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. 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 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 or governmental standards for the speeds and applications in which they are used. It is the responsibility of the user to provide proper guarding. For ATEX requirements the guard must have a minimum of ½ inch (12.7 mm) radial clearance to the coupling major diameter "A" (See Figure 1) and allow for good ventilation.*

1. **Purpose** — These instructions are intended to help you to install, align, and maintain your THOMAS coupling.
2. **Scope** — Covered here will be general information, hub mounting, alignment, assembly, locknut tightening, disc pack replacement, and part numbers.
3. **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 the coupling is assembled, remove the bolts that attach the hubs to the disc packs. Remove both hubs. Leave the disc packs attached to the center member assembly.

   NOTE: The center spool of the center member assembly can be made of thin wall stainless steel or steel and may be easily damaged. Use care when handling.
4. **Hub Mounting**
   A. **General** — Clean the hub bores and shafts. Remove any nicks or burrs. If the bore is tapered, check for a 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 and the corners must be chamfered.
   B. **Straight Bore** — Install the key(s) in the shaft. If the hub is an interference fit, heat the hub in an oil bath or oven until the bore is sufficiently larger than the shaft. 350°F 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 up the shaft to the desired axial position. A pre-set axial stop device can be helpful.
   C. **Straight Bore Slip Fit** — Install the key(s) in the shaft. Install the setscrew(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 setscrew(s) which hold the hub in place are tightened, using a torque wrench, to the values shown in Table 1A. **NOTE**: Never use two setscrews with one on top of the other.
   D. **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 the position between shaft end and hub face with a depth micrometer. Mount a dial indicator to read axial hub movement. Set the indicator to "0". Remove hub and install the key(s). Heat the hub in an oil bath or oven until the bore is sufficiently larger than the shaft. 350°F 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 the hub temperature. **DO NOT SPOT HEAT THE HUB OR DISTORTION MAY OCCUR**. With the hub expanded, slide it quickly up the shaft to the "0" set point. Continue to advance the hub up the taper to the desired axial position. Use the indicator as a guide only. A preset axial stop device can be helpful. Check the final results with a depth micrometer. Install the hub retention device to hold the hub in place.
5. **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 shaft should be positioned so that the disc packs (flexing

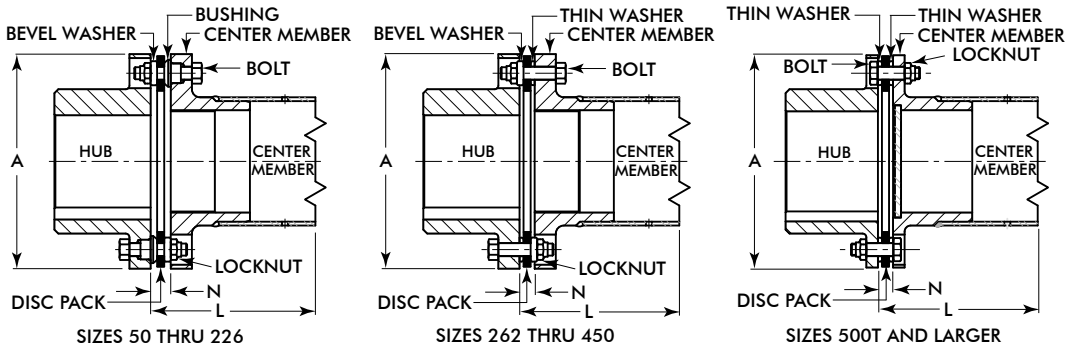

FIGURE 1

elements) are not distorted 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 or hubs on their respective shafts to accomplish the above.

NOTE: The disc pack is designed to an optimal thickness and is not to be used for axial adjustments of the coupling span.

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: L = 2N + Center Member Length.

C. **Angular Alignment** — As the coupling is usually quite long, it is suggested to use the "Across the disc pack" procedure to correct the angular misalignment at each end. See Figure 2, 3, and 4.

NOTE: In order to use this procedure the coupling must be fully assembled, See Section 6, Final Assembly.

The method shown in Figure 4 is preferred because axial movement of the shafts during the alignment process does not affect the results. Rigidly mount a dial indicator on the shaft or hub reading out on the center tube a convenient distance "X''. Compensate for indicator set-up sag. Rotate the assembly. Adjust the equipment by shimming and/or moving so that the indicator is within .002 inch per inch of distance X. (Center of flex joint to position on center member tube where readings are taken.) If the method shown in Figure 2 or 3 is chosen use .002 inch per inch of hub flange diameter as the limit. Repeat above for both ends until coupling is aligned. This procedure will correct the shaft angular and shaft parallel offset misalignments.

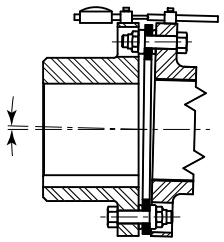

FIGURE 2

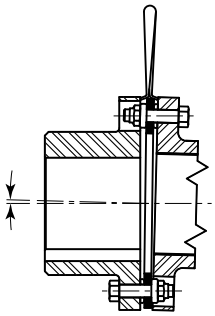

FIGURE 3

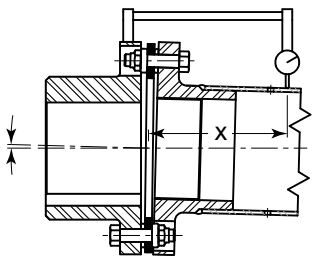

FIGURE 4

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

6. **Final Assembly**

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

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 "L" 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 and into the hub flange bolt holes. This will align the parts 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. Start a bolt through the bolt hole in the hub flange and just through a thin washer (on size 262 and larger.) **The radius 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 the bolt. Slide the bolt through this hole and add a washer and locknut. Do not tighten any locknuts at this time.

NOTE: All bolt threads should be lubricated. A clean motor oil is recommended for steel bolts. See Notes below Table 1 for stainless steel fasteners.

Remove the disc pack alignment bolt if used. Now pivot the pack around until it lines up with the rest of the bolt holes in the hub. Install the rest of the bolts through the hub bolt holes, thin washer (if called for), disc pack, washer into the clearance hole of the center member flange, and add a locknut.

NOTE: When installing the thin 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 the end can be put through the center member flange bolt holes, thin washer (if called for), disc pack, washer into the clearance hole in the hub flange and add a locknut. The locknuts can be slightly tightened at this time

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TABLE 1 — Tightening Torques ★ & Alignment Values

COUPLING SIZE	A Diameter	N		Axial Capacity (in)	Thread Size ‡	Torque ft-lbs (in-lbs)	Alignment (TIR)	
		Min	Max				Angular	Parallel
50	2.00	.25	.255	± .023	6-40	(24)	.004	
62	2.44	.33	.335	± .028	10-32	(40)	.005	
75	2.69	.34	.345	± .032	10-31	(40)	.006	
100	3.22	.46	.47	± .038	12-28	(96)	.007	
125	3.84	.53	.54	± .046	1/4-28	(156)	.008	
162	4.34	.55	.56	± .036	1/4-28	(156)	.009	
200	5.44	.58	.59	± .036	5/16-24	25	.011	
226	5.81	.59	.60	± .036	5/16-24	25	.012	
262	6.69	.48	.49	± .043	3/8-24	34	.013	
312	7.81	.51	.52	± .051	7/16-20	60	.015	
350	8.69	.55	.56	± .056	1/2-20	95	.017	
375	9.69	.60	.62	± .062	9/16-18	130	.019	
425	10.50	.63	.65	± .067	5/8-18	175	.021	**.002" PER INCH OF "X" DIMENSION**
450	11.31	.79	.81	± .072	11/16-16	150 ✱	.023	
500T	12.88	.79	.81	± .082	3/4-16	190 ✱	.026	
550T	14.44	.92	.94	± .092	7/8-14	255 ✱	.029	
600T	16.00	.99	1.02	± .102	1-14	335 ✱	.032	
700T	18.25	1.22	1.25	± .115	1 1/8-12	425 ✱	.036	
750T	19.81	1.29	1.32	± .125	1 1/4-12	560 ✱	.040	
800T	21.50	1.33	1.36	± .136	1 3/8-12	740 ✱	.045	
850T	23.00	1.42	1.45	± .144	1 1/2-12	950 ✱	.046	
925	25.00	1.51	1.55	± .156	1 5/8-12	1350 ✱	.050	
1000	27.50	1.70	1.75	± .172	1 3/4-12	2350	.055	
1100	29.19	1.76	1.81	± .183	1 7/8-12	3000	.058	
1200	32.12	1.96	1.99	± .203	2 1/8-8	4000	.064	
1300	34.50	2.03	2.08	± .218	2 1/8-8	4000	.069	

★ These torque values are approximate for steel bolts with lubricated threads. The locknuts are prevailing torque type and some resistance will be felt. If galling is suspected, immediately stop and contact the Factory. Modification will be necessary for stainless steel. For stainless steel the tightening torque must be reduced to 60% of the values shown. Stainless steel bolt and locknut threads must also be liberally coated with molybdenum disulfide grease.

‡ Bolts should be held from rotating while the locknuts are torqued to the values shown.

✱ These locknuts are cad plated.

TABLE 1A — Set Screw Tightening Torque

Setscrew Thread Size	Torque in-lb	Torque ft-lb	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

making sure that the washers are positioned on the ground body of the bolts. The disc pack when installed should look centered 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 "6C" above, install the second disc pack.

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

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

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

G. For further help with the installation or alignment, consult the Factory.

7. **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. Put the locknut on. 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 7A being sure to support the center member when taking out the last bolts. Remove the center member.

C. Replace parts as necessary. Recheck alignment per Section 5. Reassemble per Section 6.

8. **Replacement Parts** — See Table 2.

TABLE 2 — Part Numbers & Quantity Required

COUPLING SIZE	Hubs (No Bore)			Disc Pack (2 per Cplg)		Parts Kit ✱			Thin Washers			
	Steel	Zinc Plate	Stainless	Stainless	Tomaloy	Steel	Zinc Plate	Stainless	Steel	Zinc Plate	Stainless	Qty
	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	
50	514402	714402	. . .	910492	710492	. . .	. . .	. . .				
62	114413	514413	. . .	710601	510601	. . .	. . .	. . .				
75	814424	. . .	. . .	910523	710523	. . .	. . .	. . .				
100	216105	416105	716242	310619	810619	816321	716322	716323	**HUBS ARE SUPPLIED WITH BUSHINGS PRESSED IN PLACE ON THESE SIZES.**			
125	816107	016107	626282	310618	910618	016321	816322	816323				
162	216132	416132	316132	310663	710663	116321	916322	916323				
200	816132	016133	916133	810664	610664	216321	016322	016323				
226	416134	616134	516134	610984	210984	316321	116322	116323				
262	526624	726624	626624	210985	010985	416321	216322	216323	014762	511399	411399	16
312	426630	626630	526630	210957	010957	516321	316322	316323	017142	211674	111674	16
350	526636	626636	004968	010952	810952	616321	416322	416323	019099	111767	011767	16
375	026642	126642	003320	610943	410943	011966	516322	516323	019101	511677	411677	16
425	226648	326648	003325	010986	810986	001967	616322	616323	019102	003752	811850	16
450	326654	426654	003330	410987	210987	001968	011967	001970	711655	911655	811655	16
500T	834415	010196	. . .	620735	420735	. . .	. . .	. . .	711460	811460	007363	32
550T	034416	. . .	. . .	310962	110962	. . .	. . .	. . .	311750	511750	411750	32
600T	234417	. . .	. . .	910959	710959	. . .	. . .	. . .	612127	712127	. . .	32
700T	434418	. . .	. . .	420803	031285	. . .	. . .	. . .	511413	611413	. . .	32
750T	003126	. . .	. . .	921021	721021	. . .	. . .	. . .	111803	211803	. . .	32
800T	. . .	. . .	. . .	220851	031285	. . .	. . .	. . .	911800	011800	. . .	32
850T	. . .	. . .	. . .	020793	820793	. . .	. . .	. . .	611402	013648	. . .	32
925	. . .	. . .	. . .	020958	031287	. . .	. . .	. . .	812176	. . .	. . .	32
1000	. . .	. . .	. . .	721034	. . .	. . .	. . .	. . .	005594	. . .	. . .	32
1100	. . .	. . .	. . .	421151	. . .	. . .	. . .	. . .	006113	. . .	. . .	32
1200	. . .	. . .	. . .	521630	. . .	. . .	. . .	. . .	567444	. . .	. . .	32
1300	. . .	. . .	. . .	411734	. . .	. . .	. . .	. . .	010353	. . .	. . .	32

✱ Parts kit consists of bolts, thin washers, bevel washers, and locknuts for one coupling.

COUPLING SIZE	Bevel Washers				Bolts				Locknuts			
	Steel	Zinc Plate	Stainless	Qty	Steel	Zinc Plate	Stainless	Qty	Steel	Zinc Plate	Stainless	Qty
	Part No.	Part No.	Part No.		Part No.	Part No.	Part No.		Part No.	Part No.	Part No.	
50	**INTEGRAL WITH LOCKNUTS.**				210495	410495	. . .	8	711738	911738	. . .	8
62					010525	210525	110525	8	011739	211739	111739	8
75					010525	210525	110525	8	011739	211739	111739	8
100	511192	711192	611192	8	411161	611161	511161	8	516503	716503	616503	8
125	002161	002163	002162	8	510728	710728	610728	8	916504	116504	016504	8
162	002161	002163	002162	12	510728	710728	610728	12	916504	116504	016504	12
200	002170	002171	211205	12	210721	410721	310721	12	316505	516505	416505	12
226	002170	002171	211205	16	210721	410721	310721	16	316505	516505	416505	16
262	002167	002169	022168	16	110717 †	110717	010717	16	716506	916506	816506	16
312	002165	002166	002565	16	910966 †	910966	002607	16	116507	316507	216507	16
350	019098	210967	110967	16	310968	510968	410968	16	516508	716508	616508	16
375	019100	010853	910853	16	210924	410924	310924	16	916509	116509	016509	16
425	910928	110928	010928	16	210929	410929	310929	16	316510	516510	416510	16
450	710916	910916	810916	16	010917	210917	110917	16	716511 ‡	916511	816511	16
500T	**NOT USED ON THESE SIZES.**				516095	616095	007362	16	116512 ‡	316512	216512	16
550T					716096	816096	. . .	16	039125 ‡	616514	007297	16
600T					916097	016097	. . .	16	020253 ‡	. . .	. . .	16
700T					116098	216098	. . .	16	020254 ‡	. . .	. . .	16
750T					316099	416099	. . .	16	020255 ‡	. . .	. . .	16
800T					616200	716200	. . .	16	020256 ‡	. . .	. . .	16
850T					816201	916201	. . .	16	035069 ‡	. . .	. . .	16
925					016202	. . .	. . .	16	568940 ‡	. . .	. . .	16
1000					005598	. . .	. . .	16	112543	. . .	. . .	16
1100					014349	. . .	. . .	16	212014	. . .	. . .	16
1200					007172	. . .	. . .	16	412015	. . .	. . .	16
1300					516700	. . .	. . .	16	412015	. . .	. . .	16

† Stocked only in zinc plate.
‡ These locknuts are cad plated.

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