

INSTALLATION INSTRUCTION

JAW-FLEX COUPLING



Synthetic Rubber,
Polyurethane, Hytrel,
Bronze

RATHI TRANSPower PVT. LTD.
PUNE INDIA

Amendments

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CONTENTS

SR.No.	Topics	Page No
1	Before Installation	4
2	Mounting Procedure	4
3	Alignment Procedure	5
4	Permissible Misalignment	7
5	Assembly Procedure	9
6	Tightening Torque	11
7	Installation & removal of taper bushes	12

INSTALLATION & ASSEMBLY INSTRUCTIONS

(1) BEFORE INSTALLATION

- a. After removing the coupling from packing, thoroughly inspect to ensure that they is/are as ordered & there no is transit damage or loss.
- b. Remove protective coating/lubricant from bores & keyways. Remove all the bolts & nuts and dismantle the assembly. (In RRS, SWQ, HQ, HR, SWS)
- c. Follow instruction given on page no. 28, if couplings are pilot bored. (Fig. 1)

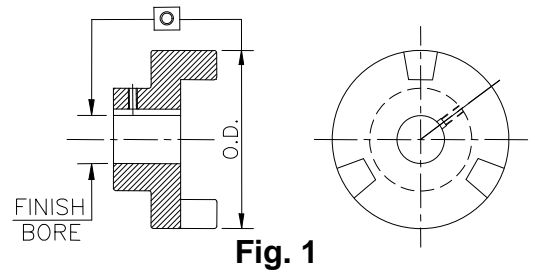


Fig. 1

(2) MOUNTING PROCEDURE

Mount hubs/adapters (*) on their respective shafts with keys such that the shaft ends are flush with inner face of the adapter & tighten the set screw over the keys. Bring both the coupling hubs/adapters (along with equipments) closer so as to maintain gap 'G' as shown in fig. 2a.

L type couplings: insert the spider in one of the hubs. In case of Non-spacer couplings the distance between shaft ends (DBSE) is equal to the total length of the coupling less length through bore of both the hubs. In case of spacer type of couplings, the spacer length is normally equal to the distance between shaft ends of the equipments. Refer fig.2b. Dimension 'G' is shown in table 'C2/C3' (page 37).

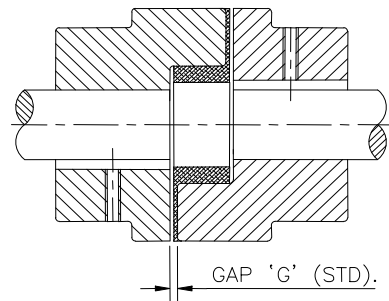


Fig. 2a

- | | | |
|-----------|---|-----------------------------|
| * HUB | - | Coupling half with jaws. |
| * ADAPTER | - | Coupling half without jaws. |

L - TYPE

IN CASE OF SPACER COUPLING (FIG. 2b)

For normal applications the shaft ends should be flush with inner face of hub/adapter, they can protrude beyond the inner face of hub/adapter or remain inside if required but sufficient gap should be allowed to take care of end float of both shafts (i.e. axial misalignment)

Ensure that the effective length of key is sufficient to transmit the rated torque of the coupling.



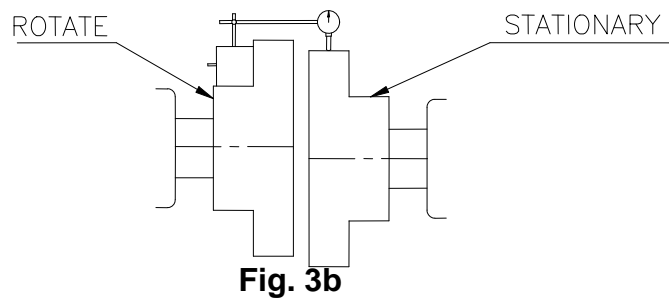
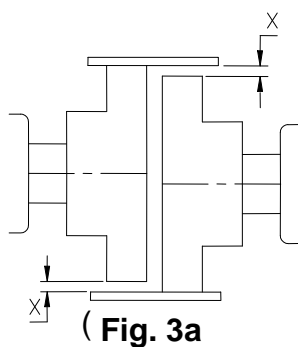
Fig. 2b

H, HR & HQ couplings:

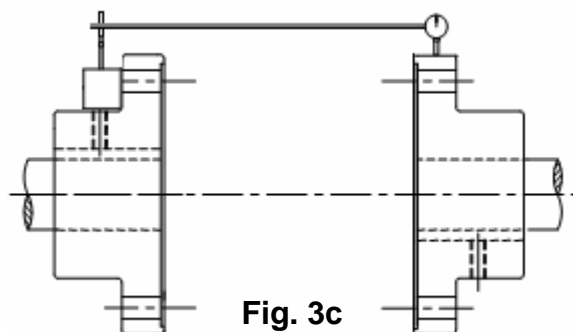
Insert the inner ring before bringing the equipments for to their final mounting positions. In case of couplings with outer ring (i.e. SW, SWS, RRS, SWQ, H, HR & HQ) mount the outer ring on one of the adapters and slide it towards the nearest equipment.

(3) ALIGNMENT PROCEDURE

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

(I) CHECKING PARALLEL/RADIAL ALIGNMENT (FIG. 3)

- Using straight edge (fig 3a): Align straight edge on OD of one half measure gap 'X' at 4 places 90° apart without rotating shafts. Gap 'X' should be less than the allowable initial parallel misalignment (P) mentioned in Table 'C1/C3'.
- Using dial gauge (fig 3b): Fix dial gauge on the hub of one of the half & set plunger on the OD of another half. Rotate the coupling slowly to one complete revolution by taking dial gauge reading at 4 places 90° apart. The parallel misalignment is half of the Total Indicated Reading (TIR) of dial gauge which should not exceed the value 'P' given in Table 'C1/C3'.
- Follow the same procedure in case of spacer coupling as shown in fig. 3c.



(II) CHECKING ANGULAR ALIGNMENT (FIG. 4)

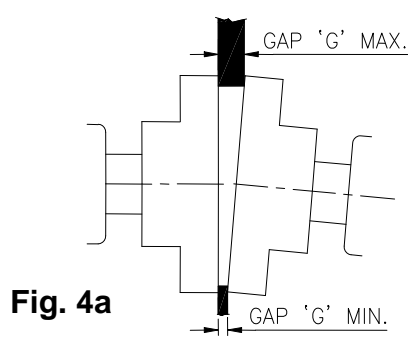


Fig. 4a

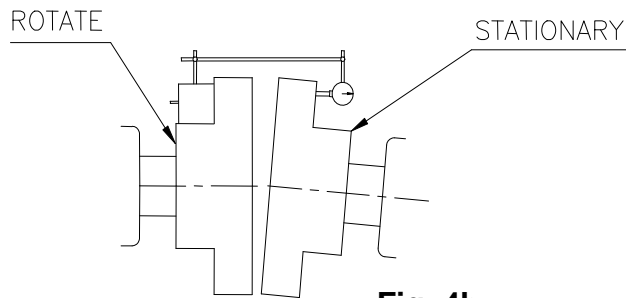


Fig. 4b

- **Using feeler gauge (fig 4a):** Measure gap 'G' at 4 places 90° apart without rotating shafts. The difference in maximum & minimum gap will be the Total Indicated Reading (TIR), which will be the angular misalignment present (Refer Table 'C1/C3' for allowable TIR values in mm).

The values for deviation in standard gap i.e. angular misalignment should be within the limits as shown in table 'C1/C3'.

- **Using dial gauge (fig 4b) :** Fix the dial gauge on hub OD of one of the halves & set plunger on the face of the another half as shown. Rotate the coupling slowly to one complete revolution by taking dial readings at 4 intervals 90° apart. The Total Indicated Readings (TIR) will be the angular misalignment (Refer Table 'C1/C3').

Follow the same procedure in case of spacer coupling as shown in fig. 4c.

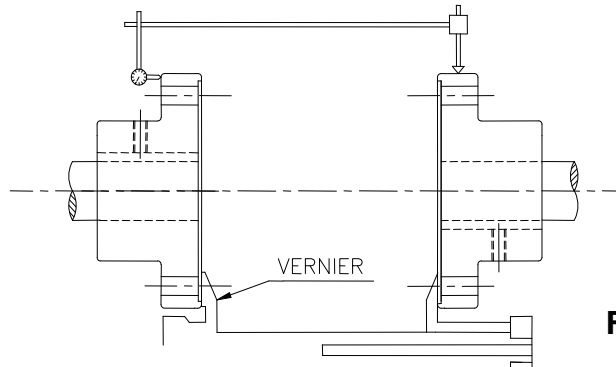


Fig. 4c

III) CHECKING AXIAL MISALIGNMENT (End-Float)

- Deviation from standard DBSE due to axial movement of shaft is defined as axial misalignment (End float). [For normal applications the shaft ends should be flushed with inner face of hub/adaptor. In some special cases the shaft ends may protrude beyond the inner face of hub/adaptor or may remain inside if required.]
- The distance between two faces of coupling halves is to be maintained as specified. The variation in this distance should not exceed the permissible initial axial misalignment given in table 'C1/C3'. (Refer Fig. 2a, 2b)
- Repeat the above steps until the required permissible initial misalignment limits are achieved. Tighten foundation/base frame bolts & ensure the tightening of set screws over keys.

IMPORTANT - The misalignment capabilities shown in drawings & product literature allow for dynamic conditions & variations. 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)

(4) Permissible Misalignment:

TABLE C1

SR NO	COUPLING SIZE	PERMISSIBLE INITIAL MISALIGNMENT				* GAP 'G' (mm)
		Angular		Axial mm	Parallel / Radial (mm) P'	
		Degree	Total Indicated Reading (TIR) (mm)			
1	035	0.25°	0.07	± 0.125	0.1	1
2	050	0.25°	0.110	± 0.125	0.1	1
3	070	0.25°	0.157	± 0.25	0.1	2
4	075	0.25°	0.194	± 0.25	0.1	2
5	095	0.25°	0.235	± 0.25	0.1	2
6	099	0.25°	0.283	± 0.25	0.1	2
7	100	0.25°	0.283	± 0.25	0.1	2
8	110	0.25°	0.370	± 0.375	0.1	3
9	150	0.25°	0.419	± 0.375	0.1	3
10	190	0.25°	0.502	± 0.375	0.1	3
11	225	0.25°	0.554	± 0.375	0.1	3
12	226	0.25°	0.598	± 0.375	0.1	3
13	276	0.25°	0.685	± 0.375	0.1	3
14	280	0.25°	0.837	± 0.375	0.1	3
15	295	0.25°	1.034	± 0.375	0.1	3
16	2955	0.25°	1.034	± 0.375	0.1	3
17	300	0.25°	1.108	± 0.375	0.1	3
18	350	0.25°	1.330	± 0.375	0.1	3
19	3067	0.25°	1.108	± 0.375	0.1	3
20	3567	0.25°	1.221	± 0.375	0.1	3
21	3667	0.25°	1.330	± 0.375	0.1	3
22	4067	0.25°	1.475	± 0.375	0.1	3
23	4567	0.25°	1.702	± 0.375	0.1	3
24	5069	0.25°	1.745	± 0.75	0.1	6
25	6069	0.25°	1.942	± 0.75	0.1	6
26	7069	0.25°	2.216	± 0.75	0.1	6
27	8069	0.25°	2.508	± 0.75	0.1	6
28	9011	0.25°	2.770	± 0.75	0.1	6

- In case of RRS couplings, double the values of axial & angular misalignment for corresponding size.
- For RRS (sizes from 095 to 226) Parallel misalignment = 0.005 mm per mm of DBSE

* Gap 'G' in the above table is when angular and axial misalignments are zero.

Note: For permissible maximum misalignments, refer table 'C2'.

TABLE C2

SR NO	COUPLING SIZE	PERMISSIBLE MAXIMUM MISALIGNMENT				* GAP 'G' (mm)
		Angular		Axial (mm)	Parallel / Radial (mm)'P'	
		Degree	Total Indicated Reading (TIR)(mm)			
1	035	1°	0.27	±0.5	0.4	1
2	050	1°	0.40	±0.5	0.4	1
3	070	1°	0.6	±1	0.4	2
4	075	1°	0.7	±1	0.4	2
5	095	1°	0.9	±1	0.4	2
6	099	1°	1.1	±1	0.4	2
7	100	1°	1.1	±1	0.4	2
8	110	1°	1.4	±1.5	0.4	3
9	150	1°	1.6	±1.5	0.4	3
10	190	1°	2.0	±1.5	0.4	3
11	225	1°	2.2	±1.5	0.4	3
12	226	1°	2.4	±1.5	0.4	3
13	276	1°	2.7	±1.5	0.4	3
14	280	1°	3.3	±1.5	0.4	3
15	295	1°	4.1	±1.5	0.4	3
16	2955	1°	4.1	±1.5	0.4	3
17	300	1°	4.4	±1.5	0.4	3
18	350	1°	5.3	±1.5	0.4	3
19	3067	1°	4.4	±1.5	0.4	3
20	3567	1°	4.9	±1.5	0.4	3
21	3667	1°	5.3	±1.5	0.4	3
22	4067	1°	5.9	±1.5	0.4	3
23	4567	1°	6.8	±1.5	0.4	3
24	5069	1°	7.0	±3	0.4	6
25	6069	1°	7.7	±3	0.4	6
26	7069	1°	8.8	±3	0.4	6
27	8069	1°	10.0	±3	0.4	6
28	9011	1°	11.0	±3	0.4	6

- In case of RRS couplings, double the values of axial & angular misalignment for corresponding size.
- For RRS (from sizes 095 to 226) Parallel misalignment = 0.02 mm per mm of DBSE.
- Gap 'G' in above tables is when angular and axial misalignments are zero.

Important: At the time of installation, INITIAL misalignments should not exceed 25% or permissible maximum misalignments.

Note : For permissible initial misalignments, refer table 'C1/C3'.

TABLE C3

SR NO	COUPLING SIZE	PERMISSIBLE MAXIMUM MISALIGNMENT			* GAP 'G' (mm)
		Angular Degree	Axial (mm)	Parallel / Radial (mm)'P'	
1	19	0.80°	-0.5 +1.1	0.15	2
2	24	0.80°	-0.5 +1.3	0.20	2
3	28	0.80°	-0.7 +1.3	0.20	2.5
4	38	0.90°	-0.7 +1.5	0.25	3
5	42	0.90°	-1.0 +1.3	0.30	3
6	48	1.0°	-1.0 +2.0	0.35	3.5
7	55	1.0°	-1.0 +2.0	0.35	4
8	65	1.0°	-1.0 +2.5	0.40	4.5
9	75	1.1°	-1.5 +2.0	0.45	5
10	90	1.1°	-1.5 +3.0	0.50	5.5

(5) ASSEMBLY PROCEDURE

After ensuring that the equipments are aligned properly, follow the instructions as given below for assembly of couplings.

a) For L, RFC

Assemble the hubs onto the shaft of driving and driven side. Insert the spider into jaw section of the drive or driven sided hub. Move the power hubs in axial direction until the dimension 'G' is achieved. Fasten the hubs by tightening the setscrews.

b) For SW, H

Wrap the snap wrap(s)/insert cushions of required size in the space between the jaws. Then slide the outer ring over the snap wrap(s)/cushions & fix it to the hub with the help of screws/bolts provided along with the washers.

c) For RRL/LQ

Assemble Jaw body with spider and insert the spacer assembly in between two adapters mounted on respective shaft. Rest jaw body locating step in the inner step of adapter and tighten the hex head bolts from adapter side with the tightening torque given in table 'B' (Page No. 40)

d) For SWQ, HR & HQ

Take the spacer jaw body assembly with the inside & outside rings without elastomeric elements. Insert spacer assembly in the steps provided in the adapters.

Tighten the bolts with the torque given in table 'B' (page 40) for tightening torque. Wrap the snap wrap(s)/insert cushions of required size in the space between jaws. Then slide the outer ring over the snap wrap(s)/cushions accordingly & fix it to the hub with the help of screws/bolts along with the washers.

e) For RRS

Insert the spacer between RRS hubs mounted earlier as explained in mounting procedure. Wrap/insert the snap wrap/'T' cushions in the space between jaws. Then slide the outer ring over the snap wrap(s)/T-cushions & fix it to the hub with the help of screws/bolts along with washers.

f) For SWS

Insert jaw body over the pump side adapter. Assemble one half of the jaw body with the pump side adapter with the help of bolts. Slide another jaw body over pump side adapter. Insert the spacer along with outer ring between motor side adapter & jaw body as shown in fig. A on page 39. Locate the spacer in steps provided on motor side adapter and jaw body and assemble each other with the help of bolts. Then insert the cushions between jaws of jaw bodies & fix the outer ring over the cushions.

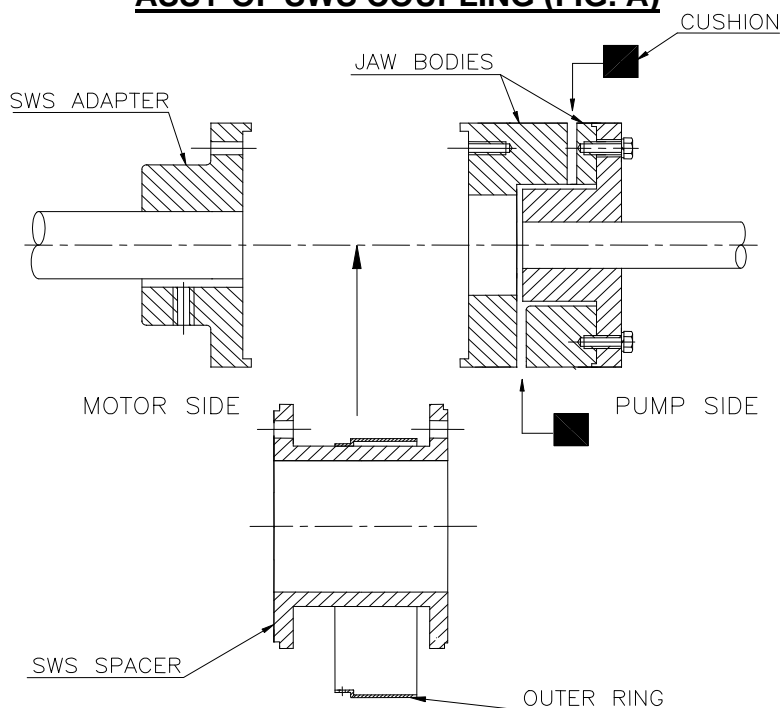
g) For RRJ

Assembly procedure for RRJ coupling is same as L/RFC coupling, no separate procedure is required to be followed.

IMPORTANT: If the coupling is supplied with dynamic balancing, ensure that the match marks (e.g. nos., alphabets) are in straight line & unidirectional before bolting the spacer assembly with both the adapters. Same is applicable to non-spacer couplings where match marks on hubs / adapters have to be matched.

The necessity of shields and guards varies with individual installations. The owner or user must provide the required safety guards. Safety guards or shields are not in our scope of supply.

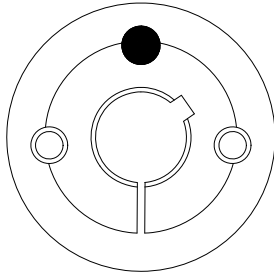
ASSY OF SWS COUPLING (FIG. A)



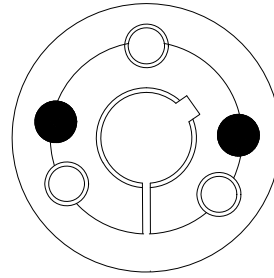
(6) RECOMMENDED TIGHTENING TORQUE**TABLE B**

SR NO	COUPLING SIZE	BOLT SIZE	TIGHTENING TORQUE (Nm)
1	095	M6 X 1P	5
2	100	M6 X 1P	5
3	110	M8 X 1.25P	12.5
4	150	M10 X 1.5P	25
5	190	M10 X 1.5P	25
6	225	M12 X 1.75P	44
7	226	M12 X 1.75P	44
8	276	M12 X 1.75P	44
9	280	M14 X 1.75P	70
10	295	M16 X 2P	107
11	2955	M16 X 2P	107
12	300	M20 X 2.5P	215
13	350	M20 X 2.5P	215
14	3067	M20 X 2.5P	215
15	3567	M22 X 2.5P	293
16	3667	M22 X 2.5P	293
17	4067	M24 X 3P	372
18	4567	M24 X 3P	372
19	5069	M24 X 3P	372
20	6069	M24 X 3P	372
21	7069	M24 X 3P	372
22	4067	M16 X 2P	107
23	4567	M16 X 2P	107
24	5069	M16 X 2P	107
25	6069	M16 X 2P	107
26	7069	M16 X 2P	107
27	8069	M20 X 2.5P	215
28	9011	M20 X 2.5P	215

Note: These tightening torques are for the bolts engaging with the spacer & driving/driven equipments.

(7) INSTALLATION & REMOVAL OF HUBS/ADAPTERS WITH TAPER BUSHES

Sizes - 1008 to 3030



Size - 3525 to 5050

a) TO ASSEMBLE

1. Clean and de-grease the bore and tapered surfaces of the bush and the tapered bore of the Hubs/Adapters. Insert the bush in the coupling hubs/adapters and line up the holes (half threaded holes must line up with half straight holes)
2. Lightly oil the grub screws (bush size 1008 to 3030) or the cap screws (bush size 3525 to 5050) and screw them loosely in holes threaded in hub/adaptor shown thus ● in diagram, do not tighten yet.
3. Clean and de-grease the shaft. Fit the coupling hub/adaptor with taper bush on shaft and locate in desired position.
4. When using a key it should first be fitted in the shaft keyway. There should be a top clearance between the key and the keyway in the bore.
5. Using a hexagon socket wrench, gradually tighten the grub/cap screws in accordance with the torques as listed in the Table 'D' of screw tightening torques.
6. After running the drive under load about half to one hour check whether screws are loosened. If found loose take appropriate steps.
7. In order to eliminate the ingress of dirt, fill all empty holes with grease.

a) FOR REMOVAL

1. Slacken all screws. Remove one or two according to number of jacking off holes shown thus ● in the diagram. Insert these screws in jacking off holes.
2. Tighten screw(s) uniformly and alternately until the bush is loose in the Hubs/Adapters and coupling is free on the shaft.
3. Remove coupling assembly from the shaft.

TABLE 'D'

Taper Bush Size	Screw tightening Torque(Nm]	Screw	
		Size	Qty
1008 1108	5.6	1/4" BSW	2
1210 1215	20	3/8" BSW	2
1610 1615	20	3/8" BSW	2
2012 2017	31	7/16" BSW	2
2517 2525	48	1/2" BSW	2
3020 3030	90	5/8" BSW	2
3525 3535	112	1/2" BSW	3
4030 4040	170	5/8" BSW	3
4545	192	3/4" BSW	3
5050	271	7/8" BSW	3