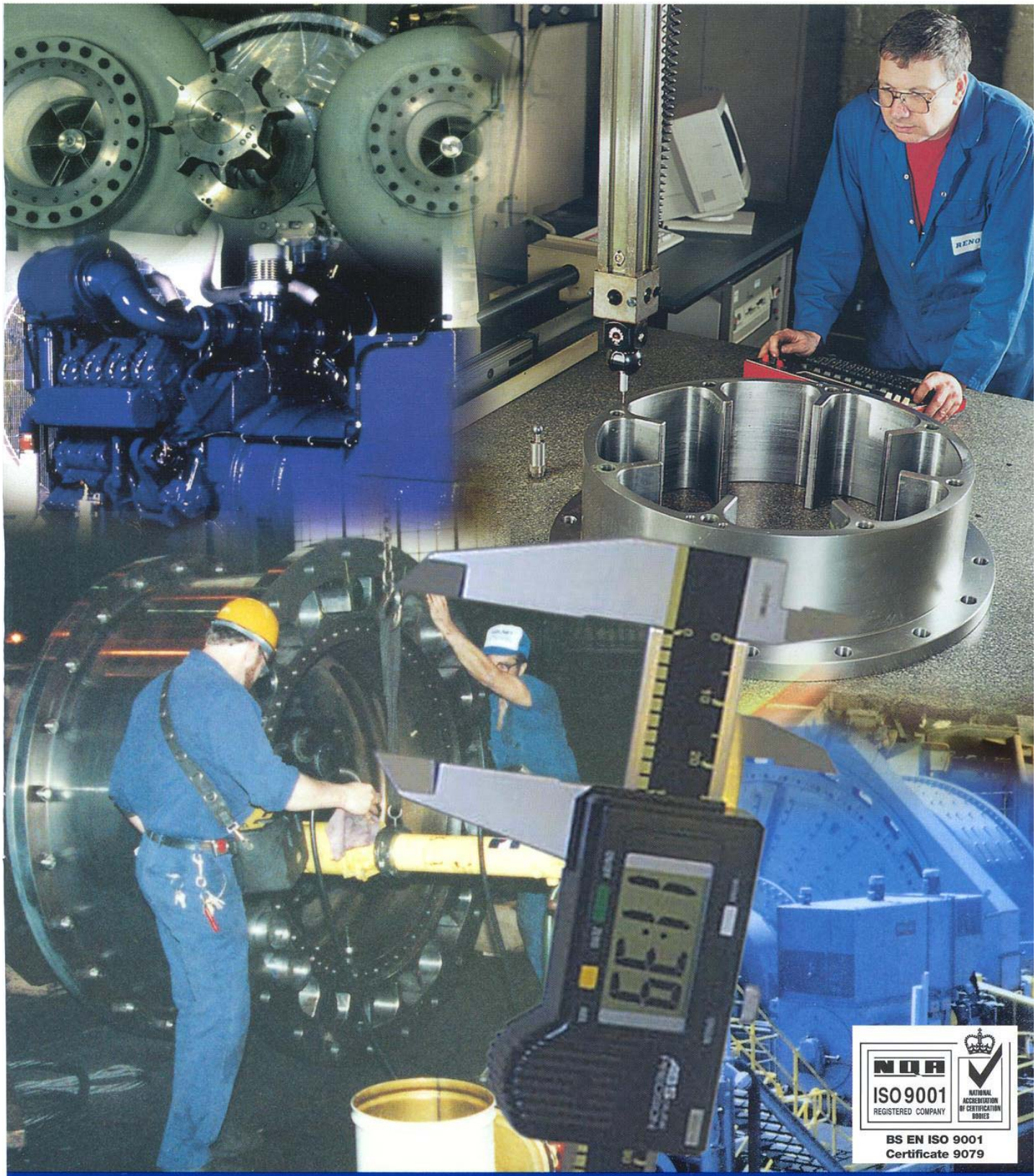
RENOLD

HiTec Couplings

RB Flexible Couplings Assembly & Maintenance Instructions



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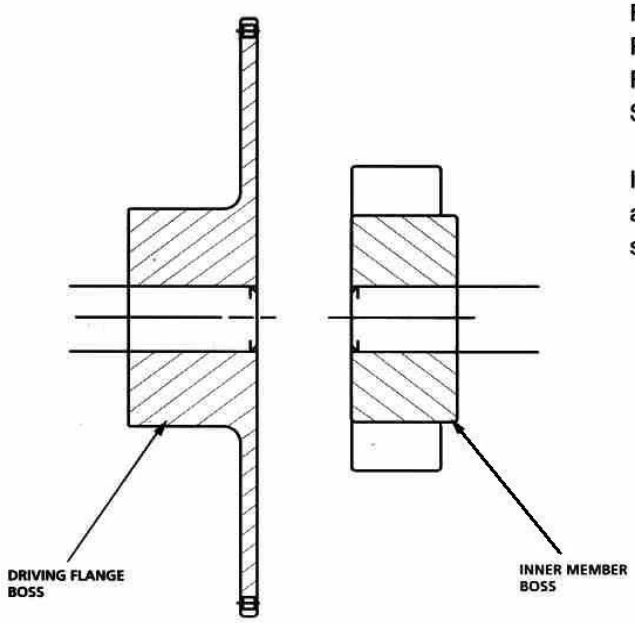
BS EN ISO 9001
Certificate 9079

The complete solution

Overview of Installation - Fitting Hubs and Blocks

1. Mount Hubs to Shafts

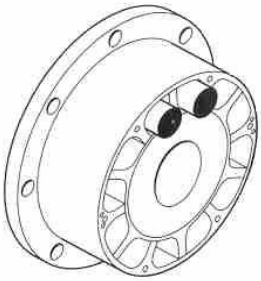


Heat inner member and driving flange to give sufficient clearance on the shaft.
Fit key to shaft.
Place cover over shaft.
Fit Hubs.
See page 5 for details.

It is important that the driving flange and inner member are fitted onto the shaft with the boss end leading as shown.

2. Fit Rubber Elements

Brush coupling cavities and rubber elements with silicone fluid.
Fit elements in sequence shown in these diagrams.
See page 6 for details.



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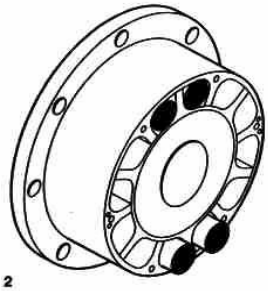

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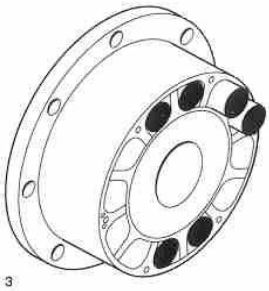

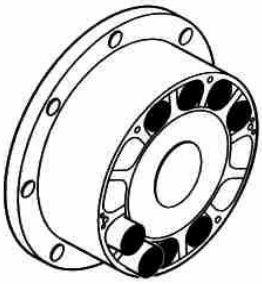

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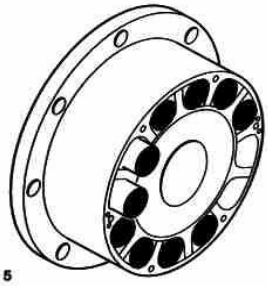

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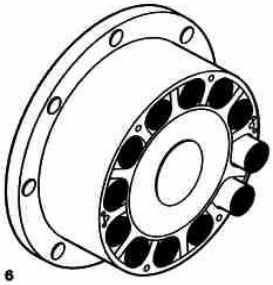
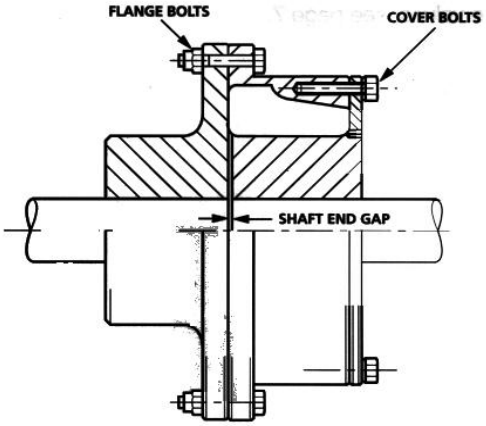


WARNING:
On no account should mineral oil or grease be used as this will seriously damage the rubber elements.
If silicone fluid is unavailable, vegetable oil may be used.

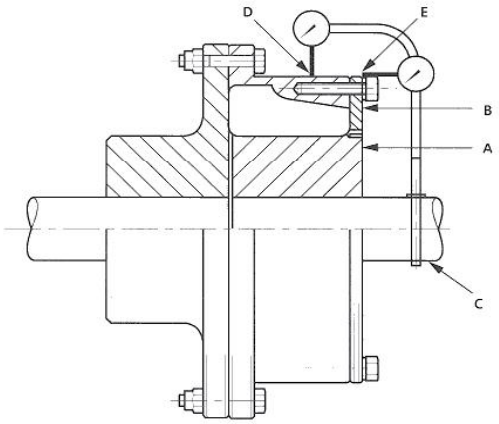
Alignment - Shaft to Shaft

1. Bolt Up Flanges



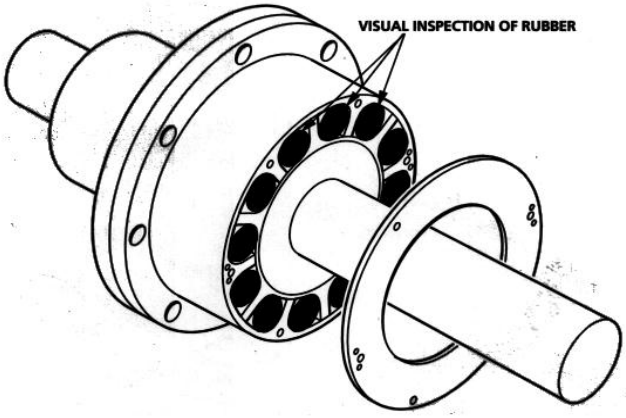
Set shaft end gap and tighten cover and flange bolts. For shaft gap, wrench size and tightening torque values, see page 7.

2. Check Shaft Alignment



Check the axial, radial and angular alignment of the coupling. Allowable values and the measuring procedures are given on page 9.

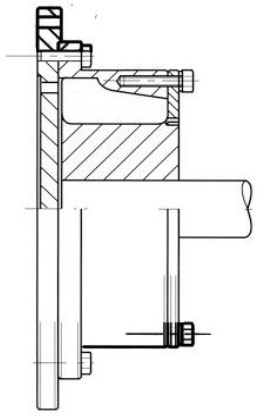
3. Inspect Annually



Check the alignment of the coupling. Remove the cover and examine the rubber element for sign of damage.
See page 10 for details.

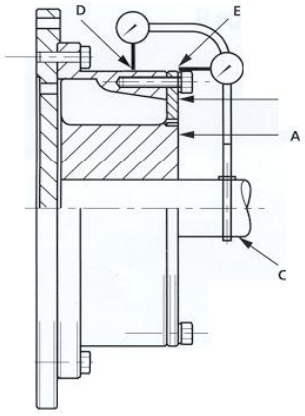
Alignment - Flywheel Mounted

1. Bolt Up Adaptor Plate



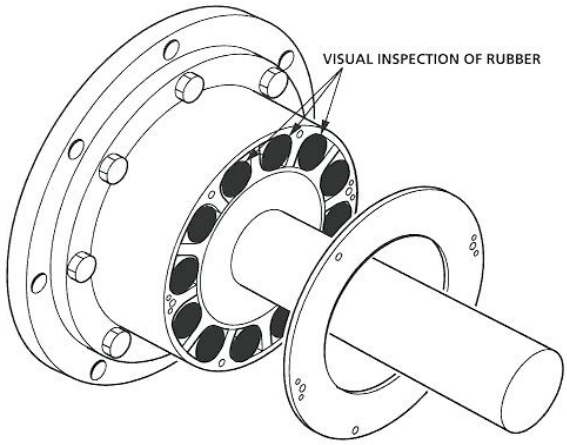
Set shaft end gap and tighten cover and flange bolts. For shaft end gap, torque wrench size and tightening torque values, see page 7.

2. Check Shaft Alignment



Check the axial, radial and angular alignment of the coupling. Allowable values and the measuring procedures are given on page 9.

3. Inspect Annually



Check the alignment of the coupling. Remove the cover and examine the rubber elements for sign of damage.
See page 10 for details.

Mount Hubs to Shafts

Keyed Shafts

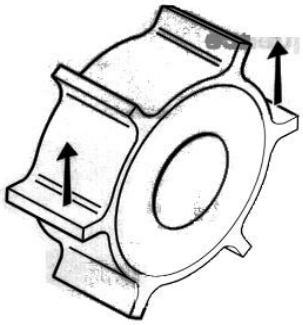
Completely disassemble the coupling. If the coupling has limited end float pads (circular pads located in the inner member of the coupling) remove them. Check the shaft diameters and coupling bores against the drawings.

Inner Member

Heat the inner member to 120°C (250°F) in either an oil bath or oven. Lift the coupling from the heating device using steel lifting chains wrapped around the blades of the inner member. ***Handle hot components with extreme care.*** Make sure that the lifting chains hold the inner member securely. Refer to the Renold Hi-Tec drawing or catalogue for the weight of the inner member. **(Do not use lifting equipment rated at less than the weight of the inner member).**

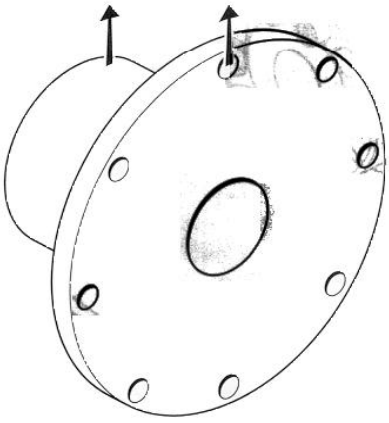
Unless a split cover is supplied with the coupling, fit the cover over the shaft BEFORE fitting the inner member to the shaft.

With the key in place in the shaft fit the inner member to the shaft. The end face of the inner member should be flush with the end of the shaft.



Driving Flange

Heat the driving flange to 120°C (250°F) either in an oil bath or oven. Lift the coupling from the heating device using steel chains and shackles inserted through the bolt holes, taking care not to damage the surface of the holes. ***Handle hot components with extreme care.*** Make sure that the lifting chains hold the driving flange securely. Refer to the Renold Hi-Tec drawing or catalogue for the weight of the driving flange. **(Do not use equipment rated less than the weight of the driving flange.)** With the key in place in the shaft fit the driving flange to the shaft. The end face of the driving flange should be flush with the end of the shaft.



Keyless Fits

Specific instructions are supplied with couplings which have high interference keyless fits. Please refer to these instructions when mounting hubs.

Fitting Rubber Elements

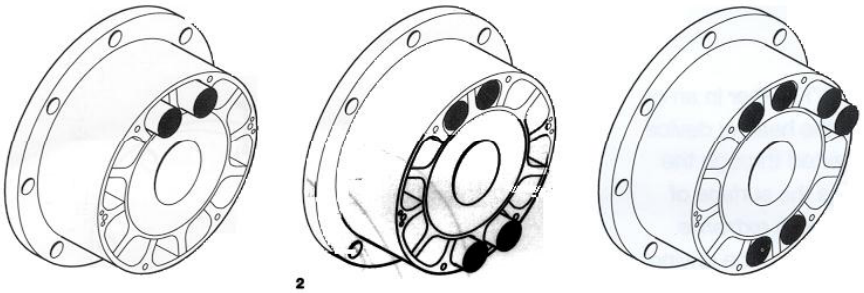
The rubber elements may be fitted either before or after the coupling flange is bolted up.
All RB couplings have one rubber element in each cavity.

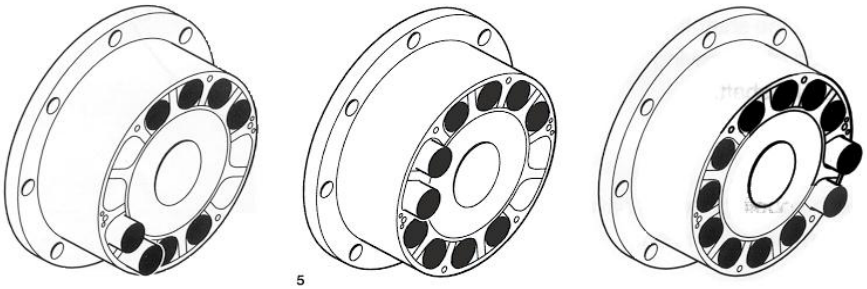
Before the Coupling is Bolted Up

Refit the limited end float pads, if supplied (circular buttons). Place the outer member of the coupling over the inner member. Set the axial position of the outer member relative to the inner member. The outer member should be centred axially over the inner member. Fit the rubber elements in the sequence shown in the diagrams below. Set the shaft end gap to the dimensions given in the table on page 7.

Fitting Sequence

To ease installation of the rubber elements, silicone fluid should be used as a lubricant. Use a fluid which has a viscosity between 300 and 1000 cST. Brush each rubber element and the cavities of the coupling with the fluid before inserting the rubber elements.





Bolting up the Coupling - Shaft to Shaft

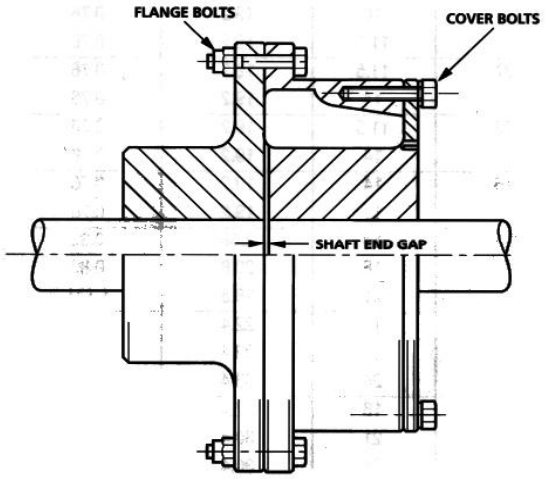
At this stage all the rubber blocks should be in place and the driving and driven machinery should be brought together with the correct gap between the ends of the shafts. The shaft end gap is shown on the Renold Hi-Tec drawing and in the table on page 8.

Fit the cover and secure with the bolts. Do not force the rubber elements into their cavities by tightening the cover bolts.

Connect the two halves of the coupling using the bolts supplied. It will be easier to fit these bolts if their shanks are coated with an antiseize lubricant.

Bolts normally have metric threads, the bolt sizes are shown in the table on page 8 along with the torque values to which the bolts should be tightened.

For alignment details please refer to pages 3 and 9.



Coupling Size	Shaft End Gap (mm)	Shaft End Gap (inch)
RB 0.12	3.2	0.12
RB 0.24	3.2	0.12
RB 0.37	3.2	0.12
RB 0.73	3.2	0.12
RB 1.15	3.2	0.12
RB 2.15	4.8	0.18
RB 3.86	6.4	0.25
RB 5.5	6.4	0.25

Coupling Size	Flange Bolt		Cover Bolt		Flange Bolt		Cover Bolt	
	Size	Torque	Size	Torque	Size	Torque	Size	Torque
RB 0.12	M8	23Nm	M8	23Nm	M8	17.0 ft lb	M8	17.0 ft lb
RB 0.24	M10	45Nm	M8	23Nm	M10	33.2 ft lb	M8	17.0 ft lb
RB 0.37	M10	45Nm	M10	45Nm	M10	33.2 ft lb	M10	33.2 ft lb
RB 0.73	M12	85Nm	M10	45Nm	M12	62.7 ft lb	M10	33.2 ft lb
RB 1.15	M12	85Nm	M12	85Nm	M12	62.7 ft lb	M12	62.7 ft lb
RB 2.15	M12	85Nm	M12	85Nm	M12	62.7 ft lb	M12	62.7 ft lb
RB 3.86	M16	220Nm	M12	85Nm	M16	162 ft lb	M12	62.7 ft lb
RB 5.5	M16	220Nm	M12	85Nm	M16	162 ft lb	M12	62.7 ft lb

Bolting up the Coupling - Flywheel Mounted

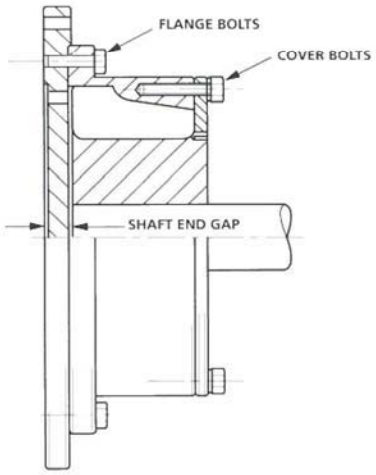
At this stage all rubber blocks should be in place.
Fit the cover and secure with bolts, do not force the rubber elements into their cavities by tightening the cover bolts.

Connect the adaptor plate to the outer member using the bolts supplied with the coupling.

Bolts normally have metric threads, the bolt sizes are shown in the table. Tighten the bolts to the torque values shown in the table.

Bring the driving or driven machine into place and bolt the adaptor plate to the flywheel.

For alignment details please refer to pages 4 and 9.



Coupling Size	SAE Size	Shaft Gap (mm)	Shaft Gap (inch)
RB 0.24	10	19.2	0.76
	11.5	19.2	0.76
RB 0.37	11.5	19.2	0.76
	14	19.2	0.76
RB 0.73	11.5	19.2	0.76
	14	19.2	0.76
RB 1.15	14	19.2	0.76
	18	19.2	0.76
RB 2.15	14	2.08	0.82
	18	20.8	0.82
	21	28.8	1.131
RB 3.86	18	22.4	0.88
	21	33.4	1.31
	24	33.4	1.31
RB 5.5	18	22.4	0.88
	21	30.4	1.2
	24	30.4	1.2

Coupling Size	Flange Bolt Size	Flange Bolt Torque	Cover Bolt Size	Cover Bolt Torque	Flange Bolt Size	Flange Bolt Torque	Cover Bolt Size	Cover Bolt Torque
RB 0.12	M8	23Nm	M8	23Nm	M8	17.0 ft lb	M8	17.0 ft lb
RB 0.24	M10	45Nm	M8	23Nm	M10	33.2 ft lb	M8	17.0 ft lb
RB 0.37	M10	45Nm	M10	45Nm	M10	33.2 ft lb	M10	33.2 ft lb
RB 0.73	M12	85Nm	M10	45Nm	M12	62.7 ft lb	M10	33.2 ft lb
RB 1.15	M12	85Nm	M12	85Nm	M12	62.7 ft lb	M12	62.7 ft lb
RB 2.15	M12	85Nm	M12	85Nm	M12	62.7 ft lb	M12	62.7 ft lb
RB 3.86	M16	220Nm	M12	85Nm	M16	162 ft lb	M12	62.7 ft lb
RB 5.5	M16	220Nm	M12	85Nm	M16	162 ft lb	M12	62.7 ft lb

Alignment

The following section describes how to verify that the alignment of the coupling is sufficient to prevent premature deterioration of the rubber elements. Note that the values given in the table are in both millimetres and inches. The following instructions apply to both shaft to shaft and flywheel mounted RB couplings.

Axial Alignment

Use a straight edge held on face "A" and a depth gauge to measure the distance between faces "A" and "B". Check the measurement with the allowable values given in the table.

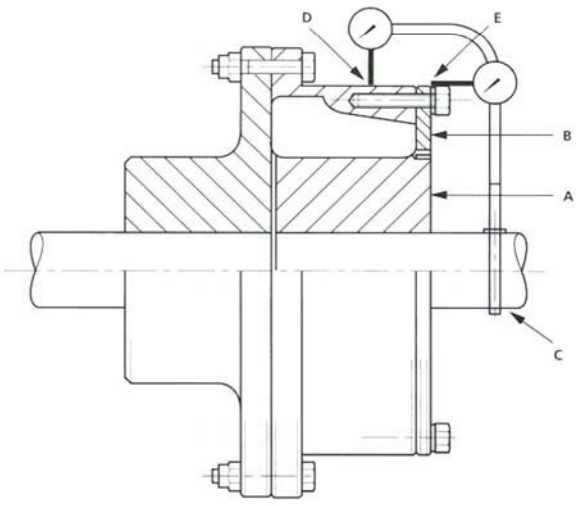
Radial Alignment

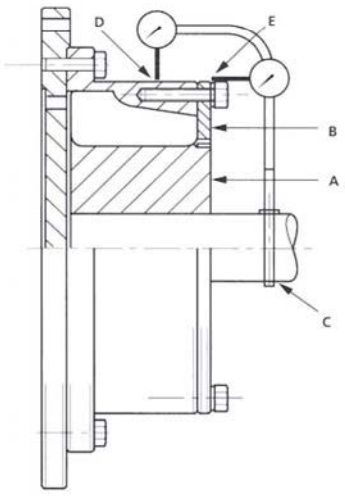
Mount the dial indicator to the shaft at "C" with pointer at "D" as shown in the diagram below.
Total reading on the dial indicator for one complete turn of the drive (maximum reading minus minimum reading) should be less than the value in the table.

Angular Alignment

Mount the dial indicator to the shaft at "C" with the pointer at "E" as shown in the diagram below.
Total reading on the dial indicator for one complete turn of the drive (maximum reading minus the minimum reading) should be less than the value shown in the table.

Coupling Size	Axial (mm)	Radial (mm)	Axial (inch)	Radial (inch)	Angular (degrees)
RB 0.12	0.75	0.30	0.030	0.012	0.1
RB 0.24	0.75	0.30	0.030	0.012	0.1
RB 0.37	0.75	0.30	0.030	0.012	0.1
RB 0.73	0.75	0.50	0.030	0.020	0.1
RB 1.15	0.75	0.75	0.030	0.030	0.1
RB 2.15	1.0	0.75	0.040	0.030	0.1
RB 3.86	1.5	0.75	0.060	0.030	0.1
RB 5.5	1.5	0.75	0.060	0.030	0.1

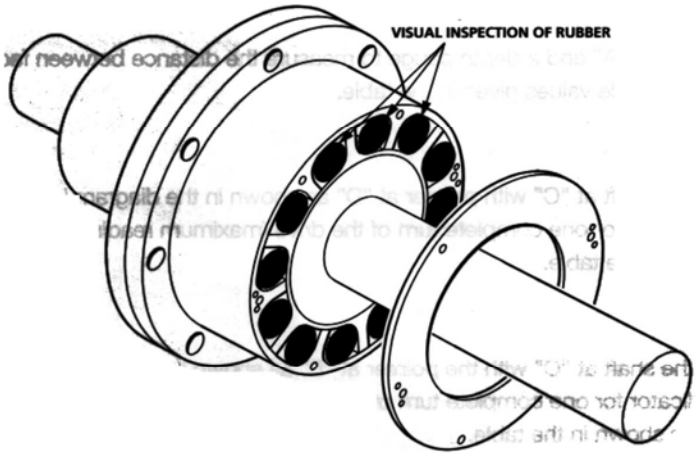




Rubber Element Inspection

Check the alignment of the coupling and the condition of the rubber elements annually.

The alignment of the coupling should be checked as described on page 9.



To inspect the rubber elements, unbolt the cover of the coupling so that the faces of the rubber block can be seen. It is not necessary to remove the rubber elements of the coupling, though, the rubber elements should be replaced if any of the following are found:-

Evidence of small amounts of rubber dust is normal but in large quantities lubrication is required by use of silicone fluid.

Blocks loose in their cavities need to be changed as quickly as possible.

Deep cuts, over 10% of the width of the rubber elements which reveal excessive torque loadings.

Physical deterioration where the surface of the rubber element is cracked or has a sticky surface.

The rubber blocks should always be replaced in the same way as they were initially installed fitting the elements one in each cavity, filling opposite cavities first. See page 2 for details.

* Large amounts of rubber dust and an impression of the coupling inner member on the cover are signs of excessive misalignment.

Identification of rubber element

Each rubber element has a number moulded into it. The number allows the size of the coupling to be established. There is also a coloured sticker on the rubber element which has a number on. The colour of the sticker allows the type of rubber to be established and the number is the shore hardness. Alternatively each coupling has a serial number stamped onto the outer member flange face or onto a name plate. Prior to 1998 this was a six digit number which may be followed by the letter 'M' (metric). After 1998 this was replaced with an eight digit number which may be followed with a letter. The first 6 digits are our order number, the next two are the line number and the letter is the item number. We can identify the rubber element from this serial number.

Storage of Spare Rubber Blocks

The British Standard Institute recommend the following storage conditions for vulcanised elastomers to avoid changes in properties which are indicated by softening, hardening, cracking or other surface degradation.

Deterioration can be accelerated by the synergistic effect of the combined factors such as heat, light, humidity, oxygen and ozone.

These effects can be minimised by careful selection of storage conditions, i.e.:

TEMPERATURE:	The storage temperature should be less than 25°C. The recommended storage temperature for long term storage is 15°C.
HUMIDITY:	Moist conditions should be avoided and no condensation should occur.
LIGHT:	All polymeric products should be protected against light, especially sunlight or artificial light with high ultra-violet content.
OXYGEN & OZONE:	Where possible components should be protected from air circulation by storage in containers. Ozone is particularly damaging and for this reason, parts should not be stored near electrical equipment where sparks or silent discharges are possible.
DEFORMATION:	Mouldings should be stored in a strain-free condition.
LIQUIDS:	Mouldings should not be contaminated with liquids in storage.
CLEANING:	If cleaning is required for storage, soap and water is relatively harmless, The washed components should be allowed to dry at room temperature.
STORAGE TIME:	Where items have been stored for five years or more a Laboratory check on quality must be carried out before use.

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Netherlands
Norway
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USA
Singapore
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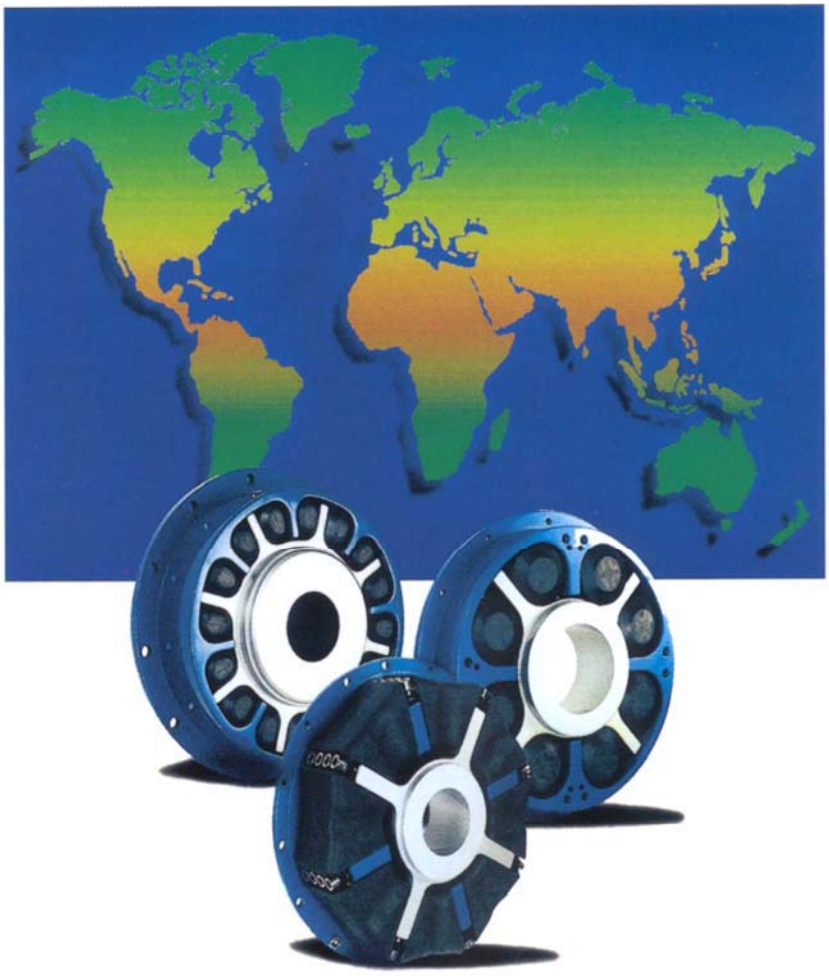
Spain
Sweden



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