SERIES 52 COUPLINGS

Thomas®

Installation Instructions

ATEX: In order for this coupling to meet the ATEX requirements, it is mandatory to precisely follow these installation instructions along with the included supplement form 0005-08-49-01 (on yellow paper). This supplement outlines the ATEX requirements. If the operator does not adhere to these instructions, conformity is immediately invalidated.

WARNING:

- Because of the possible danger to person(s) or property from accidents which may result from improper use or installations of products, it is extremely important to follow the proper selection, installation, maintenance and operational procedures.
- All rotating power transmission products are potentially dangerous and can cause serious injury. They must be properly guarded in compliance with OSHA, ANSI, and any other local standards for the speeds and applications in which they are used. It is the responsibility of the user to provide proper guarding.
- For ATEX 100 requirements the guard must have a minimum of ½ inch (12.7 mm) radial clearance to the coupling major diameter "A" and be of the open mesh design.

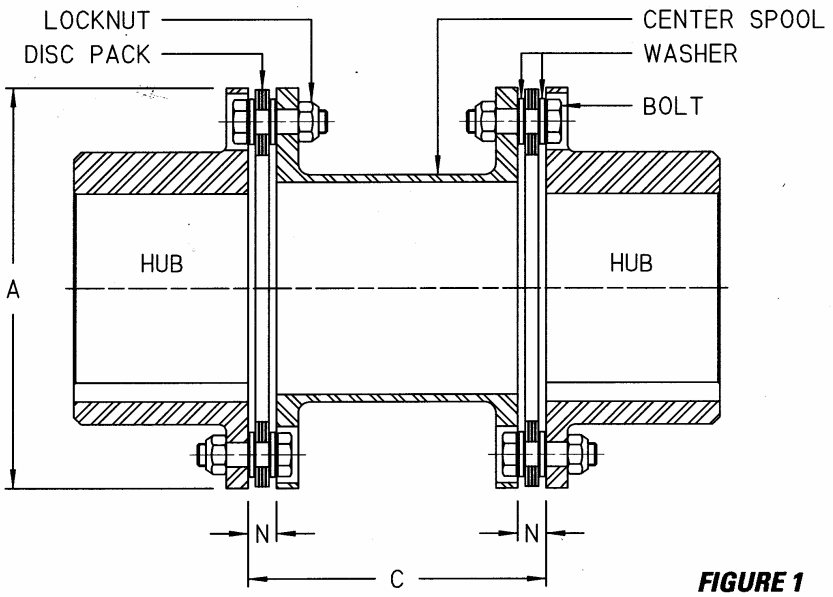


FIGURE 1

I. Purpose: These instructions are intended to help you to install, align, and maintain your THOMAS coupling.

II. Scope: Covered here will be general information, hub mounting, alignment, assembly, locknut torque, disc pack replacement, and part numbers.

III. General Information: The coupling, as received, may or may not be assembled. If assembled, the locknuts are not fully tightened. Examine the parts to assure there is no visible damage. If coupling is assembled, remove the bolts, locknuts, and washers that attach the hubs to the disc packs. Remove both hubs. Leave the disc packs attached to the center member assembly.

IV. Hub Mounting:

A. General. Clean hub bores and shafts. Remove any nicks or burrs. If bore is tapered, check for good contact pattern. If the bore is straight, measure the bore and shaft diameters to assure proper fit. The key(s) should have a snug side-to-side fit with a small clearance over the top.

B. Straight Bore. Install key(s) in the shaft. If the hub is an interference fit, heat the hub in oil bath or oven until bore is sufficiently larger than the shaft. 350ºF is usually sufficient. An open flame is not recommended. However, if flame heating is necessary use a very large rose bud tip to give even heat distribution. A thermal heat stick will help determine hub temperature. **DO NOT SPOT HEAT THE HUB OR DISTORTION MAY OCCUR.** With the hub expanded slide it quickly up the shaft to the desired axial position. A pre-set axial stop device can be helpful.

C. Straight Bore Slip Fit. Install key(s) in the shaft. Install the set screw(s) in the hub making sure they do not protrude into the keyway or the bore. Now slide the hub up the shaft to the desired axial position. The set screw(s) which hold the hub in place are tightened, using a torque wrench, to the values shown in table 1A. **NOTE: Never use two set screws one on top of the other.**

D. Taper Bore. Put the hub on the shaft without key(s) in place. Lightly tap hub on 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 the position between shaft end and hub face with depth micrometer. Mount a dial indicator to read axial hub movement. Set the indicator to "0." Remove hub and install key(s). Remount hub, drawing it up the shaft to the "0" set point. Continue to advance hub up the taper to the desired axial position. Use the indicator as a guide only. A pre-set axial stop device can be helpful. Check the final results with depth micrometer. The hub may have to be heated in order to reach the desired position on the shaft. **DO NOT SPOT HEAT THE HUB OR DISTORTION MAY OCCUR.** Install shaft locknut to hold hub in place.

V. Shaft Alignment: Move equipment into place.

A. Soft Foot. The equipment must sit flat on its base. Any soft foot must now be corrected.

B. Axial Spacing. The axial spacing of the shafts should be positioned so that the disc packs (flexing elements) are flat when the equipment is running under normal operating conditions. This means there is a minimal amount of waviness in the disc pack when viewed from the side. This will result in a flexing element that is centered and parallel to its mating flange faces. Move the connected equipment to accomplish the above.

NOTE: The disc pack is designed to an optimal thickness and is not to be used for axial adjustments by removing or adding individual discs.

As a guide, maximum and minimum values for dimension "N" are given. These dimensions are suggested for initial installation. Additional capacity is available to compensate for thermal and structural movement. Maximum axial capacity values for these couplings are also given. See Table 1 and Figure 1.

NOTE: C=2N+Center Member Length.

C. Laser Alignment is an Option. [If not available proceed with dial indicator method.]

D. Angular Alignment. Rigidly mount a dial indicator on one hub or shaft, reading the face of the other hub flange, as shown in Figure 2. Rotate both shafts together making sure the shaft axial spacing remains constant. Adjust the equipment by shimming and/or moving so that the indicator reading is within the values shown in Table 1.

E. Parallel Offset. Rigidly mount a dial indicator on one hub or shaft, reading the other hub flange outside diameter, as shown in Figure 3. Compensate for indicator set-up sag. Rotate both shafts together. Adjust the equipment by shimming and/or moving so that the indicator reading is within .001 inch per inch of the axial length between flex elements.

NOTE: If the driver or driven equipment alignment tolerances are more stringent than our recommendations, the driver or driven equipment tolerances should be used. Also, be sure to compensate for thermal movement in the equipment. The coupling is capable of approximately four times above shaft misalignment tolerances. However, close alignment at installation will provide longer service with smoother operation.

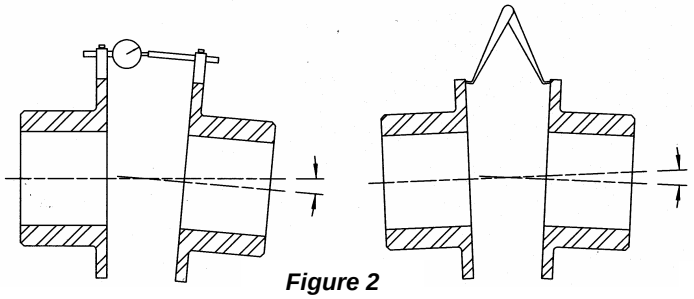


Figure 2

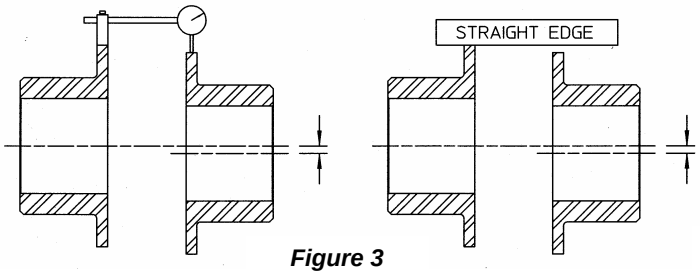


Figure 3

VI. Final Assembly: With the coupling in good alignment, the bolts will fit through the holes in the flanges and the disc packs more easily.

A. If the coupling arrived assembled, the disc packs are still attached to the center member assembly. Before taking the disc packs off, first install one hub bolt through each disc pack and secure with a locknut. This will help when the pack is reinstalled later. If the coupling was shipped disassembled, the bolt through the pack is not required as the discs in the pack are factory-taped together.

B. With the hubs mounted and the span length "C" set, proceed to put the center member into place between the two hubs. Care should be taken when handling the center member as the tube can be damaged. Support the center member at both ends on wood blocks, with nylon straps from a hoist, or some other convenient way. It may help to support the end not being worked on with bolts through the spool flange bolt holes. This will hold the parts in line at that end.

C. Now install the disc pack. Rotate the hub or center member so that the hub bolt holes line up with the center member flange clearance holes. If the coupling was assembly balanced, also align the match marks. Start a bolt through the washer. **The beveled side of the washer should always be against the disc pack.** Hold the disc pack in one hand, slip it down between the two flanges until one hole in the pack lines up with a clearance hole in the hub. Slide the bolt through this hole into the disc pack. Add a washer. Then push the bolt through the bolt hole in the center spool and install the locknut. Make sure all the parts pilot on the body ground part of the bolt.

NOTE: All bolt threads should be lubricated. A clean motor oil is recommended.

Do not tighten any locknuts at this time. Remove the disc pack alignment bolt if used. Now pivot the pack around until it lines up with the rest of the bolts through the hub clearance holes, washers, disc pack, washers, then into the bolt holes of the center member flange, and add locknuts.

NOTE: When installing the washer, it may be helpful to use a stiff wire with one end bent into a hook to put around the O.D. of the washer. This will help to line up the washer with the hole.

The remaining bolts for this end can be put through the center member clearance holes, washers, disc pack, washers into the bolt holes in the hub flange and add locknuts. The locknuts can be slightly tightened at this time. Disc pack when installed should look flat and parallel with the mating flanges.

D. Now proceed to the other end of the coupling. Remove the support bolts, if used, supporting the center member in one of the other ways. Using paragraph "VI. C" above install the second disc pack.

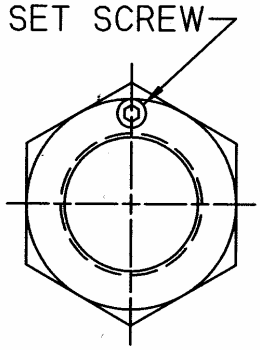
E. Make the final coupling alignment check at this time.

F. Fully tighten the locknuts. See Table 1 for torque values.

NOTE: With the coupling in good alignment the bolts will fit through the holes in the flanges and the disc pack more easily.

TABLE 1 - Locknut Tightening Torques, Dimension "N" Limits and Suggested Maximum Alignment Values

COUPLING SIZE	"A" DIAMETER In	DIMENSION "N" In		AXIAL CAPACITY In	THREAD SIZE	TORQUE		ALIGNMENT TOTAL INDICATOR READING	
						Ft - Lbs (In-Lbs)	Nm	ANGULAR In	PARALLEL
		Min.	Max.						
125 162 200	3.84 4.34 5.44	.27 .29 .37	.28 .30 .38	± .036 ± .036 ± .036	1/4 - 28 1/4 - 28 5/16 - 24	(156) (156) 25	18 18 34	.004 .004 .005	.001" PER INCH OF "C" DIMENSION
225 262 312	5.69 6.63 7.81	.37 .48 .51	.38 .49 .52	± .036 ± .043 ± .051	5/16 - 24 3/8 - 24 7/16 - 20	25 30 40	34 41 52	.006 .007 .008	
350 375 425	8.69 9.69 10.50	.54 .60 .63	.55 .61 .64	± .056 ± .062 ± .067	1/2 - 20 9/16 - 18 5/8 - 18	95 130 175	129 176 237	.009 .010 .011	
450 500 550	11.31 12.88 14.44	.73 .79 .92	.75 .81 .94	± .072 ± .082 ± .092	11/16 –16 3/4 –16 7/8 –14	150* 190* 255*	203* 258* 346*	.012 .013 .014	
600 700 750	16.00 18.25 19.81	.99 1.20 1.26	1.01 1.23 1.29	± .102 ± .115 ± .125	1-14 1-1/8-12 1-1/4-12	335* 425* 560*	454* 576* 759*	.016 .018 .020	
800 850 925	21.50 23.00 25.00	1.33 1.42 1.51	1.36 1.45 1.55	± .136 ± .144 ± .156	1-3/8-12 1-1/2-12 1-5/8-12	740* 950* 1800	1003* 1288* 2441	.022 .023 .025	



Locknut Set screw		
Thread Size In	Torque	
	In-Lbs	Nm
3/8-16	150	17

TABLE 1A SET SCREW TIGHTENING TORQUE

Set Screw Thread Size	Torque In-Lbs	Torque Ft-Lbs	Torque Nm
1/4-20	66	6	7
1/4-28	76	6	9
5/16-18	132	11	15
5/16-24	144	12	16
3/8-16	240	20	27
3/8-24	276	23	31
1/2-13	600	50	68
1/2-20	660	55	75

NOTE:

1. These torque values are approximate for steel bolts with lubricated threads. Modification will be necessary for stainless steel. For stainless steel the tightened torque must be reduced to 60% of the values shown. Bolt and locknut threads must also be liberally coated with molybdenum disulfide grease.
2. **Bolts should be held from rotating while the locknuts are tightened to the values shown.**
3. * These locknuts are cad plated.

It is recommended that all locknuts be retightened after several hours of initial operation when ever possible.

G. For further help with the installation or alignment consult Rexnord.

VII. Disc Pack Replacement: If it becomes necessary to replace the disc pack, it can be done as follows:

A. At one end of the coupling remove all locknuts and washers. Back out and remove all but one bolt. It may be necessary to tap the ends of the bolts with a soft hammer to start them out. Pivot the disc pack out. Put one of the coupling bolts through the pack securing it with a locknut. This will keep the discs together and maintain the disc orientation for later reinstallation. Remove the last bolt and slide the pack out supporting the center member at this end.

B. Now disassemble the other end per "VII. A" above being sure to support the center member when taking out the last bolt. Remove the center member.

C. Replace parts as necessary. Recheck alignment per Section V. Reassemble per Section VI.

VIII. For replacement parts, see Table 2.

Table 2
Part Numbers and Quantity Required

Size of Series 52 Cplg.	Hub	Center Spool One per Cplg.		Center Member Assembly		Disc Pack Two per Cplg.		Washer		Bolt		Locknut	
						Tomaloy	Stainless						
	Part No.	Part No.	Dim. "C"	Tomaloy Disc Packs Part #	Stainless Disc Packs Part #	Part No.	Part No.	Part No.	Qty.	Part No.	Qty.	Part No.	Qty.
125	128790	328791	4	818197	918197	910618	310618	212706	16	916087	8	916504	8
162	034406	634420	5	018198	118198	710663	310663	212706	24	916087	12	916504	12
200	234407	734421	5	218199	318199	210665	710665	712610	24	116008	16	316505	16
225	434408	834422 934422	5 7	418200 618201	518200 718201	210984	610984	712610	32	116088	16	316505	16
262	634409	034423 134423	5 7	818202 018203	918202 118203	010985	210985	014762	32	316089	16	716506	16
312	834410	234424 334424	5-1/2 7	218204 418205	318204 518205	010957	210957	017142	32	516090	16	116507	16
350	034411	434425 534425	6 7	618206 918207	818206 018207	810952	010952	019099	32	716091	16	516508	16
375	234412	634426	7	218208	118208	410943	610943	019101	32	916092	16	916509	16
425	434413	734427	7	318209	418209	810986	010986	019102	32	116093	16	316510	16
450	634414	834428 934428	7 8	518210 818211	718210 918211	210987	410987	516100	32	316094	16	716511*	16
500	834415	034429	9	018212	118212	420735	620735	711460	32	516095	16	116512*	16
550	034416	134430	10	218213	318213	110962	310962	311750	32	716096	16	039125*	16
600	234417	234413	10	418214	518214	710959	910959	612127	32	916097	16	020253*	16
700	434418	003125	11	—	—	NOT AVAIL-ABLE	420803	511413	32	116098	16	020254*	16
750	663126	003131	11	—	—		921021	111803	32	316099	16	020255*	16
800	—	—	—	—	—		220851	911800	32	616200	16	020256*	16
850	—	—	—	—	—		020793	611402	32	816201	16	020257*	16
925	—	—	—	—	—		020958	812176	32	016202	16	913898	16

* These locknuts are cad plated.