
| L1772.06-3500 | 6                         | 3500           | 0.4                       | 0.805        |
| L1772.06-3550 | 6                         | 3550           | 0.4                       | 0.817        |
| L1772.06-3600 | 6                         | 3600           | 0.4                       | 0.828        |
| L1772.06-3650 | 6                         | 3650           | 0.4                       | 0.840        |
| L1772.06-3700 | 6                         | 3700           | 0.4                       | 0.851        |
| L1772.06-3750 | 6                         | 3750           | 0.4                       | 0.863        |
| L1772.06-3800 | 6                         | 3800           | 0.4                       | 0.874        |
| L1772.06-3850 | 6                         | 3850           | 0.4                       | 0.886        |
| L1772.06-3900 | 6                         | 3900           | 0.4                       | 0.897        |
| L1772.06-3950 | 6                         | 3950           | 0.4                       | 0.909        |
| L1772.06-4000 | 6                         | 4000           | 0.4                       | 0.920        |
| L1772.06-4050 | 6                         | 4050           | 0.4                       | 0.932        |
| L1772.06-4100 | 6                         | 4100           | 0.4                       | 0.943        |
| L1772.06-4150 | 6                         | 4150           | 0.4                       | 0.955        |
| L1772.06-4200 | 6                         | 4200           | 0.4                       | 0.966        |
| L1772.06-4250 | 6                         | 4250           | 0.4                       | 0.978        |
| L1772.06-4300 | 6                         | 4300           | 0.4                       | 0.989        |
| L1772.06-4350 | 6                         | 4350           | 0.4                       | 1.001        |
| L1772.06-4400 | 6                         | 4400           | 0.4                       | 1.012        |
| L1772.06-4450 | 6                         | 4450           | 0.4                       | 1.024        |
| L1772.06-4500 | 6                         | 4500           | 0.4                       | 1.035        |
| L1772.06-4550 | 6                         | 4550           | 0.4                       | 1.047        |
| L1772.06-4600 | 6                         | 4600           | 0.4                       | 1.058        |
| L1772.06-4650 | 6                         | 4650           | 0.4                       | 1.070        |
| L1772.06-4700 | 6                         | 4700           | 0.4                       | 1.081        |
| L1772.06-4750 | 6                         | 4750           | 0.4                       | 1.093        |
| L1772.06-4800 | 6                         | 4800           | 0.4                       | 1.104        |
| L1772.06-4850 | 6                         | 4850           | 0.4                       | 1.116        |
| L1772.06-4900 | 6                         | 4900           | 0.4                       | 1.127        |
| L1772.06-4950 | 6                         | 4950           | 0.4                       | 1.139        |
| L1772.06-5000 | 6                         | 5000           | 0.4                       | 1.150        |



## Ø6 Hardened Stainless Shafts for linear bearings

## Linear Shaft Bars

| Order No.     | d <sub>1</sub><br>tol. h6 | l <sub>1</sub> | Depth of hardness<br>min. | Weight<br>kg |
|---------------|---------------------------|----------------|---------------------------|--------------|
| L1772.06-5050 | 6                         | 5050           | 0.4                       | 1.162        |
| L1772.06-5100 | 6                         | 5100           | 0.4                       | 1.173        |
| L1772.06-5150 | 6                         | 5150           | 0.4                       | 1.185        |
| L1772.06-5200 | 6                         | 5200           | 0.4                       | 1.196        |
| L1772.06-5250 | 6                         | 5250           | 0.4                       | 1.208        |
| L1772.06-5300 | 6                         | 5300           | 0.4                       | 1.219        |
| L1772.06-5350 | 6                         | 5350           | 0.4                       | 1.231        |
| L1772.06-5400 | 6                         | 5400           | 0.4                       | 1.242        |
| L1772.06-5450 | 6                         | 5450           | 0.4                       | 1.254        |
| L1772.06-5500 | 6                         | 5500           | 0.4                       | 1.265        |
| L1772.06-5550 | 6                         | 5550           | 0.4                       | 1.277        |
| L1772.06-5600 | 6                         | 5600           | 0.4                       | 1.288        |
| L1772.06-5650 | 6                         | 5650           | 0.4                       | 1.300        |
| L1772.06-5700 | 6                         | 5700           | 0.4                       | 1.311        |
| L1772.06-5750 | 6                         | 5750           | 0.4                       | 1.323        |
| L1772.06-5800 | 6                         | 5800           | 0.4                       | 1.334        |
| L1772.06-5850 | 6                         | 5850           | 0.4                       | 1.346        |
| L1772.06-5900 | 6                         | 5900           | 0.4                       | 1.357        |
| L1772.06-5950 | 6                         | 5950           | 0.4                       | 1.369        |
| L1772.06-6000 | 6                         | 6000           | 0.4                       | 1.380        |

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<br/>Anti-corrosion.</p> <p>Ø6 to Ø60</p>   | <p><b>L1773 - Stainless 303 shafts</b></p>  <p>Soft stainless, high anti-corrosion.<br/>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.<br/>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>  |