GCF/GCH Series Flexible Disc Couplings

Installation Instructions

P-5029-TBW
Form 607

TB Wood's®
Altra Industrial Motion

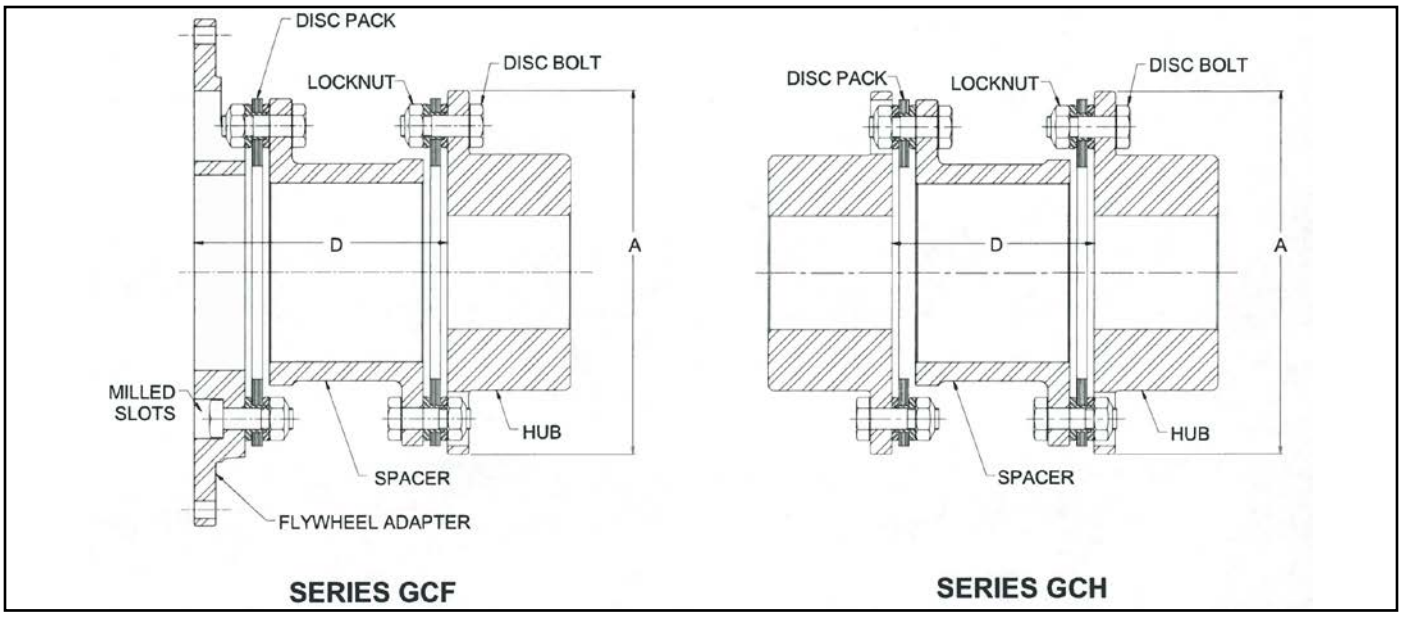


FIG.1: COUPLING NOMENCLATURE

⚠ **WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov**

ASSEMBLY & ALIGNMENT

1. Clean and inspect hub bore(s) and shaft ends. Remove any nicks or burrs with a stone. 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 550° F. , to avoid damage to hub.
5. Quickly slide the expanded hub into position against the prearranged axial stop, and allow to cool.
6. (GCF only) Install disc bolts in flywheel adapter with heads in milled slots, and bolt adapter to flywheel. Torque interface bolts to value specified in Table 3, or as otherwise directed by the equipment supplier.
7. Move the equipment into place. Distance 'D' between shaft ends and/or flange face should match the target dimension within +/-25% of the coupling's axial capacity. Generally speaking the axial error at installation should not be visible to the naked eye- see Figure 2. See Table 1 or the assembly drawing for dimensions.
8. Alignment can be performed using laser equipment if available, or with dial indicators as described following. Attach a dial indicator's base to one hub or the flywheel adapter, and indicate a point on the other hub flange's outside diameter. See Figure 3.

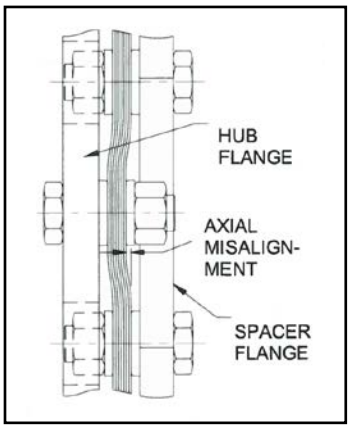


FIG.2: EXCESSIVE AXIAL MISALIGNMENT AT INSTALLATION

TABLE 1: DIMENSIONS & CAPACITIES

COUPLING SIZE	LEGACY COUPLING SIZE	'A' DIA. (INCHES)	SPACER 'D' DIMENSION (INCHES)			COUPLING AXIAL CAPACITY (INCHES)	INSTALLATION MISALIGNMENT LIMIT (INCHES T.I.R.)
			SPACER	GCF	GCH		
340	40	8.38	31	5.31	4.14	±.06	.007
			35	5.88	4.71		
412	120	11.00	42	7.14	5.57	±.08	.009
			45	7.64	6.07		
			50	8.76	7.19		
424	240 / 300	15.00	55	9.89	7.45	±.10	.013
			60	10.89	8.45		
456	560 / 640	18.00	70	12.44	9.63	±.12	.016
			75	13.51	10.70		
511	1100 / 1200	22.00	80	14.76	11.39	±.14	.019
			85	15.76	12.39		
			92	17.26	13.89		

9. Rotate only the rotor on which the indicator's base is mounted and read rim runout. T.I. R. readings should not exceed the values shown in Table 1.
10. Reposition the indicator tip to indicate a point on the opposing hub's flange face near the OD, and repeat step #9 to read face runout. T. I. R. readings should not exceed the values in Table 1. Align equipment as needed to ensure that rim and face readings are both within the alignment limit.
11. Install a disc pack on adapter or first hub. Review figure 1 to confirm proper bolt orientation. For couplings with two hubs, install the four disc bolts which connect the pack to the first hub. Coat all bolt threads and nut faces with anti-seize thread compound.

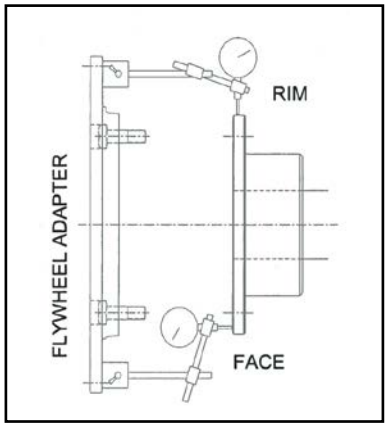


FIG.3: DIAL INDICATOR MOUNTING FOR RIM & FACE READINGS

12. Bring spacer into position and install the other four bolts and nuts at the first end, oriented as shown in Figure 1. Continue to support spacer to prevent damage to the disc pack.
13. Install second disc pack and all remaining bolts and nuts as shown in Figure 1. Read the following sections before tightening bolts.

A WORD ABOUT BOLT TIGHTENING

Proper bolt tightening is crucial to obtain the preloads 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) Methods of obtaining proper bolt preload-listed in order of accuracy:

1) Measure actual bolt stretch
2) Uses Supernuts (see page 4)
3) Torque wrench
4) Turn of the Nut

TABLE 2: DISC BOLT TIGHTENING DATA

COUPLING SIZE	LEGACY COUPLING SIZE	DISC BOLT THREAD SIZE	SOCKET WRENCH SIZE (INCHES)	BOLT STRETCH (INCHES)	NUT TORQUE (FT - LB)	TURN OF THE NUT (DEGREES)
340	40	1/2-20	7/8	.004	75	33
412	120	3/4-16	1 1/4	.006	250	37
424	240 / 300	1-14	1 5/8	.009	450	45
456	560 / 640	1 1/4-12	2	.0105	1095	51
511	1100 / 1200	1 1/2-12	2 3/8	.013	1640	61

14. When clearance permits, best preload accuracy is obtained by measuring bolt stretch directly with a micrometer. Table 2 lists the target stretch in inches. If this is not practical, obtain a suitable torque wrench and "crow's foot" attachment to facilitate bolt torqueing. See Table 2 for required wrench sizes.

15. If a torque wrench, micrometer, or a Supernut cannot be used, use the "turn-of-the-nut" values from Table 2, measured in degrees from the point where the nut is seated against its mating flange with .1 (one-tenth) of its target tightening torque (for example 110 ft-lb on GCF456).

16. Tighten all bolts to the specified tightening torques.

TABLE 3: FLYWHEEL BOLT TIGHTENING DATA

BOLT SIZE & THREAD	THREAD COEFFICIENT 'C'	SOCKET WRENCH SIZE (INCHES)	BOLT TIGHTENING TORQUE (FT - LB)
3/8-16	.18	9/16	36
1/2-13	.16	3/4	80
5/8-11	.15	15/16	147
3/4-10	.14	1 1/8	246
7/8-9	.13	1 5/16	377
1-8	.13	1 1/2	541

DATA SUPPLIED FOR REFERENCE ONLY! Engine manufacturer or packager is responsible for specifying and/or supplying fasteners and locking method. These values apply for coarse thread cadmium plated Grade 8 bolts lubricated with oil and tightened to 70% of yield strength

SUPERNUT TIGHTENING TORQUES

Supernuts 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 SUPERNUT JACKBOLTS		
	THREAD SIZE	WRENCH SIZE INCHES	TIGHTENING TORQUE FT-LB
1-14	5/16	1/4	34
1 1/4-12			63
1 1/2-12	3/8	5/16	83
1 3/4-12			84

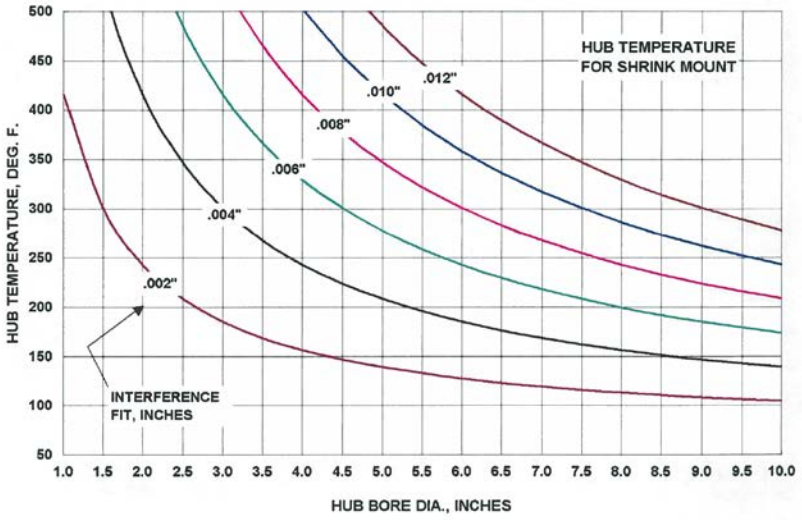
SUPERBOLT is a registered trademark of Superbolt Inc., Carnegie, PA USA

HUB SHRINK FIT TEMPERATURES

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

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

Do not exceed the interference specified on the assembly drawing to avoid overstressing the hub.



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