SERIES 71 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 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.

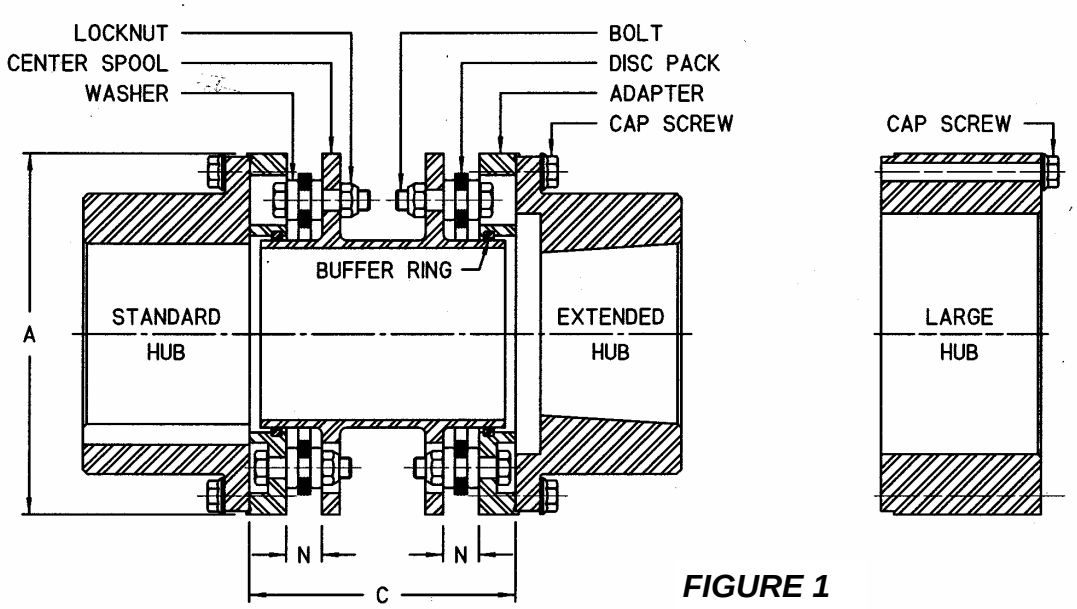

FIGURE 1

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, has a fully assembled center member consisting of a center spool, two adapters, disc packs, and hardware with the disc pack hardware factory-torques ready for field use. **We recommend that you do not disassemble the center member assembly of this coupling, unless you are replacing disc packs.** Examine the assembly to assure there is no visible damage. Remove the cap screws that attach the hubs to the adapters of the center member assembly and remove both hubs.

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 on 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.

C. Laser Alignment is an option. [If not available proceed with the 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 .002 inch per inch of coupling flange diameter. See 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 .002 inch per inch of the axial length between flex elements. See Table 1.

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 four times above shaft misalignment tolerances. However, close alignment at installation will provide longer service with smoother operation.

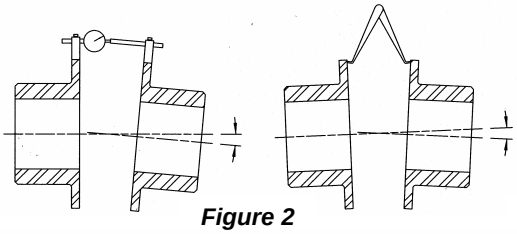

Figure 2

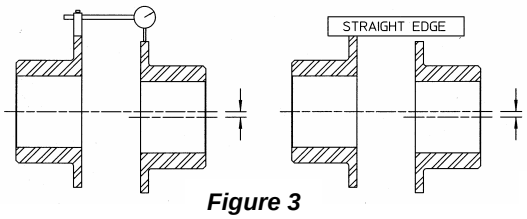

Figure 3

VI. Final Assembly: This coupling has a factory assembled center member assembly. **We recommend that you do not disassemble the center member assembly.**

A. The hubs are mounted and the correct "C" dimension set. The free length of the center member assembly will be greater than the mounting dimension "C", due to the hub-to-adapter piloting feature and must be compressed to allow it to be slipped down between the two hubs.

B. On sizes 150 thru 600, use the cap screws provided by inserting them from the center spool side and threading them into the adapter as shown in Figure 4. Compress both disc packs by tightening up each cap screw the same amount. **Be careful to compress both ends equally and only enough to allow the center member to fit between the hubs.**

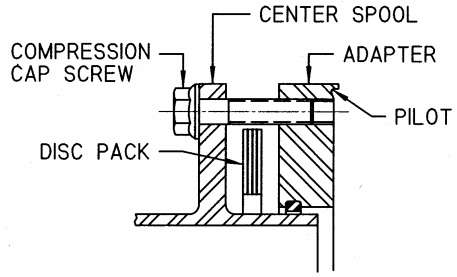

Figure 4

C. Make sure that the adapter pilots and the hub flange faces are free from foreign material, nicks and burrs to allow for proper pilot seating. Place the compressed center member between coupling hubs, lining up the tapered holes in the adapter with the holes in the hub. If the coupling was assembly balanced, also align the match marks. Remove the center member compression cap screws, allowing the pilots to engage with the flange O.D. of the coupling hubs.

Now insert the cap screw provided through the hub flange and into the mating threaded hole in the adapter.

D. On sizes 712 thru 1038, special cap screws are provided to compress the center member assembly. Using these special cap screws proceed with section VI. C

NOTE: All bolt threads should be lubricated. A clean motor oil is recommended. Tighten each capscrew to the required torque as listed in Table 1.

NOTE: Make sure all the compression cap screws are removed from center assembly.

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

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

NOTE: The Series 71 center members are factory-torqued by Rexnord. On center members where the spacer lengths are short and wrench access is tight, special wrenches are used to tighten the locknuts. Consult Rexnord for assistance in obtaining special wrenches.

A. Remove the center member assembly by removing all cap screws, compressing center member assembly, (as described in Sect. VI) and dropping it out from between the hubs. There are jacking screw holes in each hub to help free the pilot between hub and adapter. Take the assembly to your repair shop.

B. Remove all locknuts, bolts, washers, and disc packs. Special wrenches may be required. Clean up the two adapters and the center spool, removing any nicks or burrs (See Figure 1). Replace buffer ring if needed. Install the new disc pack to the adapter first.

NOTE: The match marks must be in-line to retain balance.

Make sure to keep the discs flat and parallel to the mating flange while installing the bolts through the adapter, washers, disc pack, washers, and locknuts. **The bevel side of the washer should always be against the disc pack.** Make sure all the parts pilot on the body ground part of the bolt. The last bolt may be tight and require some light tapping, with a small hammer, on the head of the bolt to work the bolt through the pack lamination. Now mount the adapter and disc pack assembly to the center spool by installing the bolts through the washers, disc pack, washers, center spool flange, and locknuts. Make sure all the parts pilot on the body ground part of the bolt. The last bolt may also be tight and require help working it through the disk laminations.

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

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

COUPLING SIZE	"A" DIAMETER In	DIMENSION "N" In		AXIAL CAPACITY In	LOCKNUT			CAP SCREW			ALIGNMENT TOTAL INDICATOR READING	
		Min.	Max.		THREAD SIZE	TORQUE Ft-Lbs (In-Lbs)	TORQUE Nm	THREAD SIZE	TORQUE Ft-Lbs (In-Lbs)	TORQUE Nm	ANGULAR In	PARALLEL In
150	3.95	.48	.49	± .050	1/4 - 28 U. N. F.	(130)	15	1/4 - 20 U. N. F	(113)	13	.007	.002 PER INCH OF "C" DIMENSION
175	4.16	.49	.50	± .070	1/4 - 28 U. N. F.	(162)	18	1/4 - 20 U. N. F	(108)	12	.008	
225	4.94	.48	.49	± .075	1/4 - 28 U. N. F.	(162)	18	1/4 - 20 U. N. F	(108)	12	.010	
300	5.97	.59	.60	± .085	5/16 - 24 U. N. F.	25	34	1/4 - 20 U. N. F	(108)	12	.012	
350	6.75	.67	.69	± .090	3/8 - 24 U. N. F.	34	46	5/16 - 18 U. N. F.	18	24	.014	
375	7.62	.68	.70	± .095	7/16 - 20 U. N. F.	60	81	5/16 - 18 U. N. F.	18	24	.015	
412	8.00	.84	.86	± .110	1/2 - 20 U. N. F.	80	108	5/16 - 18 U. N. F.	18	24	.016	
462	9.00	.92	.94	± .120	9/16 - 18 U. N. F.	130	176	3/8 - 16 U. N. F.	33	45	.018	
512	10.03	.92	.94	± .130	5/8 - 18 U. N. F.	175	237	7/16 - 14 U. N. F.	52	71	.020	
562	10.97	1.01	1.03	± .145	3/4 - 16 U. N. F.	190*	258*	1/2 - 13 U. N. F.	80	108	.022	
600	11.72	1.21	1.24	± .160	3/4 - 16 U. N. F.	190*	258*	1/2 - 13 U. N. F.	80	108	.024	
712	13.88	.79	.82	± .082	3/4 - 16 U. N. F.	190*	258*	5/8 - 18 U. N. F.	95	129	.028	
800	15.56	.92	.95	± .092	7/8 - 14 U. N. F.	255*	346*	3/4 - 16 U. N. F.	165	224	.031	
875	17.12	.98	1.01	± .102	1-14 U. N. F.	335*	454*	7/8 - 14 U. N. F.	270	366	.034	
1038	19.75	1.20	1.23	± .115	1-1/8 - 12 U. N. F.	425*	576*	7/8 - 14 U. N. F.	270	366	.039	

COUPLING SIZE	CAP SCREWS FOR COMPRESSION ONLY
712	5/16-18 UNC X 2.00 Lg. HHCS
800	3/8-16 UNC X 2.50 Lg. HHCS
875	3/8-16 UNC X 2.50 Lg. HHCS
1038	1/2-13 UNC X 3.00 Lg. HHCS

NOTE:

1. **These torque values are approximate for steel bolts with lubricated threads.**
2. **Bolts should be held from rotating while the locknuts are tightened to the values shown.**
3. *** These locknuts are cad plated.**

TABLE 1A SET SCREW TIGHTENING TORQUE

SetScrew Thread Size In	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

C. Slightly tighten all locknuts making sure the pack is not distorted and all the bolts are fully seated. Now tighten each locknut to the torque values shown in table 1.

D. Proceed to install the center member assembly as outlined in section VI.

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

VIII. For spare replacement parts, see Table 2.

TABLE 2– Part Number and Quantity Required

SIZE OF SERIES 71 CPLG.	HUBS		CENTER MEMBER ASSEMBLY (1/cplg.)		STAIN-LESS DISC PK (2/cplg.)	PARTS KIT CONSISTS OF BOLTS, LOCKNUTS, WASHERS CAP SCREWS, AND BUFFER RINGS FOR ONE COUPLING								
	STD	EXTEN-DED				PARTS KIT	BOLTS		LOCKNUTS		WASHERS		CAP SCREWS	
	PART NO.	PART NO.	PART NO.	PART NO	PART NO	PART NO.	PART NO.	QTY	PART NO.	QTY	PART NO.	QTY	PART NO.	QTY
150	019899	019898	018743 018744 018745	3.50 4.38 5.00	020860	918484	917791	8	916504	8	002161	16	021605	8
175	529376	829597	738217 838217 938217	3.50 4.38 5.00	417769	918484	917791	8	916504	8	002161	16	021605	8
225	29319	929598	003188 0038218 138218 238218	3.50 5.00 5.50 7.00	529287	018484	917791	12	916504	12	002161	24	021605	6
300	729380	029599	338219 438219 538219	5.00 5.50 7.00	729288	118484	917831	12	316505	12	017146	24	021605	12
350	007634	007432	007653 007654 007204	5.00 5.50 7.00	007208	007416	007209	12	716506	12	007210	24	021606	12
375	229322	129600	638220 738220 838220	5.00 5.50 7.00	929289	218484	117793	12	116507	12	717789	24	021606	12
412	029394	229601	938221	7.00	129290	318484	017844	12	516508	12	817789	24	021606	12
462	429326	329602	238222 003236 438222	7.00 7.50 8.00	529292	418484	217795	12	916509	12	917789	24	021607	12
512	129403	429603	638223 003249	7.00 8.00	729293	518484	117847	12	316510	12	017789	24	020790	12
562	329406	529604	003255	8.00	329291	618484	217849	12	116512*	12	117789	24	021608	12
600	529417	003263	003268	8.00	929294	718484	517853	12	116512*	12	617902	24	021608	12
712	017490	—	—	9.38	620735	—	516095	16	116512*	16	711460	32	017492	16
800	017493	—	—	10.88	310962	—	716096	16	039125*	16	311750	32	017879	16
875	017495	—	—	12.00	910959	—	916097	16	020253*	16	612127	32	017880	16
1039	017497	—	—	14.00	420803	—	116098	16	020254*	16	511413	32	017880	16

COUPLING SIZE	CAP SCREWS FOR COMPRESSION ONLY	
	PART NO.	QTY.
712	018108	8
800	031326	8
875	031326	8
1038	031327	8

* These locknuts are cad plated.