

TENAFLEX[®]



**FLEXIBLE
TYRE COUPLINGS**

Tenaflex® Flexible Tyre couplings are specially designed to Transmit Power, accommodate Misalignment and Compensate for end Movements. The "Torsionally elastic" tyre couplings are split for easy installations. The end split is reinforced for increased torque ratings and extended life. These couplings have a wide range of applications for connecting 2 shaft ends, besides specifying various special applications.

Tenaflex® Flexible Tyre couplings can be accommodated with either the F version (or) the H version with Taper Bush and Pilot Bore.

Tenaflex® Flexible Tyre Couplings are known to have an excellent shock-absorbing properties and they also reduce torsional oscillations and vibrations.

Tenaflex® Flexible Tyre couplings are available in

- Natural rubber -50°C to +60°C
- Neoprene rubber -20°C to +75°C
- Fire Resistant and Antistatic (F.R.A.S) Tyres available

TORQUE

Tenaflex® Flexible Tyre couplings have

- Torque ranging from 50 Nm to 6320 Nm
- Reinforced tension cords which carry a high level of torque to reduce the downtime
- Reinforced centered beads to prevent rubber elements pulling out from the flanges during the operation

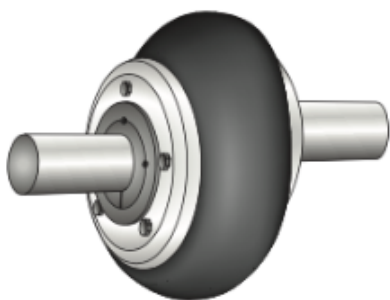
TORSIONAL STIFFNESS

It ranges from 5 Nm/° to 1390 Nm/°

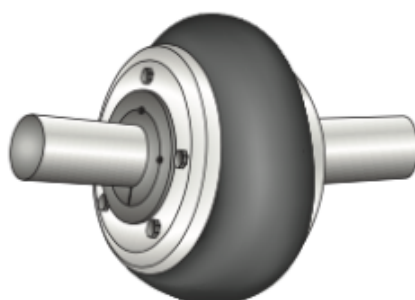


MISALIGNMENT

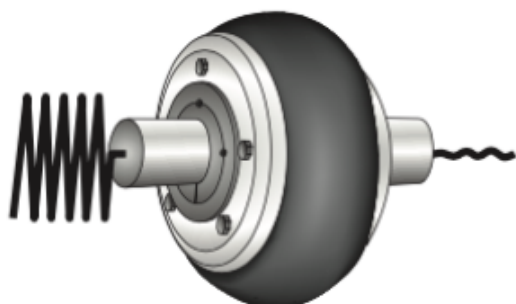
Tenaflex® Flexible Tyre couplings can accommodate maximum misalignment at all levels without affecting the loads on bearings.



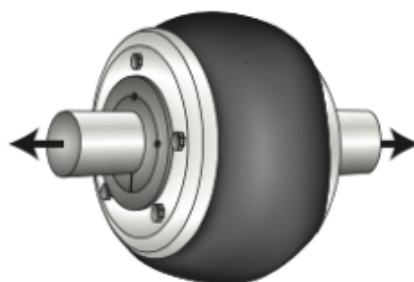
Parallel misalignment upto 1.2mm to 4.9mm



Angular misalignment upto 4°



Dampens Vibrations



End float upto 1.4mm to 6.1mm



COUPLINGS SELECTION

Details Required

- Driven machine type & operating hours
- Driven machine speed & power absorption
- Connected shafts diameters

PROCEDURE

1. Service Factor - Determine the service factor from the table 01.
2. Design Power = Nominal running power x Service factor (basis for selecting the coupling).
3. Size of the Coupling - Refer to table 05 & from the appropriate speed, read across until a power greater than the required in step 2 is found.
4. Bore Size - Check from dimension tabel

EXAMPLE

A **Tenaflex** Flexible Tyre coupling is required to transmit 160 kW from an A.C. Electric motor which runs at 998 rev/min to a rotary screen for 16 hours a day.

1. Service Factor - from table 01, the service factor is 2
2. Design Power - Design Power = 160 x 2 = 320 kW
3. Size of the Coupling - By reading 1000 rev/min (nearest to 998 rev/min) in table 05, the first figure greater than design power. The size of the coupling is F140.
4. Bore Size - Refer to dimension tables

TABLE 1: SERVICE FACTORS

Special Cases	Type of Driving Unit					
For applications where substantial shock, vibration and torque fluctuations occur and reciprocating machines e.g. internal combustion engines, piston pumps and compressors etc.	Electric Motors Steam Turbines			Internal Combustion Engines Steam Engines		
	Operational hours per day					
Type of Driven Machine	< 10	10 to 16	> 16	< 10	10 to 16	> 16
Class 1						
Agitators, Brewing machinery Centrifugal compressors and pumps, Belt conveyors, Dynamometers, Line shafts, Fans upto 7.5kW, Blowers 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, Roatry 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 and pumps, Foundry machinery, Metal presses, paper mill calendars, 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

F - TYPE FLEXIBLE TYRE COUPLINGS

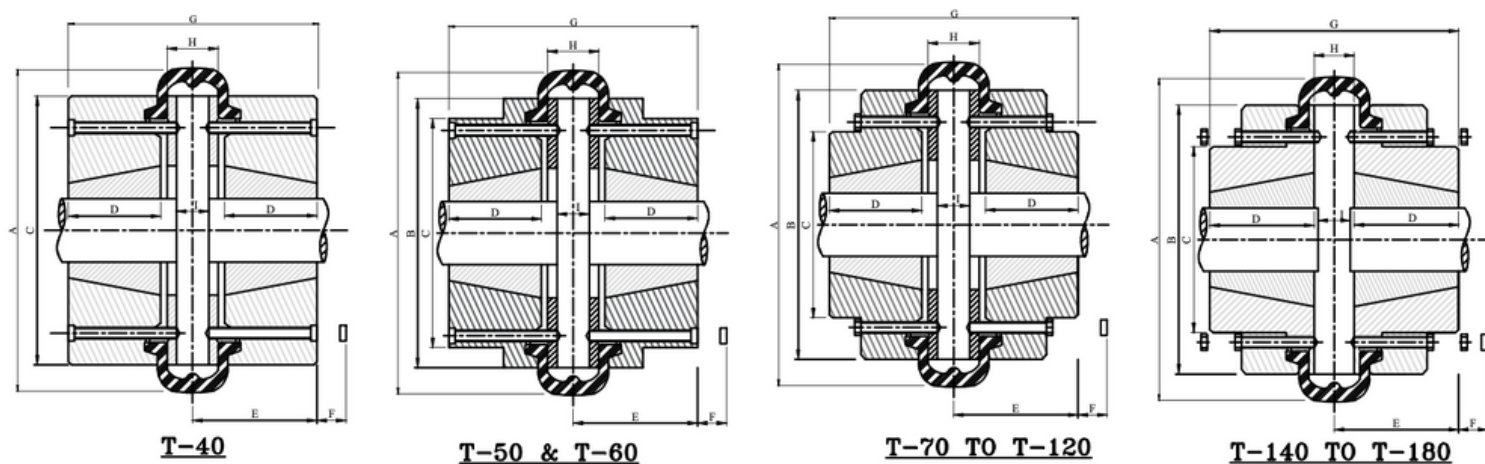


TABLE 2: F - Type Tyre Coupling Dimensions

F Type	Coupling Size											
	T40	T50	T60	T70	T80	T90	T100	T110	T120	T140	T160	T180
Bush No.	1008	1210	1610	1610	2012	2517	2517	2517	3020	3535	4040	4545
Max Bore	25	32	42	42	50	60	60	60	75	90	100	110
A	104.0	133.5	165.0	197.0	211.0	235.0	254.0	279.0	314.0	359.0	402.0	470.0
B	82	100	125	144	167	188	216	233	264	313	345	398
C	-	79	103	76	95	110	124	134	152	194	216	266
D	22	25	25	25	32	45	45	45	51	89	102	114
E	33.5	39.0	43.0	50.5	53.0	59.5	61.5	63.5	70.0	76.0	78.0	94.0
F	43	43	43	10	10	13	13	14	14	14	19	19
G	67	78	86	92	111	140	148	140	157	204	220	258
H	23	28	36	42	47	50	58	50	55	26	16	30
Approx Weight kg*	1.4	3.1	5.2	7.4	9.2	15.0	20.0	26.5	35.5	67.2	91.0	146.0
No. of screws per flange	4	4	5	5	6	6	6	6	6	8	8	10

NOTE:

- All the dimensions are in mm i.e, shaft ends can project beyond the flanges, in this event allow sufficient space between shaft ends for the float & misalignment.
- F dimension is the amount by which the clamping screws need to be withdrawl to release tyre.

H - TYPE FLEXIBLE TYRE COUPLINGS

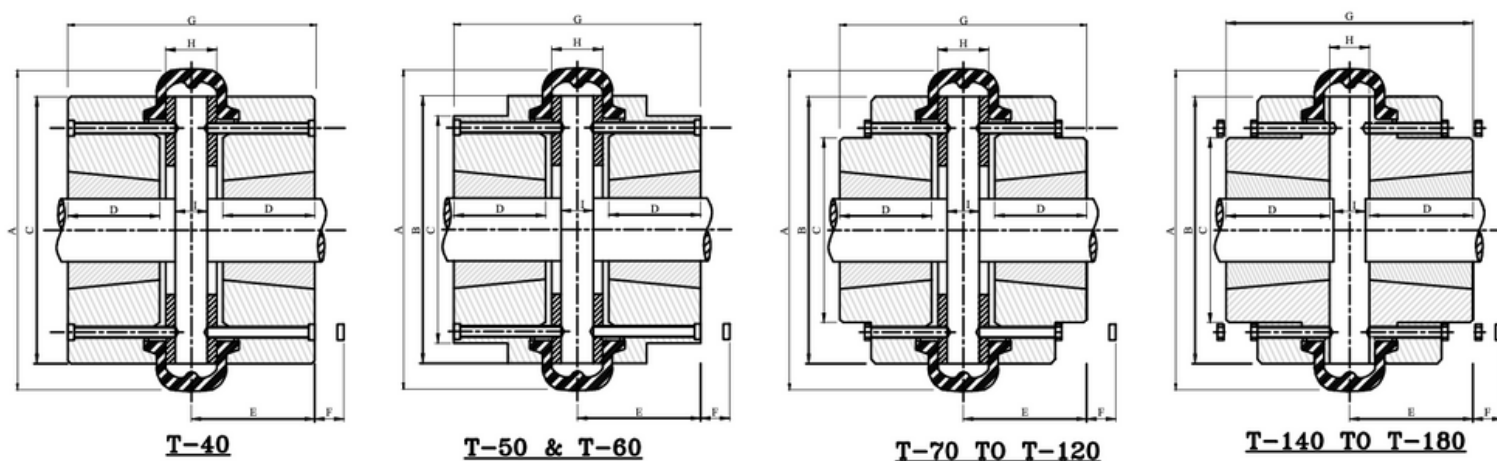


TABLE 3: H - Type Tyre Coupling Dimensions

H Type	Coupling Size											
	T40	T50	T60	T70	T80	T90	T100	T110	T120	T140	T160	T180
Bush No.	1008	1210	1610	1610	2012	2517	2517	2517	3020	3535	4040	4545
Max Bore	25	32	42	42	50	60	60	60	75	90	100	110
A	104.0	133.5	165.0	197.0	211.0	235.0	254.0	279.0	314.0	359.0	402.0	470.0
B	82	100	125	144	167	188	216	233	264	313	345	398
C	-	79	103	76	95	110	124	134	152	194	216	266
D	22	25	25	25	32	45	45	45	51	89	102	114
E	33.5	39.0	43.0	50.5	53.0	59.5	61.5	63.5	70.0	76.0	78.0	94.0
F	43	43	43	10	10	13	13	14	14	14	19	19
G	67	78	86	92	111	140	148	140	157	204	220	258
H	23	28	36	42	47	50	58	50	55	26	16	30
Approx Weight kg*	1.4	3.1	5.2	7.4	9.2	15.0	20.0	26.5	35.5	67.2	91.0	146.0
No. of screws per	4	4	5	5	6	6	6	6	6	8	8	10

NOTE:

- All the dimensions are in mm i.e, shaft ends can project beyond the flanges, in this event allow sufficient space between shaft ends for the float & misalignment.
- F dimension is the amount by which the clamping screws need to be withdrawl to release tyre.

B - TYPE FLEXIBLE TYRE COUPLINGS

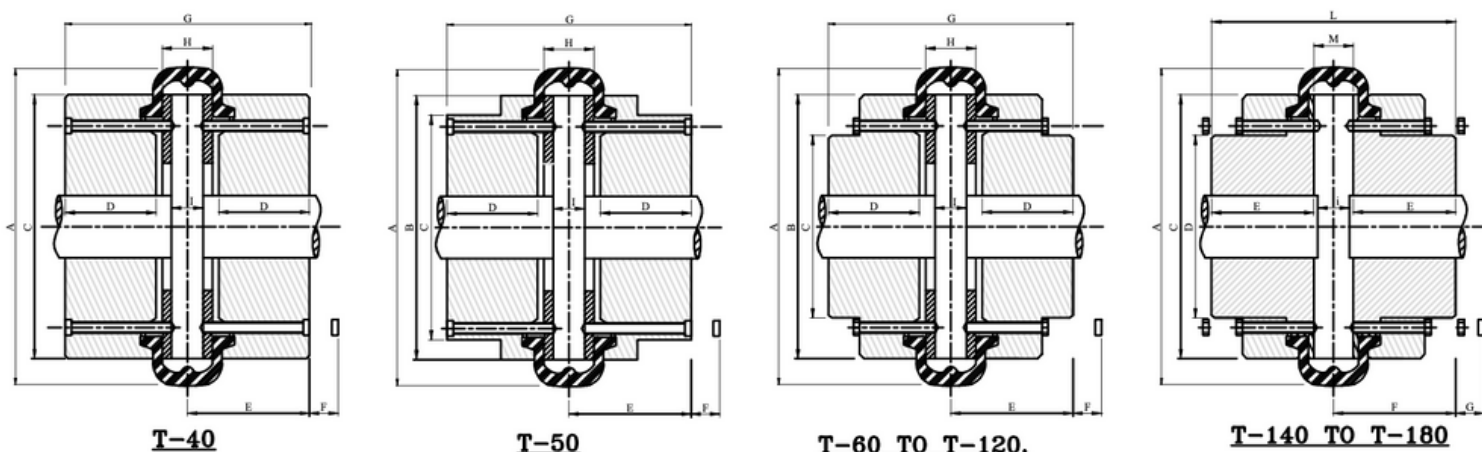


TABLE 4: B - Type Tyre Coupling Dimensions

B Type	Coupling Size											
	T40	T50	T60	T70	T80	T90	T100	T110	T120	T140	T160	T180
Max Bore	30	38	48	55	65	76	85	90	102	120	140	150
Min Bore	11.00	16.00	16.00	19.05	25.40	31.75	31.75	31.75	38.10	75.00	75.00	75.00
A	104.0	133.5	165.0	197.0	211.0	235.0	254.0	279.0	314.0	359.0	402.0	470.0
B	82	100	125	144	167	188	216	233	264	313	345	398
C	-	79	73	82	95	110	124	134	152	195	216	266
D	22	32	38	45	51	57	60	65	76	89	102	114
E	33.5	46.0	43.0	50.5	53.0	59.5	61.5	63.5	70.0	76.0	78.0	94.0
F	43	43	43	10	10	13	13	14	14	14	19	19
G	67	92	112	132	149	164	178	180	207	204	220	258
H	23	28	36	42	47	50	58	50	55	26	16	30
Set Screw on key	M5	M5	M6	M6	M10	M12	M12	M12	M12	M20	M20	M20
Approx Weight Kg*	2.0	4.0	5.0	8.0	12.0	15.0	21.0	28.0	41.0	61.0	86.0	141.0
No. of screws per flange	4	4	5	5	6	6	6	6	6	8	8	10

NOTE:

- All the dimensions are in mm i.e, shaft ends can project beyond the flanges, in this event allow sufficient space between shaft ends for the float & misalignment.
- F dimension is the amount by which the clamping screws need to be withdrawl to release tyre.

TABLE 5 : POWER RATINGS (kW)

Speed (rev/min)	COUPLING SIZE											
	T40	T50	T60	T70	T80	T90	T100	T110	T120	T140	T160	T180
100	0.55	1.16	2.31	2.66	4.39	5.43	6.58	9.35	15.06	32.16	42.07	72.49
200	1.09	2.31	4.62	5.31	8.79	10.87	13.17	18.71	30.12	64.33	84.15	144.98
300	1.64	3.47	6.93	7.97	13.18	16.30	19.75	28.06	45.19	96.49	126.22	217.47
400	2.19	4.62	9.24	10.62	17.57	21.74	26.33	37.41	60.25	128.65	168.30	289.96
500	2.73	5.78	11.56	13.28	21.97	27.17	32.91	46.76	75.31	160.82	210.37	362.45
600	3.28	6.93	13.87	15.93	26.36	32.60	39.50	56.12	90.37	192.98	252.45	434.94
700	3.83	8.09	16.18	18.59	30.75	38.04	46.08	65.47	105.43	225.15	294.52	507.43
720	3.93	8.32	16.64	19.12	31.63	39.12	47.40	67.34	108.45	231.58	302.94	521.93
800	4.37	9.24	18.49	21.24	35.15	43.47	52.66	74.82	120.50	257.31	336.60	579.92
900	4.92	10.40	20.80	23.90	39.54	48.90	59.25	84.18	135.56	289.47	378.67	652.41
960	5.25	11.09	22.19	25.49	42.18	52.16	63.20	89.79	144.59	308.77	403.91	695.90
1000	5.46	11.56	23.11	26.55	43.93	54.34	65.83	93.53	150.62	321.64	420.74	724.90
1200	6.56	13.87	27.73	31.87	52.72	65.21	79.00	112.24	180.74	385.96	504.89	869.88
1400	7.65	16.18	32.36	37.18	61.51	76.07	92.16	130.94	210.87	450.29	589.04	1014.86
1440	7.87	16.64	33.28	38.24	63.26	78.25	94.79	134.68	216.89	463.16	605.87	1043.86
1600	8.74	18.49	36.98	42.49	70.29	86.94	105.33	149.65	240.99	514.62	673.19	
1800	9.84	20.80	41.60	47.80	79.08	97.81	118.49	168.35	271.11	578.94		
2000	10.93	23.11	46.22	53.11	87.87	108.68	131.66	187.06	301.24			
2200	12.02	25.42	50.84	58.42	96.65	119.54	144.83	205.76				
2400	13.12	27.73	55.47	63.73	105.44	130.41	157.99					
2600	14.21	30.04	60.09	69.04	114.23	141.28	171.16					
2800	15.30	32.36	64.71	74.35	123.01	152.15						
2880	15.74	33.28	66.56	76.48	126.53	156.49						
3000	16.39	34.67	69.33	79.66	131.80							
3500	19.13	40.44	80.89	92.94								
3600	19.67	41.60	83.20									

TABLE 6 : PHYSICAL CHARACTERISTICS

Size	Max. Speed (rev/mIn)	Torque (Nm)		Moment of Inertia MR ² (kgm ²)	Torsional Stiffness (Nm/°)	Maximum Misalignment (mm)	
		Nominal	Max.			Parallel	End Float ±
T40	4500	53	155	0.00146	5	1.2	1.4
T50	4500	112	329	0.00344	14	1.4	1.7
T60	4000	220	659	0.01032	26	1.6	2.1
T70	3600	254	788	0.01814	41	2.0	2.4
T80	3100	424	1284	0.03676	63	2.2	2.7
T90	2880	528	1598	0.06375	91	2.6	3.1
T100	2600	616	1928	0.11986	127	2.8	3.3
T110	2300	904	2756	0.16014	179	3.0	3.8
T120	2050	1456	4256	0.34304	298	3.3	4.1
T140	1800	3122	9250	0.69456	480	3.8	4.6
T160	1600	4320	12658	1.21769	780	4.3	5.4
T180	1500	7562	22086	2.01804	1390	4.9	6.1

NOTE:

Maximum torque should be regarded as a short period.

TABLE 7

Coupling Size		T40*	T50*	T60*	T70	T80	T90	T100	T110	T120	T140	T160	T180
G2 (mm)		23	28	36	42	47	50	58	50	55	26	16	30
Clamping Screw Torque	Nm	15	15	35	35	35	55	55	60	70	70	80	100
Clamping Bolt Size		M6	M6	M8	M8	M8	M10	M10	M10	M12	M12	M16	M16

INSTALLATION INSTRUCTIONS

Note: Desired performance relies on proper installation and maintenance.

1. Clean all the components thoroughly.
2. Place the external clamp rings on the shafts to fit flanges to the shafts. (Separate fittings instructions to be followed when Taper Bushes are used). We can obtain dimension G2 by locating flanges (Table 07).
3. Flanges with internal clamping rings should then have the clamping rings fitted, engaging only two or three of the threads of the screws at this time.
4. Bring shafts into line until dimension G2 is obtained (table -07). If shaft end float is to occur, locate the shafts at mid-position of end float when checking dimension M2. Note that shaft ends may project beyond the faces of the flanges if required. In this event, allow sufficient space between shaft ends for end float and misalignment. Flanges should be fitted flush with the end of the shaft when used with Mill-Motor flanges.
5. Check parallel alignment by laying a straight edge across the flanges at several positions around the circumference. Check angular alignment by measuring gap between flanges at several positions around the circumference. It is desirable to align the coupling as accurately as possible, particularly on high speed applications.
6. Open the tyre and fit over coupling flanges ensuring that the tyre beads sit properly on the flanges and/or clamping rings. To ensure proper seating, it may be necessary to strike the outside diameter of the tyre with a small mallet. When seated, there should be a gap between the ends of the tyre as shown in table 8.
7. Tighten clamping ring screws alternately and evenly (half turn at a time) working round each flange until the required screw torque is achieved.

TABLE 8

COUPLING SIZE	F40 to F60	F70 to F120	F140	F160 to F180	F200 to F250
Tyre Gap in mm	2	3	5	7	8

