

INSTALLATION INSTRUCTIONS: QD® BUSHINGS

NOTE: Follow instructions carefully to ensure satisfactory performance of pulley & bushings.

FOR FACTORY INSTALLED SHAFTS, FINAL ASSEMBLY IS REQUIRED BEFORE INSTALLATION. COMPONENTS MAY NOT ARRIVE TIGHTENED TO TORQUE SPECIFICATIONS IN TABLE 1. RETIGHTEN CAP SCREWS WITH A TORQUE WRENCH SET AT THE VALUE SHOWN IN TABLE 1.

Prior to installation, ensure the following components are free of grease and debris:

- Surface of shaft
- Bore of the bushing
- Tapered inside diameter of the hub
- Tapered outside diameter of the bushing

Particles or any material left on the mating surfaces may cause improper installation.

Note: DO NOT LUBRICATE MATING SURFACES

1. If pulley is to be keyed to shaft, be certain both shaft and bushing keyways are clean, smooth, and free of burrs. Check key size with both shaft and bushing keyways. Place keys into the shaft keyways. Pulley bushing keyways require alignment of both shaft keyways for proper bushing-to-hub installation alignment of both shaft keyways for proper bushing-to-hub installation.

The standards for Class 1 Fit are provided by “ANSI Standard Fits for Parallel Keys and Taper Keys (ANSI B17.1-1967, R1989)”. The fit between key stock and mating keyways should be somewhere between clearance and interference as there is no standard for interference fit in this regard. When installing key stock into a compression hub/bushing system and axle, it is essential to prevent too tight of a fit as this might interfere with proper installation of the system. Since the key stock will not be rigidly held in position by the assembly, it is common to retain the key stock laterally by use of an axle detailed with a captured keyway. When using “keyed full length” axles, the key stock is allowed to shift the length of the keyway and must be retained using alternate methods. Common methods include modifying the keyway in the axle or key stock once installed by use of a punching tool. The deformation of the keyway or key stock will prevent lateral movement.

2. Place shaft into the pulley, being certain not to damage the bore of the hubs.
3. Insert a wedge (such as a screwdriver tip) in the bushing split and tap lightly to expand the bushing. **CAUTION: EXCESSIVE EXPANSION WILL CAUSE BREAKAGE.**

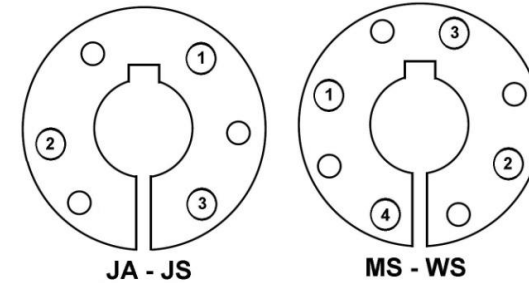
Slide bushings on to the shaft and into the hubs keeping the drilled holes of the bushings lined up with the threaded holes of the hub. Place the cap screws into the drilled holes of each bushing and hand-tighten cap screws into the threaded holes of the hubs. Remove the wedge.

4. Position the shaft as desired and tighten the cap screws in each bushing slightly so that the bushings are snug in the hubs.
5. Using a torque wrench and recommended torque (see TABLE 1) tighten cap screws **alternately and evenly** in one bushing only. Use the numbered sequence on the bushing flange cap screw heads in FIGURE 1, starting with 1 first, 2 second, and so on, with all cap screws being used until the specified torque no longer turns the cap screws. **DO NOT OVERTIGHTEN.** Over-tightening may damage the hub threads. Check to be certain the surfaces on both sides of the split are even.
WARNING: DO NOT EXCEED RECOMMENDED TORQUE IN ATTEMPT TO PULL BUSHING FLANGE FLUSH WITH HUB FACE - THERE SHOULD BE CLEARANCE WHEN TIGHTENED. (continued on next page)

6. If the bushing flange is pulled flush with hub face while tightening cap screws to recommended torque, check for an undersized shaft.
Tighten the remaining bushing following the instructions in step #5.

WARNING: DO NOT LUBRICATE THE SURFACES OF THE BUSHING, HUB, OR SHAFT AS THIS MAY RESULT IN BREAKAGE OF THE PRODUCT.

FIGURE 1



| Bushing | Number of Cap Screws | Cap Screw Size | Torque Specification Lb-In* |
|---------|----------------------|---------------------|-----------------------------|
| JA | 3 | 10-24 UNC X 1 | 72 |
| SH | 3 | 1/4-20 UNC X 1-3/8 | 108 |
| SD | 3 | 1/4-20 UNC X 1-7/8 | 108 |
| SDS | 3 | 1/4-20 UNC X 1-3/8 | 108 |
| SK | 3 | 5/16-18 UNC X 2 | 180 |
| SF | 3 | 3/8-16 UNC X 2 | 360 |
| E | 3 | 1/2-13 UNC X 2-3/4 | 720 |
| F | 3 | 9/16-12 UNC X 3-5/8 | 900 |
| JS | 3 | 5/8-11 UNC X 2-1/2 | 1,620 |
| MS | 4 | 3/4-10 UNC X 3 | 2,700 |
| NS | 4 | 7/8-9 UNC X 3-1/2 | 3,600 |
| PS | 4 | 1-8 UNC X 4-1/2 | 5,400 |
| WS | 4 | 1 1/8-7 UNC X 5 | 7,200 |

*When installing bushing in sintered steel product (sheave, coupling, etc.) follow torque recommendations shown on product hub, if present.

MAINTENANCE

DURING THE FIRST 30 DAYS OF OPERATION, INSPECT THE BUSHINGS AND SET-SCREWS FOR PROPER TORQUE AND AT LEAST ONCE A WEEK AND THEREAFTER DURING PERIODIC SHUTDOWNS.

REMOVAL

1. Remove all cap screws.
2. Insert cap screws into all threaded removal holes on bushings.
3. Tighten the cap screws **alternately and evenly** in one bushing only. A few turns on each of the cap screws should release the grip of the bushing. If the bushing does not loosen immediately, tap on the bushing with a rubber mallet.
4. Remove the bushing from the shaft.
5. Remove the second bushing following the instructions outlined above.