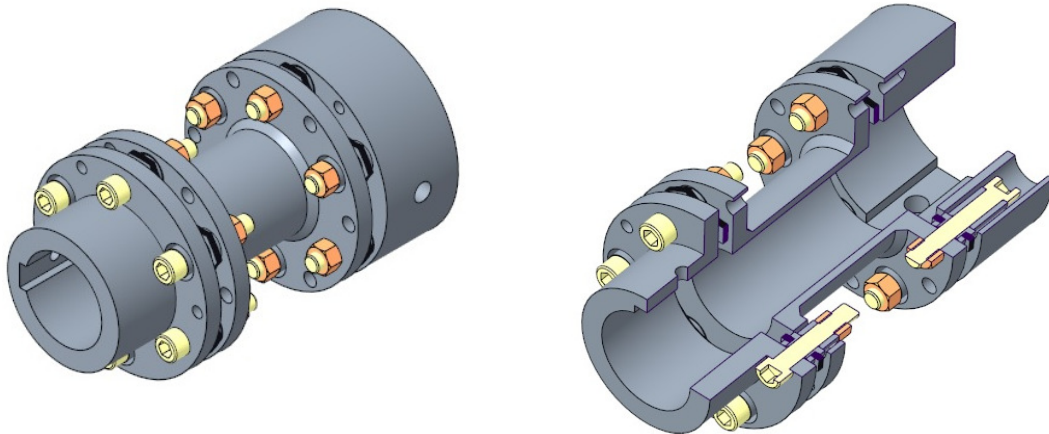


RATHI TRANSPower PVT. LTD. PUNE - INDIA

**INSTALLATION INSTRUCTIONS
DISC-O-FLEX COUPLING**

TYPE –

RLM & RLMK



DISC-O-FLEX COUPLING

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DISC-O-FLEX COUPLING

INSTALLATION INSTRUCTIONS

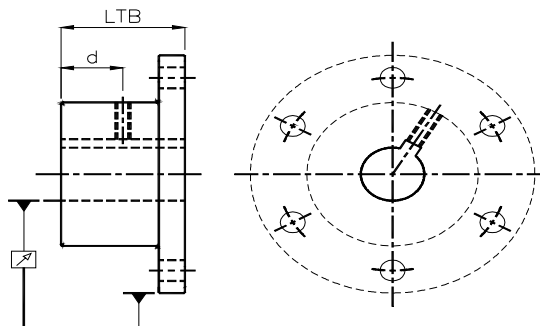
(A) BEFORE INSTALLATION

1. Remove the coupling from packing & thoroughly inspect for signs of damage.
2. Remove red coloured bolts & sleeves which are provided for protection of blades from bending due to spacer weight & damage during transportation & handling.

Remember: The spacers of DBSEs less than the specified min. Std. DBSEs in catalogue may not be available with red coloured bolts & sleeves.

3. Remove protective coatings/lubricants from bores & keyways.
4. Disassemble the coupling by removing reqd. bolts & nuts. Find the couplings in disassembled conditions as shown in mounting procedure.
5. If the coupling is supplied in pilot bore, the finish bore must be done w.r.t. to Outside Diameter, not w.r.t. Hub boss Diameter. Keyway is to be done between two adjacent holes of hub as shown in fig.1 It is recommended that the distance 'd' should be half of the length through bore 'LTB'. (Ref. Fig. 1)

Fig. 1



(B) MOUNTING PROCEDURE (For RLM & RLMK Couplings)

1. Disassemble the coupling by removing all nuts & bolts. Find the couplings in disassembled conditions as shown below:-

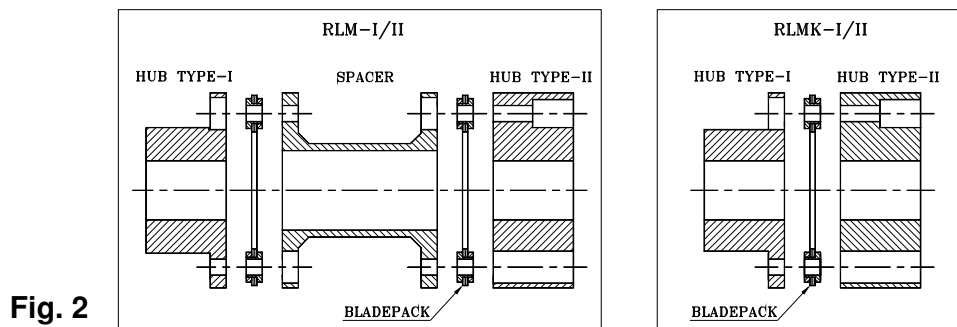


Fig. 2

DISC-O-FLEX COUPLING

2. Mount the hubs on corresponding shafts with the help of keys & set screws. For hub type II min. bolt clearance 'R' is required for disengagement of spacer assembly. So confirm the distance 'R' before mounting the hubs. Value of R is given in respective catalogue.

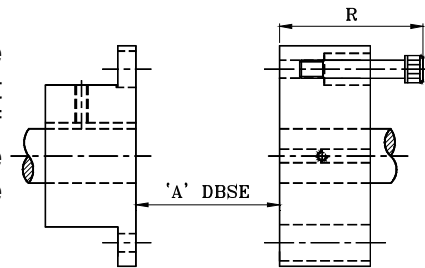


Fig. 3

With one machine firmly bolted down, set the reference length 'A' equal to the distance between shaft ends (DBSE) as shown in fig. 3. DBSE of coupling is measured between inside faces of hub as shown in fig. 3.

Deviation in standard DBSE is defined as axial misalignment (end float). For normal applications the shaft end should be flushed with inner face of the hub. In some special cases the shaft ends may protrude beyond the inner face of the hub or may remain inside, if required. The distance between two faces of hub flanges is to be maintained as specified. The variation in this distance should not exceed the permissible initial axial misalignment given in table 1 on page no. 8.

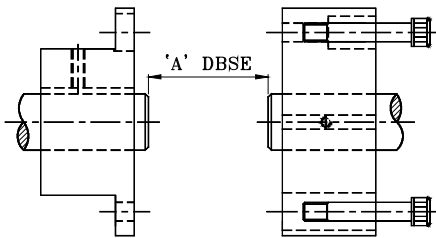


Fig. 4

(C) ALIGNMENT PROCEDURE

Alignment procedure is given separately for each type of alignment, for simplicity. However all 3 types of misalignments may be present at the same time.

IMPORTANT:

For optimum service from the coupling the installation misalignment (Initial misalignment) should not be more than 25% of the maximum allowable misalignment limits. Allowance should be made for any anticipated movements which will occur during operation (e.g. Thermal movements).

For Permissible *INITIAL* misalignments refer table 1 on page no. 8.

For Permissible *MAXIMUM* misalignments refer table 2 on page no. 8.

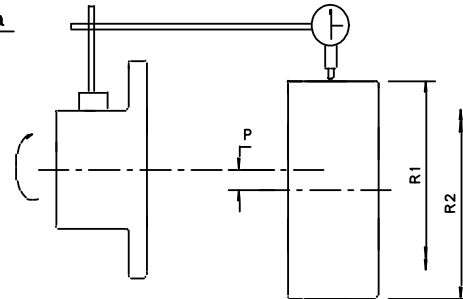
DISC-O-FLEX COUPLING

(I) CHECKING PARALLEL / RADIAL ALIGNMENT

(a) Using Dial Gauge :

Clamp the dial indicator at one end and rest the plunger on O.D. of another hub. Take the reading at each quarter revolution of hub by rotating one end. The parallel misalignment (P) is half the Total Indicated Reading (TIR) shown on dial gauge. (Refer Fig. a)

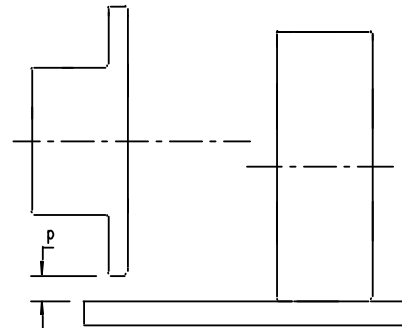
FIG. a



(b) Using Straight Edge :

If the field constraints do not permit the use of dial indicator then use straight edge. Measure gap 'P' by using filler gauge (Refer Fig. b)

FIG. b



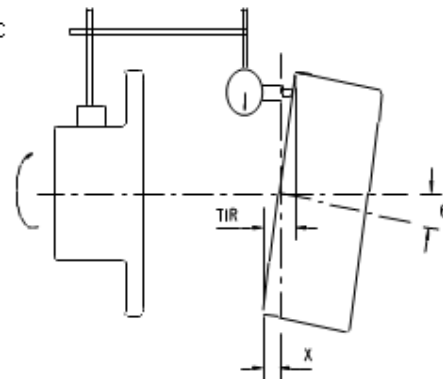
Remember: The parallel misalignment 'P' should not exceed the permissible initial parallel misalignment mentioned in table 1.

(II) CHECKING ANGULAR ALIGNMENT

(a) Using Dial Gauge :

Clamp the dial indicator at one end and rest the plunger on face of the another hub. Take the reading at each quarter revolution of hub by rotating one end. The angular misalignment (X) is half the Total Indicated Reading (TIR) shown on dial gauge. (Refer Fig. c)

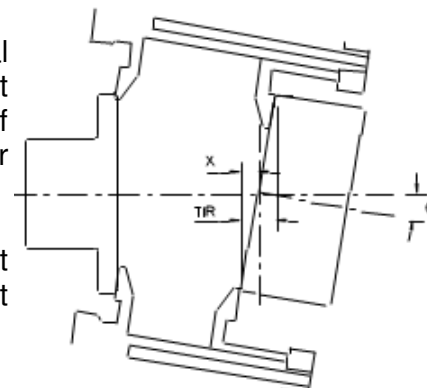
FIG. c



(b) Using Vernier Calliper :

If the field constraints do not permit the use of dial indicator then use vernier calliper. Measure DBSE at 4 places 90° apart. The angular misalignment is half the Total Indicated Reading (TIR) shown on vernier scale. (Refer Fig. d)

FIG. d



Remember: The angular misalignment should not exceed the permissible initial angular misalignment mentioned in table 1.

DISC-O-FLEX COUPLING

(D) a) ASSEMBLY PROCEDURE FOR RLM TYPE COUPLING

Clean all the parts carefully.

IMPORTANT: If the coupling is dynamically balanced, ensure that the matchmarks are in straight line & unidirectional before bolting the assembly.

- 1) Support the spacer between two hubs in such a way that the small holes of spacer flange will be in line with the large holes of the hub.
- 2) Hold the flexible (rivetted) blade-pack between the hubs & spacer flanges.
- 3) Insert Allen head bolts with sleeves from hub side through the large holes of hubs, blade-pack holes & small holes of spacer and tighten the nylock nut.
- 4) Then insert the Allen head bolts from hub side through the small holes of hubs, blade-pack holes and large holes of spacer flange. Insert the sleeves from spacer side & tighten the nylock nut.
- 5) Follow the same procedure from other side also. Then tighten all the nylock nuts to the required tightening torques given in table 3 on page no.9.

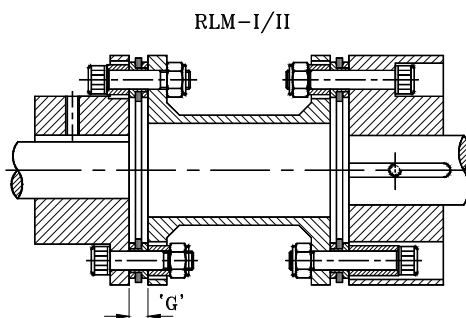


Fig. 5

- 6) Ensure the Gap 'G' is equal at both sides of spacer. Value of gap 'G' is given in table 1 & 2. Tighten the foundation bolts of both equipments.

IMPORTANT: The necessity for shields & guards varies with individual installations. The owner or user must provide the required safety guards. We do not furnish safety guards or shields with this equipment.

(D) b) ASSEMBLY PROCEDURE FOR RLMK TYPE COUPLING

Clean all the parts carefully.

IMPORTANT: If the coupling is dynamically balanced, ensure that the matchmarks are in straight line & unidirectional before bolting the assembly.

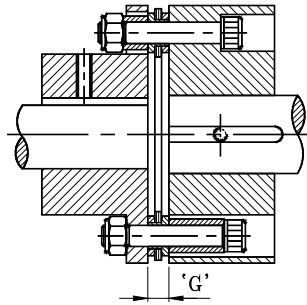


Fig. 6

- 1) Mount the hubs on respective shaft with distance `G` apart. The large holes of Hub-II should be in line with the small holes of Hub-I as shown in above fig.
- 2) Hold the flexible (rivetted) blade-pack between the hubs.
- 3) Insert Allen head bolts from Hub-II side through small holes, blade-pack holes and large holes of Hub-I. Insert the sleeves of small length from Hub-I side & tighten the nylock nut. (For tightening torque refer table 3).
- 4) Then insert Allen head bolts with sleeves of longer length through the large holes of Hub-II side, blade-pack holes & small holes of Hub-I side & tighten the nylock nut.
- 5) To avoid loosening of nut, apply thread locker, loctite 270 solution on threads before tightening the bolts
- 6) Ensure that Gap "G" is maintained equally at four places 90° apart without rotating either of the shaft. For Gap "G" refer table no. 1 & 2. Tighten all foundation bolts.

IMPORTANT: The necessity for shields & guards varies with individual installations. The owner or user must provide the required safety guards. We do not furnish safety guards or shields with this equipment.

(E) DISMANTLING PROCEDURE

Failures are rare & can be attributed to excessive misalignment, severe overload or a combination of the both. In all cases of the coupling failure, it is advisable that the cause of failure is first identified & then corrected. Failure of coupling will generally be a failure of blade assembly. These assemblies should be replaced in pairs. Failure of one will usually result in damage to the other.

Support the spacer such that the blades should not be under stresses due to external loads, such as spacer weight.

Remove the required bolts, nuts such that spacer/spacer assembly will get free from complete assembly.

(F) PERMISSIBLE MISALIGNMENTS FOR DISC-O-FLEX COUPLING

PERMISSIBLE INITIAL MISALIGNMENTS FOR RLM/RLMK COUPLING

TABLE 1

PERMISSIBLE INITIAL MISALIGNMENTS					
Coupling Size	Angular		Axial (± mm)	Parallel (mm/mm) SPAN) #	* GAP 'G' (Std) (mm)
	Degree per Disc pack	Diff. in gap (mm)			
10	0.18°	0.125	0.25	0.003	6.5
35					6.5
95					8
170		0.375			9.5
220					12
400					13
520		0.7	0.5		14.4
1000					16.2
1300					19.5
2000					21.5
2500					23.5

PERMISSIBLE MAXIMUM MISALIGNMENTS FOR RLM/RLMK COUPLING

TABLE 2

PERMISSIBLE MAXIMUM MISALIGNMENTS					
Coupling Size	Angular		Axial (± mm)	Parallel (mm/mm) SPAN) #	* GAP 'G' (Std) (mm)
	Degree per Disc pack	Diff. in gap (mm)			
10	0.75°	0.5	1	0.013	6.5
35					6.5
95					8
170		1.5			9.5
220					12
400					13
520		2.8	2		14.4
1000					16.2
1300					19.5
2000					21.5
2500					23.5

- Gap 'G' in above table is given when angular and axial misalignments are zero.
- # SPAN = DBSE – G
- For RLMK Couplings, parallel misalignment is zero.

DISC-O-FLEX COUPLING**(G) TIGHTENING TORQUES FOR RLM & RLMK COUPLINGS****TABLE 3**

Coupling Size	Bolt Size	Nm
10	M6	10
35	M6	10
95	M8	23
170	M10	46
220	M12	80
400	M14	129
520	M16	150
1000	M18	205
1300	M20	285
2000	M22	380
2500	M24	400

Note : All the above values are for Allen head bolts high Tensile Grade 12.9 as per DIN-912.

(H) MAINTENANCE INSTRUCTIONS:

General maintenance of coupling consists of following check points during normal machinery maintenance schedules.

- Ensure that Axial, Angular & Parallel misalignments are still within the acceptable limits and no major movements have occurred. It is recommended that a record of misalignment readings is maintained.
- All bolts to ensure that they are correctly tightened.
- Check the flexible elements, by visual inspection, for any signs of fatigue failure or cracking to the washer anchoring points or general signs of fretting corrosion. Slight bowing or "S" like distortion is not detrimental to the operation of the unit. Note that any cracking will begin at the outermost edge of the outside blade. This means that, this inspection is still possible without disturbing the element bolting.
- It is recommended that nylock nuts are to be replaced after being re-torqued 4 to 5 times.

Note : Any requirement for spare parts should be made quoting the original purchaser, original purchase order number and the coupling drawing number. Suggested maintenance intervals are:-

- i) 1-2 months
- ii) At planned machine down time intervals.