

## Shafting

**Table 17: Typical Commercial Shaft Tolerances**

| Shaft Size           | Plus | Minus |
|----------------------|------|-------|
| Up to 1-1/2"         | .000 | .002  |
| Over 1-1/2 to 2-1/2" | .000 | .003  |
| Over 2-1/2 to 4"     | .000 | .004  |
| Over 4 to 6"         | .000 | .005  |
| Over 6 to 8"         | .000 | .006  |
| Over 8 to 9"         | .000 | .007  |
| Over 9"              | .000 | .008  |

**Table 18: Shaft Tolerances**

| Shaft Size   | Tolerance, Inches |
|--------------|-------------------|
| Up to 1-1/2" | +.0000 -.0005"    |
| 1-5/8 to 4"  | +.000 -.001"      |
| 4-7/16 to 6" | +.000 -.0015"     |
| 6-7/16 to 8" | +.000 -.002"      |

Table 18 lists the recommended tolerances for all set-screw locking, eccentric locking and D-LOK locking ball and roller bearings

**Table 19: Shaft Tolerances**

| Shaft Size        | Tolerance, Inches |
|-------------------|-------------------|
| Up to 1-1/2"      | +.000 -.002"      |
| 1-9/16 to 2-1/2"  | +.000 -.003"      |
| 2-5/8 to 4"       | +.000 -.004"      |
| 4-3/16 to 6"      | +.000 -.005"      |
| 6-7/16" and above | +.000 -.006"      |

Table 19 list the recommended tolerances for all tapered adapter sleeve ball and roller bearings

**Standard Shafting**-Table 17 indicates standard shafting is cold drawn in the smaller sizes and turned and polished in the larger diameters. It has a smooth surface, is commercially straight and is readily machinable; suitable and recommended for general power transmission and material handling service.

**Special Shafting**-While standard shafting is suitable for most installations, special shafting is sometimes required for certain chemical, temperature or physical requirements. Such materials as high carbon steel, alloy steel, stainless steel, brass, Monel metal, etc., can be furnished plain or heat treated. Stepped, flanged, hollow or other special forms are available.

Special shafting should be avoided in favor of standard shafting wherever possible because special shafting is usually considerably more expensive and requires a greater length of time to obtain, which is an especially important consideration should quick replacement ever become necessary.

**Ordering Shafting**-Standard shafting can be obtained from most supply houses and dealers who handle power transmission material.

**Turning Down Shaft Ends**-When necessary to turn down shaft ends, use as large a fillet as possible to keep the stress concentration to a minimum. The radius of this fillet should preferably be not less than the difference in the two diameters joined by the fillet. The fillet should be finished and polished as smoothly as possible to avoid scratches which might start cracks and failure of the shaft by fatigue.