Form-Flex® Drop Out Spacer Coupling Type BF
All Sizes, All Classes
Installation and Maintenance Instructions

P-5009-TBW
FORM 1179

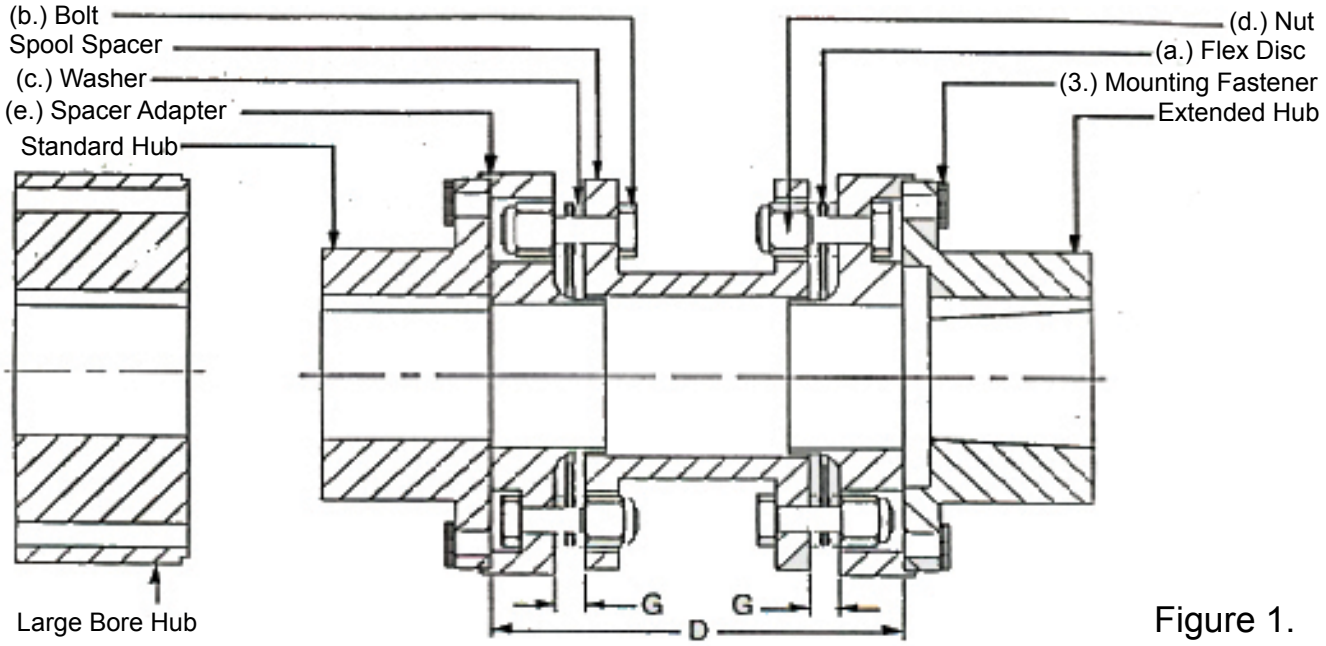
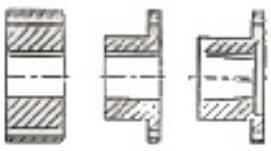


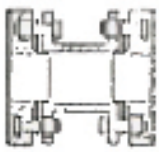
Figure 1.

Parts list

1. Hub (2)



2. Factory assembled spacer (1)



a. Flex disc (2)
b. Bolt (12) *
c. Washer (24) *
d. Nylon locking nut (12) *
e. Spacer adapter (2)

3. Mounting Fastener (12)*
4. Compression Cap Screws
   1/4 - 20 UNC (6) See Figure 4.

* Hardware quantities may vary for sizes 20 and 33

General Information

Proper care in installing and aligning will permit coupling to operate to full capacity, compensate for angular misalignment, and provide very good service life.

Shafts may become misaligned as a result of many natural and unavoidable causes. Heat, vibration, bearing wear, setting of foundations, etc., all tend to alter initial alignment. To ensure long lie, re-check alignment after a short period of actual running.

In general, coupling life is increased when shafts are initially aligned carefully. If this is not done and a coupling is heavily stressed by torque or other forces, it will have little reserve left which to accommodate misalignment stresses; and it might not provide the length of service intended. The closer the alignment TIR is to zero, the better the service life of the coupling.

Installation

1. The coupling, as received, has a fully assembled spacer consisting of a center spool, two adapters, flex discs, and hardware with the flex disc hardware factory-torqued ready for field use.

   NOTE: **Disassembly of the spacer assembly of this coupling is not recommended.**

   Examine the assembly to assure there is no visible damage. Remove the Mounting Fasteners (3) that attach the hubs (1) to the adapters (e) and remove both hubs.
2. Inspect shafts and hubs and make sure they are free from burrs. Check for proper fit of the keys to the shafts and hubs.
3. Fit the coupling hubs so that the shaft ends are flush with the face of the flange
   a. **Straight Bore.** If the hub bore is for Interference fit, the hubs should be heated in oil to 300°F and then quickly positioned on the shaft. A preset axial stop device can be helpful. *Do Not* spot heat or heat beyond 350°F as it may cause distortion.
   b. **Taper Bore.** Put the hub on the shaft without key(s) in place. Lightly tap hub up the shaft with a soft hammer. This will assure a metal-to-metal fit between shaft and hub. This is the starting point for the axial draw. Record this position between shaft end and hub face with a depth measuring device. Mount a dial indicator to read axial hub movement. Set the indicator to “0”. Remove hub and install key(s). Remount the hub, drawing it up the shaft to the “0” set point on the indicator. Continue to advance hub up the taper to the desired axial position. Use the indicator as a guide only. A pre-set axial stop can be helpful. Check the final results with depth measuring device. The hub should be heated to 300°F before re-mounting to prevent damage to the shaft. *Do Not* spot heat the hub or heat beyond 350° or distortion may occur. Install shaft locknut to hold hub in place.

Alignment

1. Bring the equipment into and approximate good alignment. Set the distance between hub faces to the required distance between shaft ends, “D” dimension from the drawing (see figure 1.). Check the average gap between spacer flange and adapter flanges, dimension “G” in Table I, for proper size coupling. Pre-stretch to allow for thermal growth is permitted. Thermal growth allowances should be based on actual measurements for each installation.

Table I - Spacer Flange to Adapter, dimension “G” - inches

Size	20	33	38	43	48	53	58	63	68
G	.24	.285	.335	.465	.495	.52	.555	.600	.850
+/-	.01	.010	.010	.010	.010	.010	.015	.015	.015

a. **Angular Alignment.** Rigidly mount a dial indicator on one hub or shaft and take indicator readings from the face of the other hub flange as close to the edge as possible, as shown in Figure 2.

   Rotate both shafts together making sure the shaft axial spacing remains constant. Adjust the equipment with shims and/or moving so that the indicator reading is within .002 inch per inch of coupling flange diameter. See Table II.

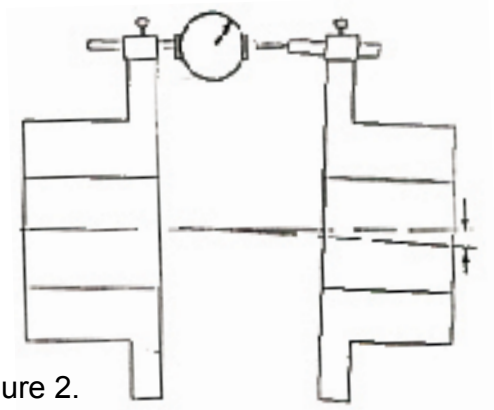


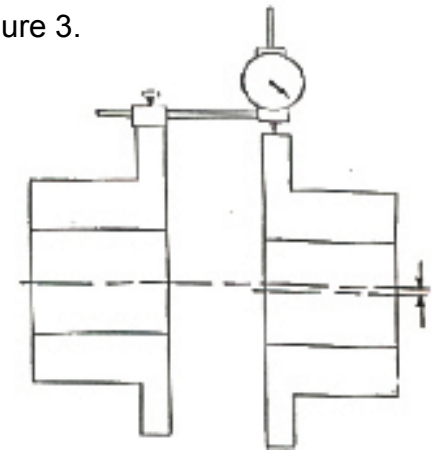
Figure 2.

Table II - Total Indicator reading, maximum; inches - for angular alignment

Size	20	33	38	43	48	53	58	63	68
T.I.R. *	.008	.010	.012	.014	.015	.016	.018	.020	.022

* Lower T.I.R. Readings will provide better alignment of shafts and longer service life.
NOTE: The closer to zero misalignment the better the service that can be expected.

Figure 3.



b. **Parallel Offset.** Rigidly mount a dial indicator on one hub or shaft and take indicator readings from the other hub flange outside diameter, as shown in Figure 3. Compensate for indicator set-up sag.

   Rotate both shafts together. Adjust the equipment with shims and/or moving so that the indicator reading is within .002 per inch of axial length between flex discs.

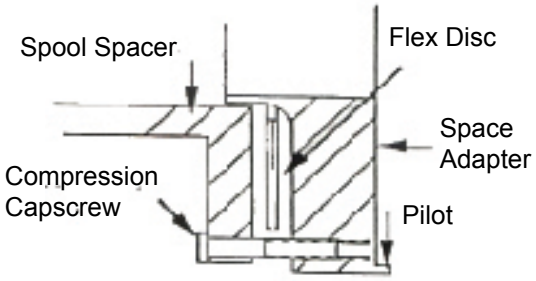
Final Assembly

1. Install the spacer assembly (2) after alignment is complete. The overall natural length of the spacer assembly will be greater than the gap between flanges due to the hub-to-adapter piloting feature.

   Compress both ends of spacer assembly by inserting 1/4-20 UNC capscrews (4) from the center of spacer and lightening each equally and only enough to allow the center member to go between the hubs.

   Do Not over compress the flex disc. You may damage the flex disc.

Figure 4.



2. Make sure that the adapter pilots and the hub flange faces are clean and free of nicks and burrs to allow for proper pilot seating. Place the compressed center member between coupling hubs, lining up holes and/or matchmarks. Remove compression capscrews evenly allowing the adapter pilots to engage with the hub flange O.D. Now insert the grade 8 fasteners provided through the hub flange and into the maling threaded hole in the adapter.

   NOTE: All fastener threads should be coated with a light oil.

   Tighten each fastener (3) to the required torque as listed in Table III.

   NOTE: **Make sure all the compression capscrews (4) are removed from center assembly.**

Table III. - Mounting fasteners tightening torque (Lightly oiled threads)

Size	20	33	38	43	48	53	58	63	68
Thread size UNF	1/4-28	1/4-28	1/4-28	5/16-24	5/16-24	5/16-24	3/8-24	7/16-20	1/2-20
LB.-FT	10	10	10	18	18	18	32	50	80

Important: To ensure long life re-check alignment after a short period (one to two hours) of actual running. At this time also re-torque the grade 8 fasteners to values in Table III.

Rotating equipment is potentially dangerous and must be properly guarded. The user should comply with applicable safety codes in accordance to OSHA standards.

Flex Disc Replacement

1. Remove the center member assembly by removing all mounting fasteners (3), compress center member assembly, (as described in final assembly section) and dropping it out from between the hubs.
2. Remove all locknuts, bolts, washers and flex disc. Clean up the two adapters and the center spool removing any nicks or burrs (See Figure 1). Install the new flex disc to the adapter first. Make sure to keep the disc flat and parallel to the mounting flange while installing the bolts through the adapter, washer, flex disc, washer and locknut. The bevel Side of the washer must always be against the flex disc. Now mount the adapter and flex disc assembly to the center spool by installing the bolts through the washer, flex disc, washer, center spool flange, and locknut.

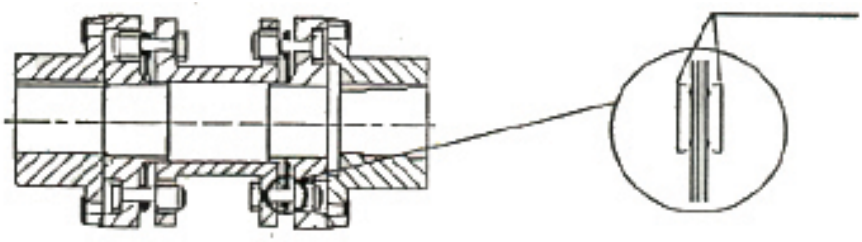
   NOTE: All Fastener threads should be coated with a light oil.
3. Snug up all locknuts making sure the disc is not distorted and all the bolts are fully seated. Now tighten each locknut to the torque values shown in Table IV. Note: For extremely short spacers, it may be necessary to tighten the locknuts on the adapter before assembly to the spacer.
4. Proceed to install the center member assembly as outlined in final assembly procedure.

Table IV. - Nut tightening torque (Lightly oiled threads)

Size	20	33	38	43	48	53	58	63	68
LB.-FT	17	8	17	40	40	60	120	120	200

NOTE: With equipment aligned and coupling assembled make sure all bolts and washers are in the proper orientation. The curved face of the washer must face the flex disc as shown in Figure 5.

Figure 5.



Curved face of the washer must face the flex disc

REPLACEMENT PARTS

To order replacement parts it is necessary to furnish the complete part number(s) and the required part(s). Order must be placed with your distributor.

⚠ WARNING:

ROTATING EQUIPMENT IS POTENTIALLY DANGEROUS AND MUST BE PROPERLY GUARDED. THE USER SHOULD COMPLY WITH APPLICABLE SAFETY CODES IN ACCORDANCE TO OSHA STANDARDS.

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

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