

Instructions for Installation, Service and Maintenance

Rexnord Drawing No. : _____
 (to be completed only if Appendix 9 is to be prepared)

ROTATING POWER TRANSMISSION PRODUCTS ARE POTENTIALLY DANGEROUS.

It is the responsibility of the customer/user to provide proper protection in compliance with applicable safety standards, relative to the type of equipment, and to operate power transmission elements exclusively within their predetermined applications and their specified application limits.

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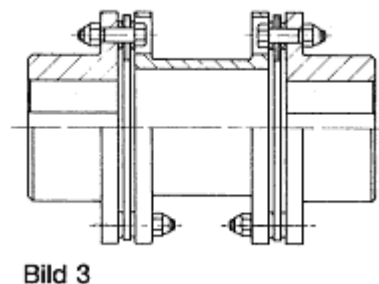
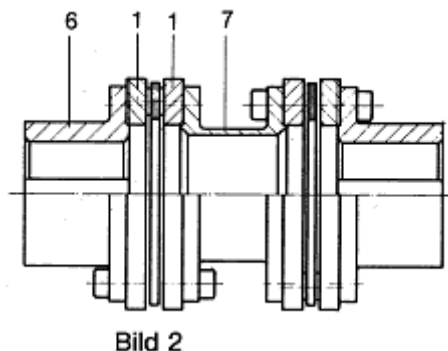
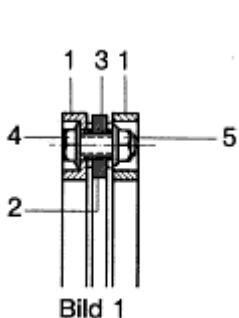
1. General

According to their specified capacity flexible shaft couplings compensate for unavoidable alignment faults and misalignments which occur during operation. The lesser alignment faults during installation, the higher compensation capacity, lifetime, and smooth running in service. Installation by skilled personnel only. Our instructions for installation, service and maintenance have to be carefully studied and to be understood. The assembly drawing has to be in hand of the customer/user at installation site.

2. Transport

After inspection on receipt, flexible shaft couplings are to be carried to their place of installation as delivered and in their original packing, if possible. Any transport protection and fixation of the shaft couplings provided by the manufacturer are only to be removed at site. General: keep shaft couplings in horizontal axial position to avoid external forces which could affect the shaft coupling.

3. Assembly and Operating Principle



- | | |
|--------------------|-----------|
| 1 Flange | 4 Bolt |
| 2 Disc Pack | 5 Locknut |
| 3 Hardened Bushing | 6 Hub |

7 Spacer

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There are two different basic designs for torsionally stiff, flexible shaft couplings:

Figure 2: A complete shaft coupling consists of two disc pack assemblies (Figure 1), attached to one spacer and two hubs. Disc pack assemblies are supplied ready to be installed. In general, they are already fixed to the spacer on shipment, so that hubs only are to be fastened to the disc pack assemblies.

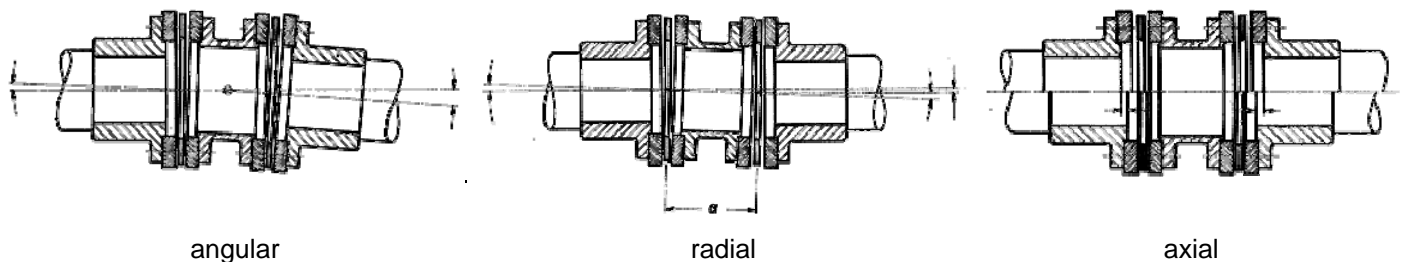
Disc pack assemblies compensate for axial and angular misalignment. Completed as couplings, they are able to also compensate for radial misalignment resulting from admissible angular misalignment of two disc pack assemblies. Please note that the indicated maximum values for axial and angular misalignment must not be used as maximum simultaneously. For their interdependence please see graph in the assembly drawing.

Figure 3: Disc packs are directly fastened to hubs or spacer, resp. In general, disc packs are already fixed to spacer on shipment so that supplied bolts and washers only are to be attached to the disc packs by the customer/user, in order to fasten the hubs onto the disc packs.

The operating principle of this design is the same as for figure 2.

Axial and angular misalignment may achieve their maximum simultaneously.

Features of operating principle and misalignment capacity for torsionally stiff, flexible BSD shaft couplings:



4. Installation

- 4.1 See assembly drawing - Observe installation dimensions and positions.
- 4.2 Shaft ends and bores to be connected have to be free from dirt/corrosion particles and burrs. Install keys, if required. Check fitting dimensions of shaft (and keys) and tolerances.
- 4.3 If finish bore or other fitting dimensions of the hubs are machined by customer/user, tolerances - both concentric and rectangular - have to comply with our specifications or our standard sheet NR 860, resp. In case of doubt please consult the manufacturer. Otherwise proceed as described in 4.2.
- 4.4 Only install products of our supply and use them under designated service conditions.
- 4.5 Do not change quantity and positioning of disc packs. Arrangements of bolts/locknuts and spacer sleeves or washers only according to our assembly drawing.
- 4.6 Do not disassemble elements type 900 or type 920 (see figure 1).
- 4.7 Mount and secure hubs according to the designated hub/shaft connection. For special connection (flange, taper bore, oil interference fit) length dimensions being specified in the assembly drawing have to be strictly observed.
- 4.8 After assembly of hubs or other connecting elements align driving and driven unit to each other in order to install the spacer. Observe installation dimensions, position and admissible misalignments of our assembly drawing.

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4.9 Attach spacer to element type 900/920 or the disc packs. For fitting dimensions and further instructions see our assembly drawing.

4.10 Tighten bolts or locknuts according to the specified torque (see assembly drawing).

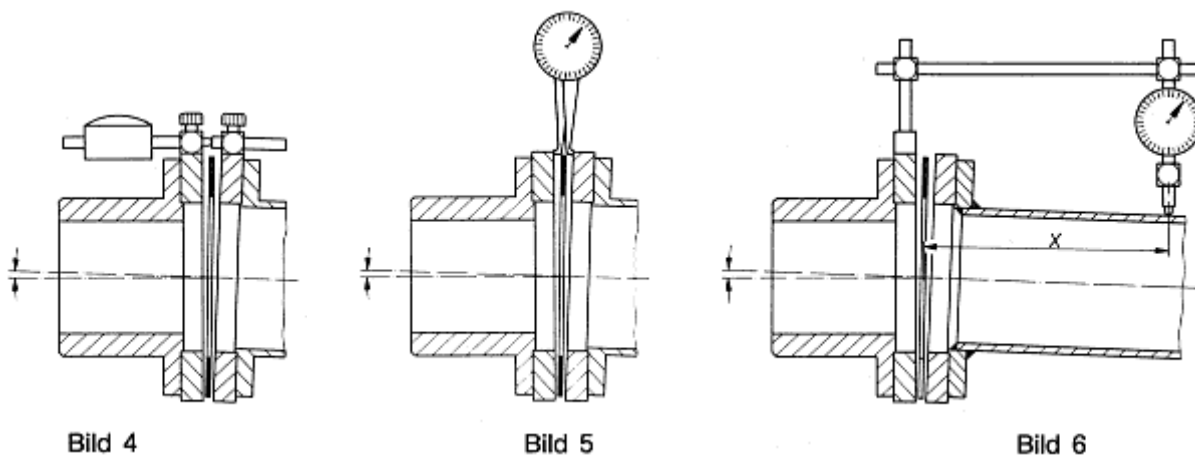
4.11 After installation, the coupling has to be aligned. The lesser misalignment faults, the higher compensation capacity, lifetime and smooth running during operation.

Check and align **axial misalignment** first. For admissible dimensions see our assembly drawing.

If service and/or ambient temperatures differ from a room temperature of 20°C, **axial misalignment** might become undesirably high. In this case it might be necessary to preset axial misalignment at installation to achieve an optimum axial misalignment at service temperature. Lifetime, misalignment capacity and smooth running are then improved. If required, this will be clarified before ordering and specified in Appendix 9.

After axial alignment is done, **angular and parallel offset** are to be aligned. Besides optical methods it can be done manually as follows, observing the max. admissible offsets according to our assembly drawing.

Figures 4 to 6 show alignment methods which may be used. Any readings being specified in this instruction are reference values for alignment.



Description to Figures 4-6: Page 3

Figure 4: Mount dial indicator and gauge. The measuring point should be close to the outer diameter of the coupling. Rotate coupling 360°. The indicator reading should not exceed 0.015 mm per 10 mm outer diameter.

Example: Outer diameter 200 mm = 20 x 0.015 mm = 0.3 max. indicator reading. Adjust driven and driving unit until this value is achieved or is lower.

Figure 5: Use caliper with dial indicator. Description as figure 4. Instead of outer diameter scan diameter applies.

Figure 6: Use dial indicator with adapter. Description as figure 4. Max. indicator reading is 0.015 mm per 10 mm length "x". Example: "x" = 400 mm = 40 x 0.015 mm = 0.6 mm max. indicator reading.

After having aligned the coupling, driven and driving units are to be fixed and secured so that the position of the coupling remains unchanged. We recommend to recheck the coupling according to point 4. to 6. after having secured drive and driven units.

General: After the alignment procedure disc packs should look flat and parallel with the mating surfaces if no axial alignment was preset (see 4.11).

5. Initial Start-Up

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5.1 After having assembled the shaft coupling and considering valid and applicable safety standards for the equipment the coupling is subject to a trial run.

5.2 Recheck specified tightening torques of bolts and locknuts after a trial running time of 1 to 2 hours. If necessary, readjust bolt connection with proper torque.

5.3 Observe coupling while operating. Any improprieties occurring especially as to smooth running, might be caused by insufficient or improper alignment or by subsequent deviations, e.g. setting of driving or driven unit. Cut off equipment immediately and recheck alignment of installation dimensions and position according to point 4 (Installation). If necessary, correct dimensions.

6. Operation

6.1 Inspect shaft coupling after appr. 500 operating hours: Are tightening torques of bolts and locknuts still correct? Is the coupling still well aligned? Note: For certain designs misalignment values must not be used as maximum simultaneously. Are the disc packs still flat and parallel with the mating surfaces? Correct if necessary. Alignment and axial adjustment according to point 4. (Installation). **6.2** After inspection and correction, if so necessary, the shaft coupling is subject to usual inspection intervals of the equipment. These inspections are to be carried out according to point 6.1. We assume that inspection and maintenance of the equipment is carried out once year for one shift operation, twice a year for two shift operation and three times a year for three shift operation.

7. Maintenance

7.1 The disc pack assembly (figure 1) or the disc pack (figure 3) are the most important performance components of the shaft coupling.

7.2 Any deformation, cracks or corrosion of the disc pack including bolts, locknuts and washers which are noticed during coupling inspection, may be caused by torque overload or excessive shaft misalignments.

Replace disc pack assemblies including bolts or the disc pack including bolts, locknuts and washers according to point 4. (Installation). Important: Remove reason of coupling overload first.

7.3 All other components have to be carefully checked in case of such failures. In case of doubt please consult the manufacturer.

8. Stock of Spare Parts and Customer Service

8.1 In order to promptly replace any failed parts, it is recommended to keep a stock of disc pack assemblies (figure 1) or disc packs (figure 3) with bolts, locknuts and washers at operation site.

8.2 If required, the manufacturer's customer service is available to you.

9. Disassembly

BSD MODULFLEX and REX THOMAS couplings are disassembled by loosening connecting bolts of the spacer and axially stressing the disc packs. Careful handling is expected (securing against dropping etc.). Couplings with inner centerings are prestressed on the outside through the flanges. For outer centerings, flanges of the shaft hubs and spacer resp. provide pull-off holes through which the disc pack is prestressed. In both cases fixing devices (radially, axially fixed) might be provided being used as transport protection as well as for prestressing. After loosening connecting bolts and stressing of the disc packs the spacer can be removed. Couplings acc. to Figure 4, Point 3, are being separated at the bolt connections discs/hub/spacer. Riveted coupling units are being separated at the shaft/hub connection. Note: Max. alignment values as indicated in the resp. assembly drawing must not be exceeded.

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10. Appendix for Special Order Specifications

If certain operating instructions are required for the application, which differ from these general instructions or are added to them, any deviations or additions are specified in this appendix. Such appendix refer to individual applications. Customer's name, our order number and type designation are always specified.