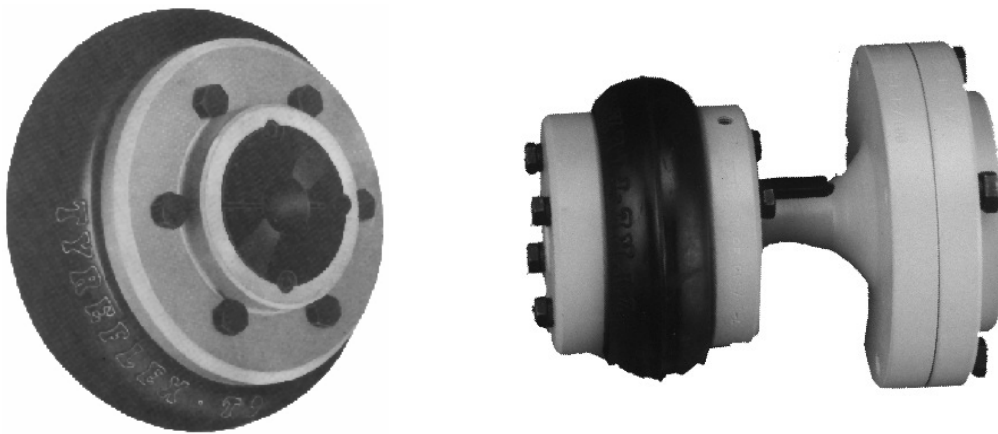


**INSTALLATION & OPERATION MANUAL
FOR
TYRE-Flex Couplings**

**TYRE - FLEX COUPLING
(T,TO & RST)**



**RATHI TRANSPower PVT. LTD.,
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PUNE – 411 014 (INDIA)**

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1. NOTES

1.1 GENERAL INSTRUCTIONS

Please read the assembly instructions carefully before starting to operate the coupling. Pay particular attention to the safety instructions.



The TYRE-FLEX coupling is approved for use in hazardous areas if marked with CE mark.

When using the coupling in potentially hazardous areas, pay special attention to the safety instructions.

The assembly instructions are part of your product and should be available with maintenance personal at all times until it is assembled.

Keep these instructions in a safe place, so they can be referred to by maintenance personnel.

1.2 SAFETY AND ADVICE INSTRUCTIONS



Danger!

Danger of injury to persons.



Caution!

Damages on the machine possible.



Attention!

Pointing to important items.



Caution!

Hints concerning explosion protection.

1.3 GENERAL INSTRUCTIONS OF DANGER



Danger!

With assembly, operation and maintenance of the coupling make sure that the entire drive train is protected against unintentional engagement. Serious injuries can occur from rotating parts. Likewise, make sure to read through and observe the following safety instructions:

- All operations on and with the coupling must be performed with “safety first” being the primary consideration.
- Make sure to disengage the power supply before you perform your work.

- Protect the power supply against unintentional engagement, for example, by providing hints at the place of engagement, or removing the power supply fuse.
- Do not touch the coupling's working area while it is operating.
- Protect the coupling against unintentional touch. Provide the necessary protective covers and devices.

1.4 PROPER USE

Assembly, operation and maintenance work may be performed on the coupling only if:

- The assembly instructions are read carefully and understood.
- The personnel are technically qualified & are authorized to do so by the company.

The coupling may only be used in accordance with the technical data.

Unauthorized modifications to the coupling are not admissible. We decline any warranty due to consequent damage. For future development of the product, we reserve the right to make technical modifications.

The TYRE-FLEX coupling described here corresponds to the technical status at the time of printing these assembly instructions.

1.5 INTENDED USE OF THE COUPLING

The intended use of the coupling is to connect input and output of a power transmission drive with each other, in most cases these are two shafts. For Stationary Application Additional equipment like brake drums, torque limiter, etc. can be added to the couplings and will not change the intended use.

The coupling compensates within the technical limits misalignment and dampens shock loads or vibrations.

MANUFACTURER'S DECLARATION IN CONFORMANCE TO EC MACHINE DIRECTIVE 2006/42/EC

Rathi TYRE-Flex Couplings must be treated as components in the sense of the EC machine directive 2006/42/EC.

Therefore M/s Rathi need not issue a separate declaration of conformity.

Information for safe use, installation, start up and operation can be found in this manual.

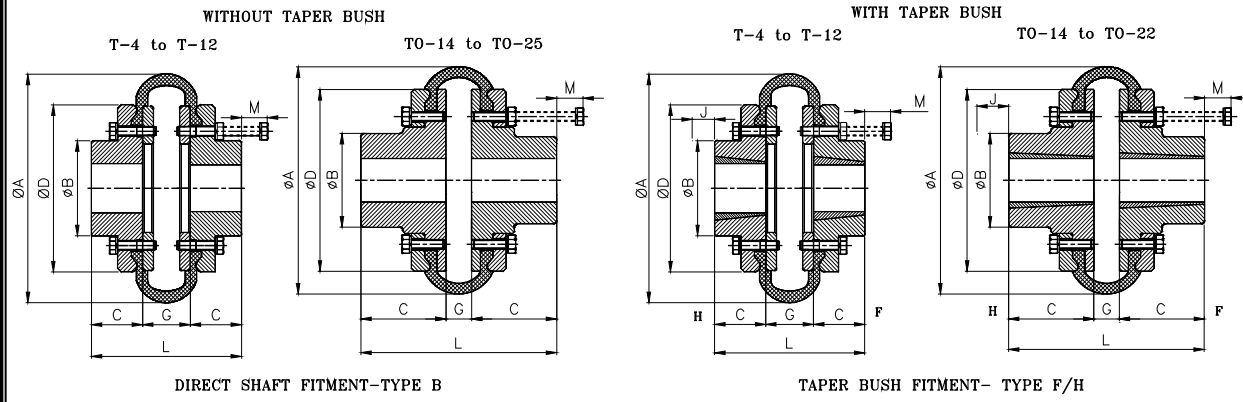
TYRE-FLEX COUPLING



2. TECHNICAL DATA

2.1 DIMENSIONS, SPEED & WEIGHTS

Tyre flex Couplings



CPLG. SIZE	KW @ 100 RPM	MAX. SPEED (RPM)	TYPE	BUSH SIZE	BORE		TYPE F/H			TYPE B		ØA	ØD	ØB	M	G	WT. (Kg)	M.I. (WR ²) Kg-m ²		
					PB	MAX.	L	C	J	L	C									
T-4	0.25	4500	B	-	10	32	-	-	-	68	22	104	82	-	17	24	1.9	0.00161		
			F/H	1008	-	25	68	22	29	-	-								1.7	0.00148
T-5	0.69	4500	B	-	10	38	-	-	-	93	32	133	100	79	17	29	3.5	0.00358		
			F/H	1210	-	32	79	25	38	-	-								2.7	0.00349
T-6	1.33	4000	B	-	15	45	-	-	-	111	38	165	125	73	8	35	5	0.0105		
			F/H	1610	-	42	85	25	38	-	-								3.6	0.0103
TO-7	2.62	3600	B	-	19	50	-	-	-	106	45	197	144	82	-	16	8.4	0.0177		
			F	2012	-	50	80	32	38	-	-								6.35	0.0192
			H	1610	-	42	66	25	-	-	-								6.2	0.0157
TO-8	3.93	3100	B	-	25	63	-	-	-	124	51	210	167	96	10	22	11.5	0.0329		
			F	2517	-	60	112	45	42	-	-								8.53	0.0303
			H	2012	-	50	86	32	-	-	-								8.5	0.0293
TO-9	5.24	3000	B	-	30	75	-	-	-	138	57	235	188	110	-	24	16	0.0599		
			F/H	2517	-	60	114	45	48	-	-								12	0.0538
TO-10	7.07	2600	B	-	32	80	-	-	-	144	60	254	216	125	-	24	22.7	0.1148		
			F	3020	-	75	126	51	48	-	-								18.2	0.1062
			H	2517	-	60	114	45	-	-	-								18.1	0.1058
TO-11	9.16	2300	B	-	32	90	-	-	-	152	65	279	233	140	-	22	28.3	0.1631		
			F/H	3020	-	75	124	51	55	-	-								21.1	0.1461
TO-12	13.9	2050	B	-	38	100	-	-	-	177	76	314	264	152	-	24.5	40.1	0.2902		
			F	3525	-	90	155	65	55	-	-								30.33	0.2627
			H	3020	-	75	127	51	-	-	-								30.3	0.2622
TO-14	24.3	1800	B	-	58	127	-	-	-	201	89	359	311	195	26	23	60.6	0.6045		
			F/H	3525	-	90	153	65	67	-	-								42.6	0.4922
TO-16	39.5	1600	B	-	65	140	-	-	-	212	102	395	345	216	-	8	86.4	1.2755		
			F/H	4030	-	100	162	77	80	-	-								72.6	1.1134
TO-18	65.7	1500	B	-	70	150	-	-	-	254	116	470	398	220	-	22	133.3	2.1525		
			F/H	4535	-	115	200	89	89	-	-								123	1.9514
TO-20	97.6	1300	B	-	70	150	-	-	-	258	114	508	429	220	-	30	144.6	3.1765		
			F/H	4535	-	115	208	89	89	-	-								158.3	3.0129
TO-22	121	1100	B	-	75	160	-	-	-	281	127	562	470	240	-	27	181.63	4.7861		
			F/H	5040	-	125	231	102	92	-	-								195.1	4.8954
TO-25	154	1000	B	-	85	190	-	-	-	294	132	628	532	275	-	30	281.1	8.129		

NOTES:

- 1) All Dimensions are in mm.
- 2) 'M' is amount by which clamping screw need to be withdrawn to release tyre.
- 3) 'J' is wrench clearance to allow for tightening and loosening of the bush on the shaft.
- 4) Shaft ends, although normally located G apart can project beyond flanges.
- 5) Weight & Moment of inertia specified for solid bores.

TYRE-FLEX COUPLING



RST Type Couplings

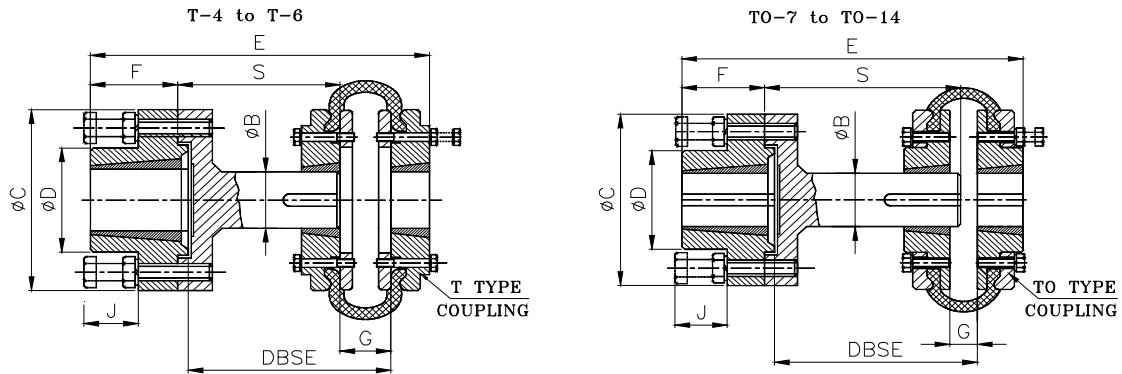


TABLE A

SPACER SIZE	NOM. DBSE	BUSH.		ØC	ØD	E		F	J	S		ØB	TYRE FLEX SIZE T/TO	BUSH		G			
		SIZE	MAX. BORE			T	TO			T	TO			SIZE	MAX. BORE	T	TO		
RST-12	80 100	1210	32	118	83	130 150	-	25	22	57 77	-	25	4	1008	25	24	-		
RST-16	100	1615	42	127	80	163	-	38	24	94	-	32	4*	1008	25	24	-		
	140					203				134			4*	1008	25	24			
	100					166				94			5	1210	32	29			
	140					206				134			5	1210	32	29			
	100					166				94			6	1610	42	35			
140	206	134	6	1610	42	35													
RST-25	100	2517	60	178	127	180	-	45	27	94	48	60	7F	2012	50	-	16		
	140					220				134			7F	2012	50	16			
	180					260				174			7F	2012	50	16			
	100					193				94			8F	2517	60	22			
	140					233				134			8F	2517	60	22			
	180					273				174			8F	2517	60	22			
	140					233				134			9	2517	60	24			
180	273	174	9	2517	60	24													
RST-30	140	3030	75	216	146	270	-	76	33	134	60	75	10F	3020	75	-	24		
	180					310				174			10F			3020	75	-	24
	140					270				134			11					22	
	180					310				174			11					22	
RST-35	140	3535	90	248	178	297	-	89	33	134	80	90	12F	3525	90	-	24.5		
	180					337				174			12F			3525	90	-	24.5
	140					297				134			14					23	
	180					337				174			14					23	

*T-4 B Flange must be used to fit spacer shaft.

TABLE B

TABLE FOR DISTANCE BETWEEN SHAFT ENDS (DBSE)

TYRE FLEX SIZE T/TO	RST 12		RST 16				RST 25						RST-30				RST-35			
	80		100		140		100		140		180		140		180		140		180	
	MI N	MA X	MI N	MA X	MI N	MA X	MI N	MA X	MI N	MA X	MI N	MA X	MI N	MA X	MI N	MA X	MI N	MA X	MI N	MA X
4	80	100	100	113	140	153	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	100	116	140	156	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	100	124	140	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7F	-	-	-	-	-	-	100	107	140	147	180	187	-	-	-	-	-	-	-	-
8F	-	-	-	-	-	-	100	112	140	152	180	192	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	140	155	180	195	-	-	-	-	-	-	-	-
10F	-	-	-	-	-	-	-	-	-	-	-	-	140	151	180	191	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-	140	151	180	192	-	-	-	-
12F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	140	156	180	196
14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	140	153	180	193

NOTE:

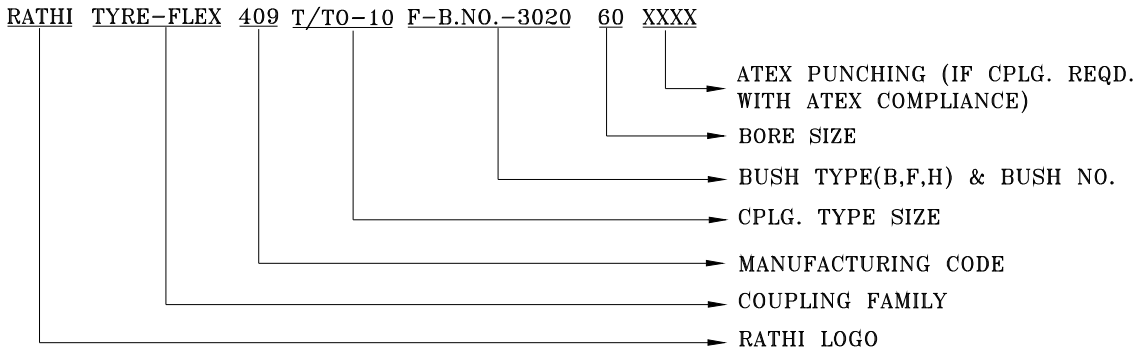
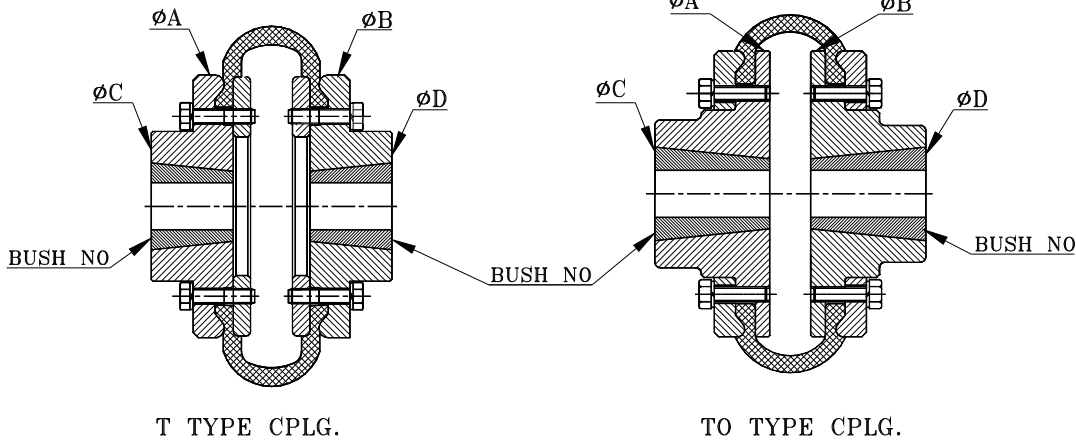
1) Non-Std spacers are available on request.

2.2 FLEXIBLE ELEMENT

- Shelf life (storage) of flexible elements is up to 1 year
- Protect Flexible elements against direct sunlight, artificial light with a high ultraviolet content, oil, grease & extreme temperature.
- Flexible element must not come in to contact with aggressive media.
- Flexible element must not be heated up to temperature given in the Table below, during installation.

SR. NO	MATERIAL	HARDNESS	TEMPERATURE RANGE
1	Natural Rubber	78 ± 5 A	-45 to +70 °C

3. MARKING DETAILS



e.g. (ATEX Punching)

RATHI TYRE-FLEX 409 TO-10 F B.NO.-3020 60 II 2GD -45°C +70°C

e.g. (Standard Punching)

RATHI TO-10 F B.NO.-3020 60 409

NOTE:

- 1) Sizes T-4 to TO-11 marking is on Flange OD (**ØA & ØB**).
- 2) Sizes TO-12 to TO-25 marking is on Hub Face (**ØC & ØD**).
- 3) For B-Type Coupling, only FB value is punched.

4. INSTALLATION INSTRUCTIONS

4.1 BEFORE INSTALLATION



- Remove the coupling from packing & thoroughly inspect for signs of damage.
- Disassemble the coupling by removing bolts. Clean all the parts carefully.
- Remove protective coatings / lubricants from bore & keyway.

4.2 FINISH BORE & KEYWAY PROCEDURE



Danger!

The maximum finish bore value (See Page No.-5 & 6 technical data) must not be exceeded. In the event of failure to keep to these values, the hub may break and the particles dispersed by the rotation may cause serious danger.

1. Rathi couplings are supplied with pilot bore unless ordered for finish bore. They should be bored to required finish bore sizes with reference of the outside diameter (OD) of hub (Refer fig. 1)

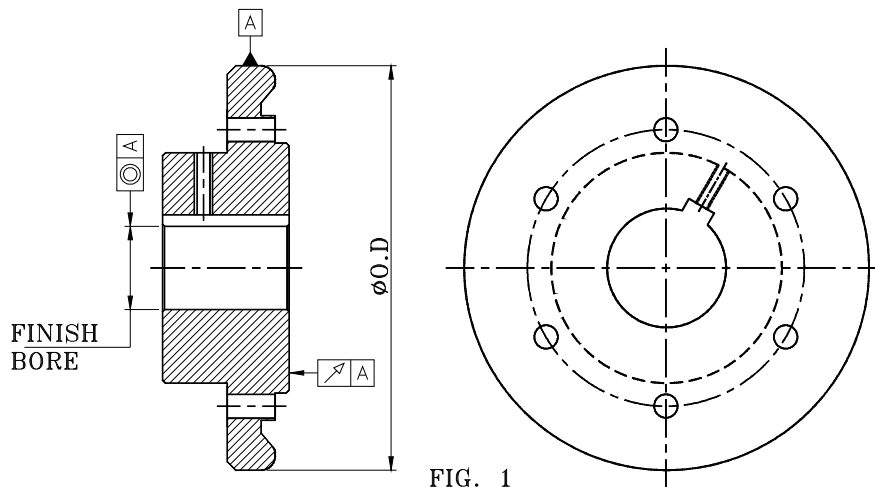


FIG. 1

2. Clamp the hub dia. on lathe and true the hub O.D. Maintain concentricity of finish bore w.r.t. OD and face run-out within 0.04 mm for dia. 10-180, 0.06 mm for dia. 180-400 & 0.08 mm for dia. 400-600
3. Unless otherwise specified, std. tolerance of H7 for Finish bore and for keyway width will be supplied as per DIN 6885/1.
4. Use dial bore gauge or plug gauge for respective bore size. (If plug gauge is used then ensure that Go end of gauge will pass straight way through out bore length.)
5. Make chamfer of required size on both the sides of bore.

6. Mark the keyway centre line such that keyway should come between two holes in TYRE-FLEX hubs (Refer FIG. 1).
7. A tapped hole is provided on the hub at keyway location to hold (lock) the key in shaft-hub with a set screw of suitable size. This tapping is generally provided at midpoint of the length through bore distance. If it is not possible to use set screw at midpoint, suitable distance nearer to midpoint of the length through bore is provided.
8. Use appropriate set screw to ensure effective locking of the key. Set screw will be provided for hubs with finish bore & keyway order.

4.3 MOUNTING PROCEDURE

1. Mount the hubs on respective shafts with keys such that the shaft ends are flush with inner face of the hub & tighten the set screw over the keys. Bring both the coupling hubs (along with equipments) closer so as to maintain gap 'G' as shown in fig.2. In case of spacer type couplings, the gap 'G' is equal to the spacer length (spacer length is normally equal to the distance between shaft ends of the equipments) refer fig. 3c on page no 11. Refer Dimension 'G' given in table A1 & A2 respectively on Page no. 14 & 15.

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

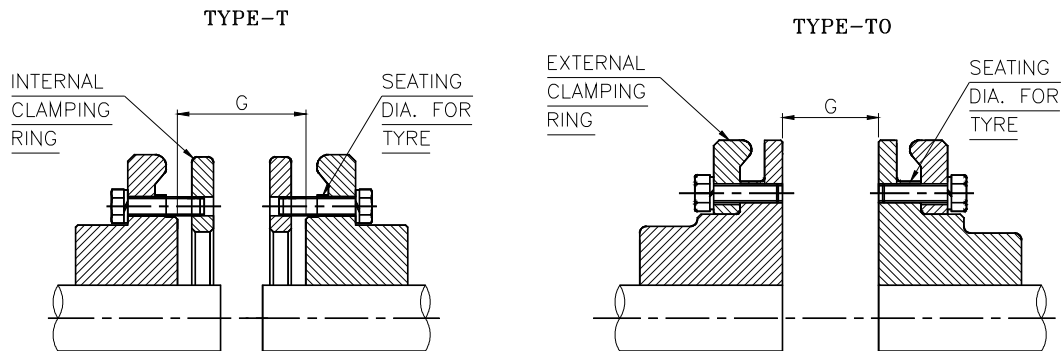


Fig. 2

Ensure that the effective length of key is sufficient for transmission of rated torque of Coupling.

Deviation in standard DBSE is defined as axial misalignment (end float). The distance between two faces of hubs is to be maintained as specified. The variation in this distance should not exceed the permissible initial axial misalignment given in table A1 on page 14.

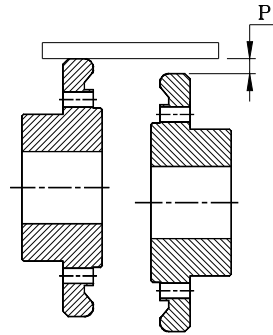
4.4 ALIGNMENT PROCEDURE

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.

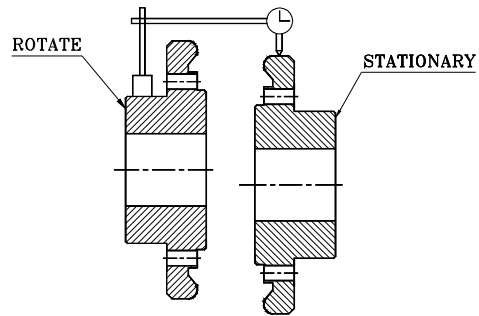
For Permissible *INITIAL (INSTALLATION)* misalignments refer table A1 on page 14.

For Permissible *MAXIMUM (OPERATIONAL)* misalignments refer table A2 on page 15.

4.4.1 CHECKING PARALLEL /RADIAL ALIGNMENT

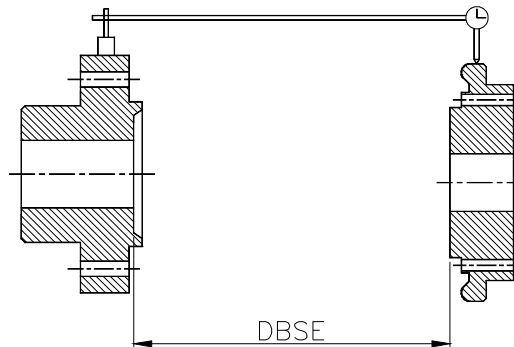


(fig 3a)



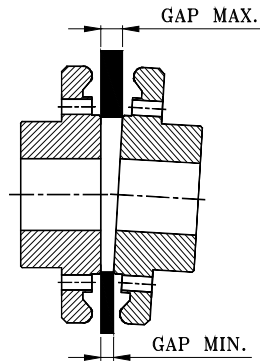
(fig 3b)

- Using straight edge (fig 3a): Align straight edge on OD of one flange, measure gap 'P' at 4 places 90° apart without rotating shafts. Gap 'P' should be less than the allowable initial parallel misalignment (P) mentioned in Table 'A1' on Page no. 14.
- Using dial gauge (fig 3b): Fix dial gauge on hub OD of one of the hub & set plunger on the flange OD of another hub. 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 is equal to value of 'P' given in Table 'A1' on Page no. 14.
- Follow the same procedure in case of spacer coupling as shown in fig. 3c.

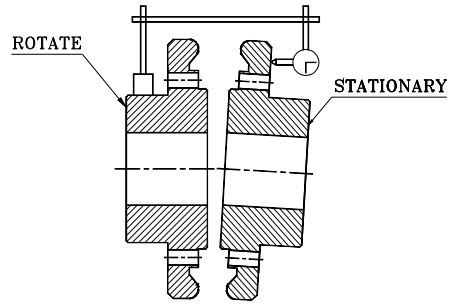


(fig. 3c)

4.4.2 CHECKING ANGULAR ALIGNMENT

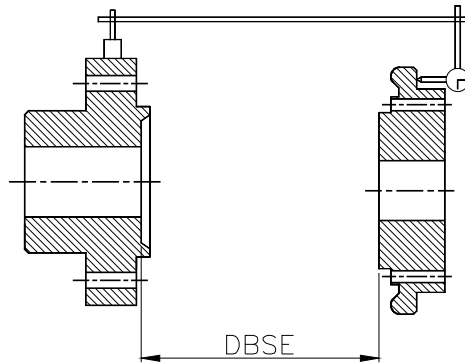


(fig. 4a)



(fig. 4b)

- Using filler gauge (fig 4a): Measure gap at 4 places 90° apart without rotating shafts. (Refer fig. 4a) The difference in max. & min. gap will be the Total Indicated Reading (TIR), which will be the angular misalignment present (Refer table 'A1' on Page no. 14) for allowable TIR values in mm.
- Using dial gauge (fig 4b): Fix the dial gauge on flange OD of one of the hub & set plunger on the face of another flange as shown (Refer fig. 4b). Rotate the coupling slowly to one complete revolution by taking dial readings at 4 intervals 90° apart. The angular misalignment is half the Total Indicated Reading (Refer table 'A1' on Page no. 14).
- Follow the same procedure in case of spacer coupling as shown in fig. 4c.



(fig. 4c)

4.5 ASSEMBLY PROCEDURE



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

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

FOR T/TO-F/H

Open Tyre and fit it over the T/TO-F/H hubs/flanges ensuring that the Tyre beads are properly inserted between the T/TO-F/H flanges & the internal/external rings. It may be necessary to strike the outside diameter (i.e. circumference) of Tyre with a small mallet. Tighten the clamping ring screws evenly (half turn a time) working round each flanges until the required screw torque is achieved. Refer table D for clamping screw tightening torque on Page no.18.

FOR RST

Clamp one clamping ring to T/TO flange mounted on shaft. Then insert the flange mounted RST shaft assembly (along with clamping ring) between RST adapter & T/TO flange and bolt it to the RST adapter. Fit the tyre as per above instructions. (Refer fig. 5)

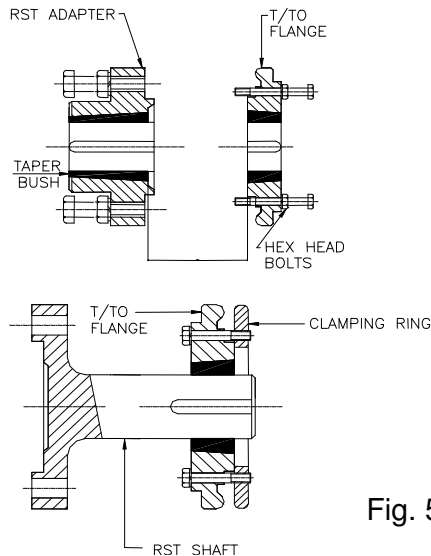


Fig. 5



IMPORTANT:- The necessity for shields & guards varies with individual installations. The owner or user must provide the required safety guards. Safety guards or shields are not furnished by us with the couplings.

TYRE-FLEX COUPLING



4.6 PERMISSIBLE INITIAL (INSTALLATION) MISALIGNMENTS

TABLE 'A1'

Sr. No.	COUPLING SIZE	PERMISSIBLE INITIAL (INSTALLATION) MISALIGNMENT				DIST. BETWEEN FLANGES	
		PARALLEL /RADIAL 'P' (mm)	AXIAL (±) (mm)	ANGULAR		* (Std. gap 'G')	
				Degree	Total Indicated Reading (TIR) (mm)	T	TO
1	T-4	0.28	0.32	0.5°	0.7	24	-
2	T-5	0.32	0.42	0.5°	0.87	29	-
3	T-6	0.4	0.5	0.5°	1.09	35	-
4	T-7 / TO-7	0.48	0.58	0.5°	1.25	43	16
5	T-8 / TO-8	0.52	0.65	0.5°	1.45	47.5	22
6	T-9 / TO-9	0.6	0.75	0.5°	1.64	51	24
7	T-10 / TO-10	0.65	0.82	0.75°	2.82	58	24
8	T-11 / TO-11	0.73	0.92	0.75°	3.05	53	22
9	T-12 / TO-12	0.8	1.0	0.75°	3.45	57.5	24.5
10	TO-14	0.93	1.15	0.75°	4.07	-	23
11	TO-16	1.05	1.32	1°	6.02	-	8
12	TO-18	1.2	1.5	1°	6.95	-	22
13	TO-20	1.33	1.65	1°	7.48	-	30
14	TO-22	1.45	1.81	1°	8.27	-	27
15	TO-25	1.65	2.06	1°	9.28	-	30

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

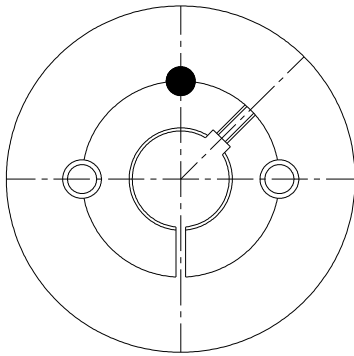
4.7 PERMISSIBLE MAXIMUM (OPERATIONAL) MISALIGNMENTS

TABLE 'A2'

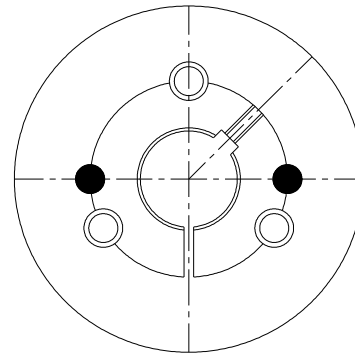
Sr. No.	COUPLING SIZE	PERMISSIBLE MAXIMUM (OPERATIONAL) MISALIGNMENT				DIST. BETWEEN FLANGES	
		PARALLEL /RADIAL 'P' (mm)	AXIAL (±) (mm)	ANGULAR		* (Std. gap 'G')	
				Degree	Total Indicated Reading (TIR) (mm)	T	TO
1	T-4	1.12	1.3	2°	2.86	24	-
2	T-5	1.3	1.7	2°	3.49	29	-
3	T-6	1.6	2.0	2°	4.36	35	-
4	T-7 / TO-7	1.9	2.3	2°	5.03	43	16
5	T-8 / TO-8	2.1	2.6	2°	5.83	47.5	22
6	T-9 / TO-9	2.4	3.0	2°	6.56	51	24
7	T-10 / TO-10	2.6	3.3	3°	11.32	58	24
8	T-11 / TO-11	2.9	3.7	3°	12.20	53	22
9	T-12 / TO-12	3.2	4.0	3°	13.84	57.5	24.5
10	TO-14	3.7	4.6	3°	16.30	-	23
11	TO-16	4.2	5.3	4°	24.10	-	8
12	TO-18	4.8	6.0	4°	27.80	-	22
13	TO-20	5.3	6.6	4°	29.92	-	30
14	TO-22	5.8	7.25	4°	33.06	-	27
15	TO-25	6.6	8.25	4°	37.11	-	30

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

4.8 INSTALLATION & REMOVAL OF HUBS WITH TAPER BUSHES




Sizes - 1008 to 3030



Size - 3525 TO 5040

A) TO ASSEMBLE

1. Clean and de-grease the bore and tapered surfaces of the bush and the tapered bore of the hubs. Insert the bush in the coupling hubs and align the holes (half threaded holes must be in line with half straight holes)

2. Lightly oil the grub screws (bush size 1008 to 3030) or the cap screws (bush size 3525 TO 5040) and screw them loosely in holes threaded in hub shown as  in diagram, do not tighten yet.

3. Clean and de-grease the shaft. Fit the coupling hub 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 C on page 17 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 entry of dirt, fill all empty holes with grease.

B) FOR REMOVAL

1. Loosen & remove all screws. Insert the removed screws in jacking off holes shown as  .

2. Tighten screw(s) uniformly and alternately until the bush is loose in the Hubs and coupling is free on the shaft.

3. Remove coupling assembly from the shaft.

TABLE C

Taper Bush Size	Screw tightening Torque (Nm)	Screw	
		Size	Qty
1008	5.6	1/4" BSW	2
1108			
1210	20	3/8" BSW	2
1215			
1610	20	3/8" BSW	2
1615			
2012	31	7/16" BSW	2
2017			
2517	48	1/2" BSW	2
2525			
3020	90	5/8" BSW	2
3030			
3525	112	1/2" BSW	3
3535			
4030	170	5/8" BSW	3
4040			
4545	192	3/4" BSW	3
5040	271	7/8" BSW	3

5. START-UP AND OPERATIONS

Before starting up check the tyre for correct fitment in hubs/flanges and the set screws for tightness, check and if necessary, adjust the alignment and the gap dimension and check all screw connections for the specified tightening torques.



Danger!

Then fit the coupling guard to prevent unintentional contact
 During operation of the coupling watch for:

- changes in running noise
- sudden shocks

Caution!

If any irregularities are noticed during operation, switch off the drive assembly at once. Determine the causes of the fault.
 If the cause cannot be identified or the unit repaired with the facilities available, You are advised to contact M/s RATHI TRANSPower PVT. LTD.

5.1 PROCEDURE BEFORE START-UP



Bolt tightening torques for the coupling and tightening torques for the foundation bolts of the coupled machine must be checked before startup. Enclosures (coupling protection, contact guard) must be fitted.!

Overload conditions during startup cannot be excluded. If the coupling breaks through overload, metal parts may fly off and cause personal injury and/or material damage.

5.1.1 BOLT TIGHTENING TORQUE

TABLE 'D'

SR NO	COUPLING SIZE	BOLT SIZE	TIGHTENING TORQUE (Nm)
1	T-4	M6 X 1P	5
2	T-5	M6 X 1P	5
3	T-6	M6 X 1P	5
4	T-7 / TO-7	M8 X 1.25P	10
5	T-8 / TO-8	M8 X 1.25P	10
6	T-9 / TO-9	M10 X 1.5P	18
7	T-10 / TO-10	M10 X 1.5P	18
8	T-11 / TO-11	M12 X 1.75P	30
9	T-12 / TO-12	M12 X 1.75P	30
10	TO-14	M12 X 1.75P	30
11	TO-16	M14 X 2P	48
12	TO-18	M16 X 2P	70
13	TO-20	M20 X 2.5P	140
14	TO-22	M20 X 2.5P	140
15	TO-25	M24 X 3P	230



If the coupling is to be used below ground in potentially explosive areas, the coupling, which is made of steel, must be provided with a robust casing to preclude the risk of ignition from e.g. friction, impact or friction sparks.

The depositing of heavy metal oxides (rust) on the coupling must be avoided by the casing or other suitable precautions.

6. FAILURES - CAUSES AND REMEDIES**6.1 INSTRUCTIONS TO USE IN Ex HAZARDOUS AREAS****General**

The following irregularities can serve as a guide for fault tracing. Where the system is a complex one, all the other component units must be included when tracing faults. The coupling must run with little noise and without vibration in all operating phases. Irregular behaviour must be treated as a fault requiring immediate remedy. In case of fault the drive must be stopped at once. The necessary measures for repair must be taken in accordance with the safety regulations.

Caution!

RATHI will not be bound by the terms of the guarantee or otherwise be responsible in cases of improper use of the coupling, modifications carried out Without RATHI's agreement or use of spare parts not supplied by RATHI.

Danger!

When correcting the faults and malfunctions, the coupling must always be taken out of service. Secure the drive unit to prevent it from being started up unintentionally. Attach a warning notice to the start switch.

6.2 FAILURE MODES AND FAULT DIAGNOSIS

SR. NO.	FAILURE MODE	PROBABLE CAUSES	CORRECTIVE ACTIONS
1	Worn out Tyre Shaft bearing failure	Excessive misalignments.	Replace the Tyre & Realign the coupling.
2	Fatigue of Tyre Overheated Tyre	Torsional vibration Excessive starts and stops High peak load	Perform torsional analysis Use larger coupling
3	Swollen or cracked Tyre	Chemical attack	Use more chemically resistant Tyre (*)
4	Distorted or deteriorated Tyre	Excessive heat	Use more heat-resistant Tyre (*)
5	Shattered Tyre	Low temperature	Use special low temperature Tyre (*)
6	Loose hubs on shaft with sheared keys.	Torsional shock overload	Find & eliminate causes of overload.
7	Severe hub corrosion	Chemical attack	Coat hub with anticorrosive coating (*)

(*) - Consult M/s RATHI if required

7. MAINTENANCE AND REPAIR



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.
- For all couplings, ensure that all bolts are tightened correctly.
- Check the tyre by visual inspection for any signs of failure. It is recommended to replace the tyre if signs of wear are observed. Any deep impressions of cracks or swelling are also required to be checked.



We recommend to replace the tyre once in a year to avoid any uncertain breakdown and stoppage of application.

Following operating conditions can affect the life of tyre, so we request the customer to check the following,

- 1) Numbers of starts & stops
- 2) Working environment (either in open environment or in plant)
- 3) Load variation
- 4) Misalignments

Suggested maintenance intervals are:-

- i) 6 months
- ii) At planned machine down time intervals.

Note :

- Any requirement for spare parts should be made quoting the coupling size, original purchaser, original purchase order number and the coupling drawing number (if available).

8 STORAGE

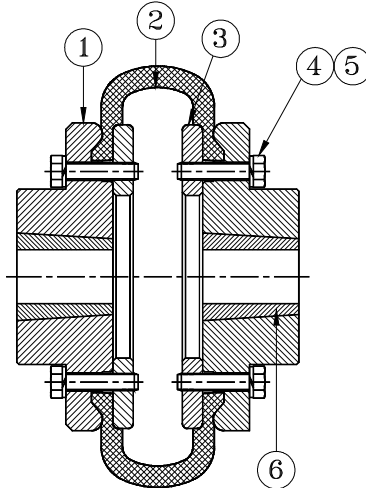
All couplings are to be stored and handled in conditions free from compression, tension or other deformation.

Attention is drawn to the need to keep the product away from heat or continual sunlight. Refer following storage conditions for spare tyres.

- 1) Storage shall be away from direct sunlight.
- 2) Storage temperature shall be in the range of 20°C to 30°C.
- 3) Storage environment shall be free of extraordinary gases, vapours & chemical contacts, including oils, grease etc.

9. COUPLING SPARE COMPONENTS

COUPLING COMPONENTS, TYPE-T

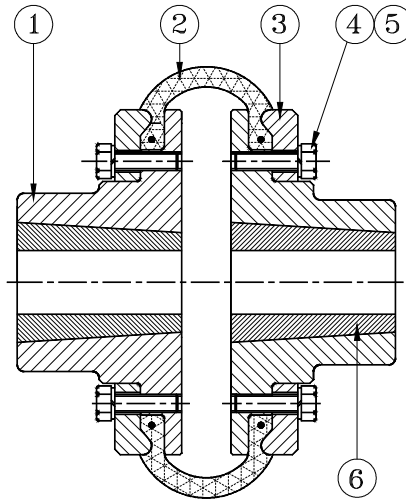


PART NO	COUPLING PARTS	QTY
1	HUB/FLANGE	2
2	TYRE	1
3	CLAMPING RING	2
4	SPRING WASHER	#
5	HEX HEAD BOLT	#
6	TAPER BUSH	2
# VARIES FROM COUPLING SIZES		

TYRE-FLEX COUPLING



COUPLING COMPONENTS, TYPE-TO



PART NO	COUPLING PARTS	QTY
1	HUB/FLANGE	2
2	TYRE	1
3	CLAMPING RING	2
4	SPRING WASHER	#
5	HEX HEAD BOLT	#
6	TAPER BUSH	2
# VARIES FROM COUPLING SIZES		