

Sheave misalignment is considered one of the major causes of flexible drive vibration and bearing failure. An industry standard for the maximum allowable misalignment is  $\frac{1}{2}^\circ$  of angular misalignment with an offset tolerances of 0.1" per foot of span. With today's technology, sheave misalignment can be virtually eliminated.

Previously, sheave alignments have been done with a straight edge or string. Precision Measurement tools were not available to actually measure the sheave misalignment. With today's technology these tools are available and cost effective.

## Use of a Straightedge or String



### **Typical signs of sheave misalignment:**

High motor drive end bearing operating temperature.

Excessive noise (thumping, squealing).

High vibration (High 1X Axial vibration, high 1X and 2X radial).

High motor current readings.

Increased belt/sheave wear.

Un-even belt tension across a sheave with more than 1 belt. (Angular Misalignment)

### **Inspections prior to sheave and belt installation:**

It is extremely important that new or replacement pulleys be installed and aligned properly. All pulley types used in industry must be properly assembled, and the bolts or setscrews tightened to the correct torque.

Most pulleys are attached to the shaft with a tapered bushing which fits a mating tapered bore in the pulley. This type of system consists of a bushing, a pulley and often a setscrew and key. Bushings come in several diameters. This allows for a reduction in the parts inventory required in the plant because one bushing can be used with a number of different size pulleys.

Prior to installation, all machined surfaces of the shaft, pulley and bushing should be cleaned of any grease or other contaminants. Using a dial indicator and magnetic base, check the Total Indicated Runout (TIR) of the motor shaft. The TIR should be checked as close to the motor bearing as possible as well as at the pulley mounting location. TIR values greater than 0.002" should be questioned and corrected if possible.



Measure Motor Shaft TIR