G5/6/7 Floating Shaft Series Disc Couplings

Installation Instructions

P-5027-TBW

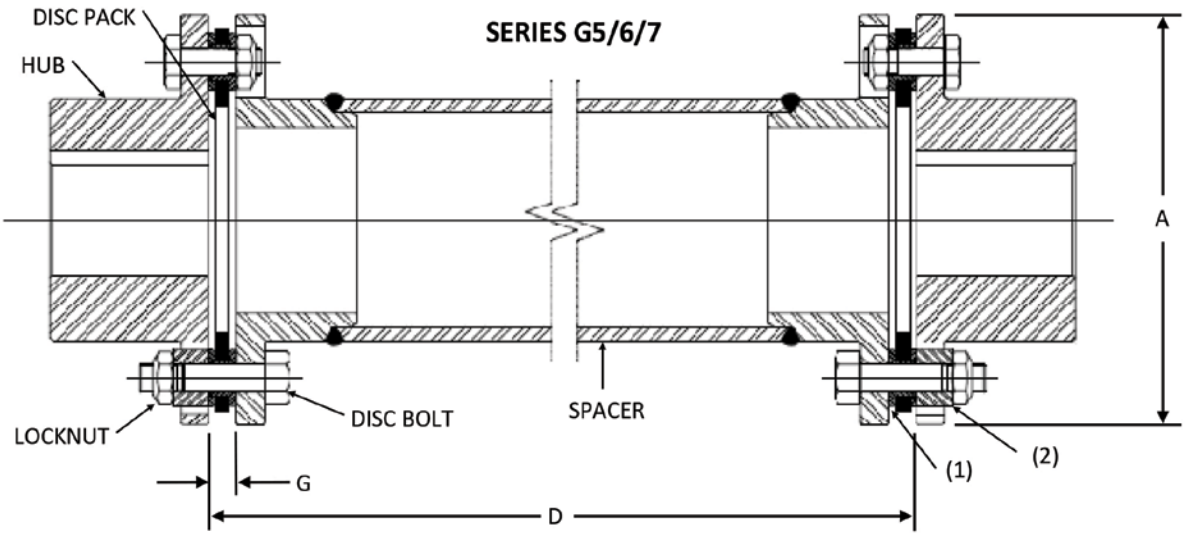

Fig. 1: Coupling Nomenclature

(1) Thin washer w/ radius against disc pack
(2) Optional Thick overload washer w/ radius against disc pack

Assembly & Alignment

1. Clean and inspect hub bore(s) and shaft ends. Remove any nicks or burrs. For tapered shafts, check contact with machinists' bluing. For straight shafts, measure shaft and bore diameters to confirm proper fit.
2. Fit key(s) to hub and shaft if applicable. Installed keys must fit snugly on the sides and have a small clearance over the top.
3. Arrange an axial stop bar or collar to stop the hub at the desired position.
4. Heat hub uniformly to required temperature to allow installation on shaft. Use of open flame is not recommended to avoid localized overheating and damage to hubs. If a torch must be used, use a large rosebud tip and be careful to maintain even heat distribution. See graph on page 4.

   CAUTION: Do not exceed 550º F.
   to avoid damage to hub.
5. Quickly slide the expanded hub into position against the prearranged axial stop, and allow to cool.
6. Move the equipment into place, axially set shafts to their desired thrust positions and/or motor rotors to magnetic center.
7. The distance 'D' between shaft ends and/or flange faces, see Fig 1, should match the target dimension within +/- 25% of the coupling's axial capacity as given in Table 1. Generally speaking the axial error at installation should not be visible to the naked eye - see Fig. 2. Reference the coupling drawing for configurations not similar to Fig 1.
8. Bring the spacer into position. Throughout the installation process, keep the spacer supported until both disc packs are in place and all bolts and nuts are at least snug fit. Letting the unsupported end of the spacer sag may overstrain and damage the disc pack.
9. Install disc packs, bolts, and nuts at each end of the coupling. See Fig 1 for proper bolt and washer orientation. Coat all bolt threads and nut faces with anti-seize thread compound and tighten all to a light snug fit only. Read the following sections before tightening bolts.

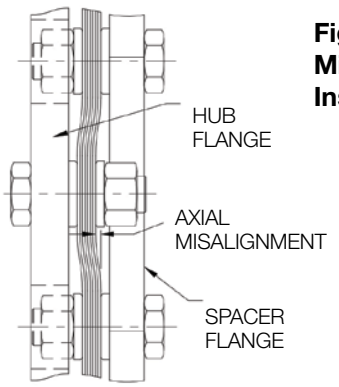

Fig. 2: Excessive Axial Misalignment at Installation

Table 1 - Dimensions & Capacities

Coupling Size Designation		'A' Dia. (Inches)	'G' Gap (Inches)	Coupling Axial Capacity (Inches)	Installation Misalignment Limit (Inches T.I.R.)
New	Old				
340	40	8.38	0.57	± .06	0.007
380		9.42	0.89	± .08	0.014
412	120	11.00	0.75	± .08	0.009
419	190	12.50	0.98	± .10	0.008
424	240 / 300	15.00	0.98	± .10	0.013
435	430[1]	16.00		± .10	0.013
444		16.38	1.09	± .11	0.012
456	560 / 640	18.00	1.32	± .12	0.016
483		19.44	1.39	± .13	0.014
	900[1]	18.00		± .10	0.016
511	1100 / 1200	22.00	1.56	± .14	0.019
	1600[1]	22.00		± .14	0.005
520	2000	24.88	1.89	± .18	0.018

10. To improve the coupling installation and performance, it is recommended, If possible at this stage, to rotate the assembly a few times while repeatedly rapping the spacer flange OD with a soft dead blow hammer to relieve any binding in the disc packs.
11. The average gap dimension 'G' as shown in Fig 1, at each disc pack, should be within the value given in Table 1 +/- 12.5% of the coupling's axial capacity.
12. Regardless of how misalignment is measured, either by a dial indicator, laser, or any other method, it should be measured from flange face to opposing flange face across a single disc pack.
13. Rotate the assembly through 360° to determine the max face Total Indicator Runnout (T.I.R.). The readings should not exceed the Installation Misalignment Limits given in Table 1 which are recommended setup limits that are less than the max coupling alignment ratings.
14. Repeat the process on the other end of the coupling.

A Word About Bolt Tightening

Proper bolt tightening is crucial to obtain the pre-loads needed for proper coupling performance.

a) Lubricate threads and nut faces with anti-seize thread compound before assembly.
b) In general, rotating the nut while holding the bolt is preferred but in some cases the reverse may be necessary.
c) If space constraints limit the use of a standard socket on a torque wrench, a "crow's foot" extension can be used (a box end type is preferred and remember to adjust the torque setting as appropriate).
d) Methods of obtaining proper bolt preload, listed in order of accuracy:
   - Measure actual bolt stretch (when clearance permits using a micrometer, Table 2 lists the target stretch in inches).
   - Use Supernuts (see page 4).
   - Torque wrench (see Table 2 for required wrench sizes).
   - Turn of the Nut

15. Tighten all bolts and nuts to ~15% of the required torque value given in Table 2.
16. If possible, repeat step 10.
17. Tighten all bolts and nuts to 100% of the required torque value given in Table 2.

Maintenance

1. A common problem experienced with disc coupling installations is the presence of what is called "oil canning". This is a condition where the discs of the pack, for whatever reason, have slipped, buckled, or become distorted from their "neutral" position and are captured in that state by the bolt clamp load. The condition causes the coupling hubs to push or pull on the connected equipment and/or it may cause the spacer to toggle axially in one direction or another but not rest in a position equi-distant from the two hubs. To correct this, the first thing to try is to loosen the bolts of the disc pack and retighten per the preceding process starting at step 13. If that doesn't work, then there may be axial alignment issues. Repeat the setup process starting at step 6.

Table 2 - Disc Bolt Tightening Data

Coupling Size		Disc Bolt Thread Size	Socket Wrench Size (Inches)	Bolt Stretch (Inches)	Disc Bolt & Nut Tightening Torque (Ft-Lb)
New	Old				
340	40	1/2-20	7/8	0.003	75
380	80	3/4-16	1 1/8	0.007	288
412	120	3/4-16	1 1/4	0.005	250
419	190	1-14	1 5/8	0.007	450
424	240 / 300				
435	430[1]	1 1/8-12	1 3/4	0.009	840
444		1 1/8-12	1 13/16	0.009	840
456	560 / 640	1 1/4-12	2	0.011	1095
483		1 3/8-12	2 3/16	0.011	1240
	900[1]	1 1/2-12	2 1/2	0.014	1400
511	1100 / 1200	1 1/2-12	2 3/8	0.013	1640
	1600[2]	1 3/4-12	1 3/4	0.017	See Table 3
520	2000[2]	1 7/8-12	3	0.017	See Table 3

Nut torque values are with commercially available anti-seize.

2. Periodic inspection of the coupling, including bolt and nut connection torques, is recommended. An inspection frequency cannot be recommended here as it will depend upon the individual circumstances of each application and must be determined by the end user based on observation and consideration of the operating conditions.

Notes:

(1) Non-unitized designs.
(2) Torque is for each Jack-bolt of the Superbolt Torquenut.

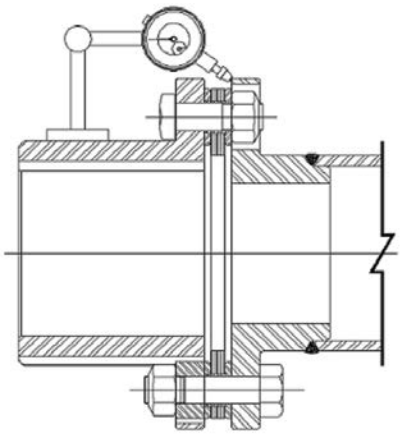

Fig 3: Dial Indicator Mounting for Face Readings

Table 3: Superbolt Torquenut Tightening
Superbolt Torquenuts are an available option which greatly eases the task of obtaining proper preload in large fasteners. They must be installed with the included hardened washer, and the jackbolts MUST be properly lubricated on their threads and tips using their special grease. Values shown apply when using standard Superbolt® "JL-G" grease.

Disc Bolt Thread Size	"CY" Series Superbolt Torquenut Jackbolts		
	Thread Size	Wrench Size (Inches)	Tightening Torque (ft-lb)
1 3/4-12	7/16	3/8	77
1 7/8-12	1/2	7/16	108
2-12	1/2	7/16	124
2 1/8-12	5/16	9/16	141
2 1/4-12	5/16	9/16	196

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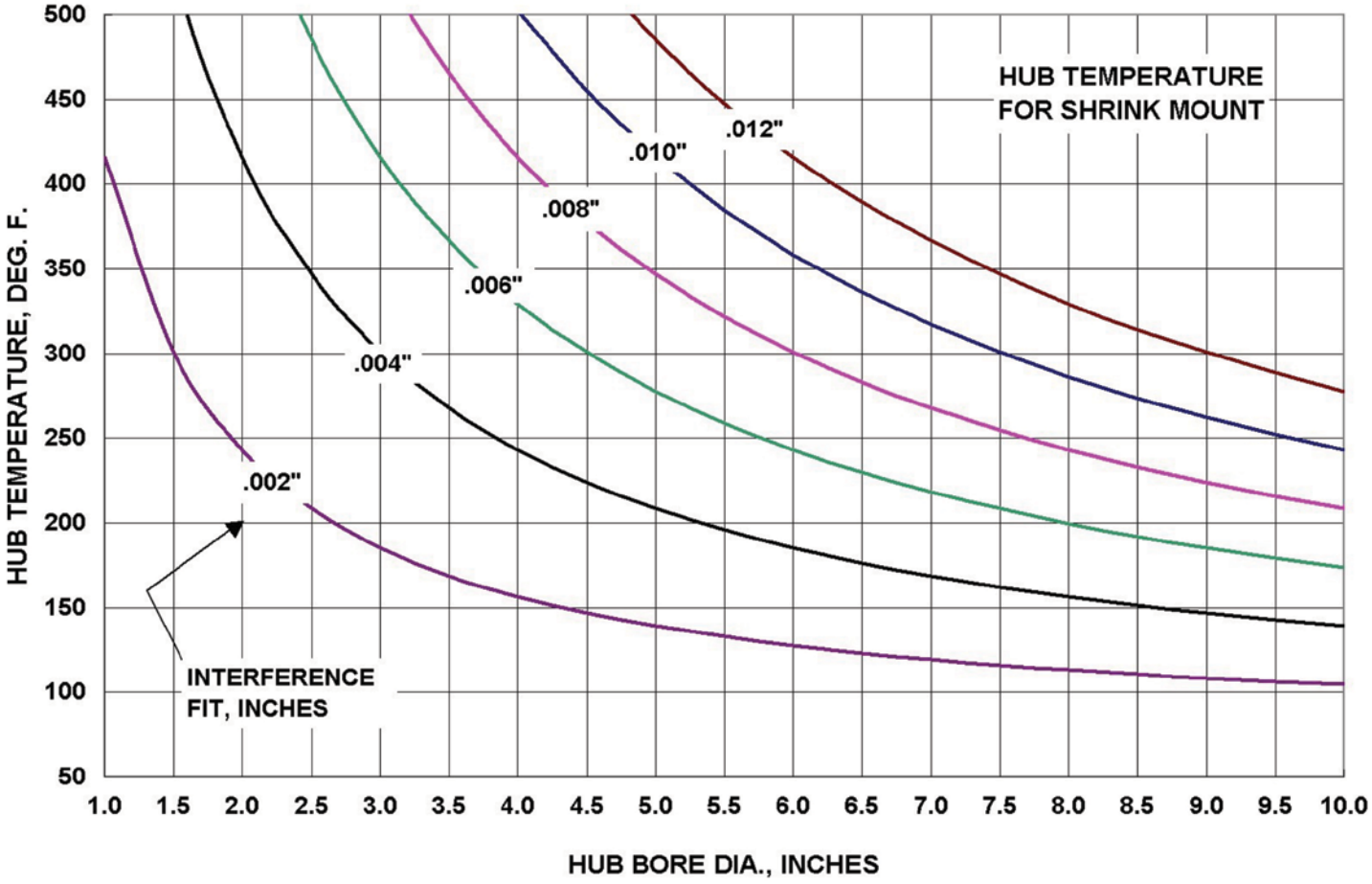
Hub Shrink Fit Temperatures

DATA SUPPLIED IS FOR REFERENCE ONLY! Installer must ensure that proper procedures and values are used.

Graph assumes steel hub material and 70º F. ambient temperature, and includes a 10% safety margin. For example, for 6" bore and .008" interference, heating the hub from 70º to 300º will expand the hub by .0088".

Verify hub bores as specified on the assembly drawing to avoid overstressing the hub.



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