TYRE - FLEX COUPLINGS

TYPE
T / TO / RST

The flexible capabilities of the Tyreflex Coupling help to accommodate angular, parallel and axial misalignments.

Parallel Misalignment upto 6 mm.Angular Misalignment upto 4^0. End Float upto 8 mm. Suitable in ambient temp. upto 70^0C.

CUSHIONING SHOCK LOADS

Tyreflex being a torsionally soft coupling protects against vibration, impact loads and heavy shocks in the event of sudden load changes.

EASE OF ASSEMBLY / DISASSEMBLY

Alignment is quickly checked by placing a straight edge across the outside diameters of the flanges.

Installation or replacement of new tyre is achieved without disturbing driver or driven shafts, simply by loosening the clamping screws, placing a new tyre between the flanges and clamping rings and then tightening the clamping screws.

TYRE-FLEX COUPLING - RST

Tyre-flex Spacer Couplings RST are specifically designed for motor-pump installations, where it is desirable not to disturb drive/driven equipment while servicing impellers, packing glands, etc.

The maintenance time-reduction feature is valuable on pumps, compressors and many other applications.

It comprises of a spacer assembly and a standard Tyre-flex coupling. The spacer assembly consists of a flanged shaft and a spacer adapter taper bored to suit standard Taper Bush.

SELECTION PROCEDURE - T/TO

(a) Service Factor
Determine the required service factor from table 1.

(b) Design Power
Multiply the normal running power by the service factor. This gives **Design Power** which is used as a basis for selecting the coupling.

(c) Coupling Size
Refer table 2 and from the appropriate speed read across until a power greater than that required is found. The size of Tyre-flex coupling required is given in that column..

(d) Bore Size
Check from table 3 that selected coupling can accommodate required bores.

SELECTION PROCEDURE - RST

1. Select a suitable size of Tyre-flex coupling using the procedure.
2. Refer size column in table A and locate the size of coupling selected.
3. Read across this size until required DBSE can be accommodated.
4. The size of the spacer coupling is given in the first column of table A.
5. Refer coupling dimensional table A to check that the required bores can be accommodated.

TABLE 1 : SERVICE FACTORS

SPECIAL CLASSES For applications where substantial shock, vibration and torque fluctuations occur and for reciprocating machines e.g. internal combustion engines, piston pumps and compressors, refer to Rathi Transpower Pvt. Ltd. with full application details for analysis.	**Type of Driving Unit**					
	Electric Motors Steam Turbines			Internal Combustion Engines Steam Engines Water Engines		
	Hours per day duty			**Hours per day duty**		
Type of Driven Machine	upto 10	over 10 to 16 incl.	Over 16	upto 10	over 10 to16 incl.	Over 16
CLASS 1 Agitators, Brewing mahinery, Centrifugal compressors and pumps, Belt Conveyors, Dynamometers, Lineshafts, Fans upto 7.5 kW, Blower and exhausters (except positive displacement), Generators.	0.8	0.9	1.0	1.3	1.4	1.5
CLASS 2 Clay working machinery, General machine tools, Paper mill beaters and winders, Rotary pumps, Rubber extruders, Rotary Screens, Textile Machinery, Marine Propellers, and Fans over 7.5 kW.	1.3	1.4	1.5	1.8	1.9	2.0
CLASS 3 Bucket elevators, Cooling tower fans, Piston compressors & pumps, Foundry machinery, Metal presses, Paper mill Calenders, Hammer mills, Presses and pulp grinders, Rubber Calenders, Pulverisers and Positive displacement blowers.	1.8	1.9	2.0	2.3	2.4	2.5
CLASS 4 Reciprocating conveyors, Gyratory crushers, Mills (ball, pebble and rod). Rubber Machinery (Banbury Mixers and Mills) and Vibratory screens.	2.3	2.4	2.5	2.8	2.9	3.0

TABLE 2: POWER RATING (kW)

Speed rpm	**Size T /TO**														
	4	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**14**	**16**	**18**	**20**	**22**	**25**
100	0.25	0.69	1.33	2.62	3.93	5.24	7.07	9.16	13.9	24.3	39.5	65.7	97.6	121	154
750	1.87	5.17	9.97	19.65	29.47	39.30	53.02	68.70	104.25	182.25	296.25	492.75	732	907.5	1155
1000	2.50	6.90	13.30	26.20	39.30	52.40	70.70	91.60	139.0	243.0	395.0	657.0	976	1215	1537
1500	3.75	10.35	19.95	39.30	58.95	78.60	106.05	137.40	208.50	364.50	592.50*	986.5*	-	-	-
1800	4.50	12.42	23.94	47.16	70.74	94.32	127.26	164.88	250.20	437.40*	-	-	-	-	-
3000	7.50	20.70	39.90	78.60	117.90*	157.20*	-	-	-	-	-	-	-	-	-
3600	9.00	24.84	47.98	94.32	-	-	-	-	-	-	-	-	-	-	-

- All these power ratings are calculated at constant torque.
- For speeds below 100 rpm and intermediate speeds use normal torque ratings.

* Dynamic balancing preferred at these speeds.

Poles	2	4	6	8
rpm	3000	1500	1000	750

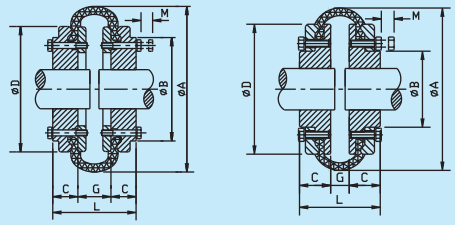
TECHNICAL DATA : FLEXIBLE TYRES

Size		**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**14**	**16**	**18**	**20**	**22**	**25**
Max. Speed	rpm	4500	4500	4000	3600	3100	3000	2600	2300	2050	1800	1600	1500	1300	1100	1000
Torsional Stiffness	Nm/Deg.	5	13	26	41	63	91	126	178	296	470	778	1371	1959	2760	3562
Parallel Misalignment	mm	1.1	1.3	1.6	1.9	2.1	2.4	2.6	2.9	3.2	3.7	4.2	4.8	5.3	5.8	6.6
End Float	mm	1.3	1.7	2.0	2.3	2.6	3.0	3.3	3.7	4.0	4.6	5.3	6.0	6.6	7.3	8.2
Normal Torque	Nm	24	66	127	250	375	500	675	875	1330	2325	3730	6270	9325	11600	14675
Max. Torque	Nm	64	160	318	487	759	1096	1517	2137	3547	5642	9339	16455	23508	33125	42740

TYRE - FLEX COUPLINGS

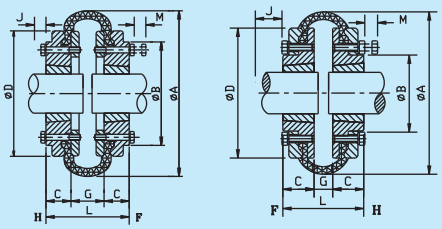
TYPE - T/TO

T-4 to T-6 | TO-7 to TO-25



TYPE B

T-4 to T-6 | TO-7 to TO-22



TYPE F / H

TABLE 3 : DIMENSIONS OF TYRE-FLEX HUB TYPES B, F & H

Size	Kw at 100 rpm	Max Speed rpm	Type	# Bush Size	# Bore			Type F/H			Type B		A	D	B	M	G	Weight per Coupling kg.	Moment of Inertia (WR^2) per Coupling kgm^2
					PB	Max.													
						Metric	Inch	L	C	J	L	C							
T-4	0.25	4500	B	-	10	32	1 1/4	-	-	-	65	22	104	82	-	17	24	1.9	0.00161
			F/H	1008	-	25	1	65	22	29	-	-						1.7	0.00148
T-5	0.69	4500	B	-	10	38	1 1/2	-	-	-	89	32	133	100	79	17	29	3.5	0.00358
			F/H	1210	-	32	1 1/4	75	25	38	-	-				19		2.7	0.00349
T-6	1.33	4000	B	-	15	45	1 3/4	-	-	-	106	38	165	125	73	8	35	5	0.0105
			F/H	1610	-	42	1 5/8	80	25	38	-	-			103	19		3.6	0.0103
TO-7	2.62	3600	B	-	19	50	2	-	-	-	106	45	197	144	82	-	16	8.4	0.0177
			F	2012	-	50	2	80	32	38	-	-				9		6.35	0.0192
			H	1610	-	42	1 5/8	66	25		-	-						6.2	0.0157
TO-8	3.93	3100	B	-	25	63	2 1/2	-	-	-	123	51	210	167	96	10	22	11.5	0.0329
			F	2517	-	60	2 1/2	111	45	42	-	-				9		8.53	0.0303
			H	2012	-	50	2	85	32		-	-						8.5	0.0293
TO-9	5.24	3000	B	-	30	75	3	-	-	-	138	57	235	188	110	-	24	16	0.0599
			F/H	2517	-	60	2 1/2	114	45	48	-	-				-		12	0.0538
TO-10	7.07	2600	B	-	32	80	3 1/8	-	-	-	140	60	254	216	125	-	24	22.7	0.1148
			F	3020	-	75	3	122	51	48	-	-				-		18.2	0.1062
			H	2517	-	60	2 1/2	110	45		-	-						18.1	0.1058
TO-11	9.16	2300	B	-	32	90	3 1/2	-	-	-	151	65	279	233	140	-	22	28.3	0.1631
			F/H	3020	-	75	3	123	51	55	-	-				-		21.1	0.1461
TO-12	13.9	2050	B	-	38	100	4	-	-	-	177	76	314	264	152	-	24.5	40.1	0.2902
			F	3525	-	*100	4	155	65	55	-	-				-		30.33	0.2627
			H	3020	-	75	3	127	51		-	-						30.3	0.2622
TO-14	24.3	1800	B	-	58	127	5	-	-	-	200	89	359	311	195	26	23	60.6	0.6045
			F/H	3525	-	*100	4	152	65	67	-	-				-		42.6	0.4922
TO-16	39.5	1600	B	-	65	140	5 1/2	-	-	-	212	102	395	345	216	-	8	86.4	1.2755
			F/H	4030	-	*115	4 1/2	162	77	80	-	-				-		72.6	1.1134
TO-18	65.7	1500	B	-	70	150	6	-	-	-	254	116	470	398	220	-	22	133.3	2.1525
			F/H	4535	-	*125	5	200	89	89	-	-				-		123.0	1.9514
TO-20	97.6	1300	B	-	70	150	6	-	-	-	258	114	508	429	220	-	30	144.6	3.1765
			F/H	4535	-	*125	5	208	89	89	-	-				-		158.3	3.0129
TO-22	121	1100	B	-	75	160	6 1/2	-	-	-	281	127	562	470	240	-	27	181.63	4.7861
			F/H	5040	-	125	5	231	102	92	-	-				-		195.1	4.8954
TO-25	154	1000	B	-	85	190	7 1/2	-	-	-	294	132	628	532	275	-	30	281.1	8.129

- All dimensions are in mm unless otherwise specified.
- M is the amount by which clamping screws need to be withdrawn to release the tyre.
- J is the wrench clearance to allow for tightening and loosening the bush on the shaft.
- Shaft ends, although normally located G apart, can project beyond the flanges as shown. In this event allow sufficient space between shaft ends for end float and misalignment.
- Maximum torque figures should be regarded as short duration overload ratings for direct on line starting. Angular misalignment capacity up to 4°.
- Weights & Moment of Inertia specified are at without bores.

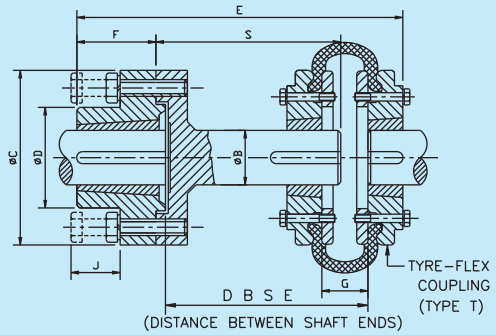
\# For detailed information about Taper Bush bore, please refer Taper Bush catalogue.

* Standard Bore 90mm, 100mm, 115mm & Max Bore with shallow key 100mm, 115mm & 125mm for bush nos. 3525, 4030 & 4535 respectively.

TYRE - FLEX SPACER COUPLINGS

TYPE RST

T-4 to T-6



TO-7 to TO-14

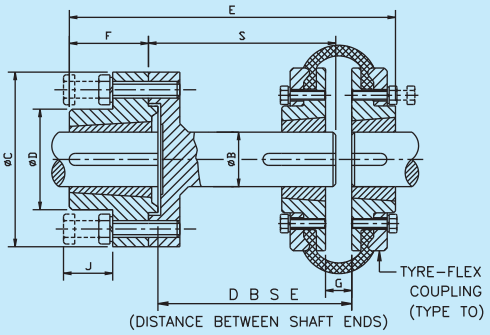


TABLE A :DIMENSIONAL DATA

Spacer Size	Nom DBSE	Bush Size	Bush # Max. Bore mm	Bush # Max. Bore Inch	ØC	ØD	E T	E TO	F	J	S T	S TO	ØB	Tyre-Flex Size T/TO	Bush Size	Bush # Max. Bore mm	Bush # Max. Bore Inch	G T	G TO
RST 12	80	1210	32	1 1/4	118	83	130	—	25	22	57	—	25	4	1008	25	1	24	—
	100	1210	32	1 1/4	118	83	150	—	25	22	77	—	25	4	1008	25	1	24	—
RST 16	100	1615	42	1 5/8	127	80	163	—	38	24	94	—	32	4*	1008	25	1	24	—
	140	1615	42	1 5/8	127	80	203	—	38	24	134	—	32	4*	1008	25	1	24	—
	100	1615	42	1 5/8	127	80	166	—	38	24	94	—	32	5	1210	32	1 1/4	29	—
	140	1615	42	1 5/8	127	80	206	—	38	24	134	—	32	5	1210	32	1 1/4	29	—
	100	1615	42	1 5/8	127	80	166	—	38	24	94	—	32	6	1610	42	1 5/8	35	—
	140	1615	42	1 5/8	127	80	206	—	38	24	134	—	32	6	1610	42	1 5/8	35	—
RST 25	100	2517	60	2 1/2	178	127	—	180	45	27	—	94	48	7F	2012	50	2	—	16
	140	2517	60	2 1/2	178	127	—	220	45	27	—	134	48	7F	2012	50	2	—	16
	180	2517	60	2 1/2	178	127	—	260	45	27	—	174	48	7F	2012	50	2	—	16
	100	2517	60	2 1/2	178	127	—	193	45	27	—	94	48	8F	2517	60	2 1/2	—	22
	140	2517	60	2 1/2	178	127	—	233	45	27	—	134	48	8F	2517	60	2 1/2	—	22
	180	2517	60	2 1/2	178	127	—	273	45	27	—	174	48	8F	2517	60	2 1/2	—	22
	140	2517	60	2 1/2	178	127	—	233	45	27	—	134	48	9	2517	60	2 1/2	—	24
	180	2517	60	2 1/2	178	127	—	273	45	27	—	174	48	9	2517	60	2 1/2	—	24
RST 30	140	3030	75	3	216	146	—	270	76	33	—	134	60	10F	3020	75	3	—	24
	180	3030	75	3	216	146	—	310	76	33	—	174	60	10F	3020	75	3	—	24
	140	3030	75	3	216	146	—	270	76	33	—	134	60	11	3020	75	3	—	22
	180	3030	75	3	216	146	—	310	76	33	—	174	60	11	3020	75	3	—	22
RST 35	140	3535	90	3 1/2	248	178	—	297	89	33	—	134	80	12F	3525	100	4	—	24.5
	180	3535	90	3 1/2	248	178	—	337	89	33	—	174	80	12F	3525	100	4	—	24.5
	140	3535	90	3 1/2	248	178	—	297	89	33	—	134	80	14	3525	100	4	—	23
	180	3535	90	3 1/2	248	178	—	337	89	33	—	174	80	14	3525	100	4	—	23

* T4 'B' flange must be used to fit spacer shaft.

\# For detailed information about Taper Bush bore, please refer Taper Bush catalogue.

● All dimensions are in mm unless otherwise specified.

TABLE B: DISTANCE BETWEEN SHAFT ENDS (DBSE)

Tyre-flex Size T/TO	RST12		RST 16				RST 25						RST 30				RST 35			
	80		100		140		100		140		180		140		180		140		180	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
4	80	100	100	113	140	153														
5			100	116	140	156														
6			100	124	140	164														
7 F							100	107	140	147	180	187								
8 F							100	112	140	152	180	192								
9									140	155	180	195								
10 F													140	151	180	191				
11													140	151	180	192				
12 F																	140	156	180	196
14																	140	153	180	193

Notes :
- Non-standard spacers are available on request.
- Ref. installation instructions for mounting and dismounting.

ISO 9001 BUREAU VERITAS Certification — UKAS QUALITY MANAGEMENT 008

Rathi Transpower Pvt Ltd
Rathi Chambers, 7, Deccan College Road,
Pune 411 006.(INDIA)
Phone : 91-20-30517201
Fax : 91-20-30517212
E-mail : enquiry@rathigroup.com
Website : www.rathicouplings.com

Distributor