

# Tyre Couplings

Power Transmission Group



# Continental Tyre Couplings

## Features :

Continental Tyre Couplings embody all desirable features of an ideal flexible coupling. They are torsionally elastic & can accommodate simultaneous parallel, angular & axial misalignments without imposing undue loads on adjacent bearings. Flexible Rubber Tyre dampens vibrations & torsional oscillations while absorbing shocks.

**Power & Bore Range:** Standard Range covers Power Capacity up to 57 kW at 100 rev/min and bores up to 150 mm. Bigger sizes up to CTT - 250 to cover power ratings up to 130 kW at 100 rev/min & shafts up to 190 mm can be supplied on demand.

**Misalignment Capacity :** Parallel misalignment up to 4.8 mm, angular misalignment up to 4° & Axial misalignment (End Float) up to 6 mm depending on size of coupling.

Standard Tyres in high performance compound withstand temperatures up to 50°C. For high temperature applications with Oil & Grease contamination, Neoprene Tyres which are Oil & Heat resistant (up to 70°C) can be supplied.

These couplings are back-lash free & easy to install requiring neither special tools nor skilled labour to assemble.

These couplings do not require lubrication or maintenance. Replacement of rubber tyre can be done by loosening the clamping screws and replacing the worn out tyre by a new one without moving the flanges or the driving & driven machine.

## Details required for coupling selection :

- ▶ Type of Prime Mover & its Power & Speed.
- ▶ Power absorbed by driven equipment, if available. If not, Motor power to be used for selection.
- ▶ Diameter of Shafts to be coupled.
- ▶ Type of driven machine & operating hours per day.

## Selection Procedure :

- ▶ **Service Factor :** Select the required service factor from the Service Factor Table.
- ▶ **Design Power :** Multiply the absorbed power of driven machine in kW by the service factor to obtain the design power. If absorbed power is not known, use the prime mover Power.
- ▶ **Coupling Size :** After interpolating to arrive at Design Power at 100 rev/min, refer to the Power Rating Table, read under the kW at 100 rev/min column till a power exceeding the design power is found. Read to the left and the coupling size required is given in the first column of the table.
- ▶ **Bore Sizes :** From Table 2 check if the coupling size selected can accommodate the given shaft sizes. If not, select the next higher size of coupling.

## Tyre Coupling Selection Example

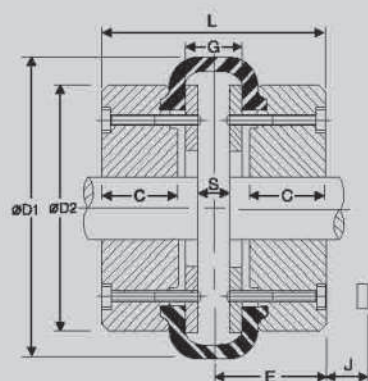
Select a Contitech Tyre Coupling to drive a Hammer Mill from a 50 kW, 960 rev/min Electric motor. The Hammer mill absorbs 42 kW and runs for 18 hours per day. Motor shaft diameter is 70 mm and Hammer Mill shaft is 60 mm

- ▶ **Service Factor :**  
From Table 1, the service factor for this application is 2
- ▶ **Design Power :**  
Using the absorbed power of hammer mill, the design power is  $42 \times 2 = 84$  kW
- ▶ **Coupling Size Selection :**  
Referring to Table 2, reading down and interpolating for the required speed of 960 rev/min, it is seen that CTT - 120 coupling will transmit 120 kW which is in excess of 84 kW required power from step 2.
- ▶ **Bore Sizes :**  
From the Dimensions (Table 2) it is observed that coupling CTT - 120 can accommodate shafts of 70 & 60 mm as per requirement of the application.  
Thus the coupling selected for this application is CTT - 120.

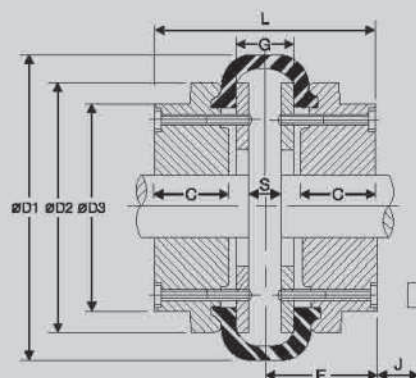
Table 1: Service Factors

Special cases For applications involving shocks, vibrations and torque fluctuations, consult Contitech with all application details.	Type of Prime Mover					
	'Soft' Starts			'Heavy' Starts		
	Electric Motors Steam Turbines			I.C. Engines Steam Engines Water Turbines		
	Operational hours per day					
Type of driven machine	Under 10	10 - 16	Over 16	Under 10	10 - 16	Over 16
<b>Uniform Load</b> Light duty Agitators, Belt Conveyors, Fans up to 7.5 kW, Centrifugal Pumps and Compressors, Dynamometers, Line shafts, Blowers and Exhausters ( except positive displacement ), Generators	0.8	0.9	1.0	1.3	1.4	1.5
<b>Moderate Load</b> Variable Density Agitators, Belt Conveyors,(non-uniform loads), Fans over 7.5 kW, Rotary Compressors and Pumps, Generators, Machine Tools, Printing Machinery, Laundry Machinery, Rotary Screens, Textile Machinery, Paper Mill Beaters & Winders.	1.3	1.4	1.5	1.8	1.9	2.0
<b>Heavy Load</b> Reciprocating Compressors and Pumps, Positive Displacement Blowers, heavy Duty Conveyors(Screw & Bucket), Hammer Mills, Pulverisers, Presses, Shears, Punches, Rubber Machinery.	1.8	1.9	2.0	2.3	2.4	2.5
<b>Severe Load</b> Crushers - Gyratory, Jaw, Roll, Rolling Mills, Calenders, Banbury Mixers and Rubber Mixing Mills, Vibrating Screens, Ball & Rod Mills.	2.3	2.4	2.5	2.8	2.9	3.0

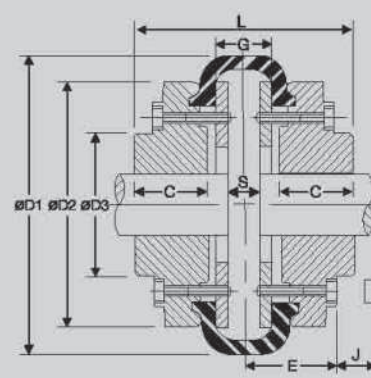




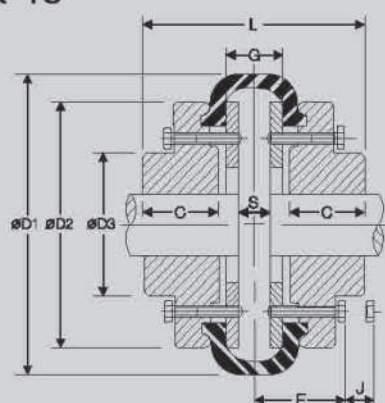
CTT - 40 & 45



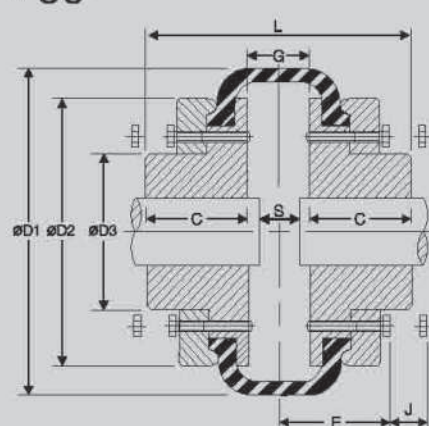
CTT - 50



CTT - 60



CTT - 70 to 120



CTT - 140 to 180

Table 2: Power Ratings (kW) & Dimensions

Size	kW <sup>*</sup> at 100 Rev/min	kW <sup>*</sup> at 1440 Rev/min	Bore		Approx. <sup>#</sup> Weight (kg)	Clamping Screw Size	Clamping Ring Screw Torque (Nm)	L	D1	D2	D3	C	E	J <sup>¶</sup>	G <sup>†</sup>
			Min.	Max.											
CTT 40	0.25	3.60	11	30	2	M6	15	67	104	82	-	22	33.5	43	23
CTT 45	0.40	5.75	11	32	2.2	M6	15	73	120	94	-	25	36.5	43	23
CTT 50	0.55	7.90	16	38	4	M6	15	92	133.5	100	79	32	46	43	28
CTT 60	1.10	15.85	16	48	5	M6	15	112	165	125	73	38	43	43	36
CTT 70	1.70	24.50	19	52	8	M8	24	132	197	144	82	45	50.5	10	42
CTT 80	2.65	38.20	25	65	12	M8	24	149	211	167	95	51	53	10	47
CTT 85	3.20	46	32	70	14	M8	32	154	222	179	103	53	53.5	13	48
CTT 90	3.85	55.50	32	76	15	M10	32	164	235	188	110	57	59.5	13	50
CTT 100	5.30	76.30	32	85	21	M10	32	178	254	216	124	60	61.5	13	58
CTT 110	7.50	108	32	90	28	M10	32	180	279	233	134	65	63.5	14	50
CTT 120	12.50	180	38	100	41	M12	35	207	314	264	152	76	70	14	55
CTT 140	20	288	75	120	61	M12	35	204	359	313	195	89	76	14	26
CTT 160	32.60	469.50	75	140	86	M16	35	220	402	347	216	102	78	19	16
CTT 180	57.50	828	75	150	141	M16	35	258	470	396	266	114	94	19	30

\* All Power ratings are constant torque, interpolate for speeds not listed.

# Weights given are for complete couplings with minimum bore.

† Shaft ends normally located 'G' apart can project beyond the flanges as shown. In such cases, allow sufficient space between shaft ends (S) to accommodate end float and mis-alignment.

¶ J is the amount by which Tyre clamping screws need to be withdrawn to release the Tyre.

Dimensions are in mm

## Installation instructions

- ▶ Clean all parts.
- ▶ Assemble the flanges onto the shafts after connecting the clamping rings loosely to them.
- ▶ Move the flanges along the shafts until dimension 'G' is obtained (see Table 2). Ensure there is sufficient gap between the shaft ends to allow for any axial movement (also called end float).
- ▶ Check the alignment in both parallel and angular planes to ensure the shafts are aligned as accurately as possible since this would reduce the Tyre wear.
- ▶ Fit the Tyre into the gap between the flange and clamping ring, ensuring the Tyre bead is correctly located and Tyre correctly seated.
- ▶ Tighten the clamping ring screws alternately and gradually, until the correct torque is achieved (Refer Table 2 for clamping ring screw torque values).

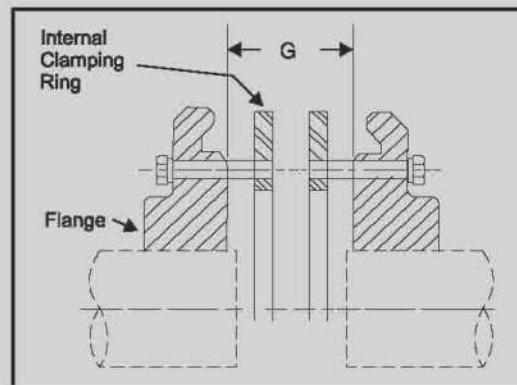
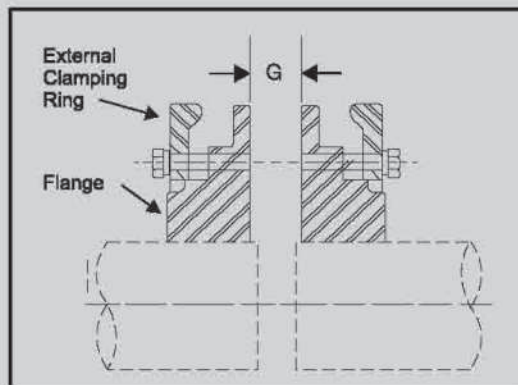


Table 3 - Physical Characteristics

Size	Max. Speed (rev/min)	Torque (Nm)		Moment of Inertia, MR <sup>2</sup> (kgm <sup>2</sup> )	Torsional Stiffness (Nm/°)	Maximum Misalignment (mm)	
		Nominal	Maximum			Parallel	End Float ±
CTT 40	4500	21	64	0.00148	5	1.1	1.3
CTT 45	4500	37	110	0.00250	9	1.2	1.5
CTT 50	4500	53	160	0.00349	13	1.3	1.7
CTT 60	4000	106	318	0.01030	26	1.6	2
CTT 70	3600	162	487	0.01811	41	1.9	2.3
CTT 80	3100	253	759	0.03679	63	2.1	2.6
CTT 85	3000	305	915	0.05015	76	2.2	2.8
CTT 90	2880	365	1096	0.06374	91	2.4	3
CTT 100	2600	505	1517	0.11989	126	2.6	3.3
CTT 110	2300	712	2137	0.16012	178	2.9	3.7
CTT 120	2050	1182	3547	0.34302	296	3.2	4
CTT 140	1800	1881	5642	0.69452	470	3.7	4.6
CTT 160	1600	3113	9339	1.21767	778	4.2	5.3
CTT 180	1500	5485	16455	2.01800	1371	4.8	6

Note: 1. Maximum Torque represent short duration over load ratings.  
2. All flexible Tyres have an angular mis-alignment capacity up to 4°



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