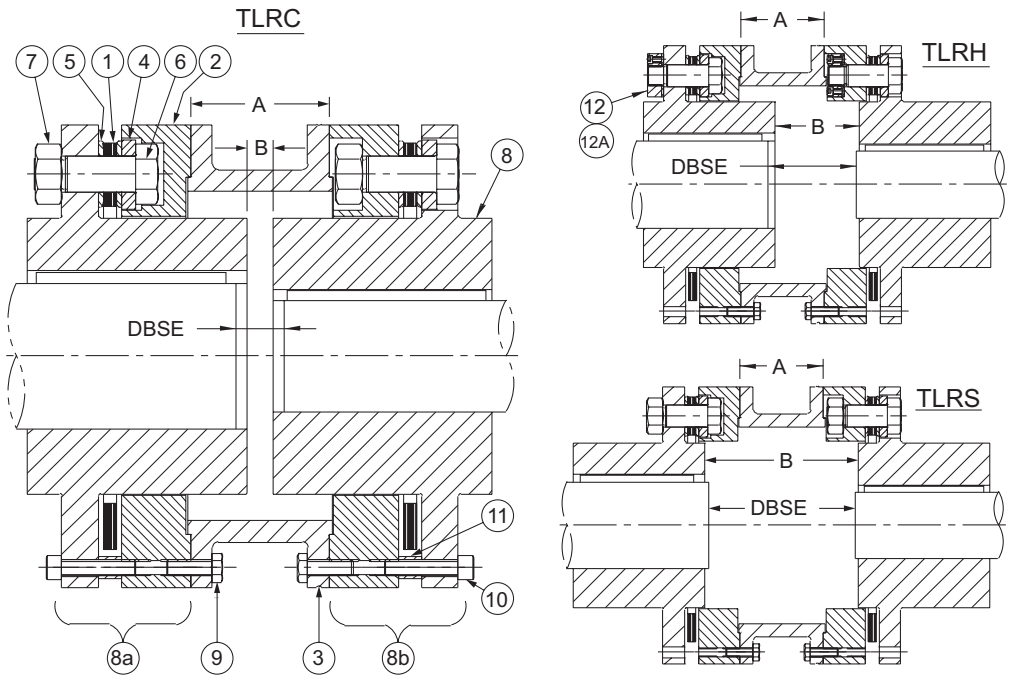
TLR

T SERIES CLOSE COUPLED COUPLING

Fitting & Maintenance Instructions

FIGURE 1. TLR Coupling Arrangements

1 – Membrane pack
2 – Guard ring
3 – Axially split spacer
4 – Overload collar
5 – Membrane pack washer
6 – Drive bolt
7 – Drive-bolt lock nut (ISO)
8 – Hub
8a – Hub unit
8b – Hub unit
9 – Stripper bolt (hexagon head)
10 – Compression / gagging screw
11 – Gagging sleeve
12 – Titan nut (optional alternative to 7)
12a – Thrust ring for Titan nut



The TLR split spacer length is fixed. Positioning the hubs on the shafts accommodates the variation in shaft-end separation (DBSE). Hubs or shafts may overhang or be machined, as convenient. Refer to Figure 1 for the three TLR arrangements and Table 1 for minimum hub engagement lengths.

Each hub unit (ref. 8a and 8b) consists of the following components: 1 membrane pack, 1 hub, 1 guard ring, 8 overload collars, 16 pack washers, 8 drive bolts and 8 nuts (with thread lock to prevent loosening).

Gagging sleeves and screws (ref. 10 and 11) must only be used when the hub unit is being machined. The same screws (without gagging sleeves) are also used to compress the membrane pack when installing the split spacer.

NOTE: *Larger couplings (TLR-4200 and above) may be fitted with Titan nuts (ref. 12) which replace the drive bolt lock nut (ref. 7). Refer to Table 1 for the Titan nut-tightening torques.*

Foreword

These instructions are provided to familiarize the user with the coupling and its designated use. These instructions must be read and applied whenever work is carried out on the coupling and must be kept available for future reference.

ATTENTION These instructions are for the fitting, operation and maintenance of the coupling as used in rotating equipment and will help to avoid danger and increase reliability. The information required may change with other types of equipment or installation arrangements. These instructions must be read in conjunction with the instruction manuals for both the driver and driven machinery. If the coupling is to be used for an application other than that originally intended or outside the recommended performance limits, John Crane must be contacted before its installation and use.

Improper handling, installation or use of this coupling may affect any warranty. Contact John Crane for information as to exclusive product warranty and limitations of liability.

If questions or problems arise, contact your local John Crane sales/service engineer or the original equipment manufacturer as appropriate.

ATTENTION John Crane couplings are precision products and must be handled appropriately. Take particular care to avoid damage to spigots, mating faces, hub bores, keyways and membranes. Do not excessively compress the coupling membranes during assembly. Refer to Table 2 for compression limits 'X' (see Figure 3)

These instructions are written for standard catalogue products, generally designed in accordance with Figure 2.

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Safety Instructions

The following designations are used in the installation instructions to highlight instructions of particular importance.

IMPORTANT used for items of particular concern when using the coupling.

ATTENTION where there is an obligation or prohibition concerning the avoidance of risk.

where there is an obligation or prohibition concerning harm to people or damage to the equipment.

IMPORTANT All reasonable care has been taken in the design and manufacture of this coupling to ensure that it will be safe when properly used. It is assumed that the USER is aware of the statutory requirements of his plant.

ATTENTION When repairing John Crane's Metastream flexible disc couplings, only John Crane approved parts should be used.

Maintenance work must only be carried out
- **When the equipment is stationary and has been made safe**
- **By suitably trained and qualified personnel**

Prior to installing the coupling, ensure that the machinery is made safe.

Hub units must be adequately supported during installation to avoid accidental damage should they slip.

The split spacer must be adequately supported during installation or removal to avoid accidental damage should it slip.

ATTENTION Before starting the machinery, ensure that all necessary safety procedures are being observed.

IMPORTANT These instructions are of a general nature, if a general arrangement drawing (GA) is supplied with the coupling, then all data indicated on that drawing takes precedence over information included in these instructions.

The usual extent of supply

An assembled coupling comprising of (see Figure 1):

- 1 hub unit for the driving machine shaft - item 8a
- 1 hub unit for the driven machine shaft - item 8b
- An axially-split, two-part spacer (distance piece) - item 3
- Metric hexagon head stripper bolts (ref. 9) to assemble the split spacer between the two hub units. Refer to Table 2 for stripper bolt quantities.
- 8 metric socket cap head compression/gagging screws (ref. 10). Screw heads painted RED for identification.
- 8 gagging sleeves (ref. 11)

Storage

If the coupling is not to be used immediately, it should be stored indoors away from direct heat in its original packing.

All documentation supplied with the coupling should be retained for future reference.

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Spares

When requesting spares, always quote the full designation of the coupling.

The following spares can be purchased from John Crane:

- Stripper bolt set (Hexagon headed bolts - ref. 9)
- Compression/gagging screw-set (8 socket head cap screws - ref. 10)
- Gagging sleeve-set (8 - ref. 11)
- Membrane pack with fixings (C-KIT ref. 1, 4, 5, 6, 7)
- Membrane pack only (B-KIT ref. 1)

Installation

Remove the coupling from packaging and carefully inspect for signs of damage. Pay particular attention to the hub bores and the spigot/recess location features, which should be free from burrs and other damage.

Machining hub units

Machining hub bores

John Crane recommend a light-interference fit for keyed hubs and shafts (e.g. P7/h6 fit). The finished bore can be calculated from the measured shaft diameter.

When setting up the hub unit for machining, use the hub flange OD and hub face as datum surfaces. The hub face and OD should be set such that the maximum TIR does not exceed 0.05 mm. It is recommended that the hub unit be fully gagged before any machining. Fit the 4 gagging sleeves (ref. 11) and gagging screws (ref. 10) and tighten each screw snug (refer to Figure 1). Always grip the hub (not the guard ring) for all machining operations. Clean off all oil and debris after machining.

Machining hub length

If required, the hubs can be machined to be flush with the shaft ends as illustrated in Figure 2. Table 1 gives the minimum/maximum limits for hub length for each TLR option.

FIGURE 2

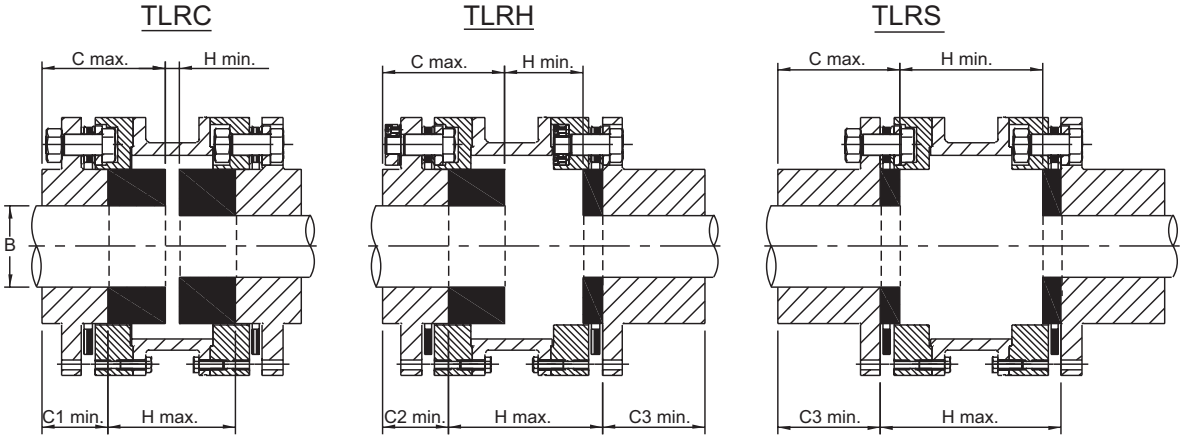

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TABLE 1

Coupling	Tightening Torque				Bore	Hub Length				Distance Between Hubs (DBH)					
					B**	C	C1	C2	C3	H					
	Drive Bolt Fig. 1, ref. 6 and 7		Drive Bolt Fig. 1, ref. 6 and 12		TLRC TLRH TLRS	TLRC TLRH TLRS	TLRC	TLRH	TLRH TLRS	TLRC		TLRH		TLRS	
					Max	Max*	min	min	min	min	max	min	max	min	max
TLR-	—	Nm	—	Nm	Ø mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
0210	M12	65	—	—	60	80	61.5	58.5	64.5	5	42	42.1	79	79.1	110
0350	M14	105	—	—	75	92	71.5	69.5	73.5	5	46	46.1	87	87.1	124
0530	M16	160	—	—	85	103	78	71.5	84.5	5	55	55.1	105	105.1	142
0750	M18	225	—	—	100	117	91	88.5	93.5	7	59	59.1	111	111.1	158
1000	M20	305	—	—	110	127	97	90.5	103.5	7	67	67.1	127	127.1	174
1400	M22	425	—	—	120	139	104	92.5	115.5	7	77	77.1	147	147.1	194
1850	M24	525	—	—	130	150	112.5	100.5	124.5	7	82	82.1	157	157.1	208
2400	M26	525	—	—	145	159	115.5	95	136	7	94	94.1	181	181.1	227
3000	M28	785	—	—	155	177	132	116.5	147.5	9	99	99.1	189	189.1	248
4200	M32	1095	M8	35	175	190	141	122	160	9	107	107.1	205	205.1	265
6000	M36	1860	M10	65	190	211	153.5	126	181	9	124	124.1	239	239.1	299
9009	M41	2400	M10	65	220	229	167.5	138.5	196.5	9	132	132.1	255	255.1	320
9012	M45	3700	M12	120	235	249	184	156	212	11	141	141.1	271	271.1	345
9015	M48	4450	M12	120	260	269	197.5	165	230	11	154	154.1	297	297.1	375
9022	M58	7200	M14	180	315	312	231	196	266	11	173	173.1	335	335.1	427
9033	M64	10700	M16	280	340	345	257	221.5	292.5	11	187	187.1	363	363.1	468

* Standard hub length.

** Maximum bore B is for use with rectangular section keys and with hub lengths not less than C1
Maximum bore with square keys is 0.9xB
Maximum bore for TLRH hub with length between C2 and C1 is 0.9xB

Fitting the hub units

When the TLRC or TLRH coupling is installed for the first time, the driver or/and driven equipment will have to be moved to allow clearance for the hub units to be fitted to each shaft. Before moving the equipment, measure and record the distance between shaft ends (DBSE).

Ensure the hub bore and mating shaft are clean and free from burrs.

It is not necessary to disturb the hexagon-headed drive bolts (ref. 6 and 7), which have been pre-torqued and threadlocked at the factory/workshop.

The hub unit can be installed with the hub face and shaft end flush or with a hub face / shaft end offset to allow for variation in DBSE, which is different to the standard minimum 'H' listed in Table 1. Note that each option (TLRC TLRH TLRS) has a different standard minimum 'H'.

This axial position is particularly important when an interference fit is employed, because after fitting, the hub unit cannot be easily moved axially along the shaft.

Determine the correct hub axial position by measuring the distance between shaft ends (DBSE) of the driver and driven equipment. Determine the distance between hubs 'H' of the coupling. A simple quick solution is to assemble the coupling in the workshop, with one spacer half (without gags) then measure the distance between hub ends. If the distance is the same, then the hubs must be fitted flush with the shaft ends. If the shaft end distance is larger, then divide the difference by 2 to obtain the length by which the hubs must overhang the shaft ends.

For example: For a TLRC-0210 coupling (close coupled)

The standard minimum distance between hub ends 'H' = 5 mm. (Table 1)
Say the motor to gearbox distance between shaft ends (DBSE) = 25 mm.
25 mm (DBSE) – 5 mm (H) = 20 mm/2 = 10 mm hub overhang.

10 mm overhang for the motor hub and 10 mm overhang for the gearbox hub. If required both hubs can be machined back 10 mm to fit flush with the shaft ends (see Figure 2). Refer to Table 1 and Figure 2 for the hub maximum bores, and minimum hub lengths for the 3 TLR options (TLRC, TLRH, TLRS).

Parallel bore with key

Measure the shaft diameter and hub bore to confirm the correct fit.

For clearance fits, install the key(s) into the shaft keyway and with a little lubrication on the shaft, slide the hub unit onto the shaft. The key should be a tight sliding fit in the keyway with a small clearance at the top of the key. Secure the hub to the shaft in the correct axial position with one or more grub screws.

John Crane recommends a light interference fit for most applications, and it may be necessary to apply heat to assist fitting of such hub units. A warm oil bath or oven will usually be adequate. DO NOT use spot heat or exceed 175°C, as this may cause distortion. A thermal heat stick can be used to estimate the temperature before quickly sliding the hub unit onto the shaft. A suitable stop will ensure the correct axial position is located.

Taper bore with key

- Thoroughly clean all contact surfaces and smear the tapered surfaces with oil.
- Fit the hub onto the shaft without the key(s). Lightly hammer the hub with a soft-faced mallet to ensure metal-to-metal contact takes place.
- Measure the distance from the end of the shaft to the face of the hub using a depth micrometer (record this measurement).
- Securely mount a dial gauge onto the inboard hub flange and set to zero.
- If necessary, remove the hub and fit the key(s), which should be a tight sliding fit in the keyway with a small clearance at the top of the key.
- Refit the hub and draw up the shaft to the correct axial position indicated by the dial gauge. If an interference fit is required, the hub may have to be heated (this is rare, however).
- When the hub has cooled remeasure the distance from the end of the shaft to the face of the hub to confirm the correct axial position.
- Fit the shaft-end retaining nut if applicable to ensure the hub is locked in position axially.
  NOTE: *The hub face may not be flush with the shaft end when taper bores are used.*

Shaft alignment

Align the center lines of the driving and driven machine shafts as follows:

- Move the equipment into position
- Check for any soft foot. Correct before commencing alignment
- With one machine firmly bolted down, set the distance between guard rings (dim 'A' - Figure 1) to equal the split-spacer length flange to flange — refer to Table 2.

IMPORTANT Distance between guard rings should be measured with the membranes in the neutral position with the compression screws loose.

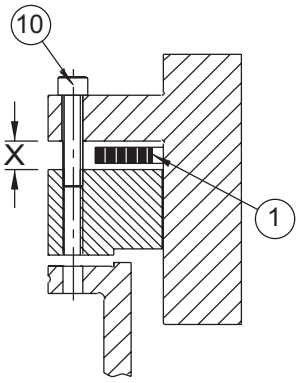
Align the shaft center lines both horizontally and vertically, ideally using the shafts. However, if access prohibits this then align using the hub bosses or flanges. John Crane recommends the reverse periphery method for accurate alignment. This can be done using dial gauges or with a laser shaft alignment kit. Further details on recommended laser alignment vendors are available from John Crane on request.

Recheck the distance between guard rings after the shafts have been aligned.

IMPORTANT The misalignment tolerances quoted in literature and on drawings, allow for dynamic conditions and variations. For the best service from the coupling, John Crane recommends that installed misalignment is no more than 10% of the maximum allowable misalignment, allowance being made for any anticipated movements which will occur during operation (e.g., thermal movements on hot pumps). Refer to Table 2 for maximum misalignments.

Installing the split spacer

FIGURE 3



1. Measure the spacer-gap distance 'A' between the guard ring faces — refer to Figure 1. Both membrane packs must be in the neutral position with all 8 compression screws loose (ref. 10).
2. Check length 'A' is equal to the split spacer length (refer to Table 2).
3. Using the 4 red-painted compression screws at each end, compress each membrane pack enough to allow the spacer halves to be slid into place. **Do not overcompress** — refer to Figure 3 and Table 2 for the **minimum gap 'X'**.
4. Insert both halves of the split spacer. **Note that each split spacer has two unique halves**. Spacer halves are tied together at the factory and must not be separated. The 3 mm flange groove must align on both spacer halves. Ensure that each spacer spigot has located into its respective guard ring recess and that spacer bolt holes align with the guard ring threaded holes.
5. Carefully release the compression screws and remove.
6. Install the full complement of stripper bolts at each end and evenly tighten to the torque given in Table 2. After tightening, check that the spacer flange is in full contact with the guard ring on either side of the spacer split.

7. Use a 16 mm spigot ended torque wrench with the correct A/F ring end or open-ended fitting to torque the stripper bolts. John Crane recommends Norbar Professional-type adjustable torque wrenches with Norbar open ended fittings (refer to Table 2 for the tool part codes). The Norbar website can be found at www.norbar.com
   NOTE: *The guard rings are tapped with a special thread that locks the stripper bolt in place when the final tightening torque is reached. No additional locking method is required.*

Store the compression/gagging screws and sleeves with this document for any future maintenance work.

TABLE 2

Coupling	Maximum Misalignments		Minimum Gap Compressed	Membrane Pack Thickness	Split Spacer Length	Stripper Bolts (hexagon head) 12.9 Strength (Fig. 1, ref. 9)				Stripper Bolt Tooling	
	Axial +/-	Parallel Offset	'X'			Quantity Per Coupling	Size	Tightening Torque		Norbar End Fitting Product Code	Norbar Torque-Wrench Product Code
	mm	mm	mm	mm	mm			Nm	A/F		
TLR-0210	1.4	0.6	9.0	4.19	44.6	20	M6	12	10	29844	15062
TLR-0350	1.7	0.7	9.3	5.02	51.0	20	M8	30	13	29847	15062
TLR-0530	1.9	0.8	10.0	5.72	59.6	20	M8	30	13	29847	15062
TLR-0750	2.2	0.8	10.8	6.48	66.1	20	M10	55	17	29851	15063
TLR-1000	2.4	0.9	11.8	7.24	72.9	20	M10	55	17	29851	15063
TLR-1400	2.7	1.0	13.1	8.00	81.8	20	M10	55	17	29851	15063
TLR-1850	3	1.1	14.5	8.76	87.1	20	M12	100	19	29877	15063
TLR-2400	3.2	1.2	14.9	9.53	91.2	20	M12	100	19	29877	15063
TLR-3000	3.5	1.3	15.9	10.29	100.2	20	M14	150	22	29854	15064
TLR-4200	3.9	1.4	17.4	11.43	102.1	20	M14	150	22	29854	15064
TLR-6000	4.4	1.6	19.9	12.95	111.3	20	M16	235	24	29856	15065
TLR-9009	5	1.7	23.6	14.86	110.9	32	M16	235	24	29856	15065
TLR-9012	5.5	1.8	26.1	16.00	112.8	32	M16	235	24	29856	15065
TLR-9015	6	2.0	28.4	17.53	124.2	32	M16	235	24	29856	15065
TLR-9022	7.1	2.2	35.5	20.96	128.1	64	M16	235	24	29856	15065
TLR-9033	7.9	2.4	39.5	23.24	136.9	64	M16	235	24	29856	15065

NOTES:

Data given on general arrangement (GA) drawings, if supplied, takes precedence.

Maximum axial misalignment values are for the complete coupling (both membrane packs).

Maximum parallel offset assumes a 1/3 degree angular misalignment on both membrane packs.

John Crane recommends that final alignment limit is 10% of the maximum allowable misalignment.

Overhauling the Hub Unit in SITU

The spacer (ref. 3) is in two halves, split axially.

1. Slacken all the hexagon-headed stripper bolts (ref. 9) at each end and back off by 3 mm.
2. Using 4 red-painted compression screws at each end, compress each membrane pack. Do not overcompress – refer to Figure 3 & Table 2 for minimum gap 'X'.
   - Select one half spacer and remove the stripper bolts from each end.
   - Disengage the spigots and remove the half spacer.
   - Repeat for the second half spacer.
   - Tape the halves together and retain as a matched pair. **Mixing spacer halves may result in premature failure of the coupling.**
3. Release the compression screws and remove.

Overhauling the Hub Unit in SITU (continued)

4a. **For hub units with standard ISO nuts (ref. 7)** Loosen and remove the 4 hexagon drive bolts/washers/collars (Figure 4) that secure the guard ring to the membrane pack. Remove or slide the guard ring onto the opposite hub boss. Loosen and remove the 4 hexagon drive bolts/washers/collars that secure the hub to the membrane pack. Remove the membranes. Inspect the drive bolts and fixings for any sign of damage/corrosion. Replace as a set if required. Repeat for the second hub unit. It is essential that both membrane packs are replaced if they have been in service for a long period, as fatigue damage is not always evident. Refer to the section on spares.

4b. **For hub units with Titan nuts – TLR-4200 size and above (Figure 1, ref. 12)** Loosen and remove the 6 socket-headed cap screws in all 4 Titan nuts that secure the guard ring to the membrane pack. Use a suitable lever and 2 long bolts to screw off each Titan nut. Remove the 4 hexagon drive bolts/washers/collars (Figure 5). Remove or slide the guard ring onto the opposite hub boss. Repeat for the 4 hexagon drive bolts/washers/collars that secure the hub to the membrane pack. Remove the membranes. Inspect the drive bolts and fixings for any sign of damage/corrosion. Replace as a set if required. Repeat for the second hub unit. It is essential that both membrane packs are replaced if they have been in service for a long period, as fatigue damage is not always evident. Refer to the section on spares.
NOTE: *The driver or driven equipment may need to be moved to replace the membranes for equipment with a very short DBSE (TLRC-4200 size and above)*

5. Inspect the split spacer for corrosion or damage, inspect the stripper bolts (ref. 9) and replace as a set if necessary. It is highly recommended that the alignment is checked and adjusted as necessary before installing the split spacer. Refer to the section headed Installing The Split Spacer.
NOTE: *The hub units for the TLRC and TLRH can only be removed after moving one or both machines.*

Assembling the Hub Unit

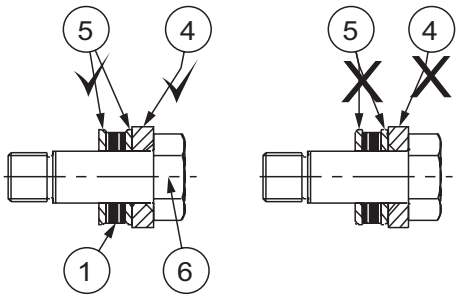
1. From Figure 1, identify the following:
   - 1 hub (ref. 8)
   - 8 drive bolts (ref. 6)
   - 8 nuts (ref. 7 or ref. 12)
   - 8 overload collars (ref. 4)
   - 16 pack washers (ref. 5)
   - 1 guard ring (ref. 2)
   - 1 membrane pack (ref. 1)

Check the pack thickness from Table 2.

2. If the drive bolts and fixings are being reused, thoroughly clean the threads and surfaces before assembly.

FIGURE 4

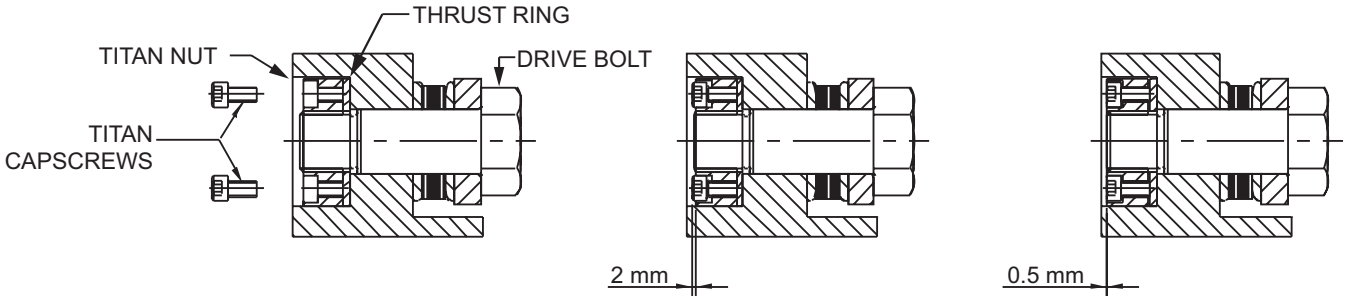
1 – Membrane pack
4 – Overload collar
5 – Membrane pack washer
6 – Drive bolt



ATTENTION Ensure the profiled radii of the pack washers (ref. 5) are in contact with the outer membranes. Check the overload collar (ref. 4) hole chamfer faces the drive bolt head (see Figure 4). Failure to do this may result in premature failure of the coupling.

3. Fit 4 hexagon bolts/washers/collars as shown in Figure 4 into the membrane pack, 90° apart. Align the bolts into the 4 bolt holes of the hub flange which will face the guard ring. Hub orientation will depend on the coupling designation - TLRC TLRH or TLRS (see Figure 1).
4. Lightly and evenly tap the 4 bolts into place with a soft-faced mallet. Take special care not to over stretch or damage the membranes
5. Fitting the locknuts
   - **For hub units with standard ISO nuts (ref. 7)**
     Apply thread locking adhesive (for example Locktite 270) to the bolt threads and, taking care NOT to turn the bolts[1], tighten the nuts evenly to the correct DRIVE BOLT tightening torque value as specified in Table 1 (ref. 6 and 7).
   - **For hub units with Titan nuts (ref. 12)**
6. Fit the remaining 4 hexagon bolts/washers/collars into the membrane pack from the opposite direction. Fit the guard ring over the hub boss with the split-spacer interface facing away from the hub flange. Support the guard ring with wooden blocks and lightly and evenly tap the 4 bolts into place with a soft-faced mallet. Take special care not to over stretch or damage the membranes. Fit the remaining nuts as before.

Assembling the hub unit (continued)



Fit the thrust ring onto the drive bolt thread. Apply thread locking adhesive (for example Locktite 270) onto the drive bolt thread.

Screw the Titan nut onto the drivebolt and tighten to approximately 300 Nm. Improvise using a suitable lever and 2 long bolts.

Apply oil to each thread then screw the 6 Titan cap screws into each Titan nut until each screw contacts the thrust ring.

Check that every head protrudes approximately 2 mm above the Titan nut face.

Tighten the cap screws in a cross pattern at 25%, 50%, 75% and finally 100% of the recommended tightening torque.

Check that every head protrudes a minimum of 0.5 mm above the Titan nut face. Repeat for each Titan nut.

[1] Do not rotate the bolts. This will distort the membranes and reduce coupling life.

Operation, Inspection and Maintenance

Routine examination should include a periodic check on the tightness of fasteners and visual inspection of transmission components, particularly the membranes, for signs of fatigue or wear.

If the coupled machinery is disturbed at any time, shaft alignment should be rechecked. Alignment checking is recommended if a deterioration of installation alignment during service is suspected.

Failures are rare and can generally be attributed to excessive misalignment or / and severe torsional overload. In all cases of coupling failure, the cause should be identified and corrected before replacing the coupling.

This section refers to couplings that bear the CE and ATEX required markings:

CE / ATEX Marking

All couplings that comply with CE and ATEX legislation will be marked as shown. This will be etched on the spacer element of the transmission unit if enough room is available.

A) Ambient temperature is standard (40ºC max)

CE Ex I $M2_C$ Ex II $2GD_C$ T6 (T85°C) john crane SL1 4LU, UK. XX

Where John Crane's Metastream metal membrane couplings are required for use in higher ambient temperatures, John Crane UK Ltd certifies that the equipment complies with the temperature classification range listed below in Table 3, and in all other respects complies with the type certificates.

TABLE 3

Ambient Range Marking		Group II, Category 2 GD **	Group I, Category 2 M2	Marking Option
Min.	Max.			
Unknown		T3 (T200°C)	Not Applicable	B
-55°C <	Ta < 150°C	T3 (T200°C)	Not Applicable	B
-55°C <	Ta < 90°C	T4 (T135°C)	150°C	C
-55°C <	Ta < 55°C	T5 (T100°C)	150°C	C
-55°C <	Ta < 40°C	T6 (T85°C)	150°C	A

B) Ambient temperature is (-55°C < Ta < 150ºC) OR ambient temperature is unspecified, the equipment is not suitable for mining applications, Group I, Category 2.

CE Ex II $2GD_C$ T3 (T200°C) john crane SL1 4LU, UK. XX

C) Ambient temperature is (-55°C < Ta < 90ºC)

When the ambient temp. is specified, 'T3' is replaced by the following 'T' mark (**) according to Table 3.

CE Ex I $M2_C$ Ex II $2GD_C$ ** john crane SL1 4LU, UK. XX

NOTE:

'XX' is the year of manufacture and will change. For example, for year 2016; XX = 16.
CE and EX marks must meet requirements of Annex II in Reg. (EC) No. 765/2008 and Annex II in Dir. 84/47/EEC respectively.

Operation in aggressive atmospheres

The following components contain non-metallic materials. Confirm compatibility or provide suitable protection if the coupling is to operate in an aggressive atmosphere.

- The hub electrical insulation (if supplied option) – reinforced thermosetting plastic
- Limited end float bearings (if supplied option) – PTFE based plastic

Temperature classification of John Crane's Metastream couplings

John Crane's Metastream metal membrane couplings, supplied in conformance with Directive 2014/34/EU, have to meet the classifications specified in Table 3 when used in accordance with instructions and information supplied.

T, L and H series couplings, using the disk type flexible elements, are covered by type examination certificate **Sira 02ATEX9403**.

M series couplings, using the diaphragm type flexible elements, are covered by type examination certificate **Sira 02ATEX9404**.

John Crane UK Ltd
361-366 Buckingham Avenue
Slough
SL1 4LU
United Kingdom
T: +44 (0) 1753 224 000
F: +44 (0) 1753 224 224
www.johncrane.com

Declaration of Conformity

EEC Directive 2014/34/EU of 26.02.2014
and resultant legislation and standards

We, the manufacturers – John Crane UK Ltd, – confirm that the explosion prevention requirements have been implemented for

Metastream® metal-membrane couplings

Equipment complies with the requirements of directive 2014/34/EU. It is in accordance with article 1 3. (a) of the directive and the fundamental Health and Safety requirements of Annex II, are fulfilled.

The current Type Examination Certificates for the couplings are:-

'T', 'L' & 'H' Series -	Sira 02ATEX9403
'M' Series -	Sira 02ATEX9404

The technical documentation is deposited with the designated notified body in accordance with article 13 (b) (ii) of the Directive 2014/34/EU.

SIRA Certification Services
Unit 6, Hawarden Industrial Park
Hawarden, Chester, CH5 3US
United Kingdom

Signed: 

Date: 20th July 2016

S. Pennington
(Engineering Manager - Couplings)

John Crane UK Ltd
361-366 Buckingham Avenue
Slough
SL1 4LU
United Kingdom
T: +44 (0) 1753 224 000
F: +44 (0) 1753 224 224
www.johncrane.com

Declaration of Incorporation

E.C. Machinery Directive (2006/42/EC)

Section 1.0 - Machinery Description:
Flexible Power Transmission Ring and Diaphragm Form Membrane Couplings
Types:

'H', 'T', 'L' & 'M' Series

Section 2.0 - Applicable Harmonised Standards
ISO13709 (API 610) for centrifugal pumps
ISO14691 couplings for - General-purpose applications
ISO10441 (API 671) (opt) couplings for - Special-purpose applications

Section 3.0 - Declaration:
We, John Crane declare that under our sole responsibility for the supply of the machinery defined in Section 1.0 above, the said machinery parts are intended to be incorporated into other machinery or assembled with other machinery to constitute machinery as covered by this Directive.

The machinery parts, covered by this declaration must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the Directive.

Signed: 

Date: 20th July 2016

S. Pennington
(Engineering Manager - Couplings)

TLR

T SERIES CLOSE COUPLED COUPLING

Fitting & Maintenance Instructions

North America
United States of America
Tel: 1-847-967-2400
Fax: 1-847-967-3915

Europe
United Kingdom
Tel: 44-1753-224000
Fax: 44-1753-224224

Latin America
Brazil
Tel: 55-11-3371-2500
Fax: 55-11-3371-2599

Middle East & Africa
United Arab Emirates
Tel: 971-481-27800
Fax: 971-488-62830

Asia Pacific
Singapore
Tel: 65-6518-1800
Fax: 65-6518-1803