

POONA COUPLINGS PVT. LTD.

PM Flexible Couplings Assembly & Maintenance Instructions

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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

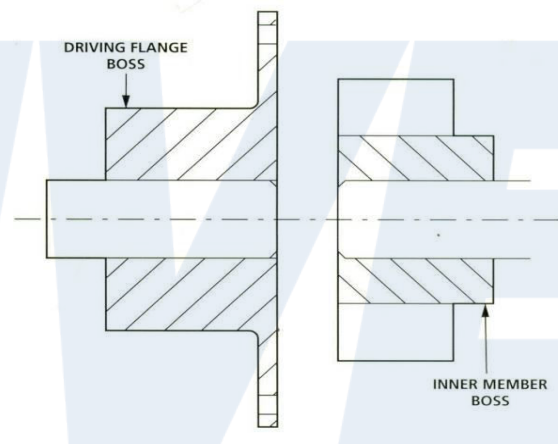
Heat the Inner member to 180°C (356°F) in either an oil bath or oven. Lift the coupling from the heating device using steel lifting chains wrapped around the blades of the Inner member. **Handle** hot components with extreme care. Make sure that the lifting chains hold the Inner member securely. Refer to the Poona Couplings 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 180°C (356°F) either in an oil bath or oven. Lift the coupling from heating device using steel chains and shackles inserted through the bolt holes, taking care not to damage surface of the holes. **Handle hot components with extreme care.** Make sure that the lifting chains hold the Driving flange securely. Refer to the Poona Couplings drawing or catalogue for the weight of the Driving flange. (Do not use lifting equipment rated at 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.



It is important that the Driving Flange and the Inner Member are fitted onto the Shaft with the Boss End leading, as shown.

Keyless Fits

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

Assembly of the Flexible Half Coupling

Refit the limited end float pads, if supplied (circular white or blue buttons) into the Inner member.

Place the Outer member of the coupling over the Inner member

Bolt the Cover to the Outer member

Set the axial position of the Outer member relative to the Inner member so that the shaft end gap will be achieved (see page 4 for diagram and dimensions).

The Outer member should be centered relative to the Inner member blades.

Fitting Rubber Elements

All PM Couplings up to and including size PM60 have ONE Rubber element in each cavity.

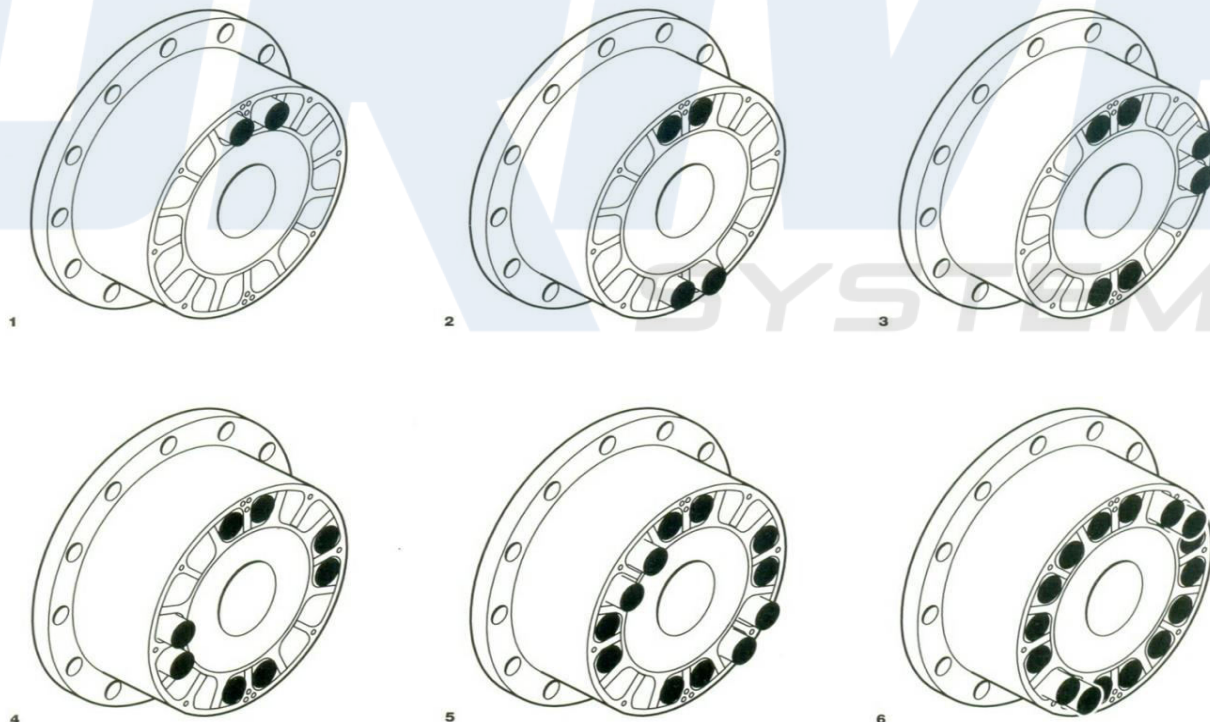
Size PM90 up to PM600 have TWO Rubber elements in each cavity.

Fit the Rubber elements in the sequence shown in the diagram below.

After fitting the elements and bolting the Cover up, it is essential that the blade tip clearance is checked to ensure it is consistent all round the Coupling.

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 other Rubber element and the cavities of the coupling with the fluid before installing the Rubber elements.



Bolting up the Coupling

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 and gap is shown on the Poona Couplings drawing and in the table below.

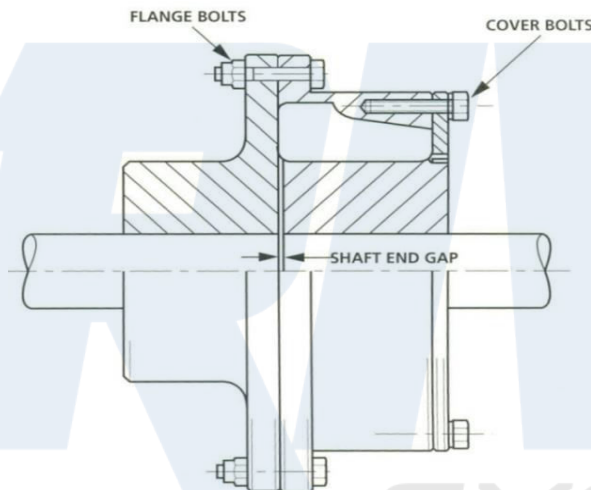
Fit the Cover and secure with the bolts. Do not force the Rubber elements into their cavities by tightening the Cover bolts.

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 below, along with the torque values to which the bolts should be tightened.

Tighten all the bolts normally with appropriate socket and then apply required torque (as shown in below chart) in such a way that opposite bolts are tightened first.

For alignment details, please refer to page 5.



Coupling Size	Cover Bolt			Flange Bolt			Shaft Gap C (mm)
	Torque (Nm)		A/B (mm)	Torque (Nm)		A/F (mm)	
PM0.4	23	M8	13	23	M8	13	1.0
PM0.7	23	M8	13	23	M8	13	2.0
PM1.3	23	M8	13	23	M8	13	2.0
PM3	23	M8	13	23	M8	13	3.0
PM6	23	M8	13	23	M8	13	3.0
PM8	45	M10	17	85	M12	19	3.0
PM12	85	M12	19	85	M12	19	3.5
PM18	220	M16	24	220	M16	24	4.0
PM27	220	M16	24	220	M16	24	4.5
PM40	220	M16	24	220	M16	24	5.0
PM60	360	M20	30	360	M20	30	5.5
PM90	360	M20	30	360	M20	30	6.5
PM130	625	M24	36	625	M24	36	7.0
PM180	625	M24	36	625	M24	36	8.0
PM270	1250	M30	46	1250	M30	46	9.0
PM400	2190	M36	55	2190	M36	55	10.5
PM600	2190	M36	55	2190	M36	55	12.0

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 millimeters only. The following instructions apply to all types of PM 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 allowance values given in the table below.

Radial Alignment

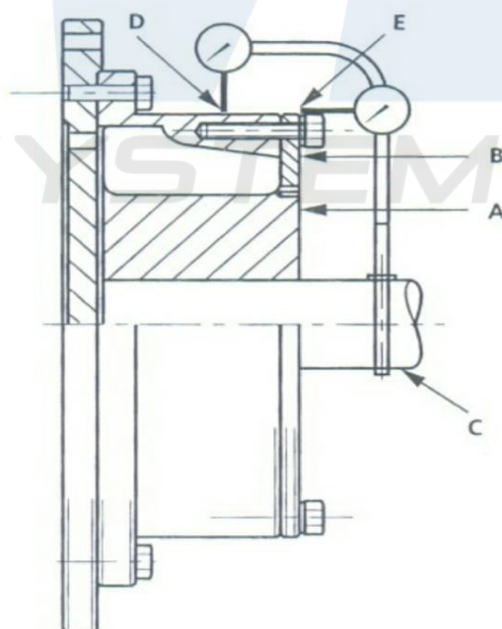
Mount the dial indicator to the shaft at "C" with pointer at "D" as shown in the diagram below. Total reading on the dial indicator for one complete turn of the drive (maximum reading minus minimum reading) should be less than the value in the table below.

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 in the table below.

Installation Alignment

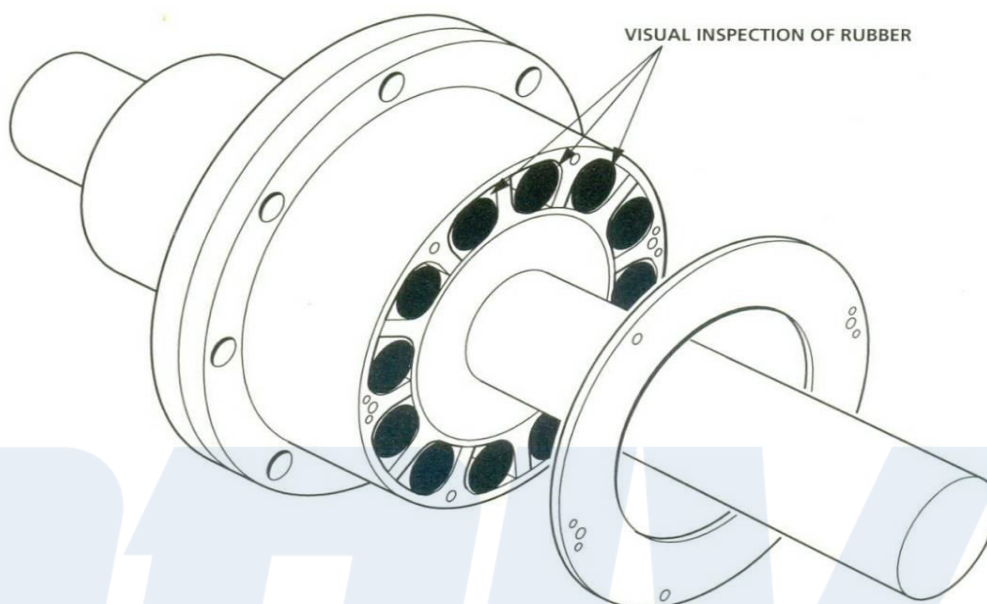
Coupling Size	Radial (mm)	Angular (mm)	Axial (mm)
PM0.4	0.20	0.13	0.20
PM0.7	0.20	0.15	0.30
PM1.3	0.20	0.20	0.30
PM3	0.30	0.23	0.30
PM6	0.38	0.23	0.30
PM8	0.40	0.25	0.40
PM12	0.40	0.30	0.45
PM18	0.40	0.36	0.50
PM27	0.48	0.41	0.60
PM40	0.53	0.46	0.60
PM60	0.61	0.51	0.70
PM90	0.71	0.61	0.80
PM130	0.84	0.69	0.90
PM180	0.89	0.86	1.00
PM270	1.00	1.02	1.10
PM400	1.12	1.17	1.30
PM600	1.30	1.30	1.50



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 5.



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 element one in each cavity, filling opposite cavities first. See page 3 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 label on it (PC-80), in which 80 denotes hardness of Rubber block in ShoreA. Also there are different hardness Rubber elements are available. For Example PC-60 & PC-70 denotes 60 and 70 ShoreA hardness respectively.

Storage of Spare Rubber Blocks

The British Standard Institute recommend the following storage conditions for vulcanized 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 & ozone.

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

TEMPERATURE:	The storage temperature should be less than 25°C. For long term storage at 15°C maximum is recommended.
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, part should not be stored near electrical equipment where sparks or silent discharges are possible.
DEFORMATION:	Moldings should be store in a strain-free condition.
LIQUIDS:	Moldings 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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