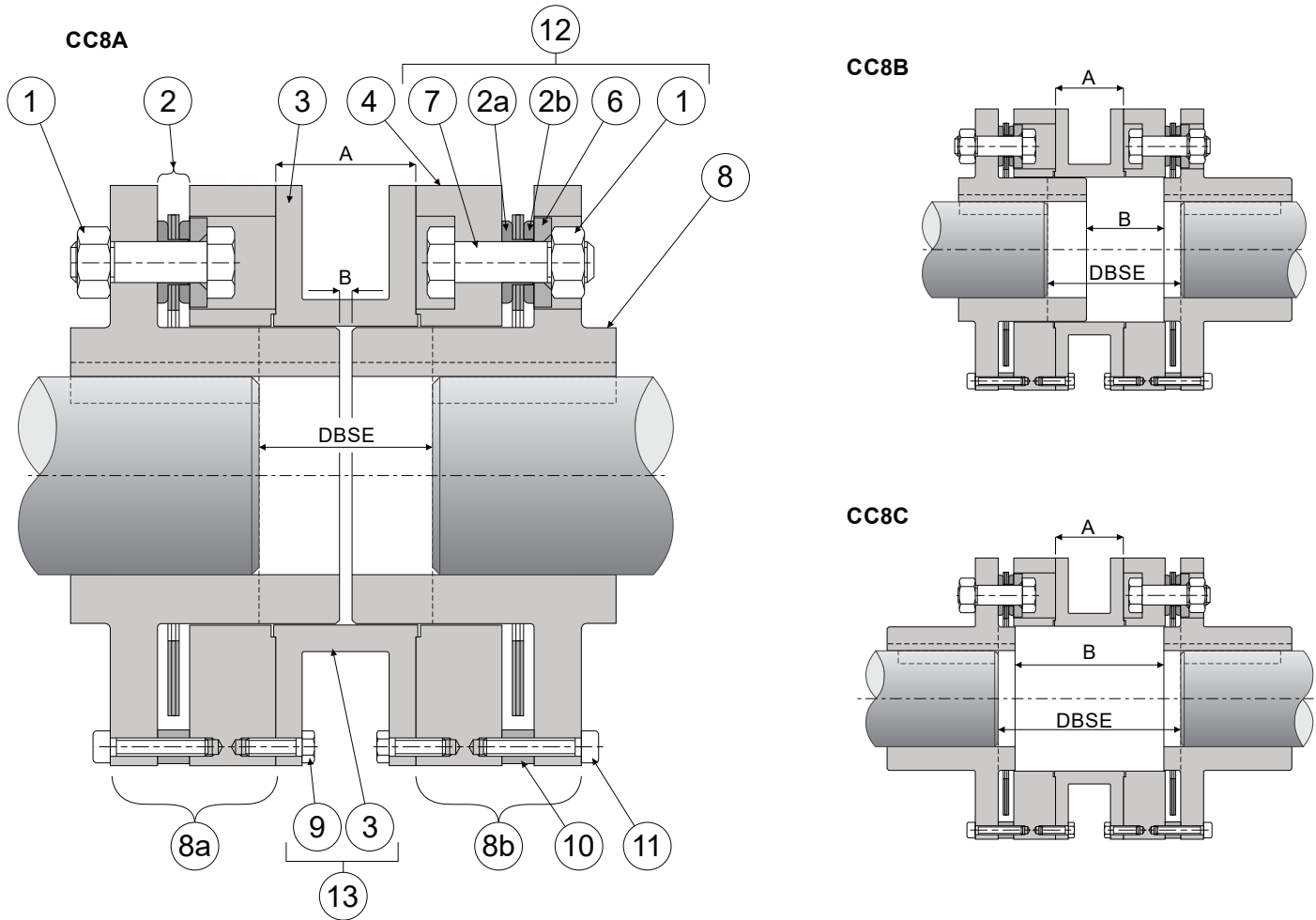




Figure 1 - CC8 Coupling Arrangement



**Item Index**

- 1 - Drive-bolt Lock Nut
- 2 - Membrane Pack
- 2a - Membrane Pack Sleeve
- 2b - Membrane Pack Washer
- 3 - Axially Split Spacer
- 4 - Guard Ring
- 6 - Overload Collar
- 7 - Drive Bolt
- 8 - Hub
- 8a & 8b - Hub Units
- 9 - Spacer Bolt
- 10 - Gagging Sleeve
- 11 - Compression / Gagging Screw
- 12 - Flexi-Kit
- 13 - Spacer Set with Bolts

The CC8 split spacer length is fixed. Positioning the hubs on the shafts accommodates the variation in shaft end separation. Hubs or shafts may overhang or be machined as convenient. Refer to [Figure 1](#) for the three CC8 arrangements and [Table 1](#) for minimum hub engagement lengths.

Each hub unit (ref. 8a and 8b) consists of the following components – 1-off membrane pack, 1-off hub, 1-off guard ring, 8-off overload collars, 8-off drive bolts, 8-off 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.

Each membrane pack consists of set of membranes, 8-off membrane pack sleeves, 8-off membrane pack washers. See Table 2 for membrane pack thickness (measured set of membranes only).

**Foreword**

These instructions are provided to familiarise 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, Depasco must be contacted before its installation and use.

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

#### ATTENTION

Depasco couplings are precision products and must be handled appropriately. Take particular care to avoid damage to spigots, 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.

#### 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 the plant.

#### ATTENTION

When repairing Depasco MetaFlex couplings, only Depasco 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 comprises of (See Figure 1):

- 1 off hub unit for the DRIVING machine shaft - item 8a .
- 1 off hub unit for the DRIVEN machine shaft - item 8b - \*Customer to specify required bore for driving and driven hubs. .
- An axially split, two part spacer (distance piece) - item 3
- Metric hexagon head Spacer Bolts (ref. 9) to assemble the split spacer between the two hub units.
- 8 off metric socket head cap compression/gagging screws (ref. 11).
- 8 off gagging sleeves (ref. 10)

#### Storage

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

#### Spares

When requesting spares always quote the full designation of the coupling

The following spares can be purchased from Depasco:

1. Spacer Bolt Set (Metric hexagon headed bolts - ref.9)
2. Compression/gagging screw-set (8-off socket headed cap screws - ref.11)
3. Gagging sleeve-set (8-off - ref.10)
4. Flexi Kit - (F-KIT ref.12)
5. Membrane pack only - (ref.2)

#### 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 - hub bore, keyway and hub length (if required)

- Depasco recommend a light interference fit for keyed hubs and shafts (e.g. H7/m6 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 0.05mm.
- It is recommended that the hub unit be fully gagged before any machining. Fit the 4-off gagging sleeves (ref 10) and gagging screws (ref 11) and tighten each screw snug (refer to figure 1). Note that the coupling spacer must be removed when machining the hub.
- Always grip the hub (not the guard ring) for all machining operations.

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 assembly option 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 CC8-279 coupling in Assembly "CC8A" configuration (close coupled);

The standard minimum distance between hub ends 'H' = 7mm. (Table 1)

If the motor to gearbox distance between shaft ends (DBSE) = 25mm.

$25\text{mm (DBSE)} - 7\text{mm (H)} = 18\text{mm}/2 = 9\text{mm hub overhang.}$

9mm overhang for the motor hub and 9mm overhang for the gearbox hub.

If required the hubs can be machined back 9mm to fit each hub flush with the shaft end.

Refer to Table 1 and Figure 2 for the hub maximum bores, and minimum hub lengths for the 3 assembly options

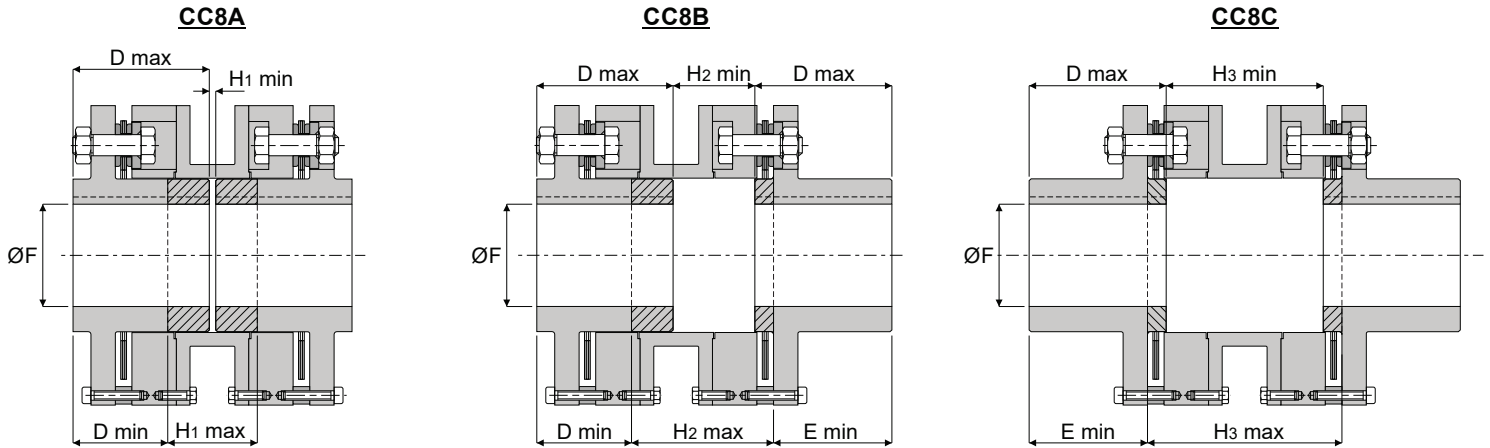
Clean off all oil and debris after machining.



**Machining hub units**

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 assembly option.

**Figure 2**



**Table 1**

Coupling Size	Max Bore ØF **	Drive Bolt Tightening Torque Nm	Distance Between Hubs						Hub Length		
			CC8A		CC8B		CC8C		D max *	D min	E min
			'A' Min	'A' Max	'B' Min	'B' Max	'C' Min	'C' Max			
148	60	65	5.0	42.0	42.1	76.0	79.1	110.0	80.0	61.5	64.5
178	75	105	5.0	46.0	46.1	85.0	87.1	124.0	92.0	71.5	73.5
202	85	160	5.0	55.0	55.1	98.5	105.0	142.0	103.0	78.0	84.5
228	100	225	7.0	59.0	59.1	108.5	111.0	158.0	117.0	91.0	93.5
255	110	305	7.0	67.0	67.1	120.0	127.0	174.0	127.0	97.0	104.0
279	120	425	7.0	77.0	77.1	135.0	147.0	194.0	139.0	104.0	116.0
309	130	525	7.0	82.0	82.1	144.5	157.0	208.0	150.0	112.5	125.0
333	145	525	7.0	94.0	94.1	160.5	181.0	227.0	159.0	115.5	136.0
362	155	785	9.0	99.0	99.1	173.0	189.0	248.0	177.0	132.0	148.0
408	175	1095	9.0	107.0	107.0	186.0	205.0	265.0	190.0	141.0	160.0
456	190	1860	9.0	124.0	124.0	211.5	239.0	299.0	211.0	153.5	181.0
518	220	2400	9.0	132.0	132.0	225.5	255.0	320.0	229.0	167.5	197.0
600	235	3700	11.0	141.0	141.1	243.0	271.1	345.0	249.0	184.0	212.0
642	260	4450	11.0	154.0	154.1	264.5	297.1	375.0	269.0	197.5	230.0
750	315	7200	11.0	173.0	173.1	300.0	335.1	427.0	312.0	231.0	266.0
823	340	10700	11.0	187.0	187.1	327.5	363.1	468.0	345.0	257.0	292.5

\* Standard hub length.

\*\* Maximum bore "F" is for use with rectangular section keys and with hub lengths not less than "D min"  
Maximum bore with square keys is 0.9 x "F"



#### **Fitting the hub units**

When the CC8A and CC8B coupling is installed for the first time the driver and/or 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. 1 and 7), which have been pre-torqued and threadlocked at the factory/workshop.

#### **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.

Depasco recommend 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 degrees centigrade, 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**

Hubs with taper bores are axially fixed and may not sit flush with the shaft end. Thus, it is important to determine the distance between the inner end of the hub and the shaft end. Adjustment to the distance between hub ends 'H' can then be made to the parallel bored hub unit.

Fit the hub onto the shaft without the key(s) and then lightly tap 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. 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 using the depth micrometer. The hub may have to be heated to achieve the required interference.

#### **Shaft alignment**

Align the centre 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 centre lines both horizontally and vertically by aligning the hub flanges. Depasco recommends the reverse periphery method or laser for accurate alignment.

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, Depasco recommend 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**

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. 11) Check length 'A' is equal to the split spacer length. Refer to Table 2.

Using the 4-off red painted gagging 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 & Table 2 for the minimum gap 'X'

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 1mm flange chamfer 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.

Carefully release the compression screws and remove.

Install the full complement of spacer bolts at each end and evenly tighten. After tightening, check that the spacer flange is in full contact with the guard ring on either side of the spacer split.

**Note:**

Apply a thread locking fluid (Loctite 2701) to the thread of the spacer bolts (Item 9 -Figure 1) before the final torque tightening.

Compression/gagging screws and sleeves should be stored with this document for any future maintenance work.

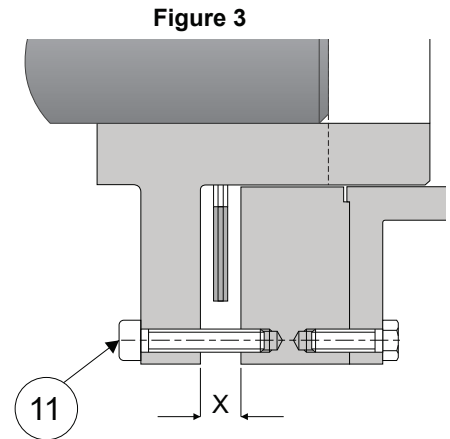


Table 2

Coupling Size	Min gap "X"mm	Membrane Pack Thickness mm	Spacer Length "A" Figure 1	Max Axial ±mm	Equivalent Thrust kN	Max Angular Degrees	Restoring Moment at Max. Angle Nm	Max. Parallel mm
148	9.1	4.2	43.0	1.4	0.78	0.33	15	0.6
178	9.4	5.0	49.6	1.7	1.43	0.33	28	0.7
202	10.1	5.7	58.2	1.9	1.82	0.33	43	0.8
228	10.7	6.5	64.6	2.2	2.60	0.33	64	0.8
255	11.9	7.2	73.0	2.4	3.25	0.33	93	0.9
279	13.4	8.0	81.8	2.7	3.90	0.33	124	1.0
309	14.6	8.8	87.2	3.0	4.62	0.33	161	1.1
333	15.3	9.5	99.2	3.2	5.40	0.33	208	1.2
362	16.1	10.3	107.2	3.5	6.18	0.33	264	1.3
408	17.3	11.5	108.0	3.9	7.41	0.33	371	1.4
456	19.8	13.0	118.2	4.4	8.78	0.33	502	1.6
518	23.1	14.8	119.0	5.0	11.00	0.33	729	1.7
600	25.2	16.0	119.6	5.5	12.70	0.33	901	1.8
642	28.1	17.6	131.0	6.0	14.60	0.33	1105	2.0
750	34.3	21.0	137.0	7.1	19.00	0.33	1845	2.2
823	37.7	23.3	146.0	7.9	22.10	0.33	2467	2.4

**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 1/2 degree angular misalignment on both membrane packs.



### Overhauling the hub unit

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

- Slacken all the hexagon headed spacer bolts (ref. 9) at each end and back off by 3 mm.
- Using 4 gagging screws at each end, compress each membrane pack. Do not over compress – refer to figure 3 & Table 2 for minimum gap 'X'
- Select one half spacer and remove the spacer 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.
- Release and remove the gagging screws.
- Loosen and remove the 4 hexagon drive bolts (ref. 7, 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 (ref. 7, Figure 4) that secure the hub to the membrane pack.
- Remove the membrane pack.
- 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.
- Inspect the split spacer for corrosion or damage, inspect the spacer 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 CC8A and CC8B can only be removed after moving one or both machines.

### Assembling the hub unit

Identify the 1-off hub (ref. 8), 8-off drive bolts (ref. 7), 8-off nuts (ref. 1), 8-off overload collars (ref. 6) 1-off guard ring (ref. 4), 1-off membrane pack with pack sleeves and washers (ref. 2). Check the pack thickness from Table 2. If the drive bolts and fixings are being reused, thoroughly clean the threads and surfaces before assembly.

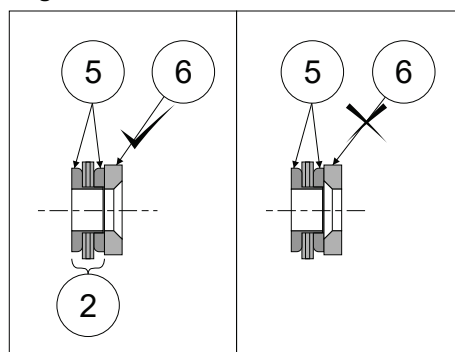
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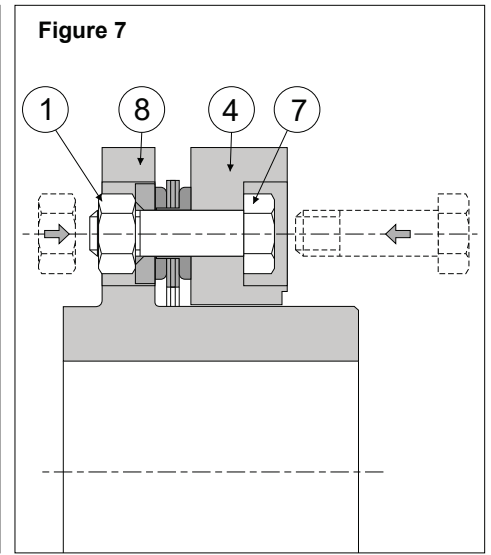
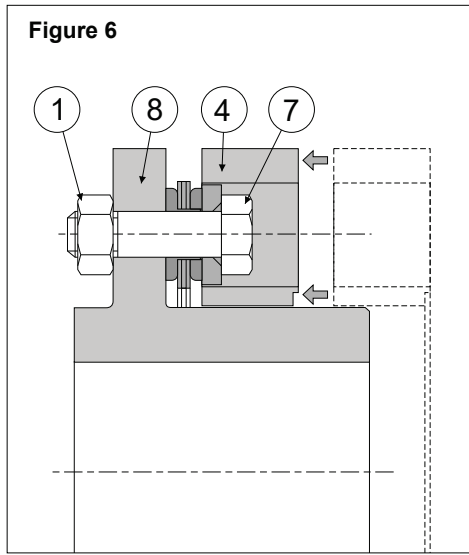
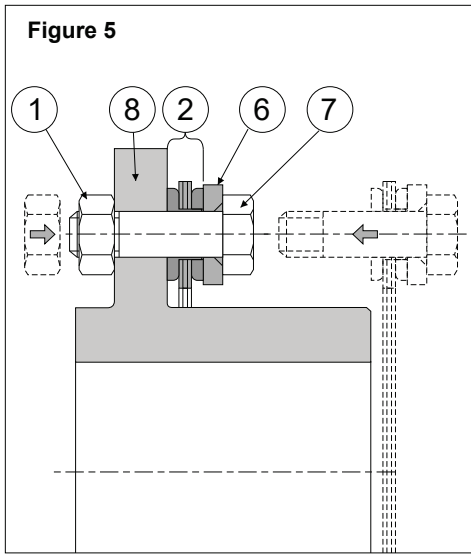
Ensure the profiled radii of the pack washers (ref. 5 - figure 4) are in contact with the outer membranes. Check that the overload collar (ref. 6) hole chamfer faces away from the membrane pack. Failure to do this may result in premature failure of the coupling.

Figure 4

#### Key

- 2 - Membrane Pack
- 5 - Pack Sleeve and Washer
- 6 - Overload Collar





**Key**

- |                   |                     |
|-------------------|---------------------|
| 1 - Nut           | 6 - Overload Collar |
| 2 - Membrane Pack | 7 - Drive Bolt      |
| 4 - Guard Ring    | 8 - Hub             |

- Fit 4-off hexagon bolts as shown in **Figure 5** into the membrane pack 90 degrees apart.
- Align the bolts into the 4 smaller bolt holes of the hub flange which will face towards the guard ring as shown in **Figure 5**. Orientation of the hub will depend on the coupling designation - CC8A CC8B or CC8C – see Figure 1 for hub configurations.
- Lightly and evenly tap the 4-off bolts into place with a soft faced mallet. Take special care not to over stretch or damage the membranes. Apply thread locking adhesive (for example Loctite 270) to the bolt threads and tighten the **nuts** (do not rotate the bolts which will distort the membranes) evenly to the correct “**drive bolt tightening torque**” value as specified in **Table 1** on page 4.
- Fit the guard ring over the hub boss with the split spacer interface facing away from the hub flange as shown in **Figure 6**.
- Fit the remaining 4-off hexagon bolts into the membrane pack from the opposite direction, through the countersunk holes of the guard ring as shown in **Figure 7**. Support the guard ring with wooden blocks and lightly and evenly tap the 4-off bolts into place with a soft faced mallet. Take special care not to over stretch or damage the membranes. Apply thread locking adhesive (for example Loctite 270) to the bolt threads and tighten the **nuts** (do not rotate the bolts which will distort the membranes) evenly to the correct “**drive bolt tightening torque**” value as specified in **Table 1** on page 4.

**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.