

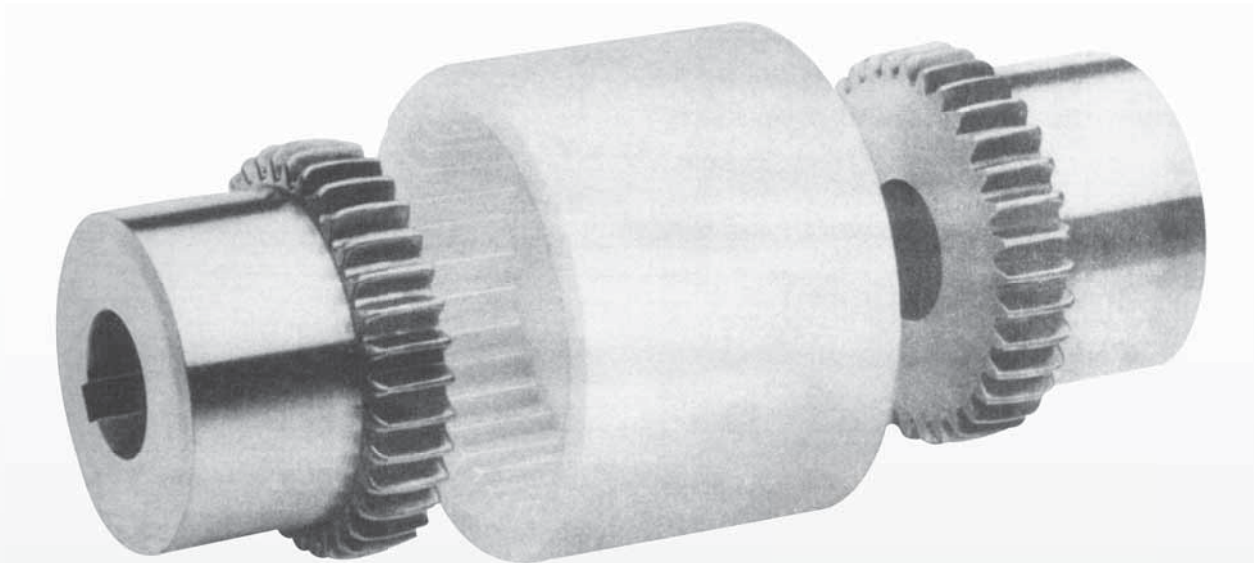


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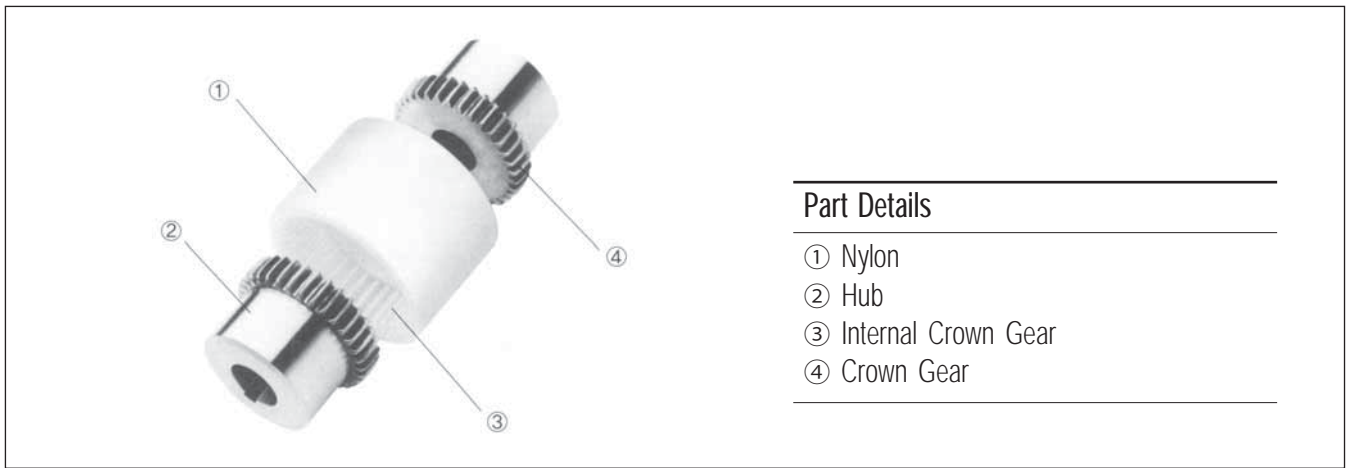


GEAR SLEEVE COUPLINGS

Characteristic

1. It always transmits the power fully (100%) under parallel, angular, complex misalignment with flexibility.
2. With angular and parallel displacements the reactive forces may be neglected, thanks to the twin cardanic method of operation, and there, are no periodic fluctuations in angular velocity.
3. Internals have longer life by using special materials.
4. Assembly is extremely simple and time saving, it is simple to mend and exchange parts.
5. Not Require lubrication.
6. Low noise.
7. Oil and heat resistance.

Structure



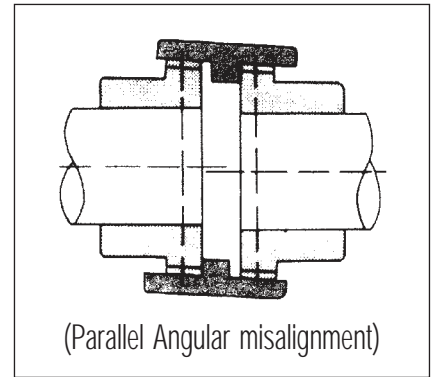
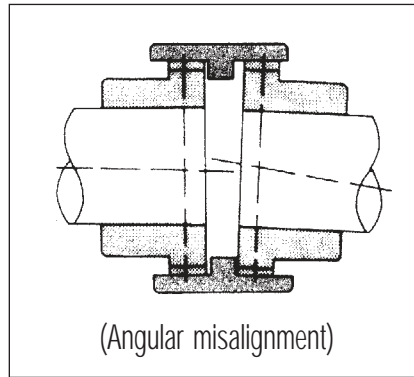
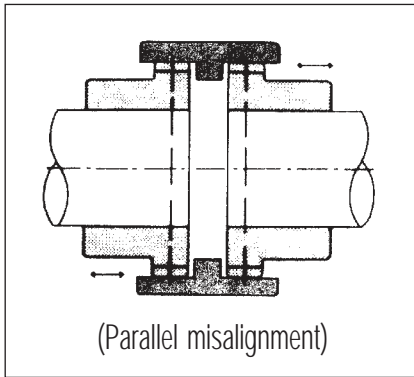
Part Details

- ① Nylon
- ② Hub
- ③ Internal Crown Gear
- ④ Crown Gear

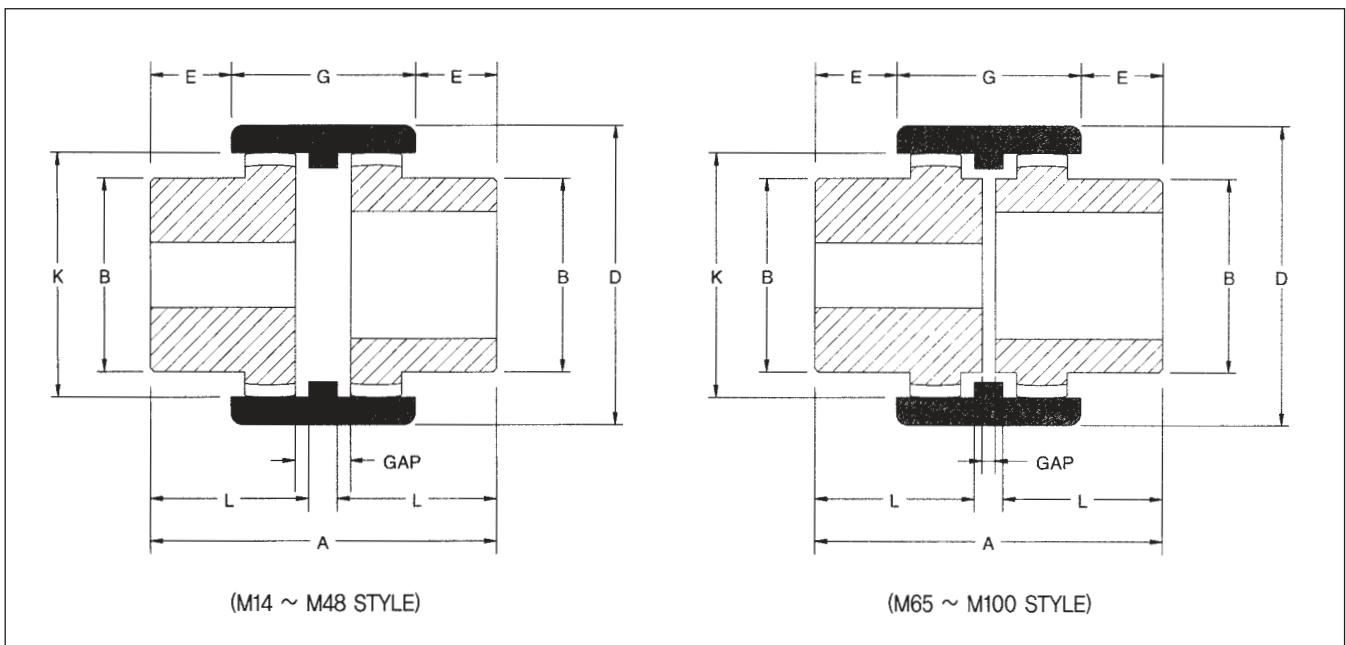
Reference in Assembling

Size	W	S	E	(D)		Size	
				max	min		
M14	50	4	±1	±0.3	±1 Per Hub	14	
M19	54					19	
M24	56					24	
M28	84					28	
M32				32			
M38	84			38			
M42	88			42			
M48	104			48			
M65	144			6		±0.6	65
M80	186					±0.7	80
M100	228	8	±0.8		100		

1. The assembled hubs must in all cases be flush with the shaft ends.
2. If the dimension 'E' is difficult to determine, the overall length can be used if the shaft ends finish at the inner collar of the hub.
3. *The stated dimension 'E' the individual couplings for must be maintained, especially in the presence of parallel or angular misalignment.
4. **The permisalignment values are dependent on speed and power out puts and capacity.
5. ***It is essential that the coupling sleeves slide easily in the axial direction.
6. Accurate alignment of shaft lengthens the life of the coupling.



■ Type H (Horizontal)



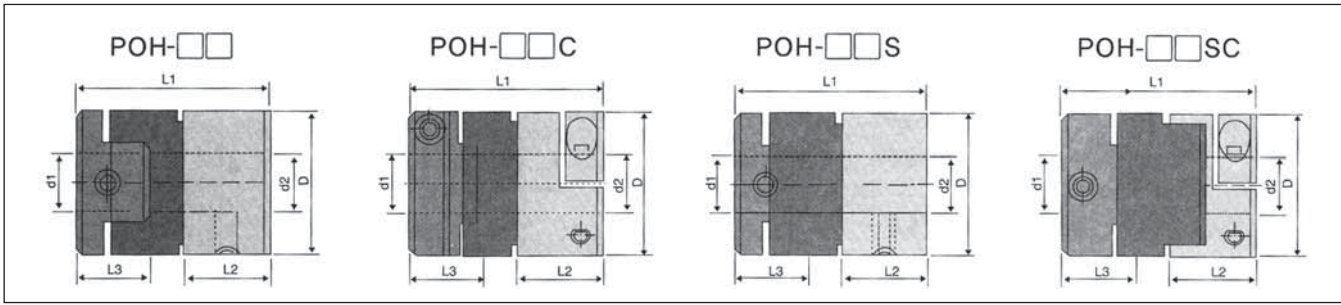
Dimensions

Size	Max. Speed (rpm)	Basic Torque (Nm.)	Bore (mm)		Dimensions (mm)							
			Max.	Min.	A	D	B	E	K	L	G	Gap
M-14	14,000	18	14	6	45	40	25	6.5	33	20	37	5
M-19	11,800	30	19	8	47	48	32	8.5	39	20	37	7
M-24	10,600	37	24	10	53	52	36	7.5	45	21	41	10
M-28	8,500	72	28	10	53	66	44	19	54	21	46	10
M-32	7,500	95	32	12	53	76	50	18	63	21	49	10
M-38	6,700	127	38	14	82	83	58	18	69	36	48	10
M-42	6,000	165	42	20	86	92	65	19	78	38	50	10
M-48	5,600	203	48	20	101	99	68	27	78	46	49	10
M-65	4,000	437	65	25	144	140	96	36	110	70	72	4
M-80	3,150	695	80	30	186	175	124	46.5	145	90	93	6
M-100	3,000	1,250	100	40	228	210	152	63	176	110	102	8

TECHNO**FLEX**

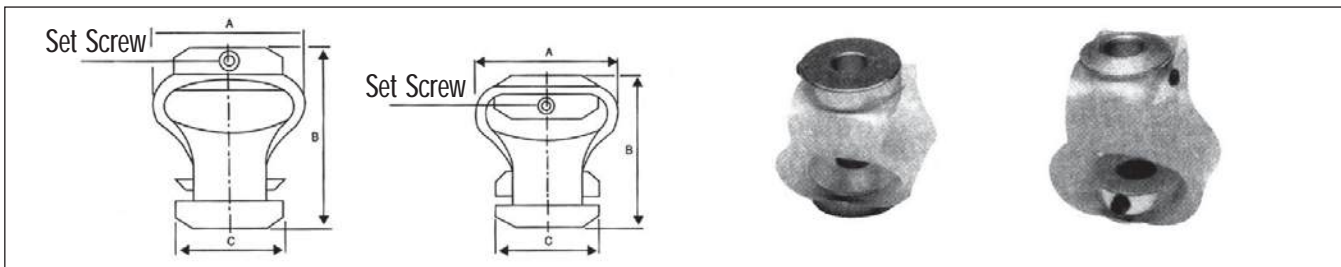


MICRO COUPLINGS



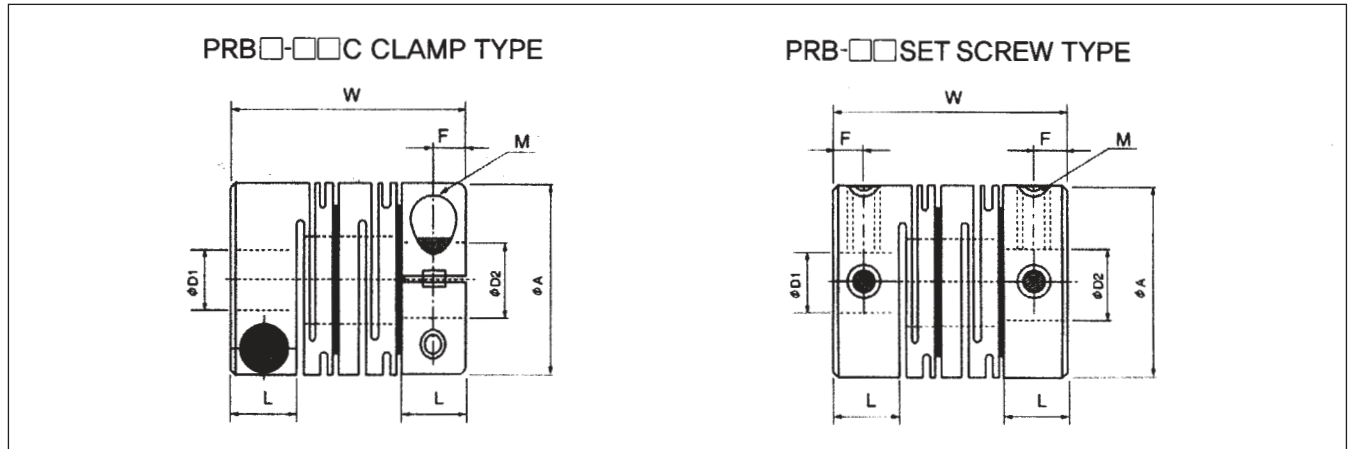
Size	Dimensions (mm)				Bolt No.	Weight (gr)	Max. Torque (kg-cm)	Basic Torque (kg-cm)	Twisting Hardness (kg-cm/deg)	Moment of inertia L : (kgf-cm) GD2 : (kgf-cm)	Max. Parallel	Max. Angle	Max. Rpm min	Standard Inner Diameter d1, d2
	D	L1	L2	L3										
POH-16	16	18	8	8	M3	7	70.2	15	12.4	2.4X10 ⁻³ (0.009)	1.2	2°30'	7,000	ø3 ~ ø6
POH-20	20	20	8.9	8.9	M4	14	130.0	30	20.2	7.4X10 ⁻³ (0.029)	1.8	2°30'	5,900	ø5 ~ ø8
POH-25	25.5	25.5	11.6	11.6	M4X2	20	190.8	56	36.8	1.7X10 ⁻² (0.07)	2.2	2°30'	4,800	ø6 ~ ø10
POH-32	32	32	14.5	14.5	M4X2	48	378.0	86	162.8	6.7X10 ⁻² (0.27)	2.8	2°30'	4,000	ø8 ~ ø12
POH-43	43	52	24	24	M5X2	160	530.6	180	210.6	0.39 (1.59)	3.5	2°30'	3,600	ø10 ~ ø16
POH-53	53	58	27	27	M5X2	252	742.2	260	319.4	0.99 (3.95)	4.5	2°30'	3,100	ø15 ~ ø25
POH-57	57	77	36.5	36.5	M8X2	390	900.2	350	400.6	1.77 (7.1)	5.5	2°30'	2,700	ø15 ~ ø30
POH-16C	16	23.6	10.7	10.7	M2.6	9	70.2	15	12.4	3.06X10 ⁻³ (0.012)	1.2	2°30'	7,000	ø3 ~ ø6
POH-20C	20	25.5	11.6	11.6	M2.6	16	130.0	30	20.2	8.5X10 ⁻³ (0.084)	1.8	2°30'	5,900	ø5 ~ ø8
POH-25C	25.5	32	14.8	14.8	M3	34	198.8	56	36.8	2.9X10 ⁻² (0.12)	2.2	2°30'	4,800	ø6 ~ ø10
POH-32C	32	45	21	21	M4	80	378.0	86	162.8	0.15 (0.45)	2.8	2°30'	4,000	ø8 ~ ø12
POH-43C	43	52	24	24	M5	160	530.6	180	210.6	0.39 (1.59)	3.5	2°30'	3,600	ø10 ~ ø16
POH-53C	53	58	27	27	M5	252	742.2	260	319.4	0.99 (3.95)	4.5	2°30'	3,100	ø15 ~ ø25
POH-57C	57	77	36.5	36.5	M6	390	900.2	350	400.6	1.77 (7.11)	5.5	2°30'	2,700	ø15 ~ ø28
POH-16S	16	21	10.7	8	M3	7.5	70.2	15	12.4	2.6X10 ⁻³ (0.01)	1.2	2°30'		
POH-20S	20	22.8	11.6	8.9	M4	15.3	130.0	30	20.2	8.1X10 ⁻² (0.032)	1.8	2°30'		
POH-25S	25.5	28.8	14.8	11.6	M4X2	27	190.8	56	36.8	2.3X10 ⁻² (0.092)	2.2	2°30'		
POH-32S	32	38.5	21	14.5	M4X2	70	378.0	86	162.8	9.8X10 ⁻² (0.39)	2.8	2°30'		
POH-16SC	16	21	10.7	8	M3	7.5	70.2	15	12.4	2.6X10 ⁻³ (0.01)	1.2	2°30'		
POH-20SC	20	22.8	11.6	8.9	M4	15.3	98.8	30	20.2	8.1X10 ⁻³ (0.032)	1.8	2°30'		
POH-25SC	25.5	28.8	14.8	11.6	M4X2	27	130.0	56	36.8	2.3X10 ⁻² (0.092)	2.2	2°30'		
POH-32SC	32	38.5	21	14.5	M4X2	70	378.0	86	162.8	9.8X10 ⁻² (0.39)	2.8	2°30'		

Flexible Coupling



Size	Dimensions (mm)			Weight (gr)	May speed (rpm)	Max. Torque (kgf-cm)	Angle (±°)	Parallel (±mm)	End Play (±mm)	Standard Inner Diameter d1, d2
	A	B	C							
RFC-29	29	28	18	19	3,000	3.5	10°	2	1.5	ø6 ~ ø8
RFC-38	38	35	22.5	38	3,000	3.5	12.5°	2.5	2	ø6 ~ ø12
RFC-48	48	50	26	60	3,000	18	15°	3	3	ø8 ~ ø14
RFC-54	54	58	29.5	140	3,000	45	15°	3.5	3	ø10 ~ ø16

HELICAL COUPLING



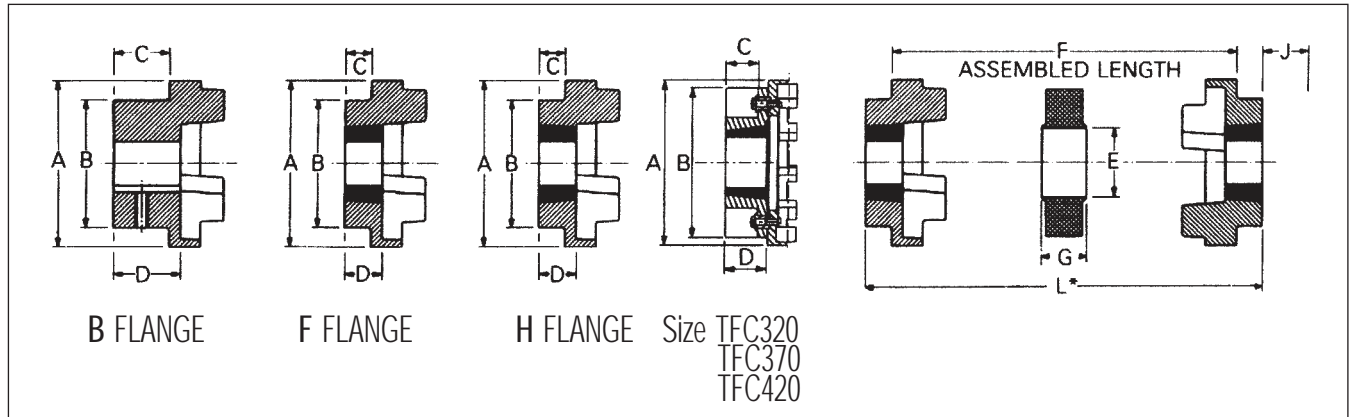
Size	Dimensions (mm)					Weight (gr)	Moment of inertia (kg.m ²)	Max. rpm (rpm)	Rated Torque (kgf.cm)	Max. Torque (kg-cm)	Torsional stiffness (Nm./rad)	Errors of Misalignment		
	A	L	W	F	M							Angle (°)	parallel (mm)	End-Play (mm)
PRB-16C	16	6.1	21.5	3.05	2.6	8.5	31X10 ⁷	12,000	4	8	65	2	0.15	0.3
PRB-19C	19.1	6.1	23	3.05	2.6	12	6.5X10 ⁷	9,500	6	12	140	2	0.15	0.4
PRB-22C	22.2	7.2	26.5	3.6	3	19	1.4X10 ⁶	8,500	10	20	170	2	0.15	0.4
PRB-26C	26.2	7.4	31.4	3.7	3	33	3.2X10 ⁶	7,500	15	30	240	2	0.2	0.5
PRBA-32C	32	9.4	39	4.7	4	60	9.1X10 ⁶	6,500	26	52	400	2	0.23	0.5
PRBB-32C	32	9.4	44	4.7	4	68	1.1X10 ⁵	6,000	26	52	380	2	0.25	0.5
PRBA-39C	39	10.5	43	5.35	5	95	2.2X10 ⁵	5,000	65	130	520	2	0.2	0.5
PRBB-39C	39	16	56	5.35	5	135	3.1X10 ⁵	4,100	65	130	460	2	0.2	0.5
PRB-16	16	4.6	18.5	2.3	3	7.8	2.8X10 ⁷	30,000	4	8	65	2	0.15	0.3
PRB-19	19.1	5.7	22	2.8	3	12	6.5X10 ⁷	25,000	6	12	140	2	0.15	0.4
PRB-22	22.2	6.5	25	3.25	4	19	1.4X10 ⁶	20,000	10	20	170	2	0.15	0.4
PRB-26	26.2	6.8	30	3.4	4	33	3.2X10 ⁶	17,000	15	30	240	2	0.2	0.5
PRB-32	32	9.4	39	4.7	5	62	9.4X10 ⁶	15,000	26	52	400	2	0.23	0.5
PRB-39	39	16	56	6	5	124	3X10 ⁵	9,600	65	130	460	2	0.2	0.5

Size	Dimensions (mm)											Product No.	Dimensions (mm)												
	ø4	ø5	ø6	ø8	ø1	ø11	ø12	ø14	ø15	ø16	ø18		ø19	ø4	ø5	ø6	ø8	ø1	ø11	ø12	ø14	ø15	ø16	ø18	ø19
PRB-16C	•	•	•										PRB-16C	•	•	•									
PRB-19C		•	•	•									PRB-19C		•	•	•								
PRB-22C		•	•	•									PRB-22C		•	•	•								
PRB-26C			•	•	•								PRB-26C			•	•	•							
PRBA-32C			•	•	•	•							PRBA-32C			•	•	•	•	•					
PRBB-32C				•	•	•																			
PRBA-39C					•	•	•	•	•	•	•														
PRBB-39C					•	•	•	•	•	•	•		PRBB-39C					•	•	•	•	•	•	•	•



JAW COUPLINGS

Physical Dimension and Characteristics



Size	Common Dimensions					Type F & H					Type B				
	A	B	W	F1±	G	Bush Size	Max. Bore (mm)	C	D	J+	Bore Dia		Screw Over key	C	D
											Max. (mm)	Min (mm)			
TFC070	69	60	31	25	18	1008	25	20.0	23.5	29	32	0	M6	20	23.5
TFC090	85	70	32	30.5	22.5	1108	28	19.5	23.5	29	42	0	M6	26	30
TFC110	112	100	45	45	29	1610	42	18.5	26.5	38	55	0	M10	37	45
TFC130	130	105	50	53	36	1610	42	18.0	26.5	38	60	0	M10	39	47.5
TFC150	150	115	62	60	40	2012	50	23.5	33.5	42	70	0	M10	46	56
TFC180	180	125	77	73	49	2517	60	34.5	46.5	48	80	0	M10	58	70
TFC230	225	155	99	85.5	59.5	3020	75	39.5	52.5	55	100	48	M12	77	90
TFC280	275	206	119	105.5	74.5	3525	100	51.0	66.5	67	115	60	M16	90	105.5
TFC320	320	300	-	95	49	4030	115	60.0	80.0	80	-	-	-	-	-
TFC370	370	320	-	103	49	4535	125	73.0	93.0	89	-	-	-	-	-
TFC420	420	380	-	103	49	5040	130	81.0	106.0	92	-	-	-	-	-

Size	Assembled Length (L*) Comprising Flange Types			Mass kg	Inertia Mr ² kgm ²	Dynamic Stiffness Nm/°	Maximum Misalignment		Nominal Torque (Nm)	Max Torque (Nm)
	FF, FH, HH	FB, HB	BB				Parallel	Axial		
TFC090	69.5	76	82.5	1.17	0.00115	-	0.3	+0.5	80	185
TFC110	80	100.5	119	5.00	0.00400	65	0.3	+0.6	160	370
TFC130	89	118	131	5.46	0.00780	130	0.4	+0.8	315	750
TFC150	107	133.5	152	7.11	0.01810	175	0.4	+0.9	600	1,550
TFC180	142	165.5	189	16.6	0.04340	229	0.4	+1.1	950	2,400
TFC230	164.5	202	239.5	26.0	0.12068	587	0.5	+1.3	2,000	5,100
TFC280	207.5	246.5	285.5	50.0	0.44653	1025	0.5	+1.7	3,150	7,300
TFC320	255	-	-	67.0	0.78662	1200	0.4	+1.1	5,500	13,750
TFC370	289	-	-	84.0	1.24698	1800	0.4	+1.1	8,000	20,000
TFC420	315	-	-	129.0	2.26299	2700	0.4	+1.1	12,000	30,000

Selection

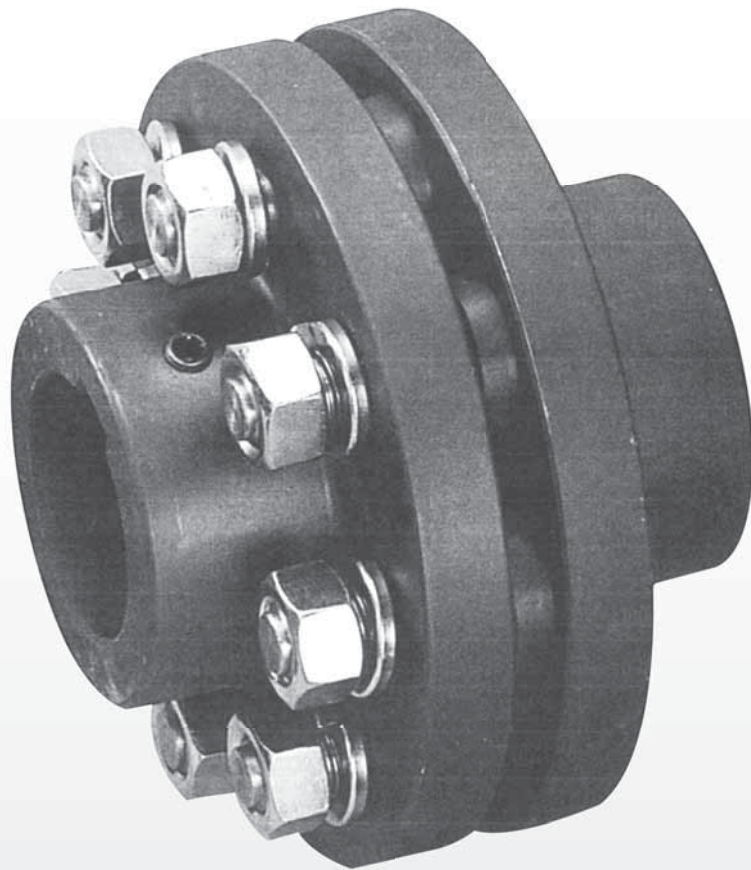
Table 1 : Service Factors (s.f)

SPECIAL CASES For applications where substantial shock, vibration and Torque fluctuation occur, and for reciprocating machines e.g. internal combustion engines, piston type pumps and compressors, with full machine details for torsional analysis.	Type of Driving Unit					
	Electric Motors Steam Turbines			Internal Combustion Engines Steam Engines Water Turbines		
	Hours per day duty			Hours per day duty		
DRIVEN MACHINE CLASS	8 and under	over 8 to 16	over 16	8 and under	over 8 to 16	over 16
UNIFORM LOAD Agitators, Brewing machinery, Centrifugal blowers, Centrifugal compressors Conveyors, Centrifugal fans and pumps, Generators, Sewage disposal equipment.	1.20	1.30	1.50	1.40	1.50	1.80
MODERATE SHOCK* LOAD Clay working machinery, Crane hoists, Laundry machinery, Wood working machinery, Machine tools, Rotary mills, Paper mill machinery, Textile machinery, Non-uniformly loaded centrifugal pumps.	1.60	1.80	2.00	2.00	2.24	2.50
HEAVY SHOCK* LOAD Reciprocating conveyors, Crushers, Shakers, Metal mills, Rubber machinery (Banbury mixers and mills), Reciprocating compressors, Welding sets.	2.50	2.80	3.12	3.12	3.55	4.00

Table 2 : Power rating (kw)

Speed rev/min	Coupling Size										
	TFC070	TFC090	TFC110	TFC130	TFC150	TFC180	TFC230	TFC280	TFC320	TFC370	TFC420
125	0.33	0.84	1.68	3.30	6.28	9.95	20.9	33.0	58.0	84.0	126
250	0.66	1.68	3.35	6.60	12.6	19.9	41.9	65.0	115	168	251
500	1.32	3.35	6.70	13.2	25.1	39.8	83.8	132	230	335	503
750	1.98	5.03	10.1	19.8	37.7	59.7	126	198	345	503	754
900	2.37	6.03	12.1	23.8	45.2	71.6	151	238	414	603	905
1,000	2.64	6.70	13.4	26.4	50.3	79.6	168	264	460	670	1,005
1,200	3.17	8.04	16.1	31.7	60.3	95.5	201	317	552	804	1,206
1,500	3.96	10.1	20.1	39.6	75.4	119	251	396	691	1,005	1,507
1,800	4.75	12.1	24.1	47.5	90.5	143	302	475	830	1,206	1,809
2,000	5.28	13.4	26.8	52.8	101	159	335	528	921	1,340	
2,250	5.94	15.1	30.2	59.4	113	179	399	594	1,037		
2,500	6.60	16.8	33.5	66.0	126	199	419	660			
2,750	7.26	18.4	36.9	72.6	138	219	461	726			
3,000	7.92	20.1	40.2	79.2	151	239	503				
3,250	8.58	21.8	43.6	85.8	163	259	545				
3,600	9.50	24.1	48.3	95	181	286					
3,750	9.90	25.1	50.3	99	188	298					
4,500	11.9	30.1	60.3	118	226						

TECHN  **FLEX**



CROWN PIN COUPLINGS

Characteristic

When connecting the line shaft, flexible flange coupling has many merits with simple assembly/disassembly and extremely lowest price.

1. Transmits power smoothly.
2. Absorb shock load and vibration.
3. Easy Replacement of parts.
4. Simple construction.
5. Easy assemble and disassembly.

Applications

1. To prevent the transmission under vibration and shock load.
2. To transmit power under parallel misalignment or angular misalignment.
3. To transmit power under end floating.
4. When reverse revolution is required.
5. When smooth starting is required.

■ **Principal use**

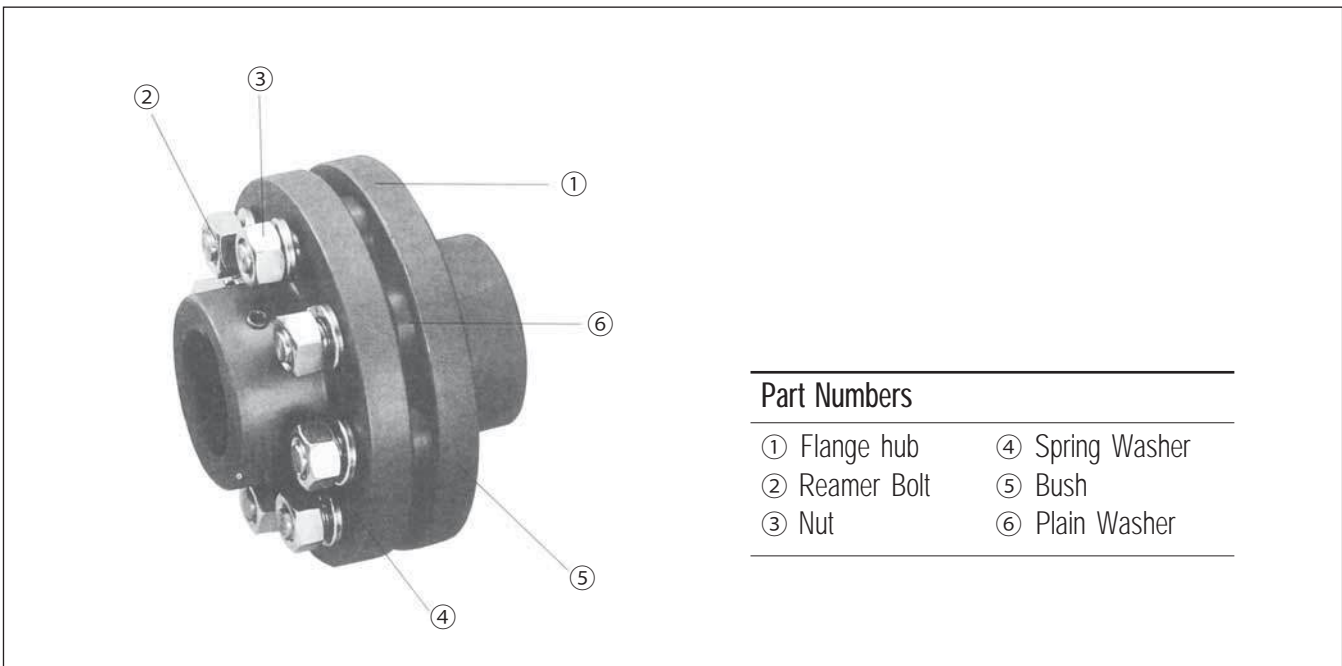
Pump, Blower, Compressor, Speed change gear, Conveyor, Crane, Hoist, Chemical machinery, Construction machinery, Cement mixer, Tractor, Metal processing machinery, Rolling mill, Bending machinery, Textile machinery, Spinning and weaving machinery.

Structure and Material

Flange Flexible Couplings are as follows.

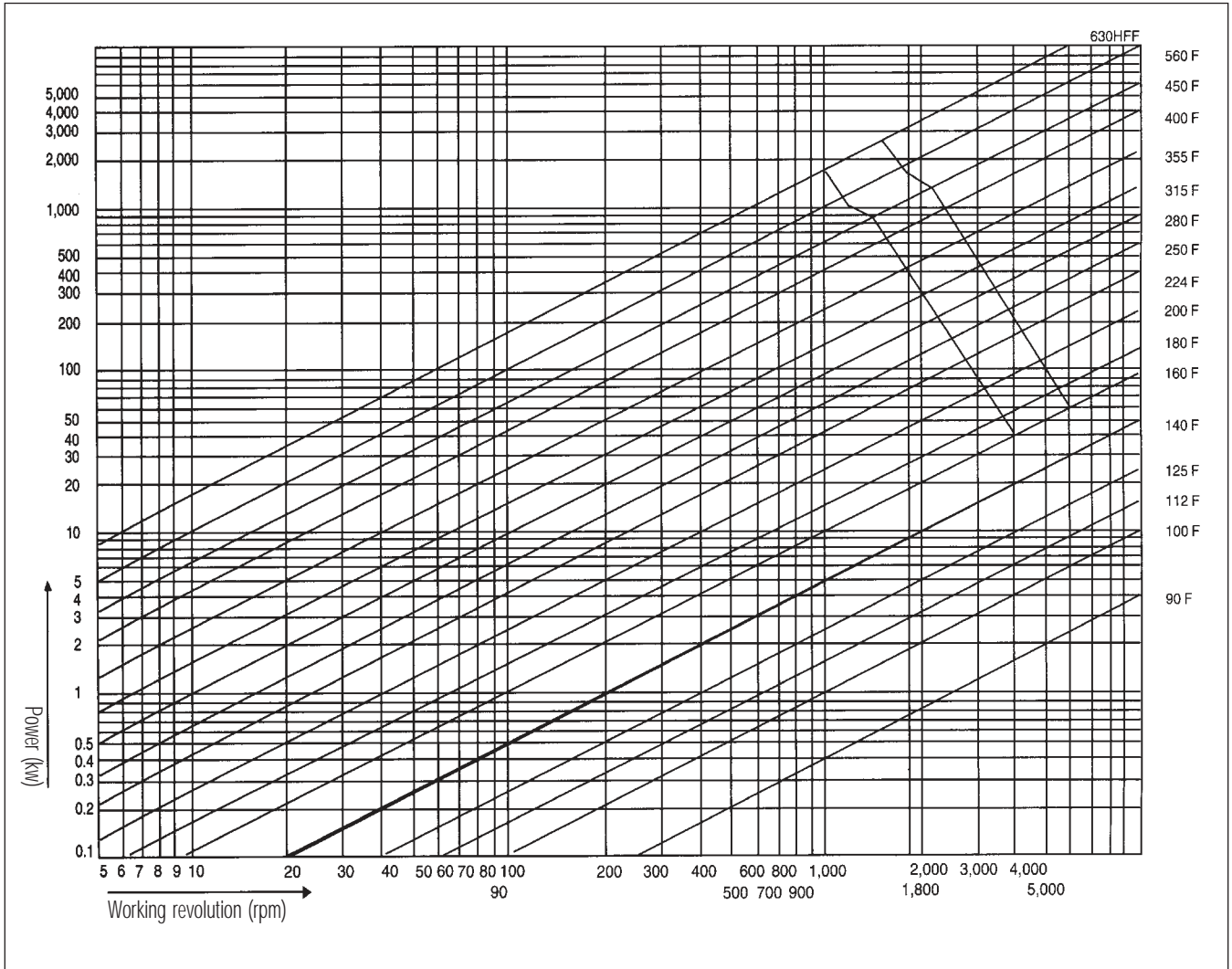
1. Flange Hub : KS D 4301 GC 20 or KS D 3701 SF 45
2. Reamer Bolt : KS D 3752, SM45C
3. Nut : KS D 3503 SS 400
4. Spring Washer : KS D 3559 HSWR62B or HSWR 5
5. Bush : KS M 6617 NBR (HS=70)
6. Plain Washer : KS D 3503 SS 400

Structure

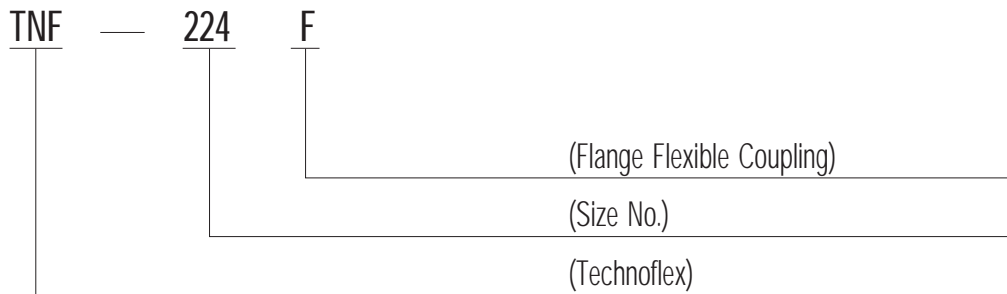


Part Numbers	
① Flange hub	④ Spring Washer
② Reamer Bolt	⑤ Bush
③ Nut	⑥ Plain Washer

Torque Diagram



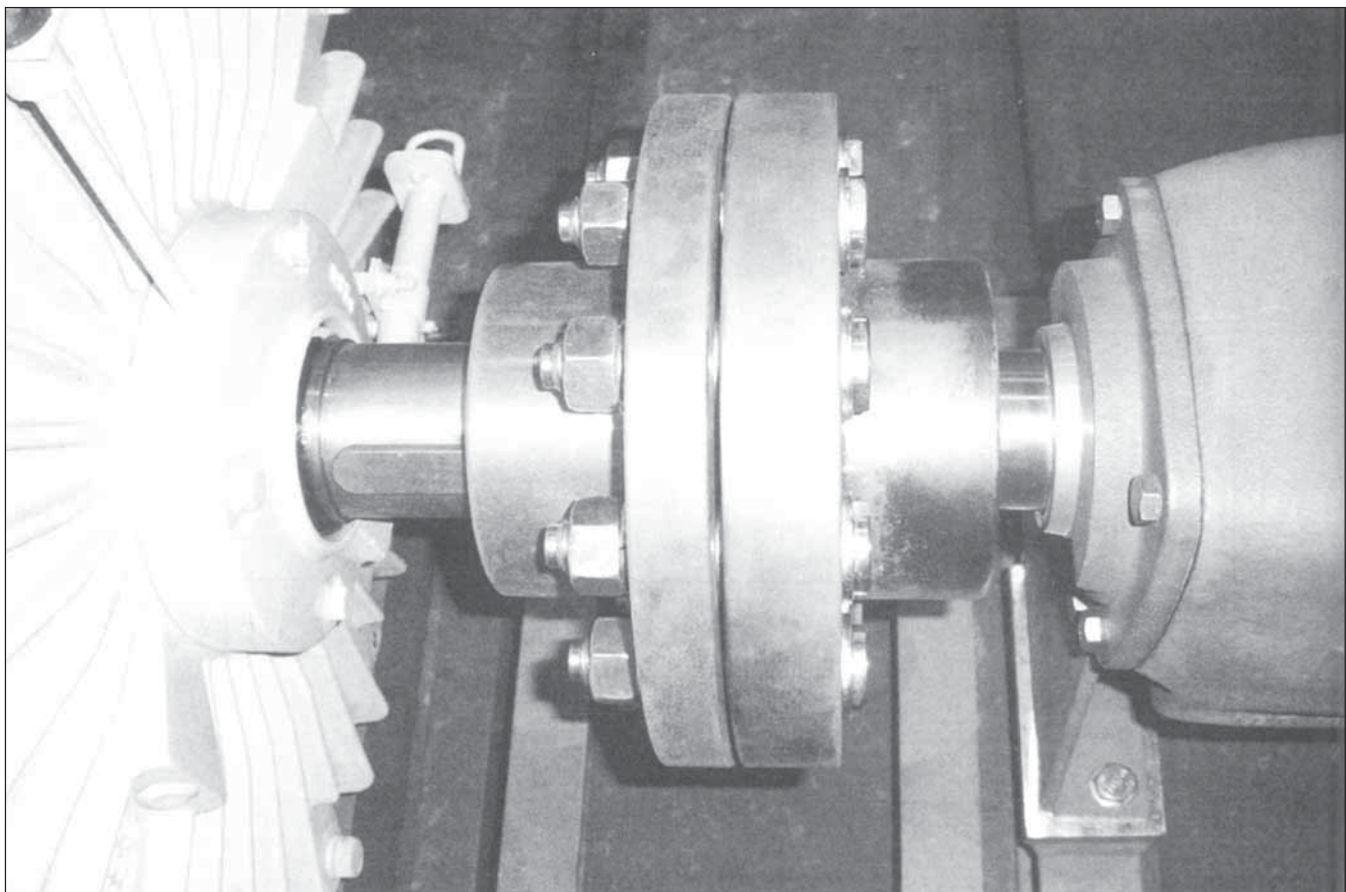
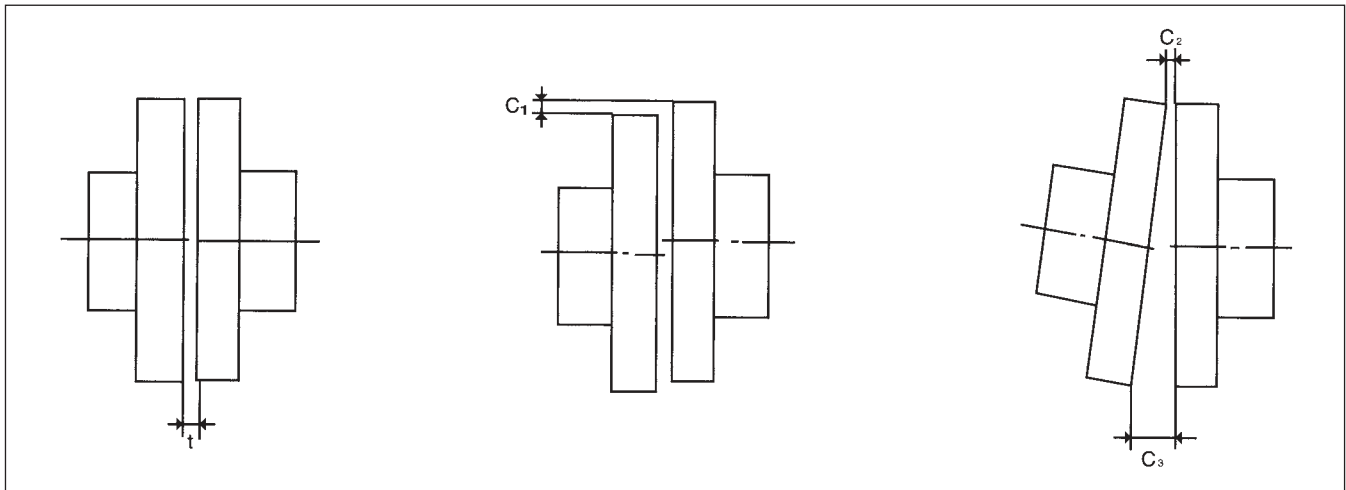
Designation



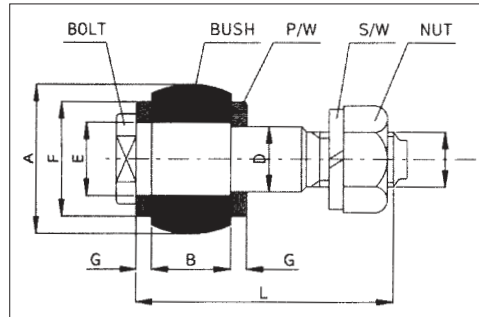
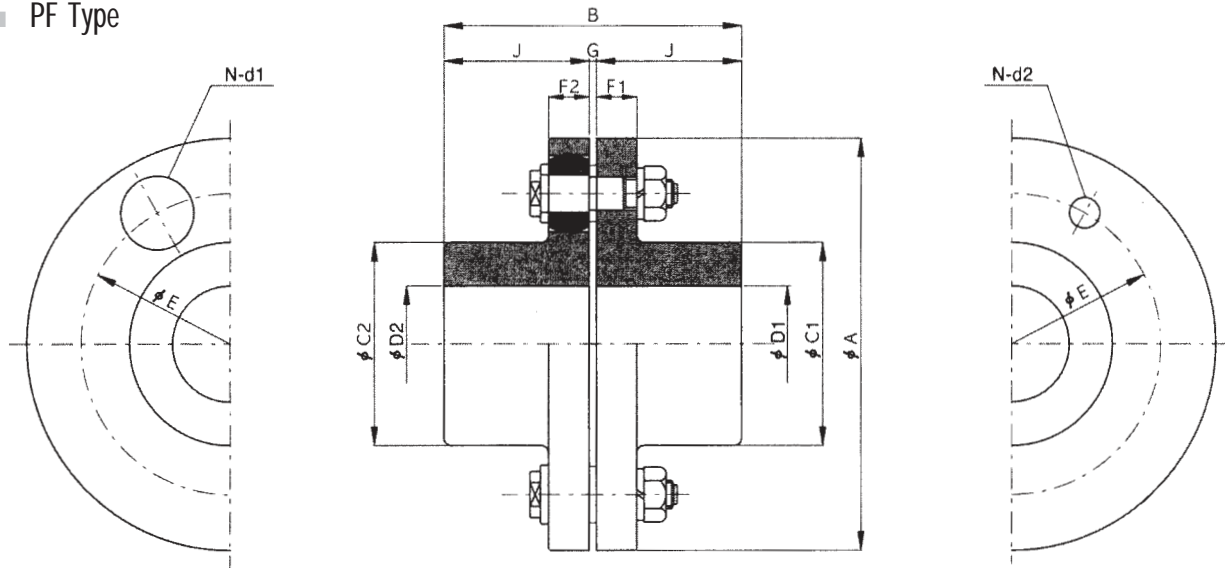
- F : Flange Flexible Coupling
- R : Rigid-Coupling
- S : Spacer Coupling

Instruction for Installation

1. When Flange outside diameter fits tightly without gap you must set the center to the driving and the driven shaft precisely.
2. To maintain rubber bush for a long time, make C1, C2, C3 within 0.05 mm as the following figures.
3. The value of 't' is equivalent to thickness of washer.

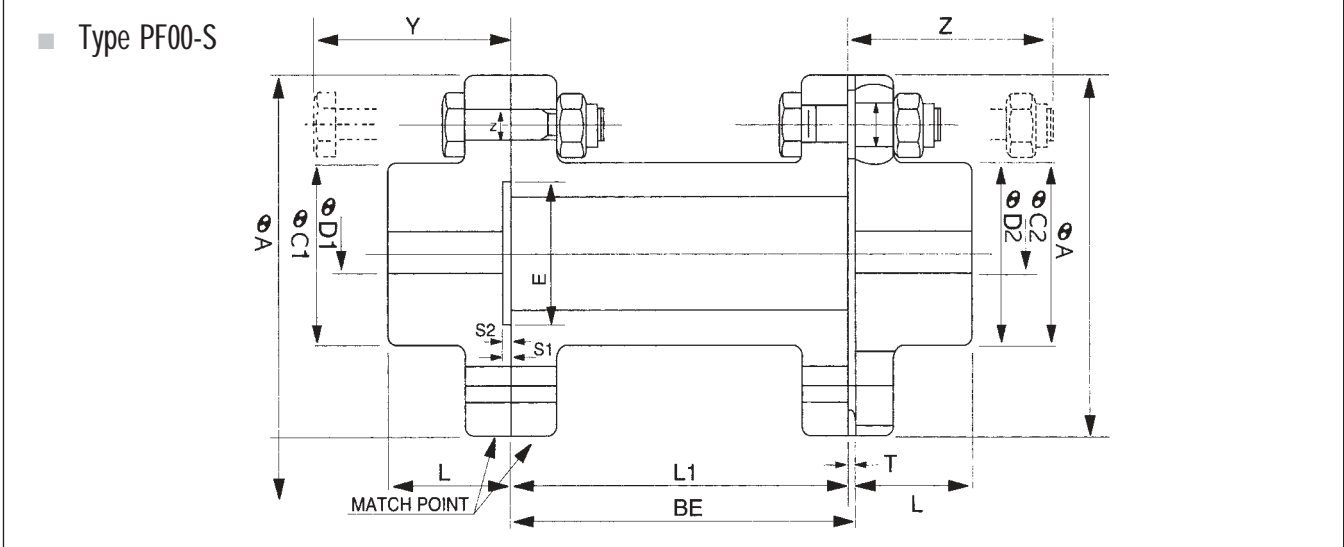


■ PF Type

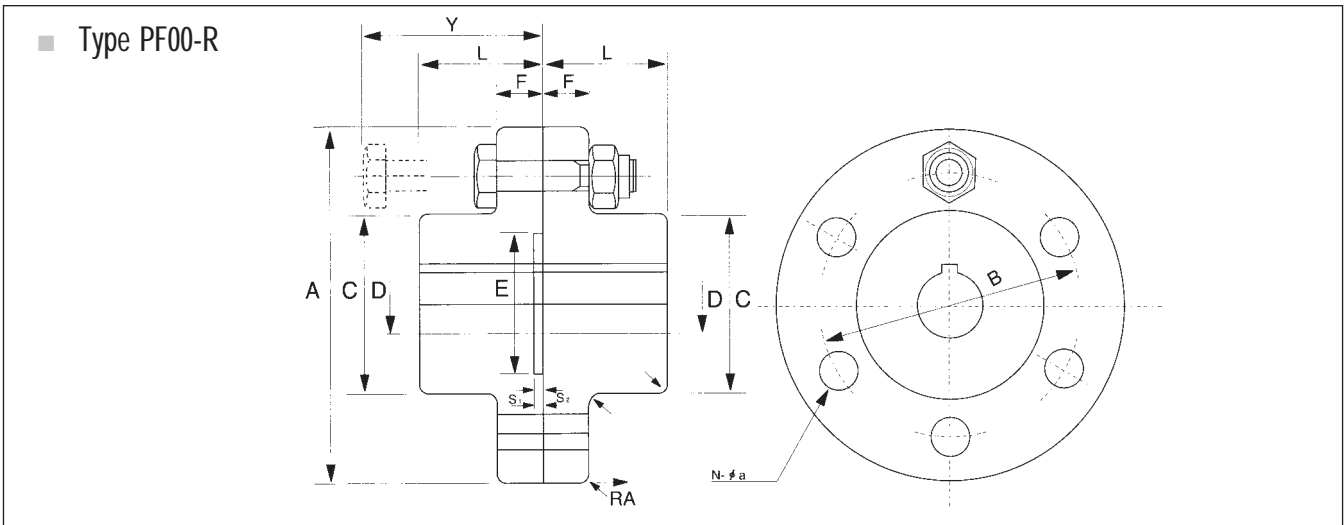


Size	A	F	E	D	M	B	G	L
B6-01	18	14	9	8	8	14	3	50
B6-02	22	18	12	10	10	16	3	56
B6-03	31	25	16	14	12	18	3	64
B6-04	40	32	22.4	20	20	22.4	4	85
B6-05	50	40	28	25	24	28	4	100
B6-06	56	45	31.5	28	24	40	4	116
B6-07	71	56	40	35.5	30	56	5	150

Size	Rated Torque (Nm)	Max. Speed (rpm)	Bore Dia (mm)		Dimensions (mm)											Weight (kgs)	GD ² (kgf (m ²))	
			Max. D1	Min. D2	A	B	C1	C2	E	F1	F2	J	G	Bolt Hole				
														N	D1			D2
90F	50	4,000	20	-	90	59	35.5	60	14	28	3	4	19	8	1.4	0.00532		
100F	60	4,000	25	-	100	74	42.5	67	16	35.5	3	4	23	10	2.1	0.00948		
112F	140	4,000	28	16	112	83	50	75	16	40	3	4	23	10	2.7	0.0152		
125F	250	4,000	32	28	18	125	93	56	85	18	45	3	4	32	14	3.5	0.0258	
140F	290	4,000	38	35	20	140	103	63	100	18	50	3	6	32	14	4.9	0.0422	
160F	320	4,000	45	25	160	115	80	115	18	56	3	8	32	14	6.8	0.0741		
180F	600	3,500	50	28	180	129	90	132	18	63	3	8	32	14	9.6	0.121		
200F	850	3,200	56	32	200	146	100	145	22.4	71	4	8	41	20	13.2	0.241		
224F	1,700	2,850	63	35	224	164	112	170	22.4	80	4	8	41	20	18.4	0.384		
250F	2,550	2,550	71	40	250	184	125	180	28	90	4	8	51	25	26.0	0.720		
280F	3,000	2,300	80	50	280	204	140	200	28	100	4	8	57	28	36.5	1.29		
315F	3,500	2,050	90	63	315	228	160	236	28	112	4	10	57	28	49.1	2.12		
355F	4,500	1,800	100	71	355	255	180	260	35.5	125	5	8	72	35.5	74.9	4.42		
400F	8,700	1,600	110	80	400	255	200	300	35.5	125	5	10	72	35.5	94.3	7.10		
450F	9,000	1,400	125	90	450	285	224	355	35.5	140	5	12	72	35.5	127.8	11.5		
560F	12,000	1,150	140	100	560	325	250	450	35.5	160	5	14	72	35.5	206.3	27.3		
630F	15,000	1,000	160	110	630	365	280	530	35.5	180	5	18	72	35.5	277.0	44.1		

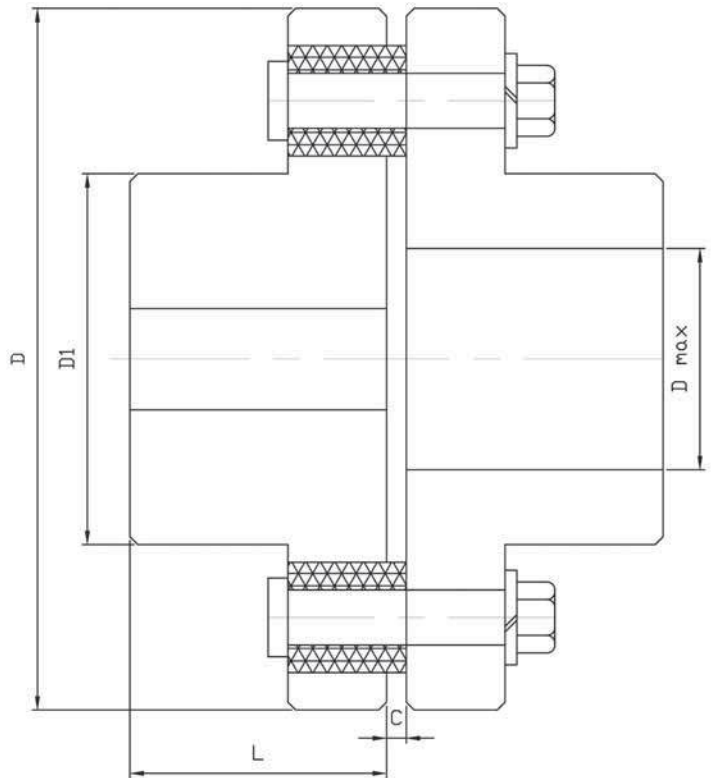


Size	Torque rating (Nm)	Max. Speed (rpm)	Dimensions (mm)							Dimensions (mm)			
			Bore Dia (mm)		A	BE	L1	T	For rigid		For rigid		
			Min.	Max.					N	Size a1 x l	N	Size a1 x l	
125xBE	25	4,000	18	32	28	125	100	97	3	4	14x53L	4	14x64L
140xBE	50	4,000	20	38	35	140	100,140	97,137	3	6	14x53L	6	14x64L
160xBE	110	4,000	25	45		160	100,140	97,137	3	8	14x53L	8	14x64L
180xBE	160	3,500	28	50		180	100,140,180	97,137,177	3	8	14x53L	8	14x64L
200xBE	250	3,200	32	56		200	140,180,220	136,176,216	4	8	16x67L	8	20x85L
224xBE	400	2,850	35	63		224	140,180,220	136,176,216	4	8	16x67L	8	20x85L
250xBE	630	2,550	40	71		224	140,180,220,260	136,176,216,256	4	8	20x82L	8	25x100L
280xBE	1,000	2,300	50	80		280	180,220,260,300	176,216,256,296	4	8	20x82L	8	28x116L
315xBE	1,600	2,050	63	90		315	180,220,260,300	176,216,256,296	4	10	20x82L	10	28x116L



Size	Torque rating (Nm)	Max. Speed (rpm)	Dimensions (mm)												Y	Weight (kg)	GD ² (kgl-m ²)
			Bore Dia (mm)		A	L	C	B	F	N-a	Bolt Hole						
			min	max							N	D1	D2				
112R	63	4,000	16	28	112	40	50	75	16	4-10	40	2	3	70	2.78	0.0163	
125R	90	4,000	18	32	125	45	56	85	18	4-14	45	2	3	81	3.76	0.0276	
140R	180	4,000	20	38	140	50	71	100	18	6-14	56	2	3	81	5.06	0.0449	
160R	355	4,000	25	45	160	56	80	115	18	8-14	71	2	3	81	6.98	0.0788	
180R	500	3,500	28	50	180	63	90	132	8	8-14	80	2	3	81	9.23	0.129	
200R	710	3,200	32	56	200	71	100	145	22.4	8-16	100	3	4	103	14.4	0.255	
224R	1,000	2,850	35	63	224	80	112	170	22.4	8-16	100	3	4	103	18.4	0.405	
250R	1,400	2,550	40	71	250	90	125	180	28	8-20	112	3	4	126	27.8	0.763	
280R	2,000	2,300	50	80	280	100	140	200	28	8-20	125	3	4	126	38.9	1.37	
315R	2,800	2,050	63	90	315	112	160	236	28	10-20	140	3	4	126	51.2	2.23	
355R	4,000	1,800	71	100	355	125	180	260	35.5	8-25	160	3	4	157	81.4	4.67	

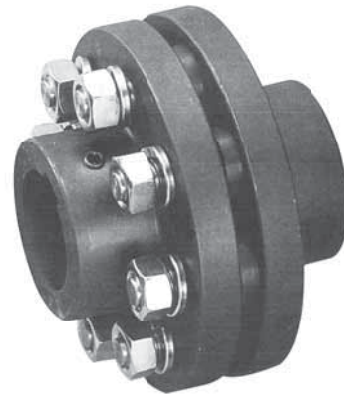
■ FCL Type



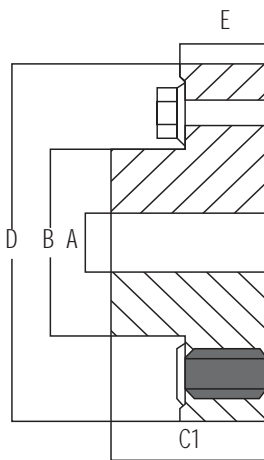
Type (Inch)	Max Bore (Dmax) mm	Max torque Nm.	Max speed r/min	D	D1	d1	L	C	n-M	Weight kgs
FCL90(3.5)	20	8	4,000	90	35.5	11	28	3	4-MB x 50	1.7
FCL100(4)	25	12	4,000	100	40	22	35.5	3	4-M10 x 56	2.3
FCL112(4.5)	28	20	4,000	112	45	13	40	3	4-M10 x 56	2.8
FCL125(5)	30	35	4,000	125	50	13	45	3	4-M12 x 64	4.0
FCL140(5.5)	38	65	4,000	140	63	13	50	3	6-M12 x 64	5.4
FCL160(6)	45	130	4,000	160	80	15	56	3	8-M12 x 64	8.0
FCL180(7)	50	170	3,500	180	90	15	63	3	8-M12 x 64	10.5
FCL200(8)	56	260	3,200	200	100	21	71	4	8-M20 x 85	16.2
FCL224(9)	65	400	2,850	224	112	21	80	4	8-M20 x 85	21.3
FCL250(10)	75	630	2,550	250	125	25	90	4	8-M24 x 110	31.6
FCL280(11)	80	1,050	2,300	280	140	34	100	4	8-M24 x 116	44.0
FCL315(12)	90	1,680	2,050	315	160	41	112	4	10-M24 x 116	57.7
FCL355(14)	105	2,570	1,800	355	180	60	125	5	8-M30 x 150	89.5
FCL400(16)	110	4,000	1,600	400	200	60	125	5	10-M30 x 150	113
FCL450(18)	125	6,300	1,400	450	224	65	140	5	12-M30 x 150	145
FCL560(22)	140	10,200	1,150	560	250	85	160	5	14-M30 x 150	229
FCL630(25)	160	16,500	1,000	630	280	95	180	5	18-M30 x 150	296

Technical Data

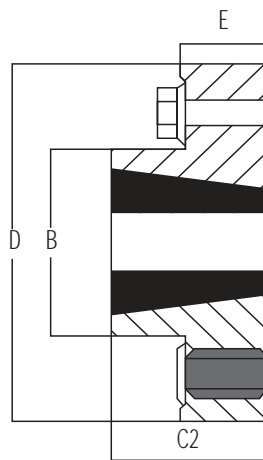
Crown pin Couplings is widely used its compact designing. Easy installation for taper bushes type. As long as the relative displacement between shafts is kept within the specified tolerance. The coupling will operate the best function and a long working life. Thus it is greatly demanded in midium and minorpower transmission systems drive by motors. Such as speed reducers, hoists, compresor, pump, spinning & weaving machines and ball mills, Radial displacement 0.2-0.6 mm. Angel displacemente 0.3-1.3



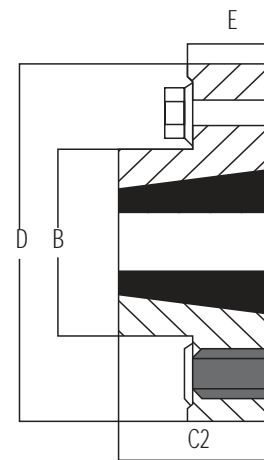
Dimension Data



Pilot bore (Type BB)



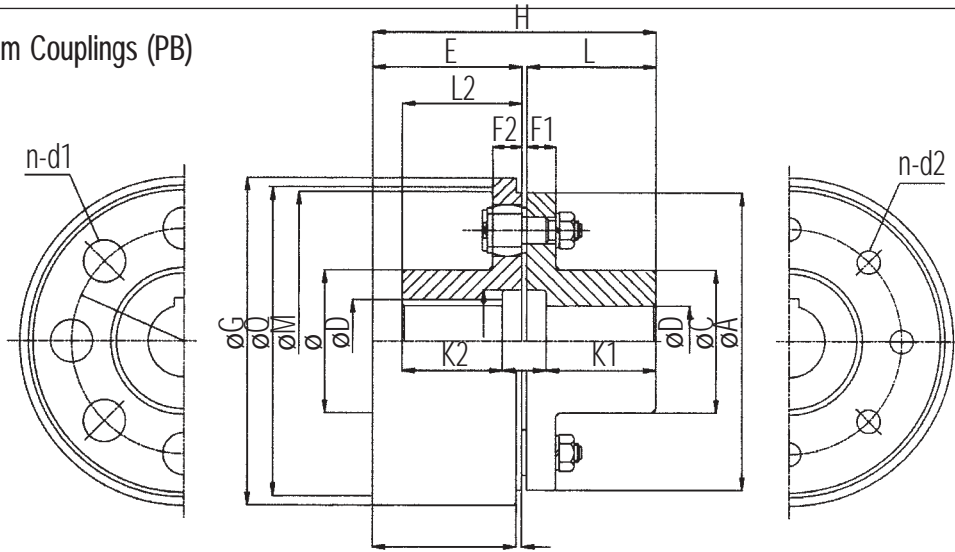
Taper bush (Type HH)



Taper bush (Type FF)

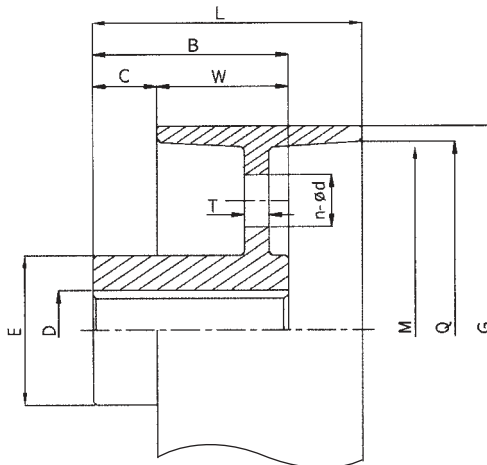
Coupling size	Dimensions.								Type BB				Type F & H			
	Torque (Nm)	Max (rpm)	Rubber No.	Pin No.	B (mm)	D (mm)	E (mm)	Pin No.	A (mm)	C1 (mm)	Max bore (mm)	Weight (kg)	C2 (mm)	Bush No.	Max bore (mm)	Weight (kg)
PB 4	70	6,000	24	10	44	102	22	4	12	43	28	3.5	25	1008	25	3.2
PB 5	160	5,000	24	10	65	127	22	6	12	45	45	4.5	28	1210	32	4.1
PB 6	365	4,500	24	10	87	153	22	8	12	55	55	7.5	28	1610	42	7.1
PB 7	625	4,000	34	14	94	178	30	8	16	65	65	10.5	32	2012	50	9.4
PB 8	900	3,500	34	14	114	204	30	10	16	70	75	15.1	45	2517	60	14
PB 9	1,750	3,000	42	20	121	229	35	10	20	75	80	24	45	2517	60	23
PB 10	2,650	2,500	42	20	144	254	35	12	20	80	100	31	51	3020	75	28
PB 12	3,500	2,000	51	24	175	305	50	10	50	95	120	60	65	3525	90	58
PB 14	4,500	1,800	51	24	226	356	50	12	50	105	150	90	76	4030	100	85
PB 16	9,000	1,600	60	31	259	407	60	12	60	115	190	128	90	4535	115	120

■ Brake Drum Couplings (PB)

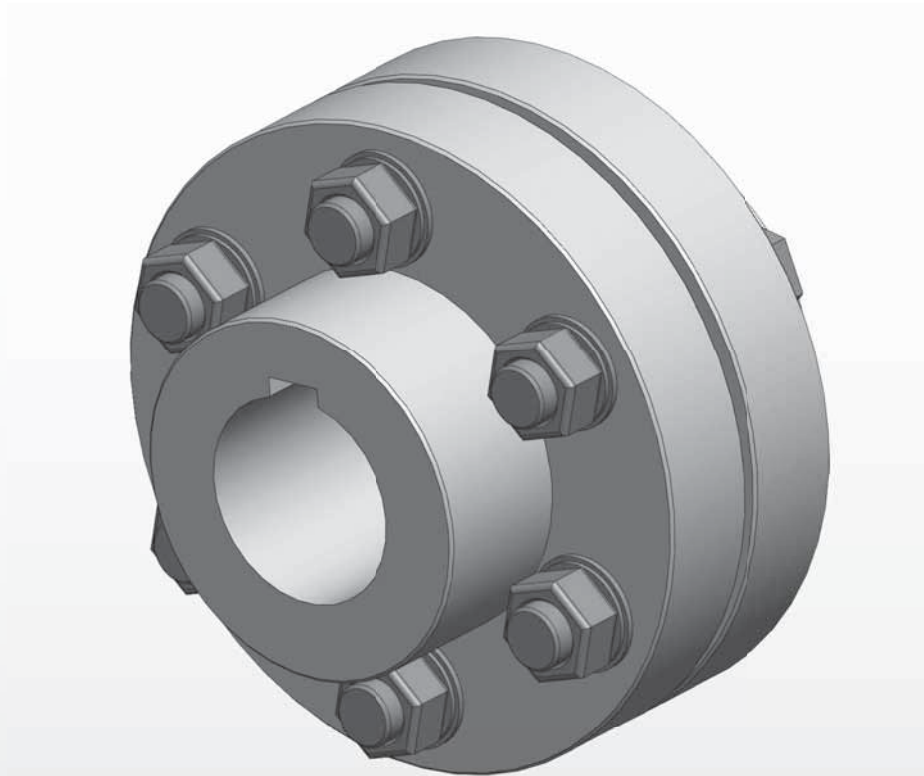


G	Dimensions (mm)																	Brake Torque (Nm.)	GD ² kgf (m ²)
	(D) mm		W	S	E	L ₁	L ₂	H	T	C	K ₁	K ₂	J	P	M	Q	A		
	max	min																	
160	37	20	80	4	84	95	76	182	3	63	82	63	29	43	140	145	140	90	0.2
200	53	28	100	4	104	128	96	235	3	90	112	80	35	60	178	184	180	190	0.3
250S	66	35	125	4	129	128	106	261	4	112	112	90	36	75	224	230	224	340	0.8
250L	66	35	125	4	129	158	106	291	4	112	142	90	36	75	224	230	224	360	0.81
315	75	40	160	4	164	158	128	326	4	125	142	112	36	85	285	292	250	570	2.4
355	84	50	180	4	184	160	130	348	4	140	142	112	40	95	320	330	280	800	4.3
400	95	63	200	4	204	190	158	398	4	160	172	140	40	105	362	374	315	1,100	6.8
450	105	71	224	4	228	195	163	428	5	180	172	140	51	125	410	422	355	1,600	13.6
500	115	80	250	4	254	235	183	494	5	200	212	160	51	135	445	462	400	2,500	26
560	130	90	280	4	284	240	188	529	5	224	212	160	61	150	495	516	450	3,100	42
762	165	110	362	4	366	240	208	611	5	280	212	180	61	190	690	710	630	5,800	160

■ PF Type



G	Dimensions (mm)												Brake Torque (Nm.)	GD ² kgf (m ²)
	(D) mm		G	W	C	L	B	E	M	Q	T	N-d		
	max	min												
160	37	20	160	80	32	112	82	63	140	145	16		60	0.07
200	48	28	200	100	32	132	112	80	178	184	16		100	0.21
250	60	35	250	125	32	157	112	100	224	230	16	2-30	180	0.57
315	60	40	315	160	35	195	112	100	285	292	20	2-30	290	1.7
355	67	50	355	180	40	220	142	112	320	330	20	2-40	400	3.1
400	75	63	400	200	40	240	142	125	362	374	25	2-40	600	5.5
450	96	71	450	224	55	279	172	160	410	422	25	2-40	850	9.4
500	108	80	500	250	60	310	212	180	445	462	28	2-40	1,300	18.0
560	120	90	560	280	65	345	212	200	495	516	28	2-40	1,800	3.0
762	135	110	762	362	80	442	212	224	690	710	35	2-40	340	124.0



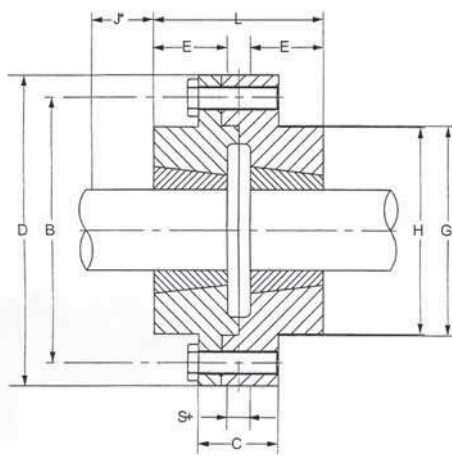
RIGID COUPLINGS

Taper bush Rigid couplings provide a convenient method of rigidly connecting ends of shafts. Taper bushes permit easier and quicker fixing to the shafts with the firmness of a shrunk on fit. These couplings have a fully machined male and female flange. The male flange can have the bushing fitted from the Hub side A or from the Flange side B; the female flange (F) always has the bushing fitted from the Flange side B. This gives two possible coupling assemblies as AA and BB. When connecting horizontal shafts, the most convenient assembly should be chosen. For connecting vertical shafts use assembly BB only.

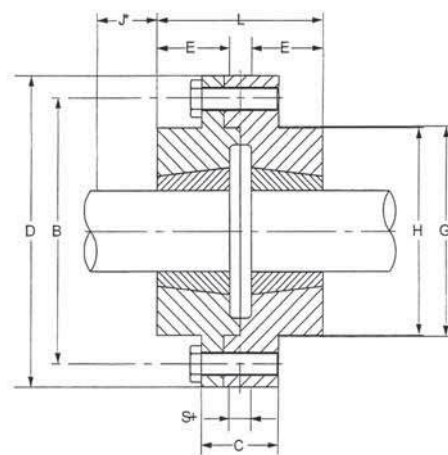
Selection

For all application using standard mild steel shafting it is sufficiently accurate to select the coupling by consideration of bore size alone. For all other applications consult

Coupling Assembly AA



Coupling Assembly BB



Taper Bushed couplings

couplings Size	Bushing Data		Dimensions.									Weight** (kg)
	Bushing No	Max Bore (mm)	D	C	E	H	G Nominal	B Nominal	S+	J*	L	
TF12	1210	32	118	35	25	83	76	102	7	38	57	3,5
TF16	1615	42	127	43	38	80	89	105	7	38	83	4,5
TF25	2517	60	178	51	45	123	127	149	7	48	97	11,0
TF30	3020	75	216	65	51	146	152	181	7	54	109	20,0
TF35	3525	100	248	75	65	178	178	213	7	67	137	34,0
TF40	4030	110	298	76	76	210	216	257	7	79	159	59,0
TF45	4535	125	330	86	89	230	241	246	7	89	185	80,0
TF50	5040	125	362	92	102	266	267	314	7	92	211	135,0

All Dimensions in mm
 J* is the wrench clearance to allow for tightening and loosening the bush on the shaft.
 The use of a shortened wrench will permit this dimension to be reduced
 S+ is the distance between shaft ends
 **Weight given are for couplings with midrange Taper bushes.

Designations

Size	coupling Assembly AA		coupling Assembly BB	
	Male	Female	Male	Female
TF12	TFA12HH	TFA12FF	TFB12HH	TFB12FF
TF16	TFA16HH	TFA16FF	TFB16HH	TFB16FF
TF25	TFA25HH	TFA25FF	TFB25HH	TFB25FF
TF30	TFA30HH	TFA30FF	TFB30HH	TFB30FF
TF35	TFA35HH	TFA35FF	TFB35HH	TFB35FF
TF40	TFA40HH	TFA40FF	TFB40HH	TFB40FF
TF45	TFA45HH	TFA45FF	TFB45HH	TFB45FF
TF50	TFA50HH	TFA50FF	TFB50HH	TFB50FF

A complete coupling consists of one male and one female flange
 Example: Coupling Assembly AA : TFA12HH and TFA12FF
 Coupling Assembly BB : TFB12HH and TFB12FF

TECHN  **FLEX**



TYRE FLEX COUPLINGS

Technoflex combines excellent vibration dampening and shock loading capacity with unrivaled misalignment accommodation to provide a high performance coupling solution. Easy to install and maintenance free, Technoflex is available with both bored to size (B) and taper bush mounting. Taper bush mounting includes face (F), hub (H) and a more versatile reversible option (R) that allows for the mounting orientation (F or H) to be decided at installation. Technoflex flanges are phosphate coated for improved corrosion resistance. A complete coupling consists of 2 flanges and 1 tyre.

Selection

Service Factor

- Determine the required service factor from the table below.

Design Power

- Multiply the normal running power by the service factor. This gives the design power for coupling selection.

Coupling Size

- Using the Power Ratings table read across from the appropriate speed until a power greater than design power is found. The required Technoflex coupling is given at the head of the column.

Bore Size

- Using the dimensions table check that chosen flanges can accommodate both driving and driven shafts.

The addition of a standard sized spacer flange can be used to accommodate applications where it is advantageous to move either shaft axially without disturbing either driving or driven machines.

Technoflex are available in natural rubber compounds for use in ambient temperatures between -50 °C and +50 °C. Chloroprene rubber compounds are available for use in adverse operating conditions (e.g. oil or grease contamination) and can be use in temperatures of -15 °C to + 70 °C. The Chloroprene component should be used where fire-resistance and antistatic (F.R.A.S.) properties are required.

Example

A Technoflex coupling is required to transmit 30 kW from an Electric motor running at 1440 rev/min to a centrifugal pump for 14 hours per day. The motor shaft is 25 mm diameter. Taper bush is required.

1. Service factor

The appropriate service factor is 0,9.

2. Design Power

Design Power = 30 x 0,9 = 27 kW

3. Coupling size

By reading across from the 1,440 rev/min in the power ratings table the first power figure to exceed the required 27 kW in step(2) is 37, 70 kW. The size of the coupling is 70

4. Bore Size

By referring to the dimensions table it can be seen that both shaft diameters fall within the bore range available. A note to make is that for this coupling size taper bush sizes differ between face and hub mounting.

Service Factors (s.f)

Driven machine		Type of driving unit : Electric motors and steam Turbines			Type of driving unit : Internal combustion engines, steam engines and water turbines		
		Duty hours per day			Duty hours per day		
		Up to 10	10 to 16	Over 16	Up to 10	10 to 16	Over 16
Light Load	Agitators/Mixers (liquids), belt conveyors (uniform loading), blowers and exhausters, centrifugal pumps and compressors, fans [below 7,5kW]	1.10	1.15	1.2	1.3	1.4	1.5
Medium Load	Agitators/Mixers (non-liquids), Belt and chain conveyors (variable loading), fans (over 7,5kW), generators, lines shafts, machine tools, rotary pumps and compressors (other than centrifugal) Machinery for food processing, laundries and printing industries	1.3	1.4	1.5	1.8	1.9	2.0
Heavy Load	Heavy duty conveyors (bucket, drag/shovel, screw), hammer mills, presses, punches, shears, piston pumps and compressors Machinery for brick, textile, paper, saw mill industries	1.8	1.9	2.0	2.3	2.4	2.5
Very Heavy Load	Crushers (gyratory, jaw, roll), Heavy duty mills (ball, rod, tube), Hoists	2.3	2.4	2.5	2.8	2.9	3.0

It is recommended that keys are fitted for applications where load fluctuation is expected

Power Ratings (kW)

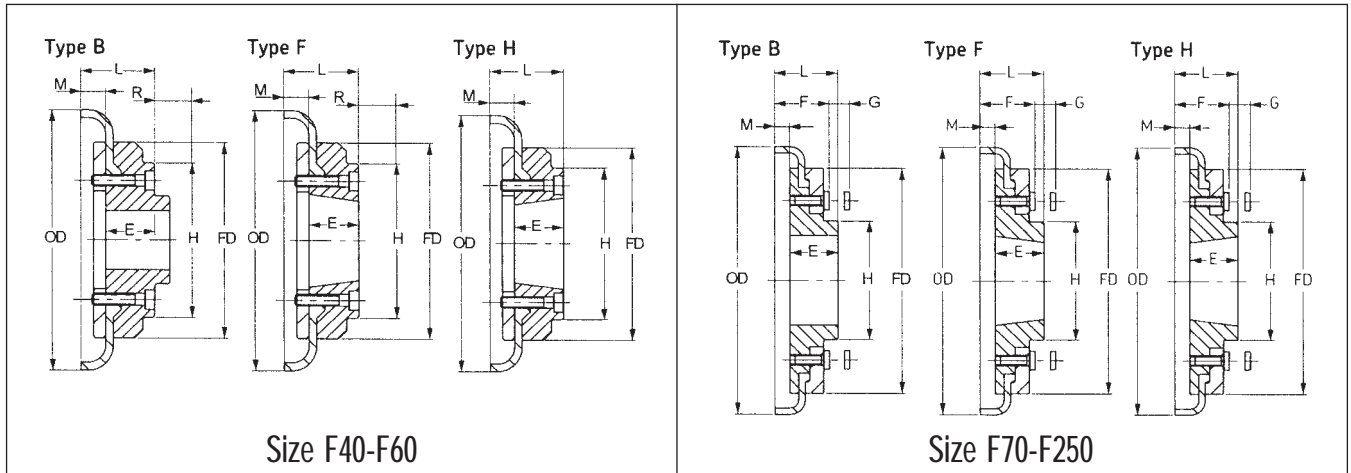
Speed (rpm)	Coupling Size														
	40	50	60	70	80	90	100	110	120	140	160	180	200	220	250
50	0.13	0.35	0.66	1.31	1.96	2.62	3.53	4.58	6.96	12.17	19.74	32.83	48.82	60.73	76.83
100	0.25	0.69	1.33	2.62	3.93	5.24	7.07	9.16	13.93	24.35	39.48	65.65	97.64	121.47	153.66
200	0.50	1.38	2.66	5.24	7.85	10.47	14.14	18.32	27.85	48.69	78.95	131.31	195.29	242.93	307.33
300	0.75	2.07	3.99	7.85	11.78	15.71	21.20	27.49	41.78	73.04	118.43	196.96	292.93	364.40	460.99
400	1.01	2.76	5.32	10.47	15.71	20.94	28.27	36.65	55.71	97.38	157.91	262.62	390.58	485.86	614.66
500	1.26	3.46	6.65	13.09	19.63	26.18	35.34	45.81	69.63	121.73	197.38	328.27	488.22	607.33	768.32
600	1.51	4.15	7.98	15.71	23.56	31.41	42.41	54.97	83.56	146.07	236.86	393.93	585.86	728.80	921.99
700	1.76	4.84	9.31	18.32	27.49	36.65	49.48	64.14	97.49	170.42	276.34	459.58	683.51	850.26	1,075.65
720	1.81	4.98	9.57	18.85	28.27	37.70	50.89	65.97	100.27	175.29	284.23	472.71	703.04	874.55	1,106.39
800	2.01	5.53	10.64	20.94	31.41	41.88	56.54	73.30	111.41	194.76	315.81	525.24	781.15	971.73	1,229.32
900	2.26	6.22	11.97	23.56	35.34	47.12	63.61	82.46	125.34	219.11	355.29	590.89	878.80	1,093.19	1,382.98
960	2.41	6.63	12.77	25.13	37.70	50.26	67.85	87.96	133.70	233.72	378.97	630.28	937.38	1,166.07	1,475.18
1,000	2.51	6.91	13.30	26.18	39.27	52.36	70.68	91.62	139.27	243.46	394.76	656.54	976.44	1,214.66	1,536.65
1,200	3.02	8.29	15.96	31.41	47.12	62.83	84.82	109.95	167.12	292.15	473.72	787.85	1,171.73	-	-
1,400	3.52	9.68	18.62	36.65	54.97	73.30	98.95	128.27	194.97	340.84	552.67	919.16	-	-	-
1,440	3.62	9.95	19.15	37.70	56.54	75.39	101.78	131.94	200.54	350.58	568.46	945.42	-	-	-
1,600	4.02	11.06	21.28	41.88	62.83	83.77	113.09	146.60	222.83	389.53	631.62	-	-	-	-
1,800	4.52	12.44	23.94	47.12	70.68	94.24	127.23	164.92	250.68	438.22	-	-	-	-	-
2,000	5.03	13.82	26.60	52.36	78.53	104.71	141.36	183.25	278.53	-	-	-	-	-	-
2,200	5.53	15.20	29.26	57.59	86.39	115.18	155.50	201.57	-	-	-	-	-	-	-
2,400	6.03	16.59	31.92	62.83	94.24	125.65	169.63	-	-	-	-	-	-	-	-
2,600	6.53	17.97	34.58	68.06	102.09	136.13	183.77	-	-	-	-	-	-	-	-
2,800	7.04	19.35	37.24	73.30	109.95	146.60	-	-	-	-	-	-	-	-	-
2,880	7.24	19.90	38.30	75.39	113.09	150.79	-	-	-	-	-	-	-	-	-
3,000	7.54	20.73	39.90	78.53	117.80	157.07	-	-	-	-	-	-	-	-	-
3,600	9.05	24.88	47.87	94.24	-	-	-	-	-	-	-	-	-	-	-
Nominal Torque (Nm)	24	66	127	250	375	500	675	875	1,330	2,325	3,770	6,270	9,325	11,600	14,675
Max Torque (Nm)	64	160	318	487	759	1,096	1,517	2,137	3,547	5,642	9,339	16,455	23,508	33,125	42,740

Maximum torque figures should be treated as a short duration overload ratings occurring in circumstances such as direct-on-line starting. For speeds not shown calculate the nominal torque for the design application using the formula below and select coupling according to nominal torque ratings.

$$\text{Nominal torque (Nm)} = \frac{\text{Design power (kw)} \times 9,550}{n \text{ (rpm)}}$$

Power Ratings (kW)

Coupling Size	Maximum Speed	Mass	Inertia	Torsional Stiffness	Misalignment			Nominal torque	Max Torque	Screw Size	Tyre Designation	
					Angular	Parallel	Axial				Natural	F.R.A.S.
					°	mm	mm					
F40	4,500	0.1	0.00074	5	4	1.1	1.3	24	64	15	F40NR	F40FR
F50	4,500	0.3	0.00115	13	4	1.3	1.7	66	160	15	F50NR	F50FR
F60	4,000	0.5	0.00520	26	4	1.6	2.0	127	318	15	F60NR	F60FR
F70	3,600	0.7	0.00900	41	4	1.9	2.3	250	487	24	F70NR	F70FR
F80	3,100	1.0	0.01700	63	4	2.1	2.6	375	759	24	F80NR	F80FR
F90	3,000	1.1	0.03100	91	4	2.4	3.0	500	1,096	40	F90NR	F90FR
F100	2,600	1.1	0.05400	126	4	2.6	3.3	675	1,517	40	F100NR	F100FR
F110	2,300	1.4	0.07800	178	4	2.9	3.7	875	2,137	40	F110NR	F110FR
F120	2,050	2.3	0.13300	296	4	3.2	4.0	1,330	3,547	50	F120NR	F120FR
F140	1,800	2.6	0.25500	470	4	3.7	4.6	2,325	5,642	55	F140NR	F140FR
F160	1,600	3.4	0.38000	778	4	4.2	5.3	3,770	9,339	80	F160NR	F160FR
F180	1,500	7.7	0.84700	1,371	4	4.8	6.0	6,270	16,455	105	F180NR	F180FR
F200	1,300	8.0	1.28100	1,959	4	5.3	6.6	9,325	23,508	120	F200NR	F200FR
F220	1,100	10.0	2.10400	2,760	4	5.8	7.3	11,600	33,125	165	F220NR	F220FR
F250	1,000	15.0	3.50500	3,562	4	6.6	8.2	14,675	42,740	165	F250NR	F250FR



Dimensions of TECHNOFLEX Flanges types B, F & H

Size	Type	Bush No.	Bore		Types F & H		Type B		Key Screw	O.D	FD	H	F	R*	G+	M	Mass →	Inertia →
			Min mm	Max mm	L	E	L	E										
F40	F	1008	9	25	33,0	22	-	-	-	104	82,0	-	-	29	-	11,0	0,8	0,00074
F40	H	1008	9	25	33,0	22	-	-	-	104	82,0	-	-	29	-	11,0	0,8	0,00074
F40	B	-	-	30	-	-	33,0	22	M5	104	82,0	-	-	29	-	11,0	0,8	0,00074
F50	F	1210	11	32	37,5	25	-	-	-	133	100,0	79	-	38	-	12,5	1,2	0,00115
F50	H	1210	11	32	37,5	25	-	-	-	133	100,0	79	-	38	-	12,5	1,2	0,00115
F50	B	-	-	38	-	-	45,0	32	M5	133	100,0	79	-	38	-	12,5	1,2	0,00115
F60	F	1610	14	42	41,5	25	-	-	-	165	125,0	103	-	38	-	16,5	2,0	0,00520
F60	H	1610	14	42	41,5	25	-	-	-	165	125,0	103	-	38	-	16,5	2,0	0,00520
F60	B	-	-	45	-	-	55,0	38	M6	165	125,0	70	-	38	-	16,5	2,0	0,00520
F70	F	2012	14	50	43,5	32	-	-	-	187	142,0	80	50	42	13	11,5	3,1	0,00900
F70	H	1610	14	42	36,5	25	-	-	-	187	142,0	80	50	38	13	11,5	3,0	0,00900
F70	B	-	-	60	-	-	47,0	35	M10	187	142,0	80	50	-	13	11,5	3,1	0,00900
F80	F	2517	16	60	57,5	45	-	-	-	211	165,0	97	54	48	16	12,5	4,9	0,01800
F80	H	2012	14	50	44,5	32	-	-	-	211	165,0	98	54	32	16	12,5	4,6	0,01700
F80	B	-	-	63	-	-	55,0	42	M10	211	165,0	98	54	-	16	12,5	4,9	0,01800
F90	F	2517	16	60	58,5	45	-	-	-	235	187,0	108	60	48	16	13,5	7,0	0,03100
F90	H	2517	16	60	58,5	45	-	-	-	235	187,0	108	60	48	16	13,5	7,0	0,03100
F90	B	-	-	75	-	-	62,5	49	M12	235	187,0	112	60	-	16	13,5	7,1	0,03200
F100	B	-	-	80	-	-	69,5	56	M12	254	214,0	125	62	-	16	13,5	9,9	0,05500
F100	F	3020	25	75	64,5	51	-	-	-	254	214,0	120	62	55	16	13,5	9,9	0,05500
F100	H	2517	16	60	58,5	45	-	-	-	254	214,0	113	62	48	16	13,5	9,4	0,05400
F110	B	-	-	90	-	-	75,5	63	M12	279	232,0	128	62	-	16	12,5	12,5	0,08100
F110	F	3020	25	75	63,5	51	-	-	-	279	232,0	134	62	55	16	12,5	11,7	0,07800
F110	H	3020	25	75	63,5	51	-	-	-	279	232,0	134	62	55	16	12,5	11,7	0,07800
F120	B	-	-	100	-	-	84,5	70	M16	314	262,0	143	67	-	16	14,5	16,9	0,13700
F120	F	3525	35	100	79,5	65	-	-	-	314	262,0	140	67	67	16	14,5	16,5	0,13700
F120	H	3020	25	75	65,5	51	-	-	-	314	262,0	140	67	55	16	14,5	15,9	0,13000
F140	B	-	-	125	-	-	110,5	94	M20	359	312,5	180	73	-	17	13,0	22,2	0,25400
F140	F	3525	35	100	81,0	65	-	-	-	359	312,5	180	73	67	17	13,0	22,3	0,25500
F140	H	3525	35	100	81,0	65	-	-	-	359	312,5	180	73	67	17	13,0	22,3	0,25500
F160	B	-	-	140	-	-	117,0	102	M20	402	348,0	197	78	-	19	15,0	35,8	0,46900
F160	F	4030	40	115	91,0	76	-	-	-	402	348,0	197	78	80	19	15,0	32,5	0,38000
F160	H	4030	40	115	91,0	76	-	-	-	402	348,0	197	78	80	19	15,0	32,5	0,38000
F180	B	-	-	150	-	-	137,0	114	M20	470	396,0	205	94	-	19	23,0	49,1	0,87100
F180	F	4535	55	125	112,0	89	-	-	-	470	396,0	205	94	89	19	23,0	42,2	0,84700
F180	H	4535	55	125	112,0	89	-	-	-	470	396,0	205	94	89	19	23,0	42,2	0,84700
F200	B	-	-	150	-	-	138,0	114	M20	508	432,0	205	103	-	19	24,0	58,2	1,30100
F200	F	4535	55	125	113,0	89	-	-	-	508	432,0	205	103	89	19	24,0	53,6	1,28100
F200	H	4535	55	125	113,0	89	-	-	-	508	432,0	205	103	89	19	24,0	53,6	1,28100
F220	B	-	-	190	-	-	154,5	127	M20	562	472,0	224	118	-	20	27,5	79,6	2,14200
F220	F	5040	70	125	129,5	102	-	-	-	562	472,0	224	118	92	20	27,5	72,0	2,10400
F220	H	5040	70	125	129,5	102	-	-	-	562	472,0	224	118	92	20	27,5	72,0	2,10400
F250	B	-	-	190	-	-	161,5	132	M20	628	532,0	254	125	-	25	29,5	104,0	3,50500

All dimensions in mm unless otherwise specified

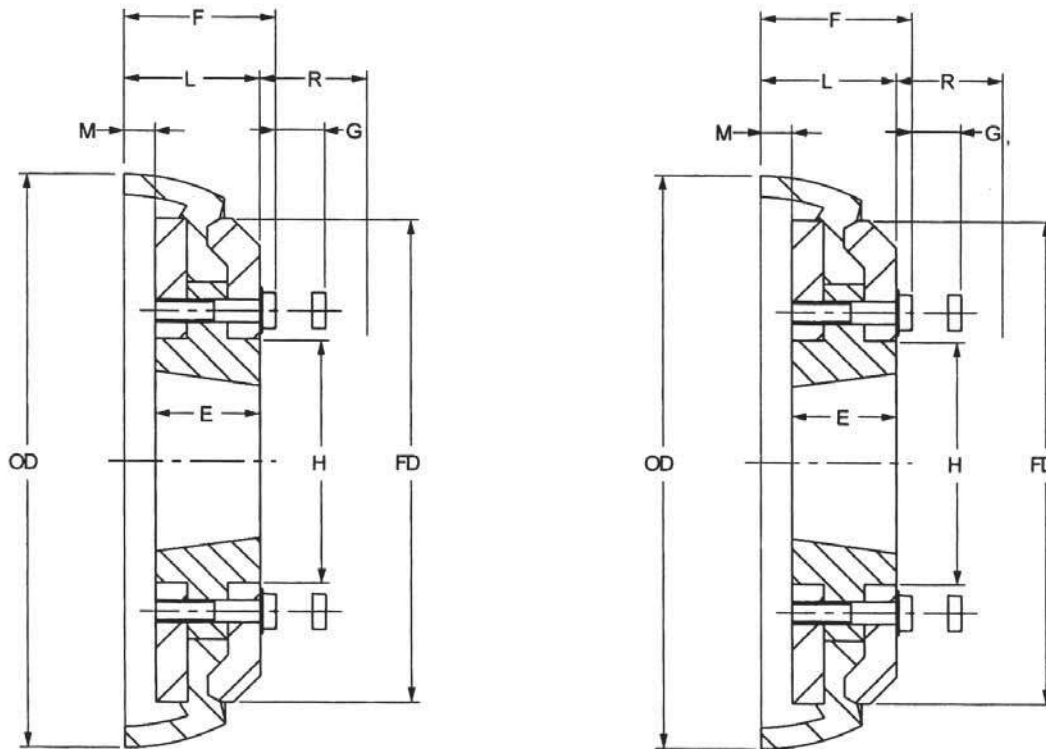
For coupling sizes 70,80,100 and 120 F flanges require a larger bush than H flanges.

* Is the clearance required to allow tightening/loosening of the clamping screws. And the taper bushing. Use of a shortened wrench will reduce this dimension.

+ The amount by which the clamping screws need to be withdrawn to release the tyre.

→ Mass and Inertia figures are for a single flange with midrange bore and inclaming ring, screws, washers and half tyre.

Reversible Size F70-F120



Dimensions of TECHNOFLEX flanges type R

Size	Bush No.	Bore		Type R			Screw over Key	O.D	FD	H	F	G+	M	Mass→	Inertia→
		Min mm	Max mm	L mm	E mm	R* mm									
F70	1610	14	42	37,0	25	42	M8	187	142	80	44,25	13	11,5	3,0	0,009
F80	2012	14	50	45,5	32	48	M8	211	165	98	52,75	16	12,5	4,6	0,017
F90	2517	16	60	58,5	45	48	M10	235	187	112	67,86	16	13,5	7,0	0,031
F100	2517	16	60	59,5	45	55	M10	254	214	125	68,86	16	13,5	9,4	0,054
F110	3020	25	75	64,5	51	55	M10	279	232	134	73,68	16	12,5	11,7	0,078
F120	3020	25	75	66,5	51	67	M12	314	262	140	77,18	16	14,5	15,9	0,130

All Dimensions in mm unless otherwise specified

* The clearance required to allow tightening of the clamping screws.

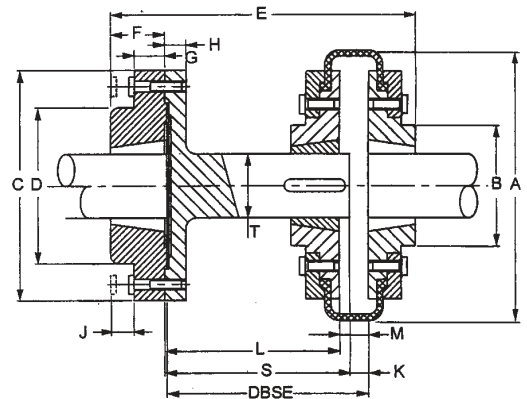
+ The amount by which the clamping screws need to be withdrawn to release the tyre.

→ Mass and Inertia figures are for a single flange with midrange bore and include clamping ring, screws, washers and half tyre.

Distance Between Shaft Ends (DBSE)

Spacer	Distance Between Shaft Ends (DBSE) in mm		Coupling Size	Spacer Bore Size	Coupling Bore Size		Coupling Bore Size	Coupling Bore Size		Designation
	Nominal (min) mm	Max mm			Min mm	Max mm		Min mm	Max mm	
SC12	80	90	40	1210	11	32	1008	9	25	SC12-80DBSE
SC12	100	110	40	1210	11	32	1008	9	25	SC12-100DBSE
SC16	100	113	40	1615	14	42	1008	9	25	SC16-100DBSE
SC16	140	150	40	1615	14	42	1008	9	25	SC16-140DBSE
SC16	100	116	50	1615	14	42	1210	11	32	SC16-100DBSE
SC16	140	156	50	1615	14	42	1210	11	32	SC16-140DBSE
SC16	100	124	60	1615	14	42	1610	14	42	SC16-100DBSE
SC16	140	164	60	1615	14	42	1610	14	42	SC16-140DBSE
SC25	100	114	70	2517	16	60	2012	14	50	SC25-100DBSE
SC25	140	154	70	2517	16	60	2012	14	50	SC25-140DBSE
SC25	180	194	70	2517	16	60	2012	14	50	SC25-180DBSE
SC25	100	117	80	2517	16	60	2517	16	60	SC25-100DBSE
SC25	140	157	80	2517	16	60	2517	16	60	SC25-140DBSE
SC25	180	197	80	2517	16	60	2517	16	60	SC25-180DBSE
SC25	140	158	90	2517	16	60	2517	16	60	SC25-140DBSE
SC25	180	198	90	2517	16	60	2517	16	60	SC25-180DBSE
SC30	140	158	100	3020	25	75	3020	25	75	SC30-140DBSE
SC30	180	198	100	3020	25	75	3020	25	75	SC30-180DBSE
SC30	140	156	110	3020	25	75	3020	25	75	SC30-140DBSE
SC30	180	196	110	3020	25	75	3020	25	75	SC30-180DBSE
SC35	140	160	120	3525	35	100	3525	35	100	SC35-140DBSE
SC35	180	200	120	3525	35	100	3525	35	100	SC35-180DBSE
SC35	140	163	140	3525	35	100	3525	35	100	SC35-140DBSE
SC35	180	203	140	3525	35	100	3525	35	100	SC35-180DBSE

The TECHNOFLEX coupling spacer is used to join two shaft ends that cannot be positioned close enough to just use a coupling alone. The spacer also allows removal of a shaft without needing to move either the driving or the driven machine. For example, this allows easy and fast replacement of impellers in pump applications.

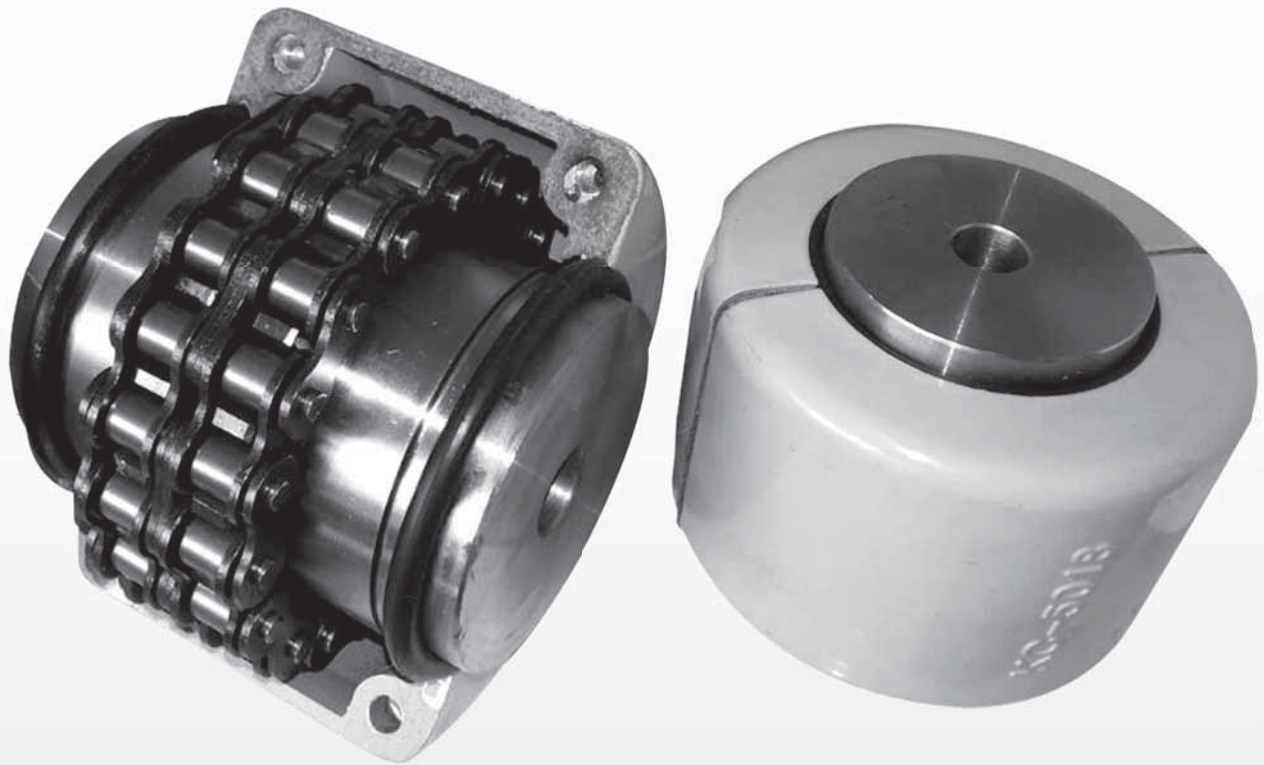


Spacer Coupling Dimensions

Spacer	Distance Between Shaft Ends (DBSE) in mm		Coupling Size	Dimensions															
	Nominal (mm)	Max (mm)		A	B	C	D	E	F	G	H	J	K	L	M	S	T		
SC12	80	90	40	104	82	118	83	134	25	14	15	14	6	65	22	77	25		
SC12	100	110	40	104	82	118	83	140	25	14	15	14	22	77	22	77	25		
SC16	100	113	40*	104	82	127	80	157	38	18	15	14	9	88	22	94	32		
SC16	140	150	40*	104	82	127	80	187	38	18	15	14	9	128	22	134	32		
SC16	100	116	50	133	79	127	80	160	38	18	15	14	9	85	25	94	32		
SC16	140	156	50	133	79	127	80	200	38	18	15	14	9	125	25	134	32		
SC16	100	124	60	165	103	127	80	161	38	18	15	14	9	78	33	94	32		
SC16	140	164	60	165	103	127	80	201	38	18	15	14	9	118	33	134	32		
SC25	100	114	70+	187	80	178	123	180	45	22	16	14	9	80	23	94	48		
SC25	140	154	70+	187	80	178	123	220	45	22	16	14	9	120	23	174	48		
SC25	180	194	70+	187	80	178	123	260	45	22	16	14	9	160	23	174	48		
SC25	100	117	80	211	95	178	123	193	45	22	16	14	9	78	25	94	48		
SC25	140	157	80	211	95	178	123	233	45	22	16	14	9	118	25	134	48		
SC25	180	197	80	211	95	178	123	273	45	22	16	14	9	158	25	174	48		
SC25	140	158	90	235	108	178	123	233	45	22	16	14	9	116	27	134	48		
SC25	180	198	90	235	108	178	123	273	45	22	16	14	9	156	27	174	48		
SC30	140	158	100	254	120	216	146	245	51	29	20	17	9	116	27	134	60		
SC30	180	198	100	254	120	216	146	285	51	29	20	17	9	156	27	174	60		
SC30	140	156	110	279	134	216	146	245	51	29	20	17	9	118	25	134	60		
SC30	180	196	110	279	134	216	146	285	51	29	20	17	9	158	25	174	60		
SC35	140	160	120	314	140	248	178	272	63	34	20	17	9	114	29	134	80		
SC35	180	200	120	314	140	248	178	312	63	34	20	17	9	154	29	174	80		
SC35	140	163	140	359	178	248	178	271	63	34	20	17	9	111	27	134	80		
SC35	180	203	140	359	178	248	178	312	63	34	20	17	9	151	27	174	80		

*F40'B' Flange must be used to fit spacer shaft.
+F' Flange must be used to fit spacer shaft.

TECHN  **FLEX**



CHAIN COUPLINGS

Coupling Cover

Covers are recommended for use with all couplings because the lubrication so provided materially extends the coupling life. Under the following condition covers are especially recommended for use with couplings.

- 1) Abrasive or corrosive atmosphere.
- 2) High revolution to the right of the dotted line shown on KW rating table.

Description

Roller chain couplings give high efficiency in connecting directly two shafts for the transmission of power. As chain couplings consist of three major parts two hardened teeth sprockets and one double standard roller chain, they offer the following characteristics.

- Easy installation against shaft maintenance
- Protection against shaft misalignment
- Long Service Life

You can obtain the most suitable chain coupling easily from wide varieties of stock standard chain couplings in stock.

Coupling Casings

Revolving casings are made of strong aluminum alloy and are light in weight.

Casings are recommended for use with all couplings because they prevent lubricant from scattering and extend the service life.

Under the following conditions, casings are especially recommended for use with couplings.

- 1) Abrasive or corrosive atmosphere
- 2) High revolution to the right of the dotted line shown on rating power table

Table 1. Power rating (kw)

Coupling No.	Max Bore Dia (mm)	Torque rating (Nm)	Revolution per minute																		
			1	5	10	25	50	100	200	300	400	500	600	800	1000	1200	1500	1800	2000	2500	3000
4012	22	222	0.02	0.11	0.22	0.58	1.15	1.73	26.3	3.46	4.15	4.96	5.67	7.01	8.53	9.68	11.6	13.7	14.8	17.9	20.7
4014	28	300	0.03	0.15	0.32	0.78	1.57	3.15	6.28	9.42	12.56	15.70	18.14	25.13	31.41	37.70	47.12	56.5	62.82	78.53	94.24
4016	32	395	0.04	0.21	0.41	1.03	2.06	3.09	4.69	6.17	7.41	8.85	10.1	12.5	15.3	17.3	2.0	24.4	26.3	31.9	37.0
5014	35	850	0.09	0.44	0.89	2.22	4.45	8.90	17.8	26.7	35.6	44.50	53.40	71.20	89	106.80	133.5	160.2	178.9	222.50	267
5016	40	750	0.08	0.39	0.78	1.95	3.91	5.86	8.92	11.7	14.1	16.8	19.2	23.8	28.9	32.9	39.9	46.4	50.0	60.6	70.4
5018	45	950	0.10	0.50	0.99	2.48	4.95	7.43	11.3	14.9	17.8	21.3	24.4	30.1	36.6	41.6	50.5	58.8	63.4	76.8	89.2
6018	56	1,800	0.18	0.93	1.87	4.67	9.30	14.0	21.3	28.0	33.6	40.1	45.9	56.8	69.1	78.4	95.2	111	120	145	
6020	60	2,000	0.20	1.04	2.09	5.23	10.47	20.94	41.88	62.82	83.76	104.71	125.65	167.40	210	251.30	315	377	419	524	
6022	71	2,420	0.25	1.25	2.51	6.31	12.5	18.8	28.6	37.7	45.3	54.1	61.9	76.5	93.1	105	128	149	161	195	
8018	80	3,960	0.41	2.07	4.14	10.3	20.7	31.0	47.2	62.1	74.5	89.0	101	112	153	174	211	246	265		
8020	90	4,800	0.50	2.51	5.02	12.56	25.13	50.26	100.52	150.78	201	251.30	302	402	503	603	754	905	1,005		
8022	100	5,700	0.59	2.96	5.93	14.8	29.6	44.5	67.2	89.0	106	127	146	180	219	249	302	352	379		
10020	110	8,960	0.93	4.66	9.33	23.3	46.6	70.0	106	140	168	200	229	283	345	392	476	554			
12018	125	13,500	1.40	7.02	14.0	35.1	70.2	105	160	210	252	302	345	426	519	590	716				
12022	140	17,500	1.81	9.07	18.1	45.3	90.7	136	206	272	326	390	446	551	671	762					
16018	160	29,200	3.03	15.1	30.3	75.8	151	227	345	455	546	652	746	922	1122						
16022	200	42,600	4.43	22.1	44.3	110	221	333	506	665	799	954	1090	1350	1640						
20018	205	58,200	6.06	30.3	60.6	151	303	454	691	909	1090	1300	1490	1840							
20022	260	76,400	7.63	38.2	76.3	191	382	572	871	1140	1370	1640	1880								
Type of lubrication				I			II				III										

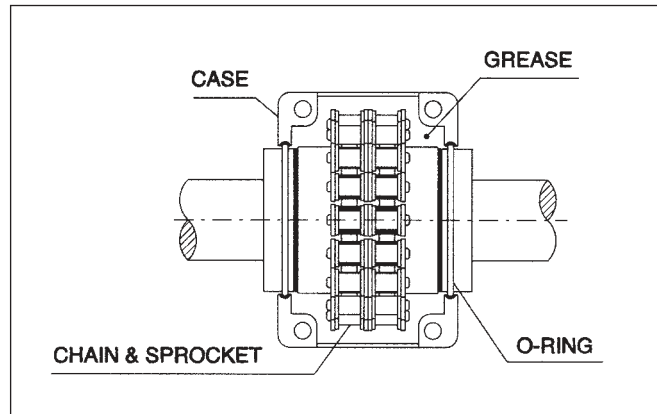
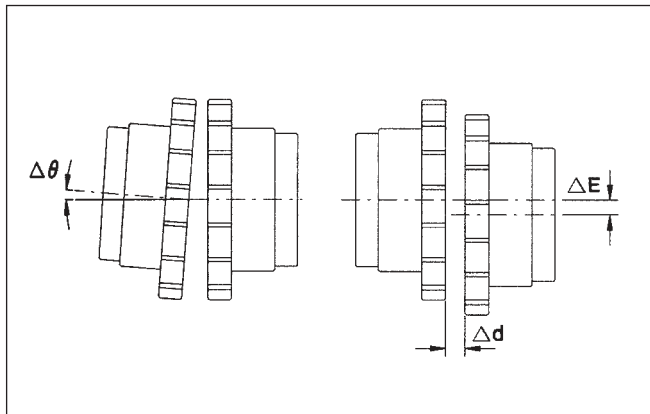
Note
 I. Lubrication interval : Once a month.
 II. Lubrication interval : Once a week, it is recommended to use a casing.
 III. It is imperative to use a casing.

In the high speed zone to the right side of the bold line more accurate installation is necessary.

Table 2. Service Factors (s.f)

Driven Machine		Driven Machine		
		Electric Mortor Steam Turbine	Piston Engines	
			4-6 cyl.	1-3 cyl.
Uniform Load	Turbo blowers, Centrifugal fans, Centrifugal pumps, Agitators (liquid), Wood working machines.	1.3	1.7	2.4
Medium Shock Load	Rotary piston blowers, Mixers, Wood machines, Belt conveyors, Cranes, Machine tools, screw pumps, Chain conveyors, Trimming shears.	1.4	2.1	2.8
Heavy Shock Load	Piston compressors, Generators, Mills (ball, pebble and rod), Rubber machines, Vibrators, Press, Hammers.	1.7	2.6	3.3

Mounting

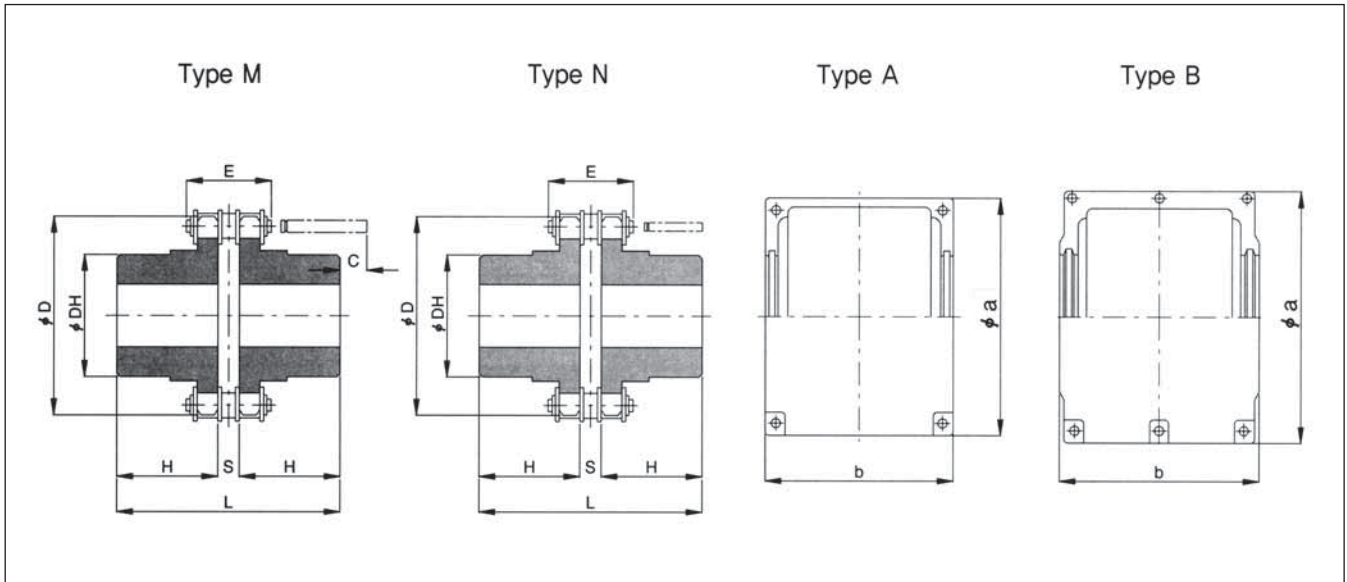


1. The permissible angular displacement ($\Delta\theta$) is within 1 degree.
2. The permissible off-set displacement (ΔE) is within 2 percent of the chain pitch.
3. After finishing the alignment of the shafts, move the sprockets to the position where the space between the both faces of the sprockets should be (Δd) dimension.
4. Fill the grease in the face between the both faces of coupling sprockets, and connect the chain.
5. Put sufficient grease in the casing and tighten it by the bolts.
6. Refill the grease according to the following table.

SIZE	4012 4016	5014 5018	6018 6022	8018 8022	10020	12018 12022	16018 16022	20018 20022
Δd	7.4	9.7	11.5	15.2	18.8	22.7	30.1	37.5

Operative condition	The interval of refilling	
	First refilling	Second & over refilling
More than half of maximum revolution	1,000 hours	2,000 hours
Less than half of maximum revolution	2,000 hours	4,000 hours

Dimensions



Size	Max. Speed (rpm)	Type	Bore Dia (mm)		Chain		D	DH	L	H	S	C	Coupling wt (kg)	Cover			
			min.	max.	Pitch	Width (Max.)E								Type	a	b	wt (kg)
4012	4,800	M	12	22	12.70	33.1	61	35	79.4	36	7.4	10	0.8	A	75	75	0.38
4014	4,800	M	12	28	12.70	33.1	69	43	79.4	36	7.4	10	1.1	A	84	75	0.47
4016	4,800	M	16	32	12.70	33.1	77	50	87.4	40	7.4	6	1.6	A	92	75	0.56
5014	3,600	M	16	35	158.75	41.0	86	53	99.7	45	9.7	12	2.2	A	101	85	0.64
5016	3,600	M	18	40	158.75	41.0	96	60	99.7	45	9.7	12	2.8	A	111	85	0.76
5018	3,000	M	18	45	158.75	41.0	106	70	99.7	45	9.7	12	3.6	A	122	85	0.92
6018	2,500	M	22	56	19.05	51.1	128	85	123.5	56	11.5	15	6.5	A	142	106	1.4
6020	2,500	M	25	60	19.05	51.1	139	110	123.5	56	11.5	15	8.38	A	158	105	1.2
6022	2,500	M	28	71	19.05	51.1	152	110	123.5	56	11.5	15	10.3	A	167	106	1.7
8018	2,000	M	32	80	25.40	65.3	170	115	141.2	63	15.2	30	13.8	A	186	130	2.3
8020	2,000	M	38	90	25.40	65.3	185	125	145	65	15.2	22	16.2	A	210	137	2.5
8022	2,000	M	40	100	25.40	65.3	203	140	157.2	71	15.2	22	21.7	A	220	130	2.7
10020	1,800	M	45	110	31.75	80.3	233	160	178.8	80	18.8	30	32.6	A	250	148	4.0
12018	1,500	M	50	125	38.10	101.1	256	170	202.7	90	22.7	50	43.9	B	307	181	6.8
12022	1,200	M	56	140	38.10	101.1	304	210	222.7	100	22.7	40	69.0	B	357	181	8.4
16018	1,000	M	63	160	50.80	129.7	341	224	254.1	112	30.1	68	96.3	B	406	250	14.7
16022	1,000	M	80	200	50.80	129.7	405	280	314.1	142	30.1	40	166.8	B	472	250	17.2
20018	800	N	88	205	63.50	159.0	426	294	519.5	241	37.5	0	294.4	B	496	280	22.2
20022	600	N	98	260	63.50	159.0	507	374	519.5	241	37.5	0	461.6	B	578	280	26.6
24022	600	N	120	310	76.20	194.9	608	420	751.1	353	45.1						
24026	500	N	150	380	76.20	194.9	705	520	751.1	353	45.1						
32022	400	N	200	430	101.60	263	806	570	860.1	400	60.1						
40020	400	N	250	470	127.0	325	932	640	1,099	512	75.6						
40024	300	N	300	590	127.0	325	1,093	800	1,099	512	75.6						
40028	300	N	350	700	127.0	325	1,255	960	1,099	512	75.6						

TECHN  **FLEX**

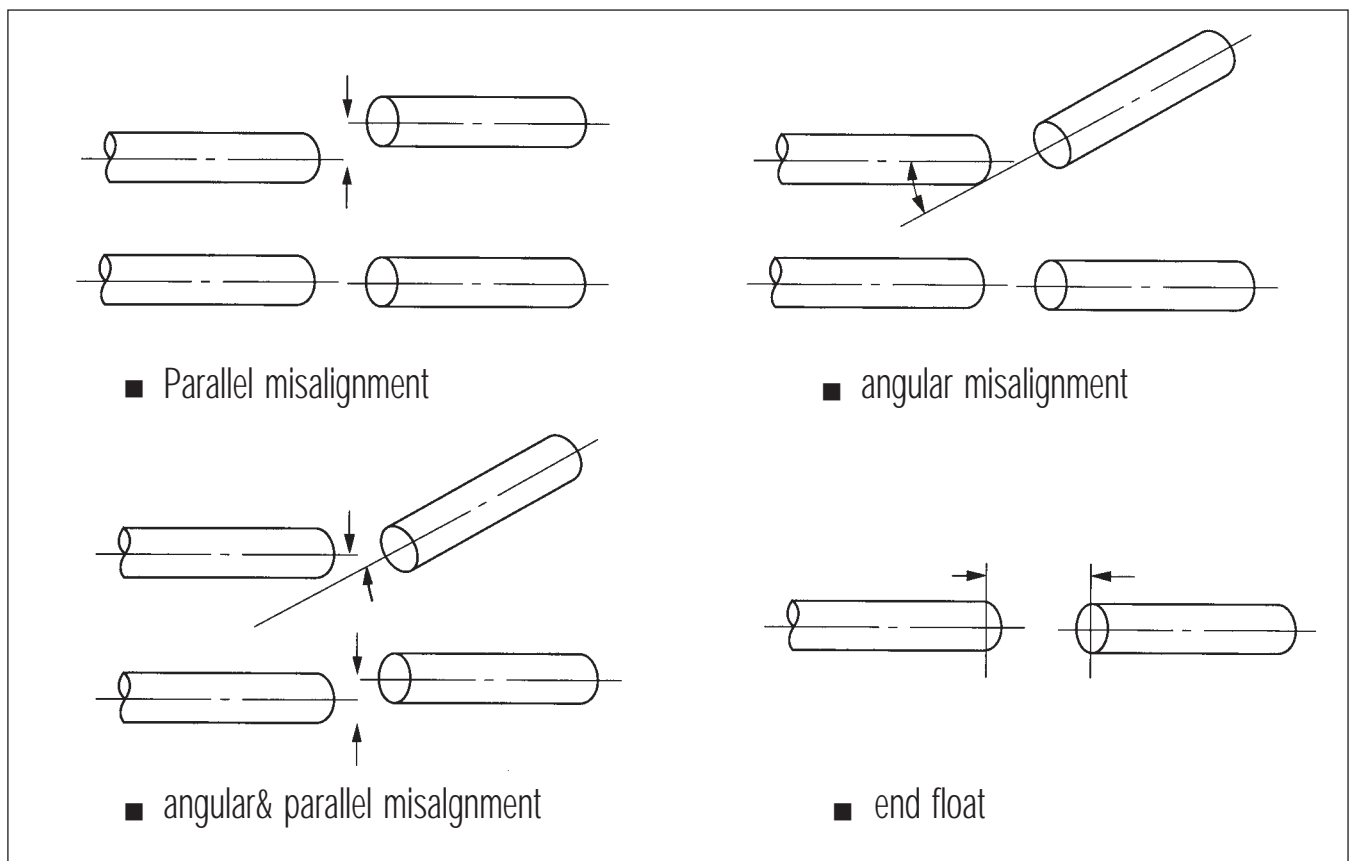


DISC FLEXIBLE COUPLINGS

Characteristic

1. **No lubrication**
No moving parts in Disc-flex coupling therefore lubrication is not necessary.
2. **Maintenance free**
All metal construction and no wearing parts need no maintenance.
3. **Simple design, light weight and high torque.**
Two hubs, one center member, one disc pack and several bolts form the basic coupling Disc-flex couplings are available in wide range of size to meet variable operation conditions.
4. **Disc-flex couplings are designed to allow axial, angular and parallel and parallel misalignment.**
5. **No backlash and high torsional stiffness.**
Disc-flex couplings allow no backlash and high torsional stiffness.
6. **High performance**
High temperature do not effect the all metal construction.
7. **Easy to mount and dismount.**
Disc-flex couplings have small number of parts and simple constructions which allow quick and easy mounting and dismounting work.
8. **Safety measure.**
When a severe over load may damage the couplings, the transmitting rotation will be continued through bolts.

Type of misalignment

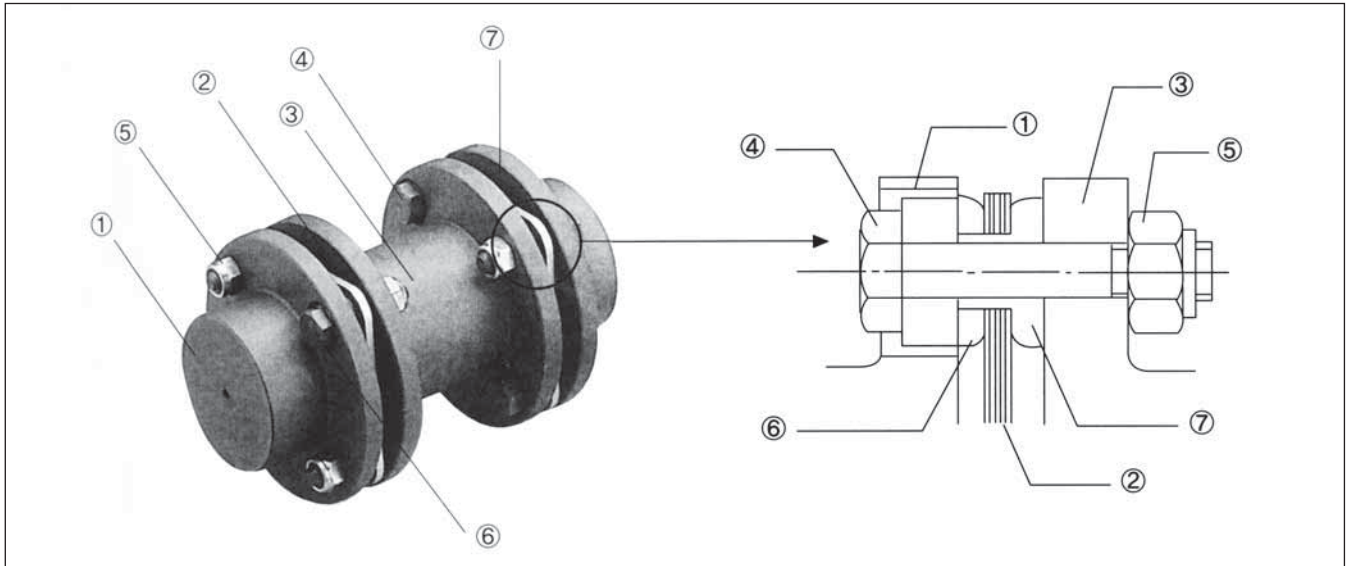


The shafts may be misaligned by various causes, such as heat, vibration and worm bearing etc.

When the initial alignment is not correct and heavy stress is imposed on the coupling life time is shontened.

Any or all of the misalignments shown in the above illustrations are present in all connected drives.

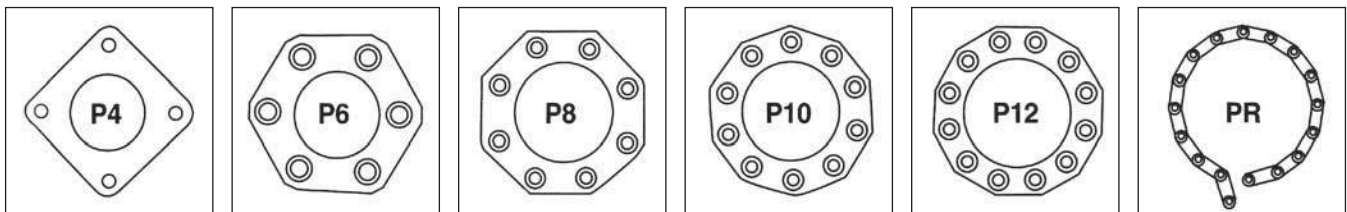
Structure



Part details

- | | |
|----------------------|----------------------|
| ① Flange : SM45C | ⑤ Lock Nut : SM45C-H |
| ② Disc pack : STS304 | ⑥ Over Load Bush |
| ③ Spacer : SM45C | ⑦ Washer |
| ④ Bolt : SM45C-H | |

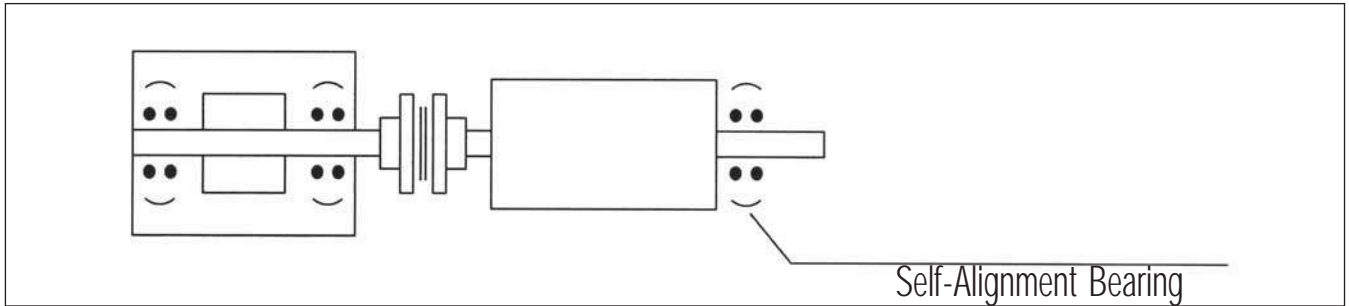
Kinds of disc-pack



Characteristic

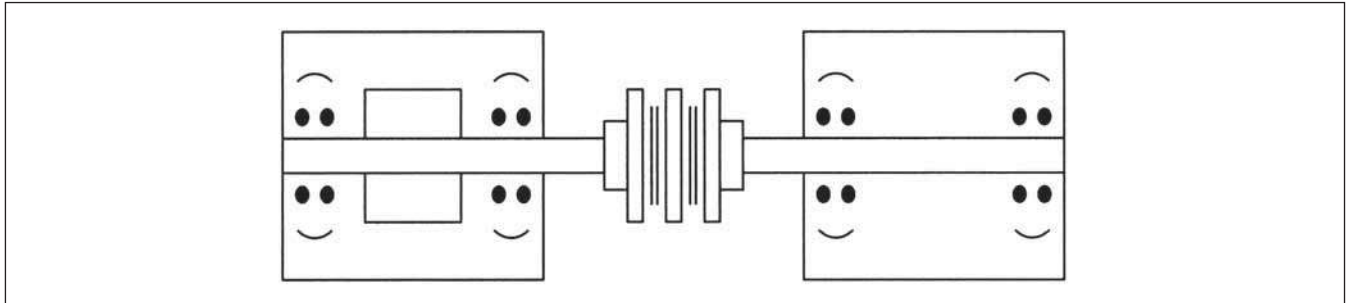
1. Single DISC-FLEX coupling

Is used where shafts are supported by three bearings. The coupling allow large radial load, angular and axial misalignment.



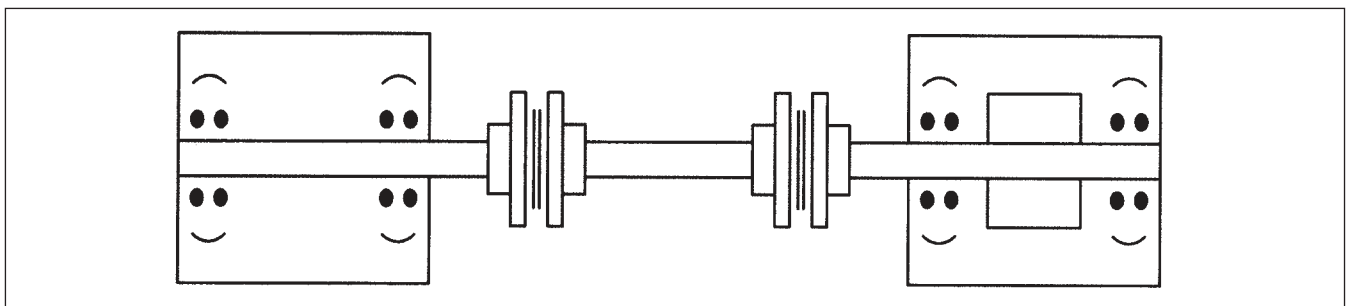
2. Double DISC-FLEX coupling

In case both shafts are supported by two bearings double DISC-FLEX coupling must be used. The coupling allow angular, axial and parallel misalignment. The bearings should be placed reasonably.



3. Floating shaft DISC-FLEX coupling

Are used to connect two equipment remotely aligned. In addition to above types other types are available on customers order.



Characteristic

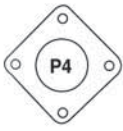
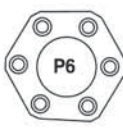
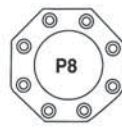

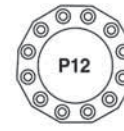

1. Selection method of size
Obtain maximum torque

$$T_{max} = \frac{P \times 9,550}{n} \times s.f$$

T_{max} = maximum torque
P = Input power (kw)
n = Working revolution (rpm)
S.f = Recommended service factor

2. Selection procedure

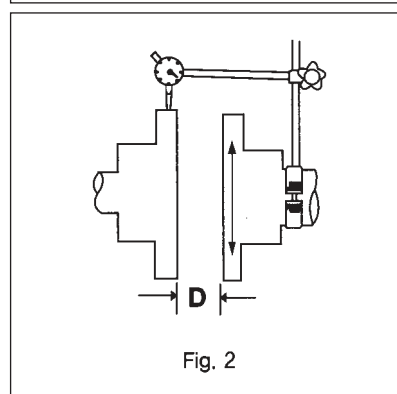
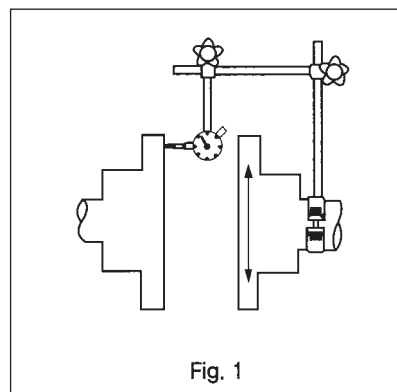
- ① Determine spacer length and select type.
- ② By using above formula, calculate torque.
- ③ Select coupling size equal to or larger than the design torque.
- ④ Check limiting conditions :
 - Maximum bore
 - Space limitation
 - End float
 - Maximum speed
 - Necessity of dynamic balance

Type of disc-plate							
Usage		P4	P6	P8	(P10)	(P12)	(R)
Single disc-flex		P4	P6	P8	-	-	-
Double disc-flex	short space	P4-sD	-	-	-	-	-
	standard space	P4-D	P6-D	P8-D	(P10)	(P12)	(R4)
Floating disc-flex	custom space	P4-F	P6-F	P8-F	(P10-F)	(P12-F)	(RB)
	horizontal	P4-FH	P6-FH	P8-FH	(P10-FH)	(P12-FH)	(RH)
Floating disc-flex	vertical	P4-FV	P6-FV	P8-FV	(P10-FV)	(P12-FV)	(RV)
	(Torque range (Nm.))	3.4-650	58-13,070	382-18,150	1,379-26,130	1,669-31,936	MAX-100X10

General Instruction for Installation

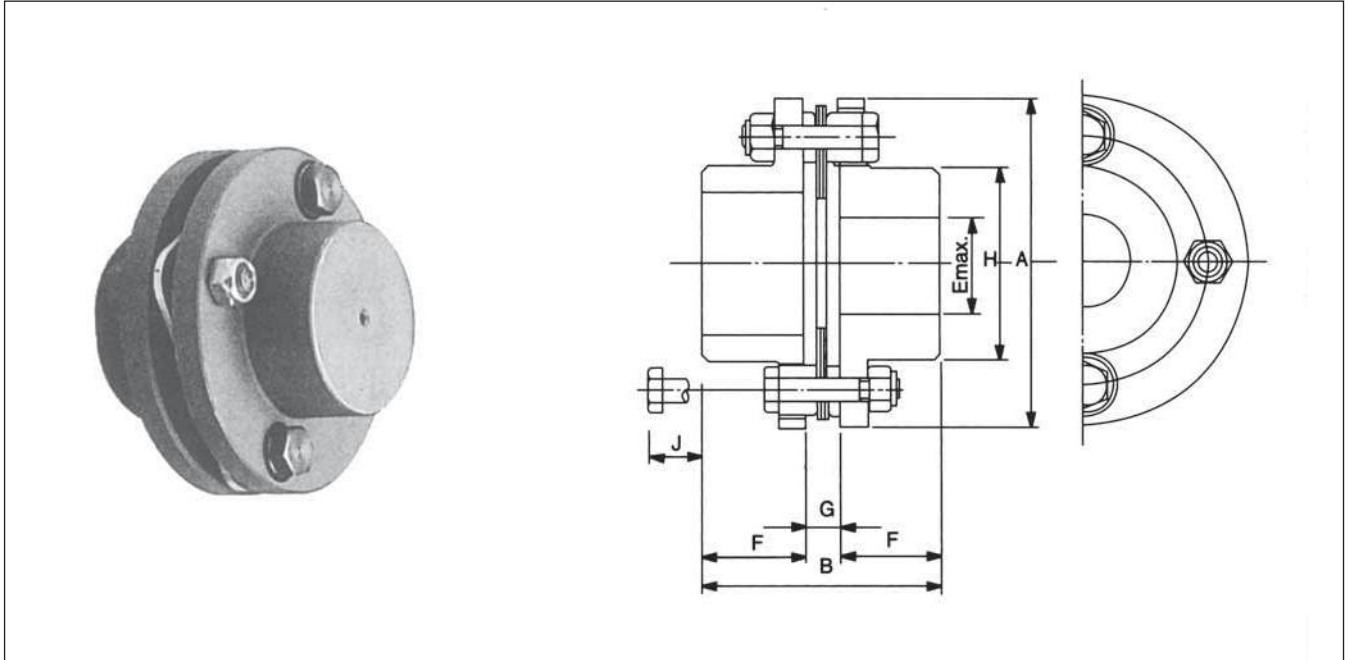
Correct installation and alignment will assure longer life and smooth, trouble free service.

1. Check that shaft, hub bore and keyway have been cleaned completely.
2. Check Angular misalignment (fig.1)
 - ① Install dial indicator to hub and rotate the hub to locate point of minimum. Reading the number set dial to zero.
 - ② Rotate coupling 360°, read indicator for misalignment value. Driver and driven should be lined up when dial indicator comes within maximum allowable figures.
3. Parallel misalignment (fig.2)
 - ① Install dial indicator to driving hub, rotate driven hub and read indicator number.
 - ② Move of shim units so that parallel misalignment is brought within the maximum allowable variations.
4. Referring to diagrams on page 45 assemble the coupling.
For longer service life, recheck the coupling for angular and parallel misalignment after 12 hours operation and fasten the bolts/nuts by rated torque.



Dimensions

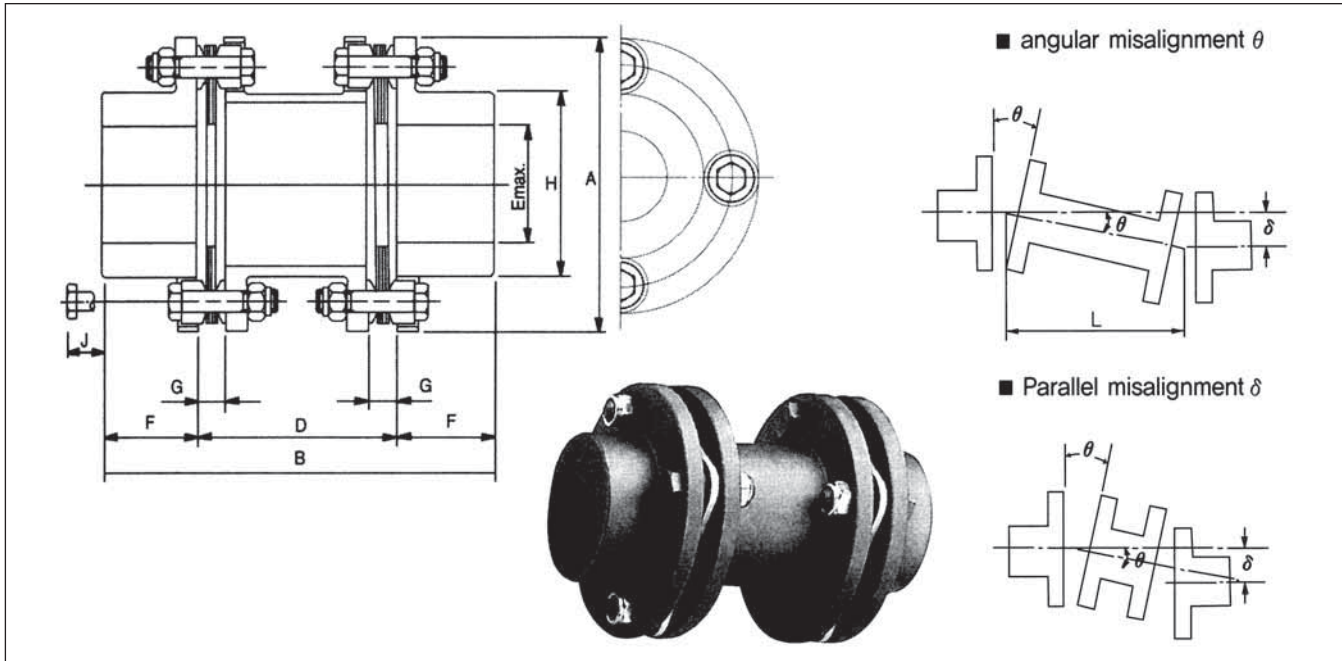
- P4-00S (Single Disc Flex)



Size	Torque (Nm.)				Radial Load	Max. Speed (rpm)	Max. Bore (mm)	Dimensions (mm)						Weight (kgs)	GD ² 1kg (m ²)
	Max (Nm.)	1/3 Load	2/3 Load	Max. Radial Load				Emax.	A	B	F	G	H		
05S	34	15	12	0.8	15	47,000	23	67	55.8	25	5.8	33	16	0.6	8
10S	92	41	32	2.3	25	39,000	32	81	57.1	25	7.1	46	16	1.1	24
15S	180	81	63	4.5	56	34,000	35	93	66.4	29	8.4	51	24	1.7	48
20S	250	113	87	6.0	83	30,000	42	104	79	34	11	61	30	2.5	80
25S	430	193	160	11.0	120	25,000	50	126	93.2	41	11.2	71	27	4.3	224
30S	790	355	276	20.0	180	22,000	58	143	108.5	48	12.5	84	28	6.9	440
35S	1,300	585	455	32.5	270	19,000	74	168	130	57	16	106	26	11.3	1,080
40S	2,100	945	734	52.5	380	16,000	83	194	145	64	17	118	30	16.7	2,080
45S	3,400	1,530	1,190	85	450	15,000	95	214	174.8	76	22.8	137	34	22.7	3,520
50S	5,000	2,250	1,710	125	610	13,000	109	246	202	89	24	156	26	35.4	7,200
55S	6,000	2,920	2,270	163	770	11,000	118	276	230	102	26.1	169	42	52.0	12,800

- P4-00D (Double Disc Flex)
- P4 (Standard) P4-00D

- P4 (Short) P4-00SD

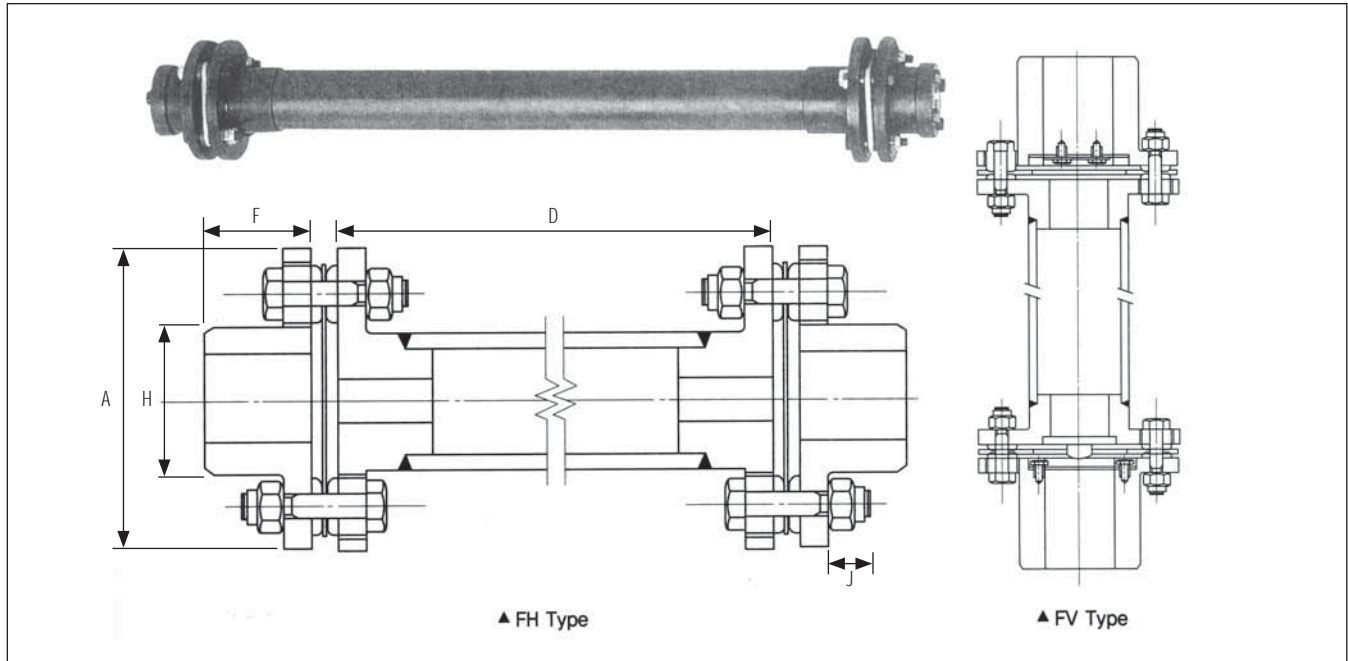


(Common)			W4-00D (Standard)			W4-00SD (Short)			W4-00F(Custom)		
Size	Torque (Nm.)	Max. Speed (rpm)	D (mm)	Cplg wt (kg)	GD ² (kg.cm ²)	D (mm)	Weight (kg)	GD ² (kg.cm ²)	B (mm)	D (mm)	D Max. (mm)
05D	34	47,000	88.9	1.2	18	36	1.1	17.8	2F+D	Cousult Techno Drive	200
10D	92	39,000	88.9	1.9	44	39	1.7	41			200
15D	180	34,000	101.6	2.9	84	47	2.7	79			250
20D	250	30,000	127.0	7.1	396	53	6.6	136			250
25D	430	25,000	127.0	7.1	386	62	6.6	337			350
30D	790	22,000	127.0	10.8	800	69	10.3	775			300
35D	1,300	19,000	127.0	16.3	1,680	78	15.6	1,628			300
40D	2,100	16,000	139.7	24.7	3,400	89	34.0	3,317			350
45D	3,400	15,000	152.4	32.5	5,600	97	31.5	5,428			350
50D	5,000	13,000	177.8	50.0	11,200	109	48.4	10,865			350
55D	6,000	11,000	177.8	75.0	20,400	134	73.9	20,127			400

Refer to the previous page for dimensions

- (Floating Disc Flex)
- (Horizontal) P4-00FH

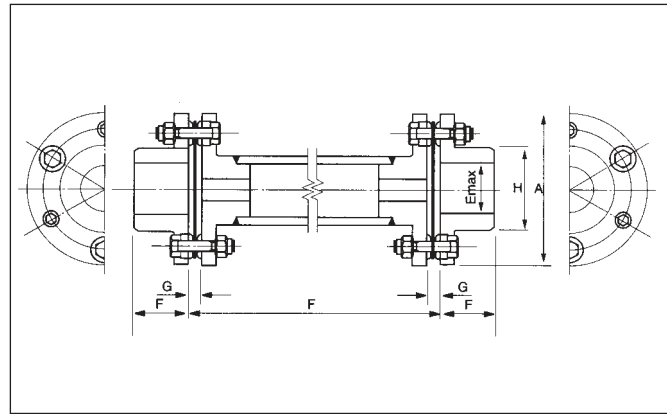
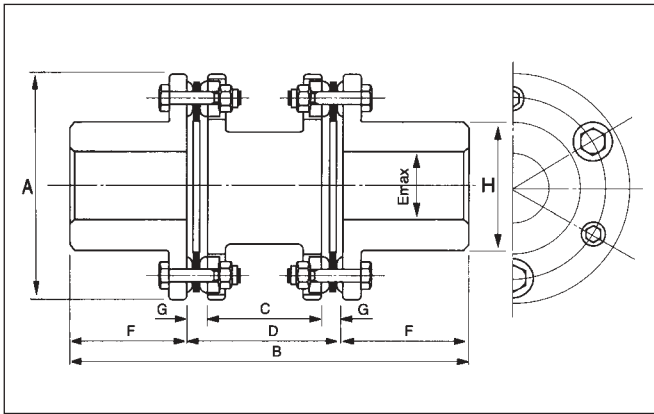
- FV (Vertical) P4-00FV



Size No.	Torque (Nm.)	A (mm)	D min (mm)	F (mm)	H (mm)	J (mm)	(1) (kg)		(2) GD ² (kgf . m)	
							[Ⓐ] W ₁ D min	W ₂	[Ⓑ] D min	GD ²
10F	92	81	72.2	25	46	16	1.9	0.029	50	0.44
15F	180	93	75.8	29	51	22	3.0	0.032	98	0.59
20F	250	104	88.4	34	61	20	4.3	0.039	168	1.10
25F	430	126	99.4	41	71	25	7.5	0.075	442	2.82
30F	790	143	111.4	48	84	28	11.7	0.110	922	6.03
35F	1,300	168	141.6	57	106	23	18.7	0.139	2,032	12.33
40F	2,100	194	154.0	64	119	30	28.3	0.161	3,839	19.21
45F	3,400	214	183.2	76	137	22	38.3	0.186	6,857	29.65
50F	5,000	246	211.8	89	157	23	58.2	0.250	13,639	52.73
55F	6,000	276	102	170	40	81.9	0.310	25,552	76.53	202

1. Total weight can be calculated by using following equation.
 $W = W_1 \text{ Ⓐ } D_{min} + L \times W_2$ inertia effect factor
 L : D - D min (cm)
2. Total inertia effect can be calculated by using following equation.
 $GD^2 = \text{Ⓑ } D_{min} + L \times GD^2$ inertia effect factor

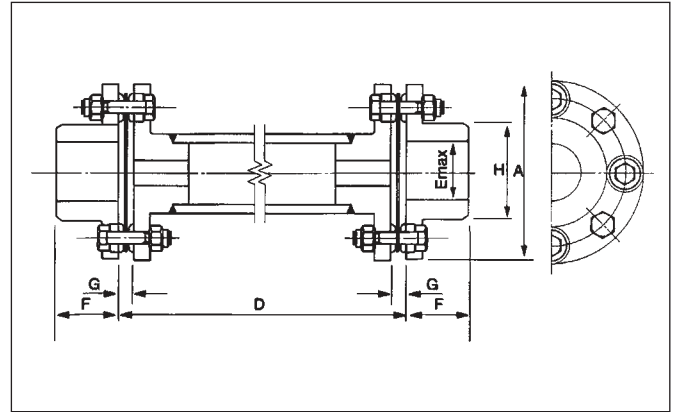
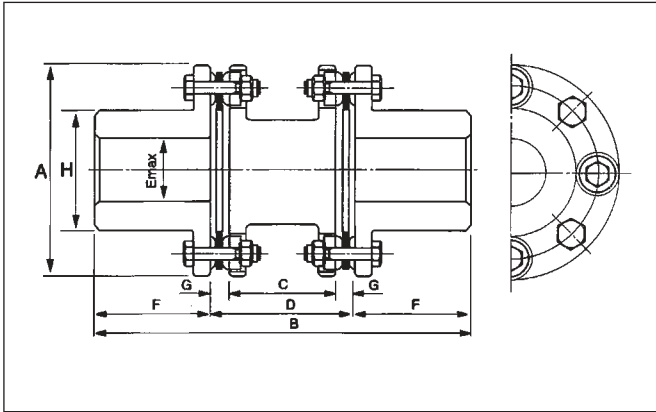
- (Double Disc Flex)
- (Floating Disc Flex)
- P6-00D (Double Standard Spacer)
- P6-00F (Double Custom Spacer)
- P6-00FH (Floating Horizontal)
- P6-00FV (Floating Vertical)



Size No.	Torque (Nm.)	A (mm)	B (mm)	C (mm)	P6	FH FV	Emax (mm)	F (mm)	G (mm)	H (mm)	Max (rpm)	W (kg)	GD ² (kgf . m)	(±mm)
					(1)D (mm)	(1)D (mm)								
00	580	119	168	39.4	60	97	51	54	10.3	74	26,000	6.0	0.03	3.0
01	940	137	198	50.0	72	110	55	63	11.0	81	23,000	9.1	0.065	3.4
02	1,740	161	238	66	90	129	67	74	12	97	19,000	16.9	0.14	3.6
03	3,410	180	269	81	109	141	72	80	14	104	17,000	22.6	0.26	4.2
04	5,000	212	308	84	118	150	85	95	17	124	15,000	35.1	0.59	4.5
05	6,200	276	377	118	153	255	111	112	17.5	161	11,600	65.1	1.8	3.9
10	8,400	276	377	115	153	258	111	112	19.0	161	11,600	66.1	1.9	3.9
15	10,900	308	440	134	172	278	133	134	19.0	193	10,300	107.8	3.7	4.2
20	18,200	346	497	146	191	283	152	153	22.5	218	9,200	156.1	6.7	4.8
25	26,900	375	553	167	223	308	165	165	28	240	8,500	211.8	10.6	5.2
30	34,100	410	610	192	254	319	178	178	31	258	7,800	274.5	16.5	5.4
35	40,700	445	646	208	270	349	187	188	31	272	7,200	333.3	23.9	5.6
40	47,200	470	686	206	274	342	205	206	34	297	6,800	399.2	30.7	6.3
45	61,000	511	749	221	287	364	231	231	35.5	334	6,200	525.3	48.0	6.7
50	76,200	556	800	218	292	365	254	254	37	364	5,700	676.3	72.9	7.3
55	94,400	587	839	236	311	408	263	263	37.5	382	5,400	803.4	100.6	7.8

Dimension "D" can be adjusted on order (PD6-00F type). Rotating speedlimits shown in above table are based on standard pipe. For rotation speed over this limits, please consult us.

- (Double Disc Flex)
- (Floating Disc Flex)
- P8-00D (Double Standard Spacer)
- P8-00F (Double Custom Spacer)
- P8-00FH (Floating Horizontal)
- P8-00FV (Floating Vertical)



Size No.	Torque (Nm.)	A (mm)	B (mm)	C (mm)	P8		EH FV	Emax (mm)	F (mm)	G (mm)	H (mm)	Max (rpm)	W (kg)	GD ² (kgf . m)	(±mm)
					(1)D (mm)	(1)D (mm)									
01	3,920	214	333	92.6	117	240	95	108	12.2	137	15,000	38.0	0.65	2.1	
03	7,260	246	369	99.6	127	269	108	121	13.7	156	13,000	55.5	1.24	2.1	
05	9,150	276	421	118	153	255	111	134	17.5	161	11,600	72.2	1.8	2.1	
10	11,000	276	421	115	153	258	111	134	19.0	161	11,600	73.3	1.8	2.1	
15	15,700	308	492	134	172	278	133	160	19.0	193	10,300	119.7	3.7	2.4	
20	26,100	346	557	146	191	283	152	183	22.5	218	9,200	174.3	6.8	2.9	
25	38,500	375	619	167	223	308	165	198	28.0	240	8,500	233.8	10.8	3.1	
30	48,100	410	682	192	254	319	178	214	31.0	258	7,800	305.3	16.7	3.3	
35	58,200	445	720	208	270	339	187	225	31.0	272	7,200	367.4	25.0	3.6	
40	65,700	470	768	206	274	342	205	247	34.0	297	6,800	447.5	31.1	4.0	
45	85,300	511	843	221	287	364	231	278	35.5	334	6,200	591.6	48.0	4.5	
50	105,300	556	902	218	292	365	254	305	37.0	364	5,700	761.4	74.7	5.0	
55	130,700	587	945	236	311	408	263	317	37.5	382	5,400	901.9	101.6	5.2	

Dimension "D" can be adjusted on order (PD8-00F type).
 Rotating speed limits shown in above table are based on standard pipe.
 For rotation speed over this limits, please consult us.

Rotation limitations for standard floating shaft coupling

▼ 4 Bolts Type (P4-TYPE)

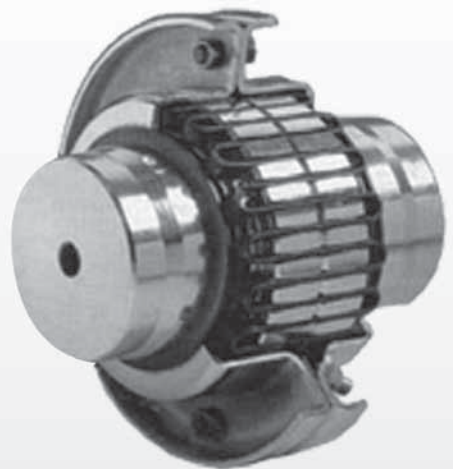
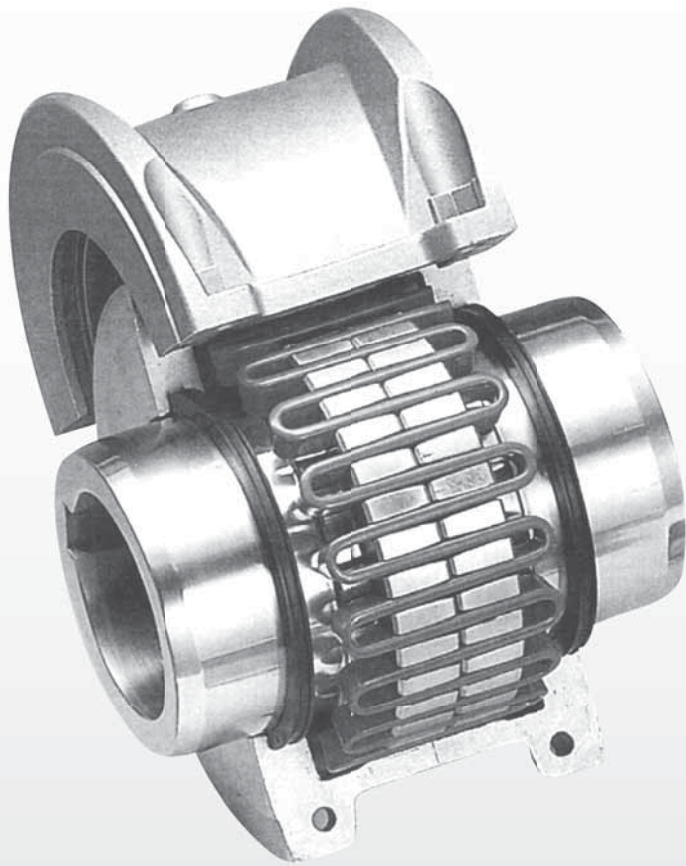
Size No.	Maximum Shaft Diameter (mm)		Maximum Span DMax (mm) for Various Speed (rpm)								
	standard Hub	Z(K) Hub	1,800	1,500	1,200	1,000	900	750	720	600	500
10	32	40	1,610	1,760	1,970	2,160	2,280	500	2,550	2,790	3,060
15	35	42	1,690	1,850	2,070	2,270	2,390	2,620	2,670	2,930	3,210
20	42	48	1,880	2,050	2,300	2,520	2,650	2,910	2,970	3,250	3,560
25	50	60	2,010	2,210	2,470	2,700	2,850	3,120	3,190	3,490	3,830
30	58	70	2,220	2,430	2,720	2,980	3,140	3,440	3,510	3,850	4,210
35	74	85	2,500	2,740	3,060	3,350	3,540	3,870	3,950	4,330	4,750
40	83	95	2,690	2,950	3,300	3,610	3,800	4,180	4,250	4,660	5,120
45	95	110	2,890	3,170	3,540	3,880	4,090	4,490	4,570	5,010	5,500
50	109	120	3,100	3,400	3,800	4,160	4,390	4,820	4,910	5,370	5,900
55	118	130	3,230	3,540	3,960	4,330	4,560	5,010	5,100	5,590	

▼ 6 Bolts Type (P6-TYPE)

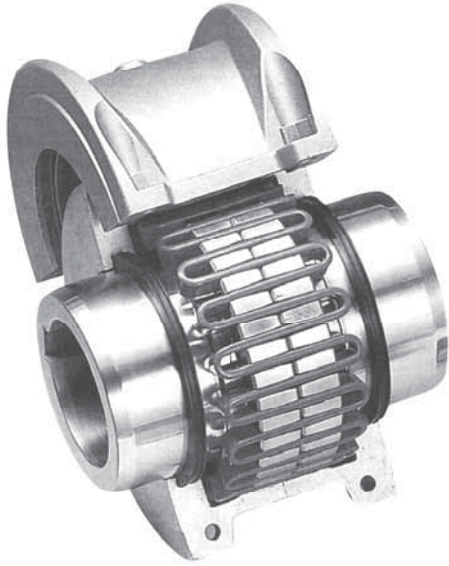
Size No.	standard Hub	Maximum distance between shaft end DMax (mm) for Various Speed (rpm)								
		1,800	1,500	1,200	1,000	900	750	720	600	500
00	51	2,010	2,210	2,470	2,700	2,850	3,120	3,190	3,490	3,830
01	55	2,220	2,430	2,720	2,980	3,140	3,440	3,510	3,850	4,210
02	67	2,500	2,740	3,060	3,350	3,540	3,870	3,950	4,330	4,750
03	72	2,890	3,170	3,540	3,880	4,090	4,490	4,570	5,010	5,500
04	85	3,100	3,400	3,800	4,160	4,390	4,820	4,910	5,370	5,900
05	111	3,100	3,400	3,800	4,160	4,390	4,820	4,910	5,370	5,900
10	111	3,100	3,400	3,800	4,160	4,390	4,820	4,910	5,370	5,900
15	133	3,230	3,540	3,960	4,330	4,560	5,010	5,100	5,590	
20	152	3,720	4,070	4,560	4,990	5,250	5,770	5,880		
25	165	3,720	4,070	4,560	4,990	5,250	5,770	5,880		

▼ 8 Bolts Type (P8-TYPE)

Size No.	standard Hub	Maximum distance between shaft end DMax (mm) for Various Speed (rpm)								
		1,800	1,500	1,200	1,000	900	750	720	600	500
01	95	2,890	3,170	3,540	3,880	4,090	4,490	4,570	5,010	5,500
03	108	3,100	3,400	3,800	4,160	4,390	4,820	4,910	5,370	5,900
05	111	3,100	3,400	3,800	4,160	4,390	4,820	4,910	5,370	5,900
10	111	3,100	3,400	3,800	4,160	4,390	4,820	4,910	5,370	5,900
15	133	3,230	3,540	3,960	4,330	4,560	5,010	5,100	5,590	
20	152	3,720	4,070	4,560	4,990	5,250	5,770	5,880		
25	165	3,680	4,030	4,510	4,940	5,200	5,710	5,810		



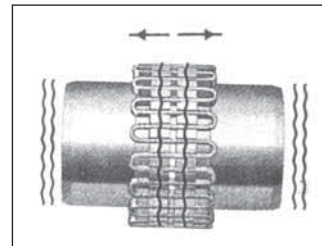
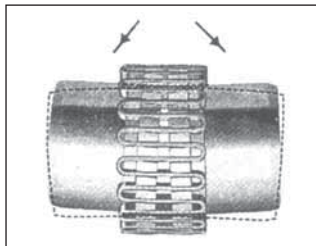
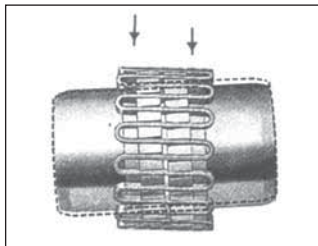
TAPER GRID COUPLINGS



Characteristic

We can get more favorable convenience and cost down by using Taper Grid Steel Flexible Coupling.

- **PARALLEL**
The movement of the grid in the lubricated grooves accommodates parallel misalignment and steel permits full functioning of the grid-groove action in damping out shock and vibration.
- **ANGULAR**
Under angular misalignment, the grid-groove design permits a locking and sliding action of the lubricated grid and hubs without any loss of power through the resilient grid.
- **END FLOAT**
Limited end float of driving and driven members is permitted because the grid slides freely in the lubricated grooves.
- **TORSIONAL FLEXIBILITY**
Torsional flexibility is the advantage of Taper Grid Couplings, providing flexible accommodation to changing load conditions.



1. Light Load

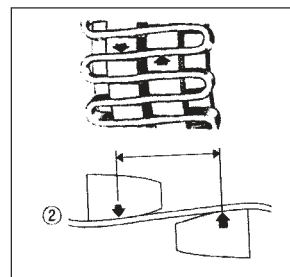
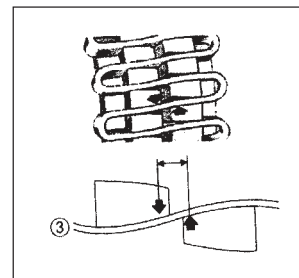
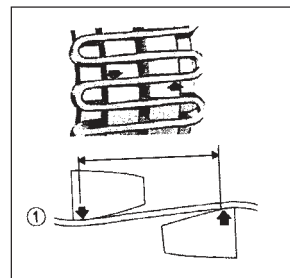
The grid bears near the outer edges of the hub teeth. The long span between the points of contact remains free to flex under load.

2. Normal Load

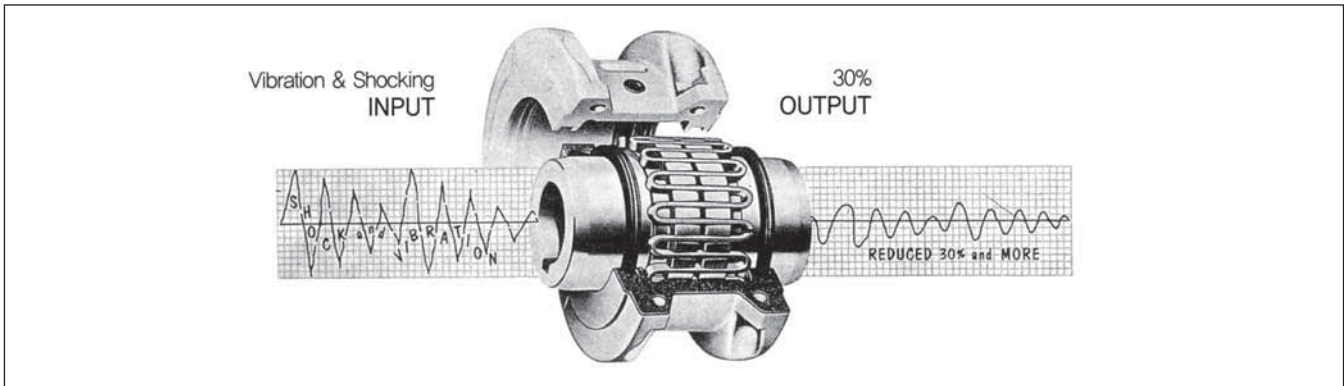
As the load increase, the distance between the contact points on the hub teeth is shortened, but a free span still remains to cushion shock load.

3. Shock Load

The coupling is flexible within its rated power capacity. Under extreme overloads, the grid bears fully on the hub teeth and transmits full load directly.



The absorption of mechanical vibration of Taper Grid coupling



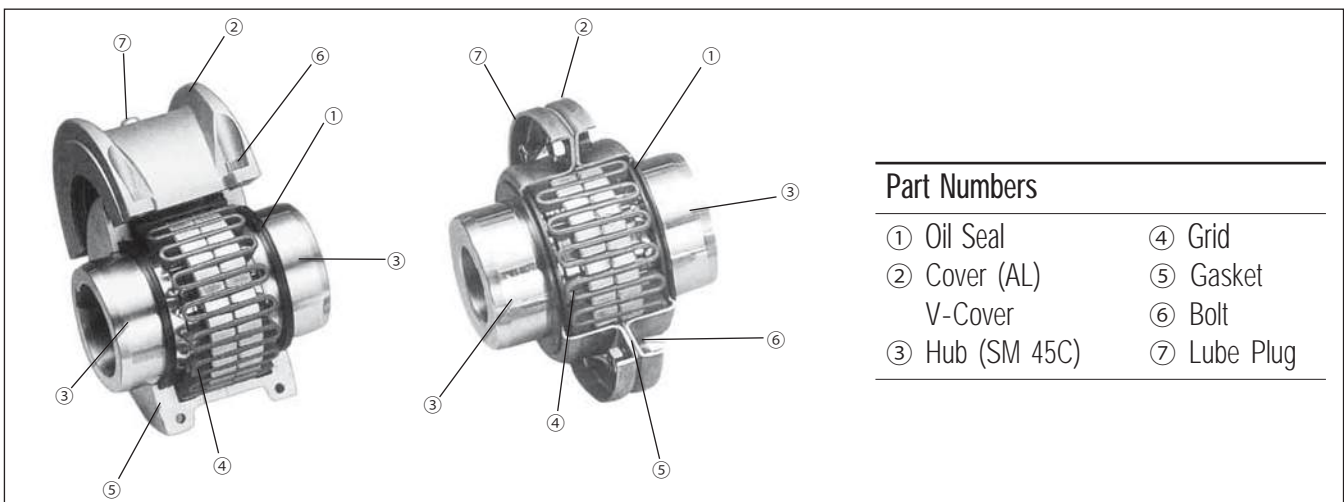
Merits

1. When OVERLOAD, grid is assigned a part of safety pin and prevents breaking of the shaft or machinery part by cutting of grid.
2. When the centering misalignment is too much, it can protect the relating machine by the virtue of shearing of GRID or COVER or TOOTH.
3. The life of all parts (Mechanical Seal and Bearing. etc.) can be extended as a twice or more.
4. Repair and check is needed scarcely, it costs short repairing time.
5. Establishment, assembly and maintenance are easy by getting rid of center misalignment.

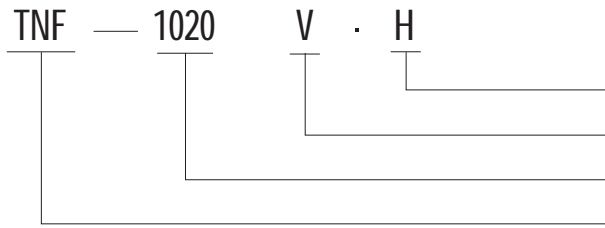
Application

1. When we need to reduce vibration and shock load.
2. When we need adequate power transmission under line misalignment.
3. When we need adequate power transmission under angular misalignment.
4. When we need adequate power transmission under end floating.
5. When we need to prevent breaking of the machinery parts under over load.
6. When reverse revolution is required.
7. When we need smooth starting.

Structure



Designation



Cover (Horizontal Split Cover)
Cover (Vertical Split Cover)
(Size No.)
TechnoFlex

- PAS : Full spacer type (Horizontal split cover)
- PFS : Half spacer type (Horizontal Split cover)
- PBW : Brake wheel type (Horizontal Split cover)

Selection Method of Size

1 Selection method of size

- ① From the following formula, obtain Torque required for Selection.

$$T = \frac{P \times 9,550}{n} \times s.f$$

- T = Nominal torque (Nm)
- P = Input power (kw)
- n = Working revolution (rpm)
- S.f = Recommended service factor

- ② First select from comparing with basic torque, and find to adopt the same or greater value. And then conclude it's suitability for application of boring driver.
- ③ Caution for selections
 - a. Adopt the minimum rpm when there are common transmitting rpm and also minimum rpm.
 - b. Be careful that the load where there are reverse revolution and repetition and irregular operation can be twice of normal condition.
 - c. Adopt the peak kw, when there are common transmitted power of peak kw in a system.

- ④ Refer to the factory all applications used to lift or transport people, such as conveyors, cranes, elevators, hoists, lifts or escalators for applications of dual load path type couplings and gear drive selections to meet existing safety codes.

2 Example

When you select a COUPLING to connect a 22 kw 1,450 rpm motor and a rotary type pump. Motor shaft dia is 48 mm and pump's 52 mm.

- ① Service factor of pump is 1.8. (Refer to s.f table)
- ② Normal transmitting power is 22 kw

$$\text{Torque (Nm)} = \frac{22 \times 9,550}{1,450} \times 1.8 = 260.81 \text{ Nm}$$

First, select 1040S according to transmitting torque 260.81 and then check the max. bore select 1060H because it's not suitable for 1040H to the bore depending on diameter. After comparing rpm, we can use 1060H. There's no problem to use H or V, they are only of cover.

3. Service Factors

Refer to service factor table.

Instruction for Installation

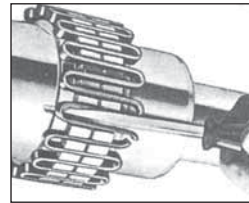
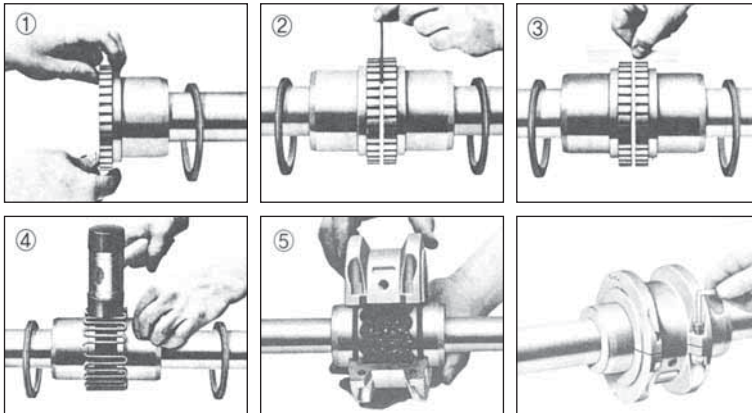
The performance and life of the coupling depend on how you install and service them. This page helps you how to assemble the coupling for the best performance and for the trouble free operation. H Taper Grid Coupling is designed to be operate in either the horizontal or the vertical position without modification.

- Simple standard mechanical tools such as wrenches, a straight edge and feeler gauge or dial guage are required to install the Taper Grid coupling.

1 In case of H type

- ① Clean all metal parts using non flammable solvent. Lightly coat seals with grease and place on shaft, mount hubs on the shafts.
- ② Using a spacer bar, equal in thickness to the normal gap. The difference in maximum measurements must be not exceed the angular limit.

- ③ Align so that a straight edge rests squarely on both hubs as shown fig. And also at 90° interval. The clearance with dialgauge must not exceed the limit specified in page 33 table #3.
- ④ After greasing the tooth groove hub, fix the GRID in the same direction.
- ⑤ Grease fully upon the grid place oil seals on the hubs, put gaskets and fasten the cover halves correctly by bolts.



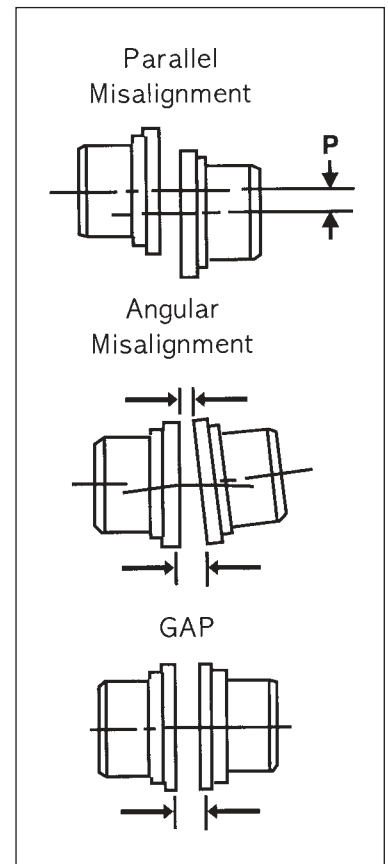
■ Coupling disassembly and grid removal. Whenever it is necessary to disconnect the coupling, remove the cover half and grid.

A round rod or screw driver that will conveniently fit into the open loop ends of the grid is required. Begin at the open end of the grid section and insert the rod or screw driver into the loop end. Use the teeth adjacent to each loop as a fulcrum and pry the grid out radially in even, gradual stages, proceeding alternately from side to side.

Misalignment Capacity (mm)

(Unit : mm)

Size	Recommended installation		Operating		Normal gap 10%
	Parallel offset p	Angular(1/16°) X-Y	Parallel offset p	Angular (1/4°) X-Y	
1020	0.15	0.06	0.3	0.24	3
1030	0.15	0.07	0.3	0.29	3
1040	0.15	0.08	0.3	0.32	3
1050	0.20	0.10	0.4	0.39	3
1060	0.20	0.11	0.4	0.45	3
1070	0.20	0.12	0.4	0.50	3
1080	0.20	0.15	0.4	0.61	3
1090	0.20	0.17	0.4	0.70	3
1100	0.25	0.20	0.5	0.82	4.5
1110	0.25	0.22	0.5	0.90	4.5
1120	0.28	0.25	0.56	1.01	6
1130	0.28	0.30	0.56	1.19	6
1140	0.28	0.33	0.56	1.34	6
1150	0.30	0.39	0.6	1.56	6
1160	0.30	0.44	0.6	1.77	6
1170	0.30	0.50	0.6	2.00	6
1180	0.38	0.56	0.76	2.26	6
1190	0.38	0.61	0.76	2.44	6
1200	0.38	0.68	0.76	2.72	6



The life of coupling is reduced by excess of the limit.

Lubrication and Handing

1. Grease Lubrication

Grease on the grid before assembling covers. Fill up grease through the lube plugs of the assembled coupling.

2. Supplement and Replacement

Every three month every 240~250 hours operating, you should add grease. Every 3 months, or every 4,000 hours operating you should replace all the deteriorated grease.

3. Selection

You can choose grease according to the ambient temperature range in table 5.

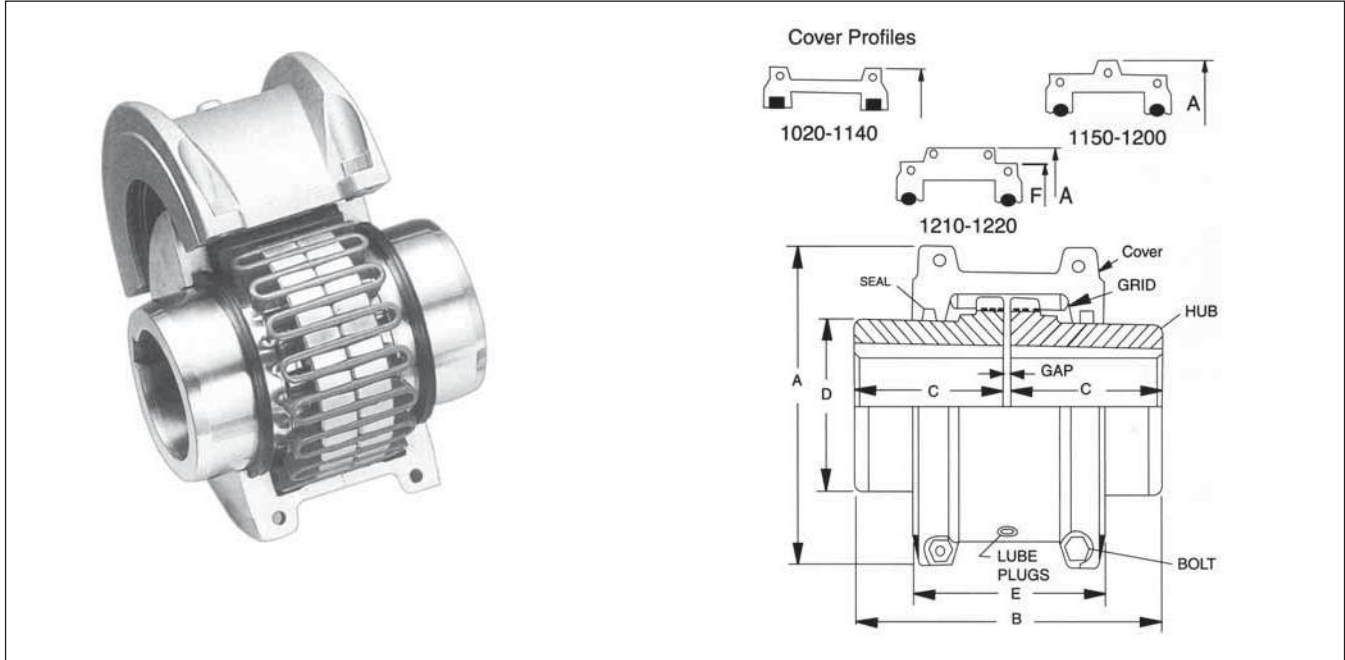
Common Industrial Lubricants (NYGL Grade #2)

Size	Ambient Temperature Range :	
	0 F ^o to 150 F ^o . (-18 C ^o to 66 C ^o).	-30 F. to 100 F. . (-34 C. to 38 C).
Amoco Oil Co.	Amolith Grease #2	Amolith Grease #2
Atlantic Richfield Co.	Litholene HEP 2	Litholene HEP 2
Chevron U.S.A Inc.	Chevron Dura-Lith EP-2	Chevron Dura-Lith EP-2
Cities Service Co.	Citgo HEP-2	Citgo HEP-2
Conoco Inc.	EP Conolith #2	EP Conolith #2
Exxon Company, USA	Ronex MP	Ronex MP
Gulf Oil Corp.	Gulfcrown Grease #2	Gulfcrown Grease #2
E.F. Houghton & Co.	Cosmolube #2	Cosmolube #1
Imperial Oil Ltd.	Esso MP Grease H	Lotemp EP
Keystone Div. (Pennwalt)	#81 Light	#84 Light
Mobil Oil Corp.	Mobilux EP111	Mobilux #1
Phillips Petroleum Co.	IB & RB grease	Philube IB & RB grease
Shell Oil Co.	Alvania Grease #2	Alvania Grease #2
Standard Oil Co. (OH)	Factran #2	Factran #2
Sun Oil Company	Prestige 42	Prestige 42
Texaco Lubricants	Starplex HD 2	Multifac EP2
Union Oil Co. (CA)	Union Undoba #2	Union Undoba #2
Valvoline Oil Co.	Val-Lith #2	Val-Lith #2

Note : Check with lube manufacture for approved lubricants to use in the food processing industry.

Dimensions

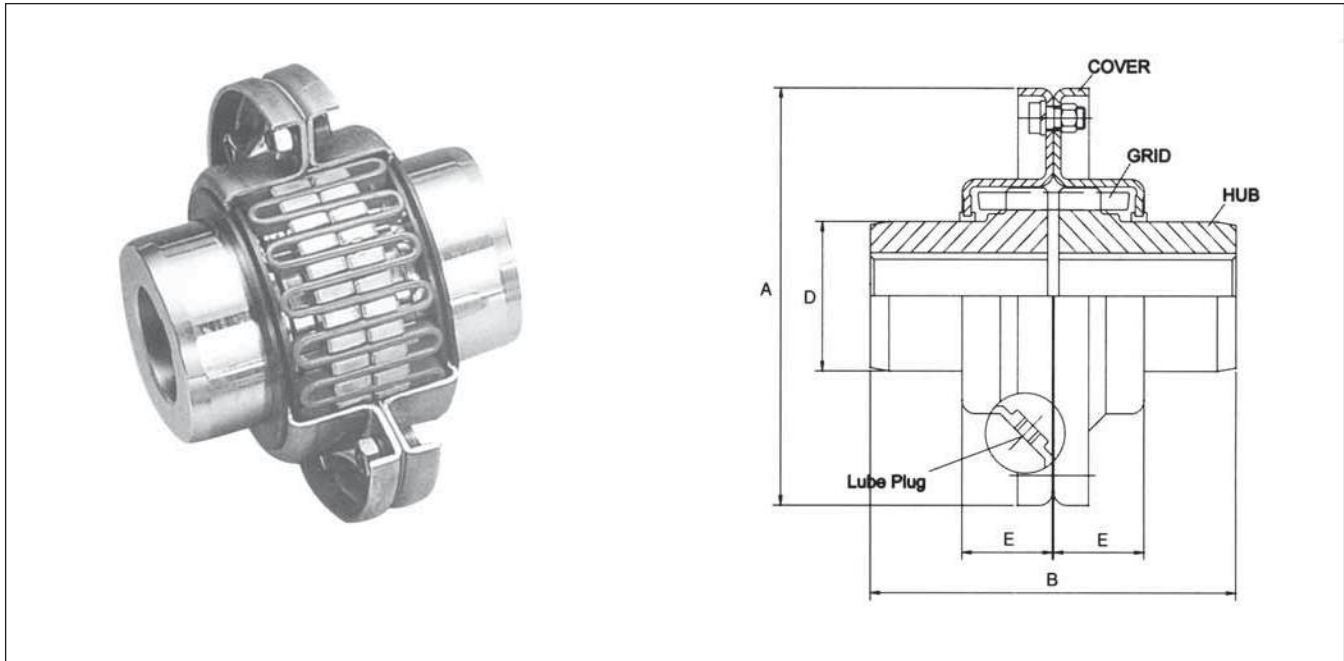
■ Type H (Horizontal Split Aluminum Cover)



Size	Max. Speed (rpm)	Basic Torque (Nm.)	bore Dia (mm)		Dimensions (mm)					Gap			Weight (kg)	Lube wt (kg)	Size
			Max.	Min.	A	B	C	D	E	Min	Normal	Max			
1020H	4,500	52	30	12.7	101.6	98.0	47.5	39.7	66.5	1.5	3	4.5	1.9	0.03	1020H
1030H	4,500	149	36	12.7	110.0	98.0	47.5	49.2	68.3	1.5	3	4.5	2.6	0.03	1030H
1040H	4,500	249	44	12.7	117.5	104.6	50.8	57.1	70.0	1.5	3	4.5	3.4	0.05	1040H
1050H	4,500	435	50	12.7	138.0	123.6	60.3	66.7	79.5	1.5	3	4.5	5.4	0.05	1050H
1060H	4,350	684	57	19.1	150.5	130.0	63.5	76.2	92.0	1.5	3	4.5	7.3	0.09	1060H
1070H	4,125	994	65	19.1	161.9	155.4	76.2	87.3	95.0	1.5	3	4.5	10	0.11	1070H
1080H	3,600	2,050	79	27.0	194.0	180.8	88.9	104.8	116.0	1.5	3	4.5	18	0.17	1080H
1090H	3,600	3,730	95	27.0	213.0	199.8	98.4	123.8	122.0	1.5	3	6	25	0.25	1090H
1100H	2,400	6,280	107	41.3	250.0	245.7	120.6	142.0	155.5	1.5	4.5	9.5	42	0.43	1100H
1110H	2,250	9,320	117	41.3	270.0	258.5	127.0	160.3	161.5	1.5	4.5	9.5	54	0.51	1110H
1120H	2,025	13,700	136	60.3	308.0	304.4	149.2	179.4	191.5	1.5	6	12.5	81	0.73	1120H
1130H	1,800	19,900	165	66.7	346.0	329.8	161.9	217.5	195.0	1.5	6	12.5	121	0.91	1130H
1140H	1,650	28,600	184	66.7	346.0	329.8	161.9	217.5	195.0	1.5	6	12.5	121	0.91	1140H
1150H	1,500	39,800	203	108.0	384.0	371.6	182.8	254.0	201.0	1.5	6	12.5	178	1.13	1150H
1160H	1,350	55,900	228	120.7	453.1	371.8	182.9	269.2	271.3	1.5	6	12.5	234	1.95	1160H
1170H	1,225	74,600	279	133.4	501.4	402.2	198.1	304.8	278.9	1.5	6	12.5	317	2.81	1170H
1180H	1,100	103,000	311	152.4	566.4	437.8	215.9	355.6	304.3	1.5	6	12.5	448	3.49	1180H
1190H	1,050	137,000	339	152.4	629.9	483.6	238.8	393.7	321.1	1.5	6	12.5	619	3.76	1190H
1200H	900	186,000	361	177.8	675.6	524.2	259.1	436.9	325.1	1.5	6	12.5	776	4.40	1200H

Coupling weight, with unbored hub assembly.

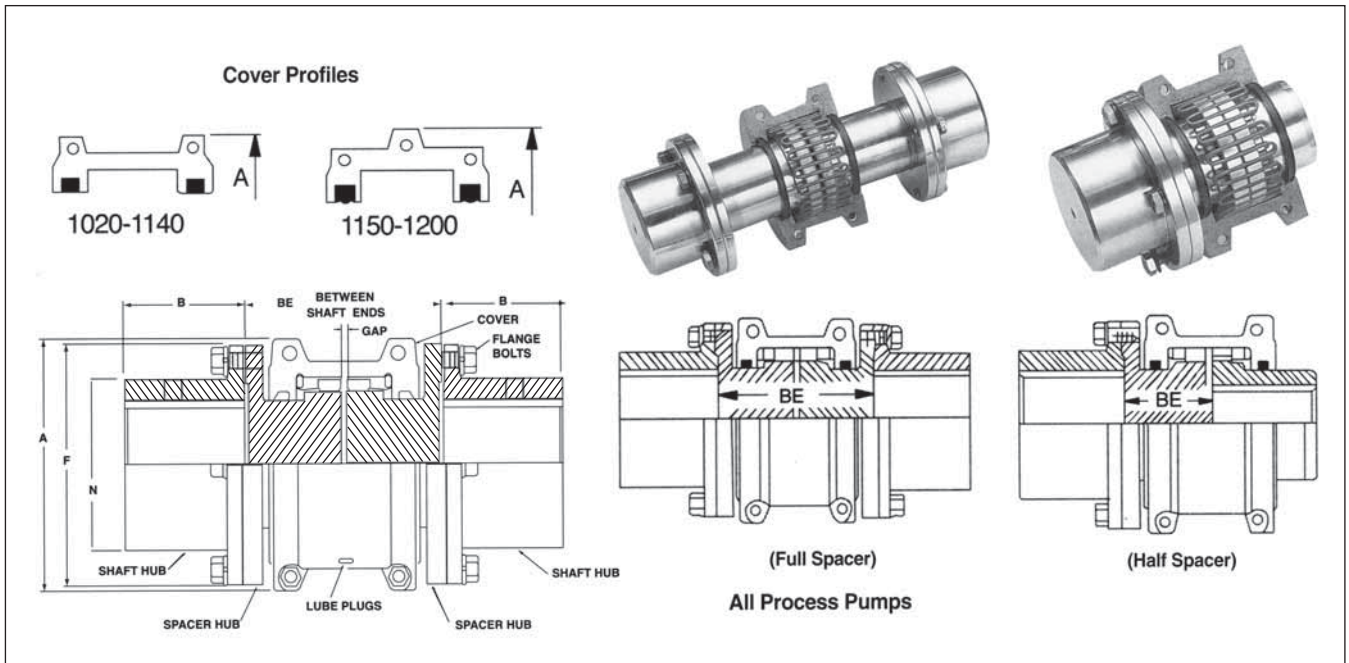
■ Type V (Vertical Steel Cover)



Size	Max. Speed (rpm)	Basic Torque (Nm.)	bore Dia (mm)		Dimensions (mm)					Gap			Cplg wt (kg)	Lube wt (kg)	Size
			Max.	Min.	A	B	C	D	E	Min	Normal	Max			
1020V	6,000	52	30	12.7	111.1	98.0	47.5	39.7	24.2	1.5	3	4.5	2.0	0.03	1020V
1030V	6,000	149	36	12.7	120.7	98.0	47.5	49.2	25.0	1.5	3	4.5	2.6	0.03	1030V
1040V	6,000	249	44	12.7	128.5	104.6	50.8	57.1	25.7	1.5	3	4.5	3.4	0.05	1040V
1050V	6,000	435	50	12.7	147.6	123.6	60.3	66.7	31.2	1.5	3	4.5	5.4	0.05	1050V
1060V	6,000	684	57	19.1	162.0	130.0	63.5	76.2	32.2	1.5	3	4.5	7.3	0.09	1060V
1070V	5,500	994	65	19.1	173.0	155.4	76.2	87.3	33.7	1.5	3	4.5	10.4	0.11	1070V
1080V	4,750	2,050	79	27.0	200.0	180.8	88.9	104.8	44.2	1.5	3	4.5	17.7	0.17	1080V
1090V	4,000	3,730	95	27.0	213.8	199.8	98.4	123.8	47.7	1.5	3	6	25.4	0.25	1090V
1100V	3,250	6,280	107	41.3	266.7	245.7	120.6	142.0	60.0	1.5	4.5	9.5	42.2	0.43	1100V
1110V	3,000	9,320	117	41.3	285.8	258.5	127.0	160.3	64.2	1.5	4.5	9.5	54.4	0.51	1110V
1120V	2,700	13,700	136	60.3	319.0	304.4	149.2	179.4	73.4	1.5	6	12.5	81.6	0.73	1120V
1130V	2,400	19,900	165	66.7	377.8	329.8	161.9	217.5	75.1	1.5	6	12.5	122.5	0.91	1130V
1140V	2,200	28,600	184	66.7	416.0	371.6	182.8	254.0	78.2	1.5	6	12.5	180.1	1.13	1140V
1150V	2,000	39,800	203	108.0	476.3	371.6	182.9	269.2	106.9	1.5	6	12.5	230.0	1.95	1150V
1160V	1,750	55,900	228	120.7	533.4	371.8	198.1	304.8	114.3	1.5	6	12.5	321.1	2.81	1160V
1170V	1,600	74,600	279	133.4	584.2	402.2	215.9	355.6	119.4	1.5	6	12.5	448.2	3.49	1170V
1180V	1,400	103,000	311	152.4	630.0	437.8	238.8	393.7	130.0	1.5	6	12.5	591.0	3.76	1180V
1190V	1,300	137,000	339	152.4	685.0	483.6	259.1	436.9	135.0	1.5	6	12.5	761.0	4.40	1190V
1200V	1,100	186,000	361	177.8	737.0	524.2	279.4	497.8	145.0	1.5	6	12.5	1,021.0	5.62	1200V

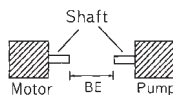
Coupling weight, with unbored hub assembly.

■ Type H (Horizontal Split Aluminum Cover)

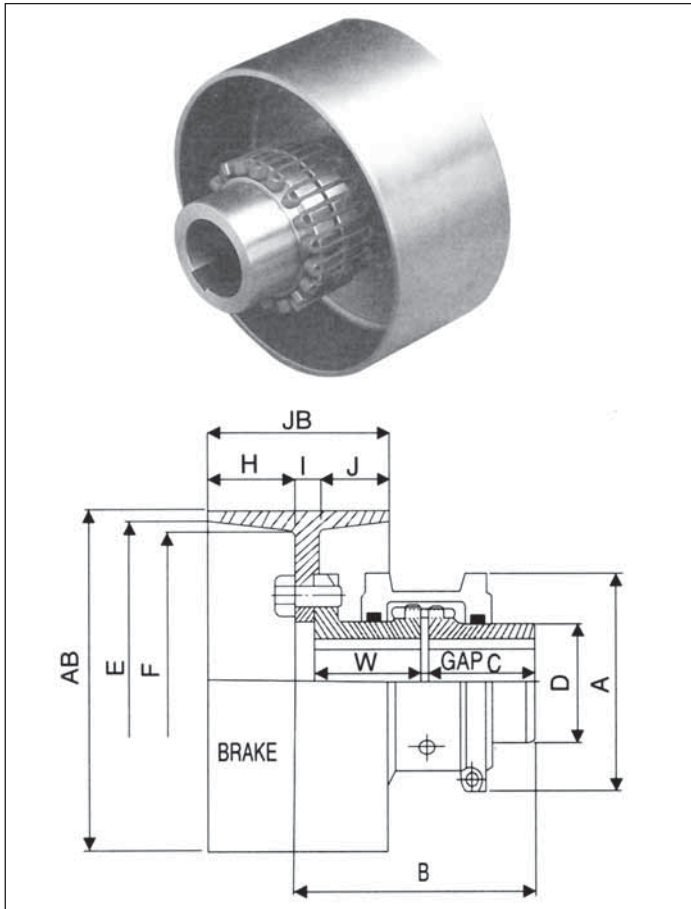


Size	Max. Speed (rpm)	Basic Torque (Nm.)	bore dia (mm)		Dimensions (mm)										Cplg wt (kg)	Lube wt (kg)	Size
					A	B	BE(FS)		BE(HS)		N	F	Gap				
			Max.	Min.			Min.	Max.									
1020P	3,600	52	36	12.7	101.6	35	89	203	45	102	52	86	5	4	0.03	1020P	
1030P	3,600	149	44	12.7	111.0	41	89	216	45	109	59	94	5	8	0.03	1030P	
1040P	3,600	249	57	12.7	117.5	54	89	216	45	109	78	113	5	8	0.05	1040P	
1050P	3,600	435	64	12.7	138.0	60	112	216	57	109	87	126	5	8	0.05	1050P	
1060P	3,600	684	79	19.1	150.5	73	127	330	64	166	103	145	5	8	0.09	1060P	
1070P	3,600	994	83	19.1	161.9	79	127	330	64	166	109	153	5	12	0.11	1070P	
1080P	3,600	2,050	95	27.0	194.0	89	184	406	93	204	122	178	5	12	0.17	1080P	
1090P	3,600	3,730	108	27.0	213.0	102	184	406	93	204	142	210	5	12	0.25	1090P	
1100P	2,400	6,280	127	38.1	250.0	90	203	406	103	205	171	251	6.5	12	0.43	1100P	
1110P	2,250	9,320	149	50.8	270.0	104	210	406	106	205	196	277	6.5	12	0.51	1110P	
1120P	2,025	13,700	165	63.5	308.0	119	246	406	125	205	225	319	9.5	12	0.73	1120P	
1130P	1,800	19,900	178	76.2	364.0	135	257	406	130	205	238	346	9.5	12	0.91	1130P	
1140P	1,650	28,600	203	88.9	384.0	152	267	406	135	205	266	386	9.5	12	1.13	1140P	
1150P	1,500	39,800	254	101.6	453.1	173	345	371	175	187	334	425	9.5	14	1.95	1150P	
1160P	1,350	55,900	279	114.3	501.4	186	356	406	180	205	366	457	9.5	14	2.81	1160P	
1170P	1,225	74,600	330	127.0	566.4	220	384	445	194	224	425	527	9.5	16	3.49	1170P	
1180P	1,100	103,000	330	101.6	629.9	249	400	490	202	247	451	591	9.5	16	3.76	1180P	
1190P	1,050	137,000	362	114.3	675.6	276	411	530	207	267	508	660	9.5	18	4.40	1190P	
1200P	900	186,000	381	127.0	756.9	305	445	575	224	289	530	711	9.5	18	5.62	1200P	

BE means the distance between shaft ends.
Do not miss to tell on ordering



■ Type PGDBW(Brake Wheel Double Engagement), PGSBW(Brake Wheel Single Engagement)



Cplg Size	Standard Brake Wheel					
	Motor Power (40% ED KW)			Brake Torque (Nm.)		
1020						
1030						
1040	2.2			50		
1050	5.5			100		
1060	5.5	7.5	11	100	140	212
1070	15			300		
1080	30			530		
1090	37	45		630	800	
1100	45			1,320		
1110	75	90		1,800		
1120	110	132		3,350		
1130	160	200		4,000	4,750	
1140	160	200		4,000	4,750	

Motor Crane
Based on Crane motor

Size	Brake wheel Size (mm)		Max. Brake Rating of CPLG (Nm.)	Bore dia (mm)		Dimensions (mm)								Lube wt (kg)	Size	
	AB	JB		Max.	Min.	A	C	D	E	F	H	I	J			Gap
1020S			11	30	12.7	102	48	39.6						3	0.03	1020S
1030S			36	36	12.7	111	48	49						3	0.03	1030S
1040S	160	80	66	44	12.7	117	51	57	145	140	40	12	28	3	0.05	1040S
1050S	200	100	120	50	12.7	138	60	66	184	178	50	17	33	3	0.05	1050S
1060S	200	100	213	57	19.1	151	63	76	184	178	50	17	33	3	0.09	1060S
1070S	250	125	338	68	19.1	162	76	87	230	224	62.5	22	40.5	3	0.11	1070S
1080S	315	160	650	82	27.0	194	89	105	292	285	80	23	57	3	0.17	1080S
1090S	365	180	1,085	95	27.0	213	98	124	330	320	90	26	64	3	0.25	1090S
1100S	400	200	1,936	107	41.3	251	121	142	374	362	100	28	72	5	0.43	1100S
1110S	450	224	2,905	117	41.3	270	127	160	422	410	112	32	80	5	0.51	1110S
1120S	500	250	4,425	136	60.3	308	149	179	462	445	125	35	90	6	0.73	1120S
1130S	560	280	6,495	165	66.7	346	162	218	516	495	140	45	95	6	0.91	1130S
1140S	560	280	8,815	184	66.7	384	184	253	516	495	140	45	95	6	1.13	1140S

If you need PBW type.

First, determine the size of brake of your coupling and the 'B', 'W' according to above dimension. For further information, please contact us.

TECHNO**FLEX**

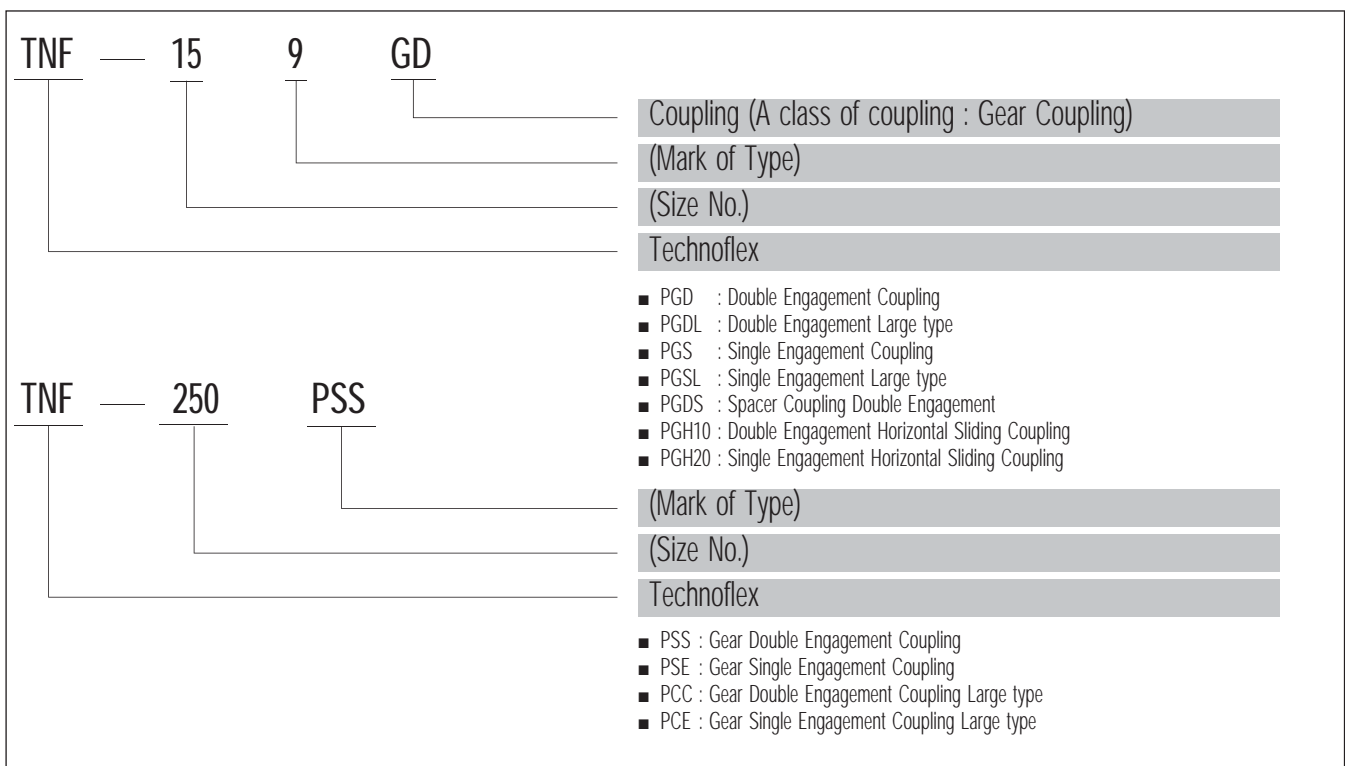


GEAR COUPLINGS



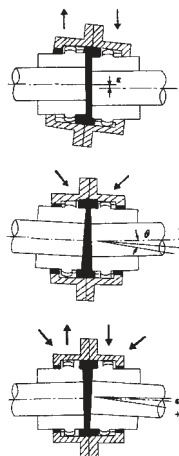
TNF Gear Coupling follows the international standard AGMA and JIS, and so can easily replace most of industrial products. This flexible coupling compensate angular misalignment, parallel misalignment and end float. The fully crowned hub teeth provide minimum loading stress, and ensure longer life.

Designation



Characteristic

1. High torque, small size, long life and very little loss of transmitting power.
2. The concave-convex flange design help a easy assembly, and the high quality O-ring prevent leakage of lubricant.
3. Gear Coupling permits parallel, angular and end floating misalignments by its crown gear tooth.



- **Parallel Misalignment**
The driving and driven shafts are parallel to each other, but not on the same straight line.
- **Angular Misalignment**
The driving and driven shafts installed with an limited angle.
- **End Floating**
The driving and driven shafts slide slightly along the gear teeth.
- **Composite Misalignment**
Most of cases, above 3 misalignments appear mixed in an application.

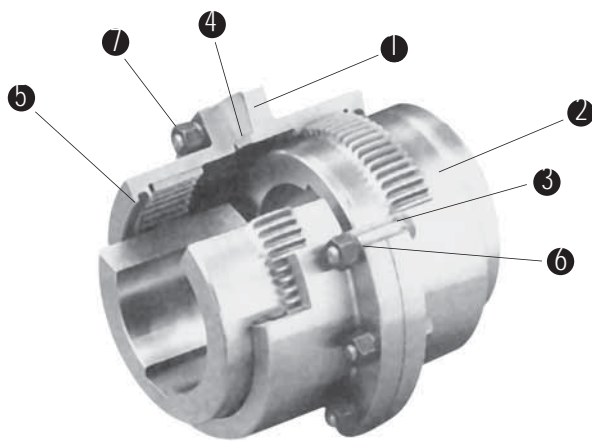
Allowable Misalignment

Size S	10G	15G	20G	25G	30G	35G	40G	45G	50G	55G	60G	70G	80G	90G	100G	110G	120G
ε(mm)	1.2	1.3	1.7	2.1	2.4	2.9	3.2	3.6	4.1	4.5	5.0	5.9	6.7	7.4	8.2	12.7	12.7
θ(a)	3(1.5)	3(1.5)	3(1.5)	3(1.5)	3(1.5)	3(1.5)	3(1.5)	3(1.5)	3(1.5)	3(1.5)	3(1.5)	2(1)	2(1)	2(1)	2(1)	2(1)	2(1)

4. The coupling made of S45C has a good endurance to high speed and peak load consult use for special materials.

5. Customer's special design can be supplied.

Structure



- ① Internal Gear
- ② Crown Gear
- ③ Reamer Bolt
- ④ O-ring
- ⑤ O-ring
- ⑥ Spring Washer
- ⑦ Hex. Nut

The crowned hub tooth provide larger contact area, and lower the stress.

Application

- 1. Heavy load, but compact design coupling required.
- 2. High speed up to 5,000 rpm (Depending on size refer to the data)
- 3. Low speed but high starting torque required.

- 4. End float application.
- 5. Spacer required due to longer distance between shaft ends.
- 6. Low load and light weight application is not recommended.

Standard Material

INTERNAL GEAR	CROWN GEAR	FLANGE	Bolt	O-ring
	SM 45C-N		SM 45-H	NBR

Special materials and or special treatment is required under the unusual application environments such as high speed, high or low temperature, chemical corrosiveness, maximum load stress.
Under the heavy load, high speed and corrosion environment, special materials will be required.

Selection method of size

1. Selection

① Using the following formula, obtain Design Torque required.

$$T_{max} = \frac{P \times 9,550}{n} \times s.f$$

- T_{max} = Design maxtorque (Nm)
- P = Power (kw)
- n = Working revolution (rpm)
- S.f = Recommended Service Factor

② Select the size with the same or with the greater value at the Basic Torque column, refer to the maximum speed allowed to the size selected, and then compare the shaft diameters of

2. Special requirements

① At the application of the Sliding Gear Coupling (type PGH) that endfloat movement occurs more than 5 times per hour, add 0.5 to the listed value of service factor.

② At the applications such as continuous reverse motions, intermittent operation, often peak load and high inertia required system, multiply 1.5 to the Design Torque calculated.

the application with the max. If the coupling bore size is not suitable, select the next larger coupling size.

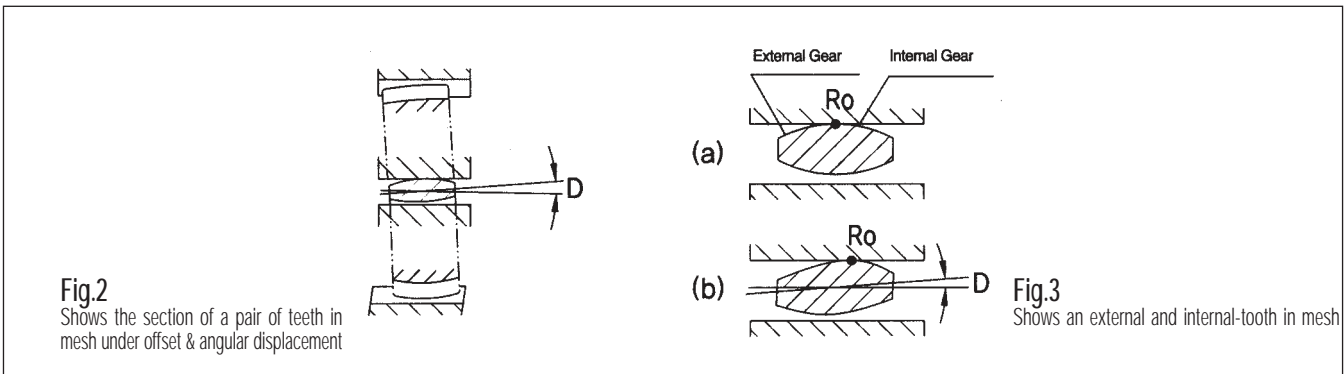
③ In the type PGF-R and PGF-O the thickness and length of intermediate shaft must be determined according to our company's material program. Consult with Technodrive.

④ Selecting the size of types PGDBW and PGSBW, apply brake power if exceeds the prime over power.

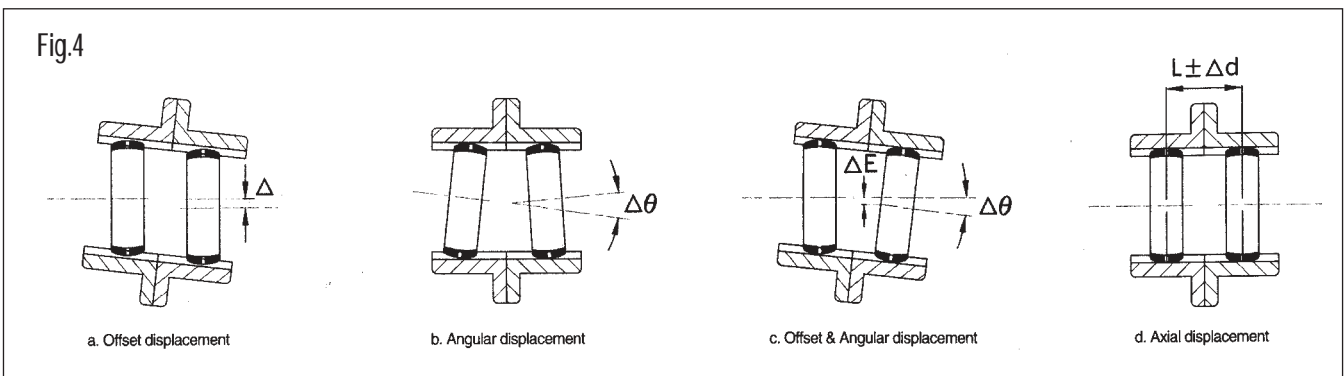
Displacement

In a normal coupling mounted with offset displacement an inclination of ($\tan \phi = \frac{\Delta E}{D}$) at the teeth as shown Fig.2. If it is properly mounted without any displacement the external tooth comes in contact with the mating internal tooth at the middle

of the crowned portion (R_o) as shown in Fig.3 (a), and if it is mounted with offset and angular displacement, the former will come in contact with the letter at a point distant from the middle of the crowned portion as shown in Fig.3 (b).



1. Examples of Displacement



2. Allowable Amounts of Misalignments

The following tables show the allowable amounts of displacement determined by a structural consideration. It is, therefore,

practically recommended that the alignment should be made as accurately as possible according to the service conditions such as the place of application, type of machine, service rpm, etc.

(a) Amount of angular displacement

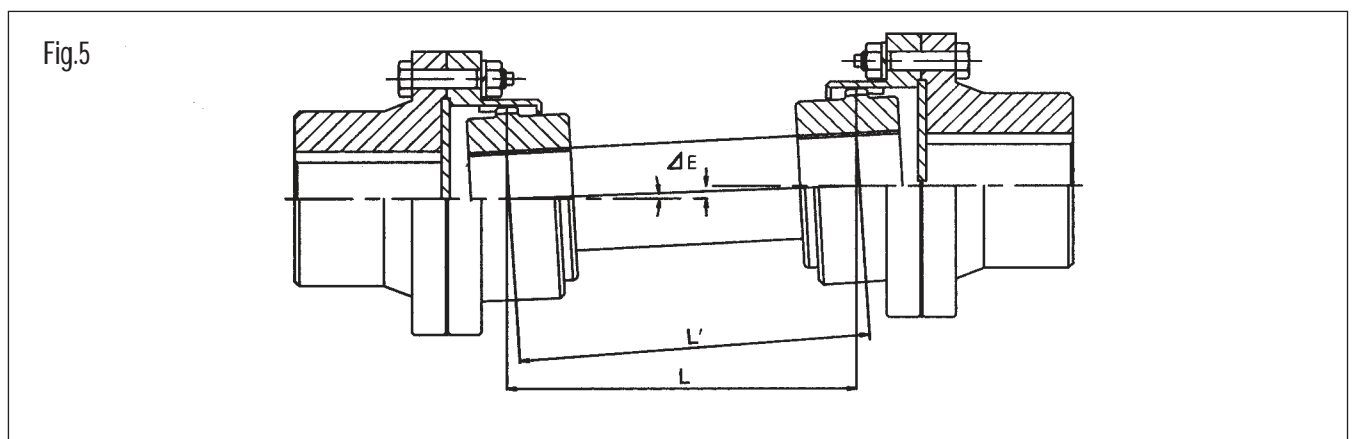
Types	Amount of ($\Delta\theta$)	Types	Amount of ($\Delta\theta$)
GC-SS100~400	3°	GC-SE100~400	1.5°
GC-SS450~800	2°	GC-SE450~800	1°

(b) Amounts of offset displacement (ΔE) and axial displacement (Δd)

size	ΔE	Δd	size	ΔE	Δd	size	ΔE	Δd
100	0.75	-0.5~1.0	280	2.0	-0.5~4.5	800	5.5	-0.5~9.5
112	1.0	-0.5~2.0	315	2.5	-0.5~5.5	900	6.5	-0.5~10.5
125	1.0	-0.5~2.5	355	3.0	-0.5~5.5	1000	7.0	-0.5~12.5
140	1.25	-0.5~2.5	400	3.0	-0.5~6.5	1120	8.0	-0.5~13.0
160	1.25	-0.5~3.0	450	3.0	-0.5~5.0	1250	9.0	-0.5~14.0
180	1.5	-0.5~3.0	500	3.5	-0.5~6.0			
200	1.5	-0.5~3.0	560	4.0	-0.5~6.5			
224	1.5	-0.5~4.0	630	4.5	-0.5~8.0			
250	2.0	-0.5~4.0	710	5.0	-0.5~8.5			

For the GC-SE type should be used with an intermediate shaft as shown in Fig.5.
In the case, the amount of offset displacement can be obtained from the following equations.

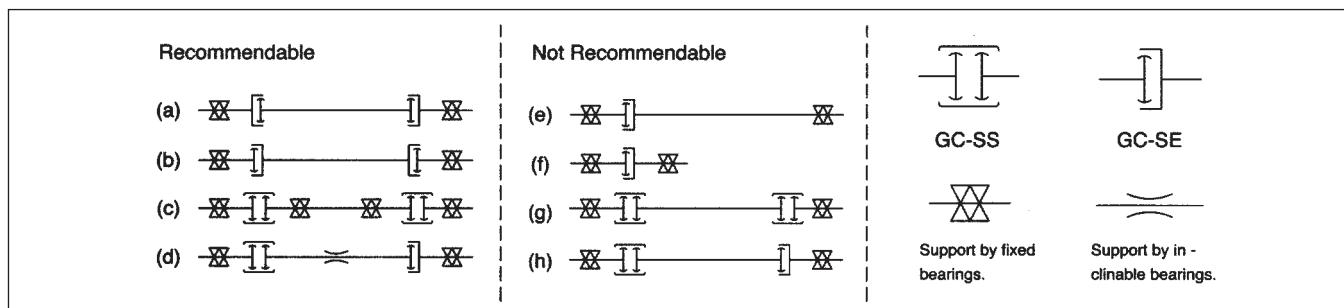
$(\tan \varnothing = \frac{\Delta E}{L})$ or $\Delta E = L \times \tan \varnothing$
Usually talking as $L \approx L'$



SERVICE FACTORS

Driven Machine		Driving Machine 6.5		
		Electric Motor Steam Turbine	Piston Engines	
			4-6 cyl.	1-3 cyl.
Uniform Load	Turbo blowers, Centrifugal fans, Centrifugal pumps, agitators (liquid), Wood working machines	1.3	1.7	2.4
Medium Shock	Rotary piston blowers, Mixers, Wood machines, Belt conveyors, Cranes, Machine tools screw pumps, Chain conveyors	1.4	2.1	2.8
Heavy Shock Load	Piston compressors, Generators, Mills (ball, pebble and rod), Rubber machines, Hammers	1.7	2.6	3.3

Mounting



- 1) In case of GC-SE it will be used like (a) or (b). Case such as (e) must be basically avoided excepting for when shaft are in complete alignment.
- 2) When GC-SS are coupled with an intermediate shaft, the shaft requires fixed support as (C). When they are used as (g) the intermediate shaft moves freely and caused vibration.
- 3) When GC-SS is used with GC-SE and an intermediate shaft an inclining support must be set up.
- 4) If couplings are used as (h). The intermediate shaft is in the inclining state and causes vibration.
- 5) For use in high speed revolution, the allowable max. Rpm of the coupling can be increased by adjusting the alignment and improving the balance of the coupling sleeves.
- 6) For oil supply to the coupling, its keyway should be sealed with any sealing agent to prevent oil leakage therefore, and the oil-leak preventive cover will also be provided, if so ordered.
- 7) The normal ambient temperatures for the couplings are -10 °C to + 80 °C. For temperatures beyond the highest limit, the

- material for the O-ring and the lubricating oil must be selected with special consideration, and for temperatures below the lowest limit, the alterations, of the materials for the coupling hub and sleeve may be required depending upon the conditions besides the same consideration as above. Therefore, consult our factory for the above two cases.
- When mounting a coupling, care must be taken to the following points.
- 8) Chuck the coupling Hub or the rigid on a lath without damaging its boss, and accurately machine the bore after aligning it by use of the periphery and side face of the datum surfaces for coupling alignment.
 - 9) When aligning, use a thickness gauge and dial gauge to measure the values on the datum surfaces for alignment as accurately as possible.
- After ascertaining the inside of the coupling case being free from dust, etc., tighten the reamer bolts for the mating faces evenly with care to avoid the damage to the O-ring.

Instruction for Installation

1. Small Size (up to size 60)

Hub boring and keyway must be machined accurately. During the key-fit to the shaft and the hub. Be careful the oilleakage.

- ① Clean all parts, Grease the crowned gear teeth and O-Ring. Put O-Ring onto the shafts.
- ② Place the flanged sleeves on the shafts, and mount the hubs.
- ③ Using a spacer bar, make a gap between the hubs equal to the normal gap specified in this book.

- ④ Align the shaft with a strait bar by checking every 90 degree, referring to the table 3. Make it sure with a dial gauge not to exceed the offset limit.
- ⑤ Insert O-Ring between the flanged sleeves, and fasten the bolt, positioning the lube holes at 90 °.
- ⑥ Fill grease until overflowing at the open opposite hole.

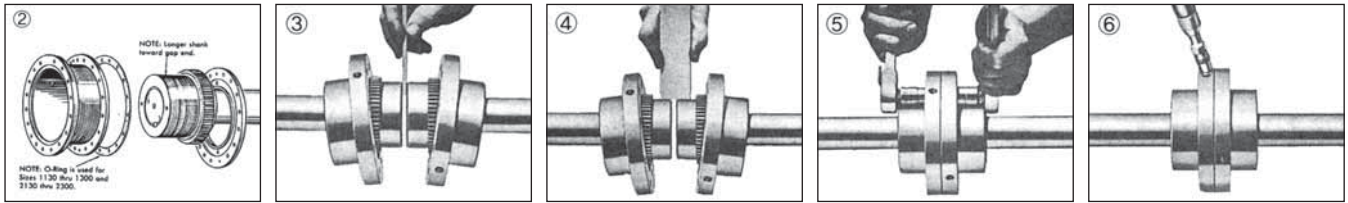


Table 3. Operating Alignment Limits

Size	10	15	20	25	30	35	40	45	50	55	60	70	80	90	100
Angular	0.125	0.125	0.25	0.25	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4
GAP	3	3	3	4.5	4.5	6	6	8	8	8	8	9.5	10	13	13
Flange Bolt Torque	10	31	47	95	95	162	162	162	203	203	203	292			

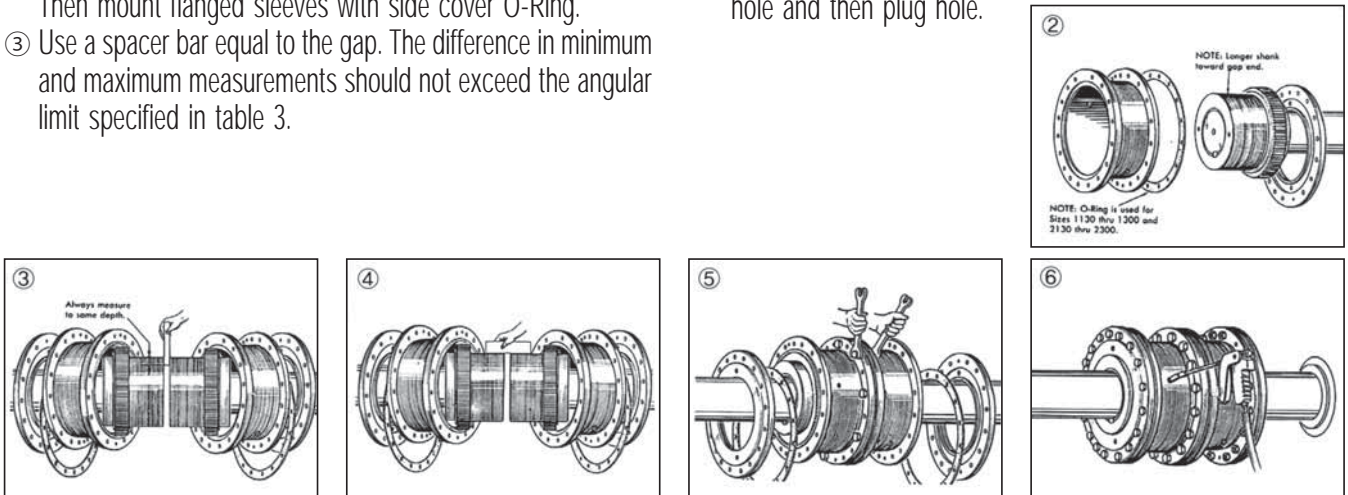
The life coupling is reduced by excess of the OFFSET limit.

2. Large Size (over size 70)

Hub boring and Keyway must be machined accurately. During the Key-Fit work, be careful the oil leakage.

- ① Clean all parts. Pack sleeve teeth with greases and lightly coat seals with grease before assembly.
- ② Place the side covers with sealing O-Ring on th shaft before mounting the hubs.
Mount hubs on their respectative shafts.
Then mount flanged sleeves with side cover O-Ring.
- ③ Use a spacer bar equal to the gap. The difference in minimum and maximum measurements should not exceed the angular limit specified in table 3.

- ④ Align with a straight edge rests squarely at every 90 shown in photo Check with feelers. The tolerance shold not exceed the offset limit specified in Table 3
- ⑤ Insert O-Ring between flanges. Position flanged sleeves with lube holes at about 90 ° and then fasten flanged sleeves. Use only bolts furnished with coupling.
- ⑥ Remove all lube plugs and pump recommended grease into the coupling until and excess flows through an open lube hole and then plug hole.



Selection of Puller Holes

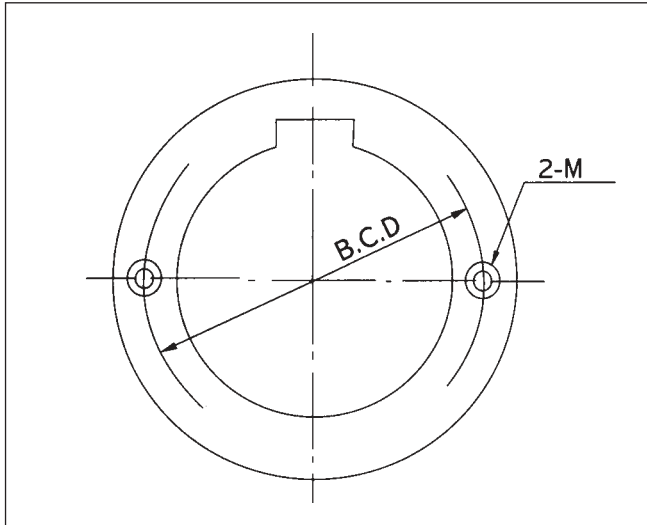


Table 4

Size	B.C.D (mm)	Tap Size
20 PG	89	M 8
25 PG	112	M 10
30 PG	128	M 10
35 PG	152	M 12
40 PG	181	M 16
45 PG	200	M 16
50 PG	216	M 20
55 PG	238	M 20
60 PG	268	M 20
70 PG	305	M 24
80 PG	318	M 24
90 PG	356	M 30
100 PG	394	M 30
110 PG	426	M 30
120 PG	498	M 30

Lubrication and Handling

We introduce the adequate lubricant for good performance and long life.

1. Grease Lubricant

- ① Grease the flanged sleeve teeth and the crown gear teeth, and fill enough offer assembly.
- ② Lube weight refer to "Dimensions"
- ③ Supplement and Replacement. Add grease every month or every 240-250 hours operating.
Replace all the deteriorated grease every 3 months or every 4,000 hours operating.
- ④ Selection
The temperature operating range of grease is from -17 ℃~70 ℃refer to the table 6 that shows the coupling RPM allowed for the listed grease.

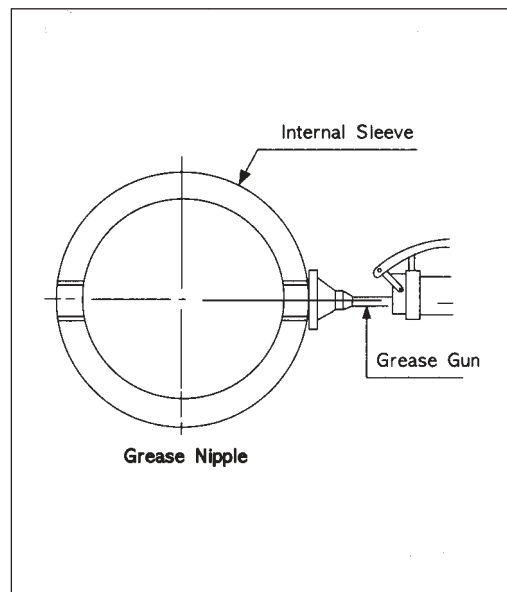


Table 5

Company	Oil	Grease # 1	Grease # 0
Gulf Oil Corp.		Gulf Oil Corp.	Gulfcrown Grease EP # 0
Shell Oil Corp.		Shell Oil Corp.	Alvania Grease EP-RO
Texaco Inc.		Texaco Inc.	Multifak EP-O
Mobil Oil Corp.		Mobil Oil Corp.	Mobilux EP-O

NOTE : Lubricants listed in this manual are typical products and should not be construed as exclusive recommendations.

Gear Coupling Speed

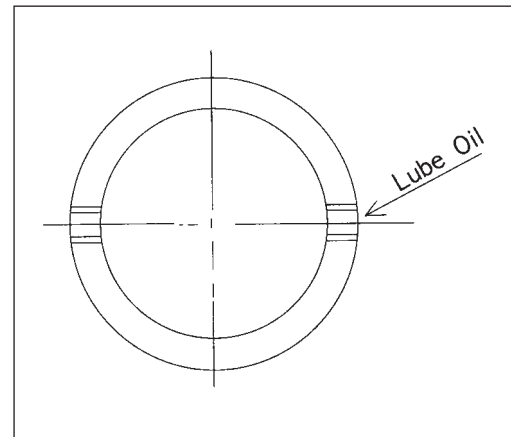
Table 6

Coupling Size		10	15	20	25	30	35	40	45	50	55	60	70	80	90	100
Speed (rpm)	Max.	7,000	6,000	5,000	4,750	4,400	3,900	3,600	3,200	2,900	2,650	2,450	2,150	1,750	1,550	1,450
	Min.	1,030	700	550	460	380	330	290	250	230	210	190	160	140	120	110

Refer to # 0 of table 5 when is below Min.rpm.

2. Oil Lubricant

- ① Packing with oil holes on the internal gear with 2 holes horizontal level. Fill up oil until it overflows from the opposite oil hole.
- ② Supplement and Replacement. Every month, or 240-250 hours operating. Replace completely all the deteriorated oil. every 3 months or every 4,000 hours operating.



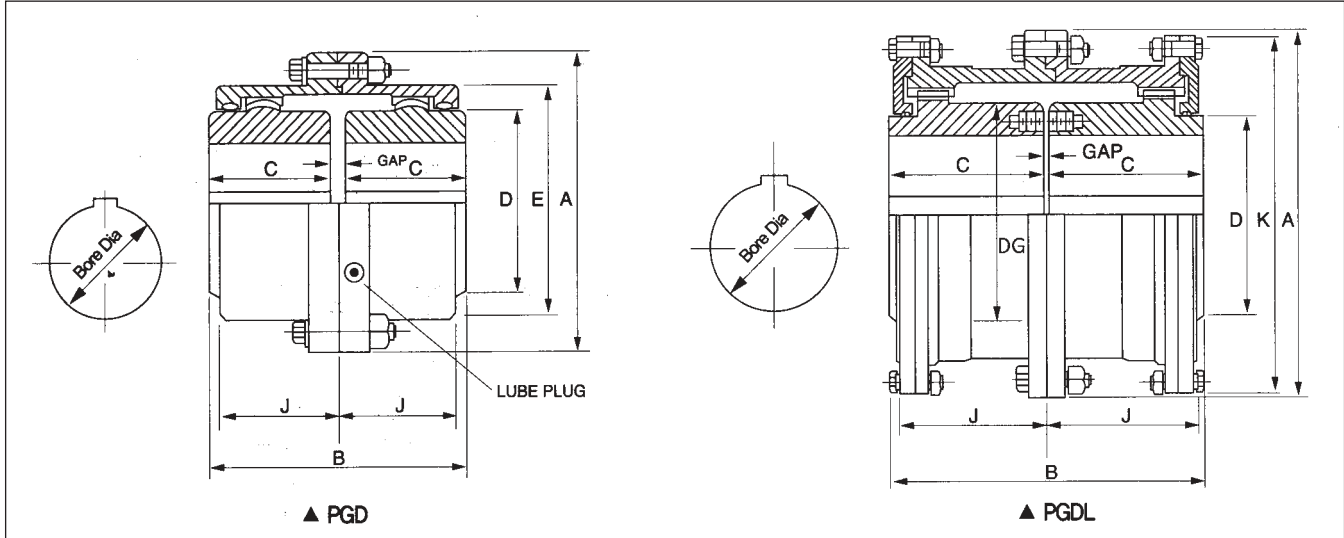
3. Selection of Lubrication

Table 7

		Shell	Mobil			Gulf	Fujikosan Nipponkoju	Houghton			Caltex
cst 40 °C ^M 68	cst 40 °C ^M 315	omala 68	Mobilgear 626	Pio Gear EP 68	Buhmwoo Gearlube BG-68	Gulf EP Lubricant R 68	Hrax ME GO 300	MP Gear Oil 68	Nico Gea SP 68	Daphne CE compound 68C	Meropa Lubricant 68
		100	465	omala 68	Mobilgear 629	Pio Gear EP 68	Buhmwoo Gearlube BG-100	Gulf EP Lubricant R150 HD150	Hrax ME GO 500	MP Gear Oil 100	Nico Gea SP 100
150	700	omala 150	Mobilgear 630	Pio Gear EP 150	Buhmwoo Gearlube BG-150	Gulf EP Lubricant R150 HD150	Hrax ME GO 700	MP Gear Oil 150	Nico Gea SP 150	Daphne CE compound 150S	Meropa Lubricant 150, Synthetic Gear Lube
150	700	omala 220	Mobilgear 632	Pio Gear EP 220	Buhmwoo Gearlube BG-220	Gulf EP Lubricant R220 HD220	Hrax ME GO 1000	MP Gear Oil 220	Nico Gea SP 220	Daphne CE compound 220S	Meropa Lubricant 220
320	1500	omala 320		Pio Gear EP 320	Buhmwoo Gearlube BG-320	Gulf EP Lubricant R30, HD320	Hrax ME GO 1500	MP Gear Oil 320	Nico Gea SP 320	Daphne CE compound 320S	Meropa Lubricant 320

Dimensions

- Type PGD(Double Engagement Coupling), PGDL(Double Engagement Large Coupling)



■ PGD

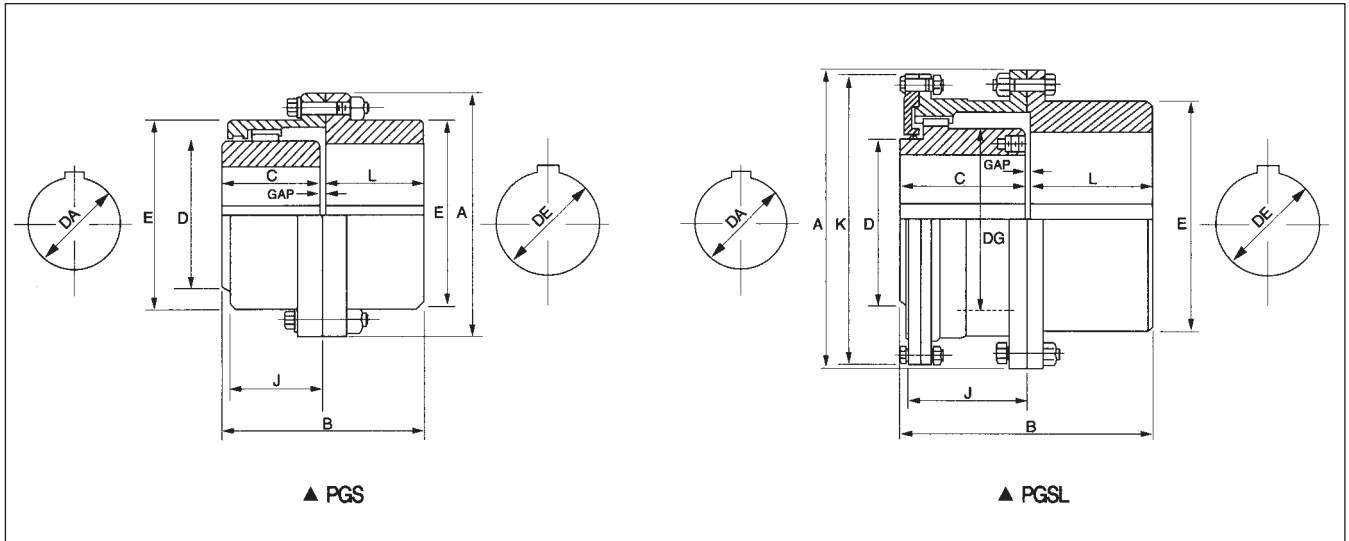
Size	Nominal Torque (Nm)	Max. Speed (rpm)	Max. shock load Torque (Nm)	bore Dia (mm)		Dimensions (mm)						Gap	Cplg wt (kg)	Lube wt (kg)
				Max.	Min.	A	B	C	D	E	J			
10PGD	1,250	8,000	2,500	50	13	116	89	43	69	84	39	3	4.5	0.04
15PGD	2,560	6,500	5,120	65	19	152	101	49	86	105	48	3	9.1	0.07
20PGD	4,870	5,600	9,740	78	32	178	127	62	105	126	59	3	15.9	0.11
25PGD	8,000	5,000	16,000	98	32	213	159	77	131	155	72	5	25.9	0.23
30PGD	13,780	4,400	27,560	110	38	240	187	91	152	180	84	5	43.1	0.36
35PGD	20,500	3,900	41,000	135	51	279	218	106	178	211	98	6	68.0	0.54
40PGD	31,700	3,600	63,400	160	64	318	248	121	210	245	111	6	97.5	0.91
45PGD	43,700	3,200	87,400	183	76	346	278	135	235	274	123	8	136.1	1.04
50PGD	58,950	2,900	117,900	200	89	389	314	153	254	306	141	8	190.5	0.77
55PGD	77,000	2,650	154,000	220	102	425	344	168	279	334	158	8	249.5	2.22
60PGD	92,400	2,450	184,800	244	114	457	384	188	305	366	159	8	306.2	3.18

■ PGDL

Size	Nominal Torque (Nm)	Max. Speed (rpm)	Max. shock load Torque (Nm)	bore Dia (mm)		Dimensions (mm)							Gap	Cplg wt (kg)	Lube wt (kg)	
				Max.	Min.	A	B	C	D	DG	E	J				K
70PGDL	138,000	2,150	276,000	265	89	527	451.5	221	343	343	356	196	517	9.5	485.4	4.35
80PGDL	175,000	1,750	350,000	280	102	591	507.5	249	356	356	368	243	572	9.5	703.1	9.53
90PGDL	230,000	1,550	460,000	290	114	660	565	276	394	394	419	265	641	13	984.3	12.25
100PGDL	318,000	1,450	636,000	320	127	711	623	305	445	445	470	294	699	13	302.0	14.97
110PGDL	417,000	1,330	834,000	373	140	775	679	333	495	495	521	322	749	13	1678.3	17.69
120PGDL	556,000	1,200	1,112,000	400	152	838	719	353	546	546	572	341	826	13	2113.8	20.87

Coupling weight, without Bore machining

■ Type PGD(Single Engagement Coupling), PGDS(Single Engagement Large Coupling)



■ PGD

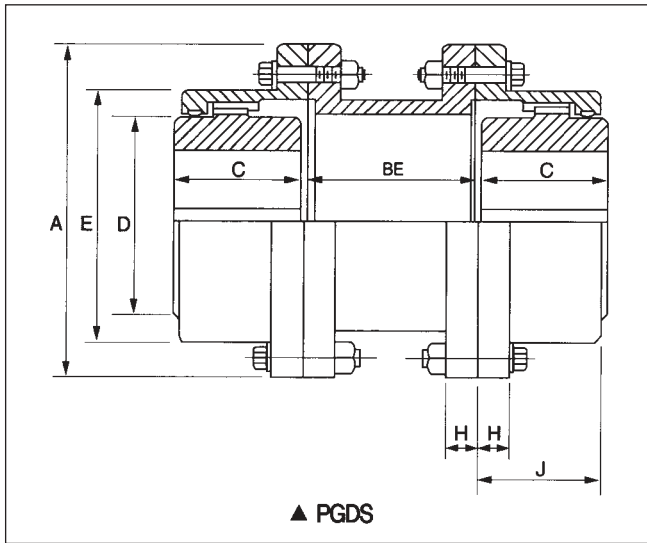
Size	Nominal Torque (Nm)	Max. Speed (rpm)	Max. shock load Torque (Nm)	bore Dia (mm)			Dimensions (mm)								Cplg wt (kg)	Lube wt (kg)
				Max.		Min.	A	B	C	D	E	J	L	Gap		
				DE	DA											
10PGDS	1,250	8,000	2,500	60	50	13	116	84	43	69	84	39	40	4	4.5	0.02
15PGDS	2,560	6,500	5,120	75	65	19	152	99	49	86	105	48	46	4	9.1	0.04
20PGDS	4,870	5,600	9,740	92	78	25	178	124	62	105	126	59	58	4	15.9	0.07
25PGDS	8,000	5,000	16,000	111	98	32	213	156	77	131	155	74	74	5	27.2	0.12
30PGDS	13,780	4,400	27,560	130	110	38	240	184	91	152	180	84	88	5	43.1	0.18
35PGDS	20,500	3,900	41,000	149	135	51	279	213.5	106	178	211	95	102	5.5	61.2	0.27
40PGDS	31,700	3,600	63,400	171	160	64	318	243	121	210	245	111	115	7	99.8	0.74
45PGDS	43,700	3,200	87,400	194	183	76	346	274	135	235	274	123	131	8	136.1	0.57
50PGDS	58,950	2,900	117,900	222	200	89	389	309	153	254	306	141	147	9	195.0	0.91
55PGDS	77,000	2,650	154,000	248	220	102	425	350	168	279	334	158	173	9	263.1	1.13
60PGDS	92,400	2,450	184,800	267	244	114	457	384	188	305	366	169	186	10	324.3	1.70

■ PGSL

Size	Nominal Torque (Nm)	Max. Speed (rpm)	Max. shock load Torque (Nm)	bore Dia (mm)			Dimensions (mm)									Cplg wt (kg)	Lube wt (kg)	
				Max.		Min.	A	B	C	D	DG	E	J	L	K			Gap
				DE	DA													
70PGDL	138,000	2,150	276,000	305	265	89	527	454	221	343	356	425	196	220	517	13	508.0	2.27
80PGDL	175,000	1,750	350,000	343	280	102	597	511	249	356	368	451	243	249	572	13	698.5	4.99
90PGDL	230,000	1,550	460,000	381	290	114	660	566	276	394	419	508	265	276	641	14	984.5	6.35
100PGDL	318,000	1,450	636,000	406	320	127	711	626	305	455	470	530	294	305	699	16	1,251.9	7.71
110PGDL	417,000	1,330	834,000	445	373	140	775	682	333	495	521	584	322	333	749	16	1,637.5	9.07
120PGDL	556,000	1,200	1,112,000	495	400	152	838	722	353	546	572	648	341	353	826	16	2,077.5	10.89

Coupling weight, without Bore machining

■ Type PGDS(Spacer Coupling Double Engagement)

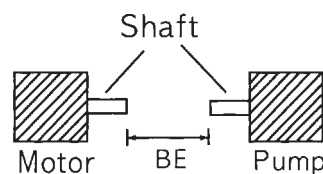


Size	Nominal Torque (Nm)	Max. Speed (rpm)	Max. shock load Torque (Nm)	bore Dia (mm)		Dimensions (mm)								Cplg wt (kg)	Lube wt (kg)
				Max.	Min.	A	BE		C	D	E	H	J		
							Min.	Max.							
10PGDS	1,250	2,500	2,500	50	13	116	083	311	43	69	84	14	39	6.8	0.04
15PGDS	2,560	5,120	5,120	65	19	152	83	311	49	86	105	19	48	13.6	0.07
20PGDS	4,870	9,740	9,740	78	25	178	83	311	62	105	126	19	59	20.4	0.11
25PGDS	8,000	17,500	16,000	98	32	213	95	311	77	131	155	22	72	38.6	0.23
30PGDS	13,780	27,560	27,560	110	38	240	95	311	91	152	180	22	84	54.4	0.36
35PGDS	20,500	41,000	41,000	135	51	279	120	311	106	178	211	28	98	88.5	0.54
40PGDS	31,700	63,400	63,400	160	64	318	120	311	121	210	245	28	111	122.5	0.91
45PGDS	43,700	87,400	87,400	183	76	346	120	311	135	235	274	28	123	165.6	1.04
50PGDS	58,950	117,900	117,900	200	89	389	146	311	153	254	306	38	141	238.1	1.77
55PGDS	77,000	154,000	154,000	224	102	425	146	311	168	279	334	38	158	306.2	2.22
60PGDS	92,400	184,800	184,800	244	114	457	146	311	188	305	366	25	169	358.3	3.18

Coupling weight, without Bore machining

Application of spacer

- ① When it is impossible to connect hubs due to long distance between shaft ends.
 - ② When it is necessary to prevent transmitting heat and electric currency.
- BE' is the distance between shaft ends.
State 'BE' number when you order.

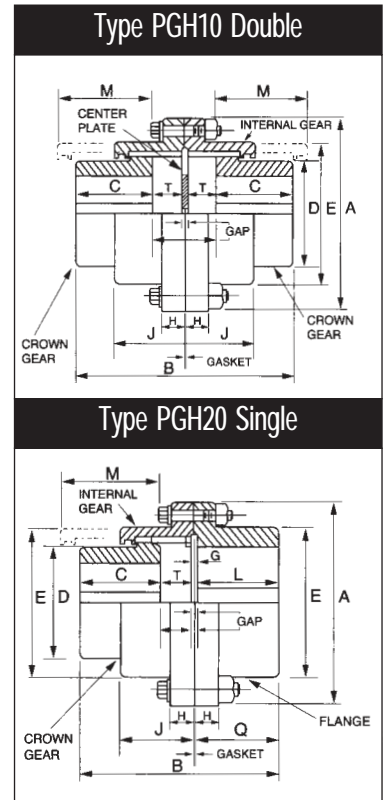


■ Type PGH (Gear Horizontal Sliding)

■ PGSL

Size	GHD (Double Engagement)							GHS (Single Engagement)						
	B. Max.	T Max.		Gap		Cplg wt (kg)	Lube wt (kg)	B Max.	T Max.	Gap		Cplg wt (kg)	Lube wt (kg)	
		Half	Total	Max.	Min.					Min.	Max.			
10PGH	126	16	32	40	8	4.5	0.02	106	19	23	4	4.5	0.01	
15PGH	152	23	46	54	8	9.1	0.04	124	25	29	4	9.1	0.02	
20PGH	186	27	54	62	8	15.9	0.06	153	29	33	4	15.9	0.04	
25PGH	231	34	68	77	9	29.5	0.11	192	36	41	5	29.5	0.06	
30PGH	263	36	72	81	9	40.8	0.18	222	38	43	5	43.1	0.11	
35PGH	313	45	90	101	11	68.0	0.27	262	48	54	6	68.0	0.18	
40PGH	364	54	108	122	14	99.8	0.45	300	57	64	7	99.8	0.27	
45PGH	406	60	120	136	16	136.1	0.51	338	64	72	8	136.1	0.34	
50PGH	460	68	136	154	18	192.8	0.91	382	73	82	9	195.0	0.54	
55PGH	510	78	156	174	18	254.0	1.13	433	83	91	9	263.1	0.73	
60PGH	563	83	166	187	21	317.5	1.19	473	89	99	10	324.3	0.96	
70PGH	669	99	198	224	26	499.0	2.18	561	107	120	13	510.3	1.36	

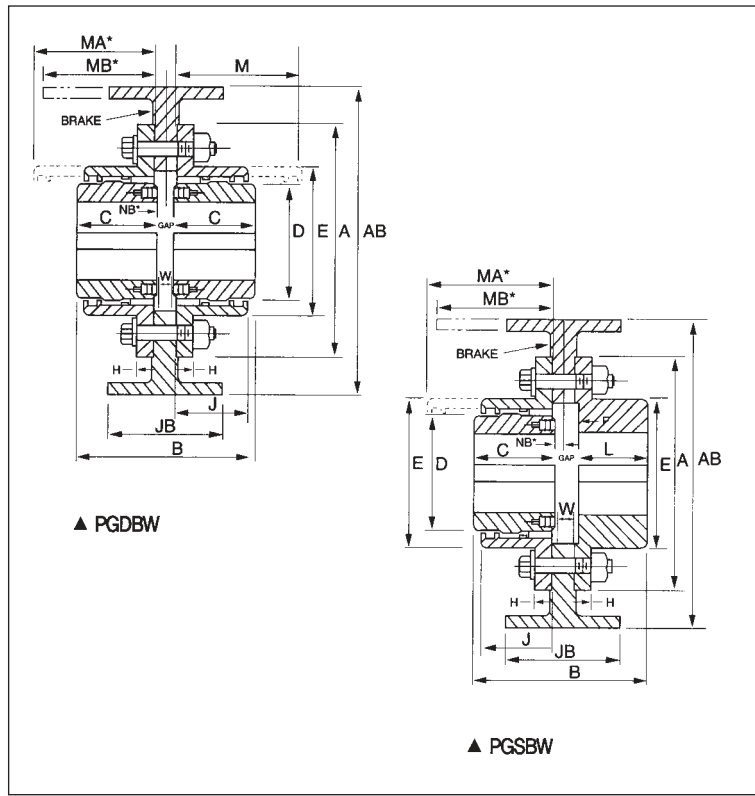
Coupling weight, without Bore machining



Size	Nominal Torque (Nm)	Max. Speed (rpm)	Max. shock load Torque (Nm)	Bore Dia (mm)			Dimensions (mm)									
				Max.		Min.	A	C	D	G	E	H	J	L	Q	M
				Gear	Flange											
10PGH	1,250	5,300	2,500	50	60	13	116	43	69	2.5	84	14	39	40	42	53
15PGH	2,560	4,300	5,120	65	75	19	152	49	86	2.5	105	19	48	46	49	69
20PGH	4,870	3,700	9,740	78	92	25	178	62	105	2.5	126	19	59	58	61	84
25PGH	8,000	3,300	16,000	98	111	32	213	77	131	2.5	155	22	72	74	76	102
30PGH	13,780	2,900	27,560	110	130	38	240	91	152	2.5	180	22	84	88	90	118
35PGH	20,500	2,600	41,000	135	149	51	279	106	178	2.5	211	28	98	102	105	135
40PGH	31,700	2,400	63,400	160	171	64	318	121	210	4	245	28	111	115	119	155
45PGH	43,700	2,100	87,400	183	194	76	346	135	235	4	274	28	123	131	135	163
50PGH	58,950	1,900	117,900	200	222	89	389	153	254	5	306	38	141	147	152	189
55PGH	77,000	1,800	154,000	224	248	102	425	168	279	5	334	38	158	173	178	221
60PGH	92,400	1,600	184,800	244	267	114	457	188	305	6.6	366	25	169	186	193	227

'M' is variable according to the sliding distance

- Type PGDBW(Brake Wheel Double Engagement), PGSBW(Brake Wheel Single Engagement)



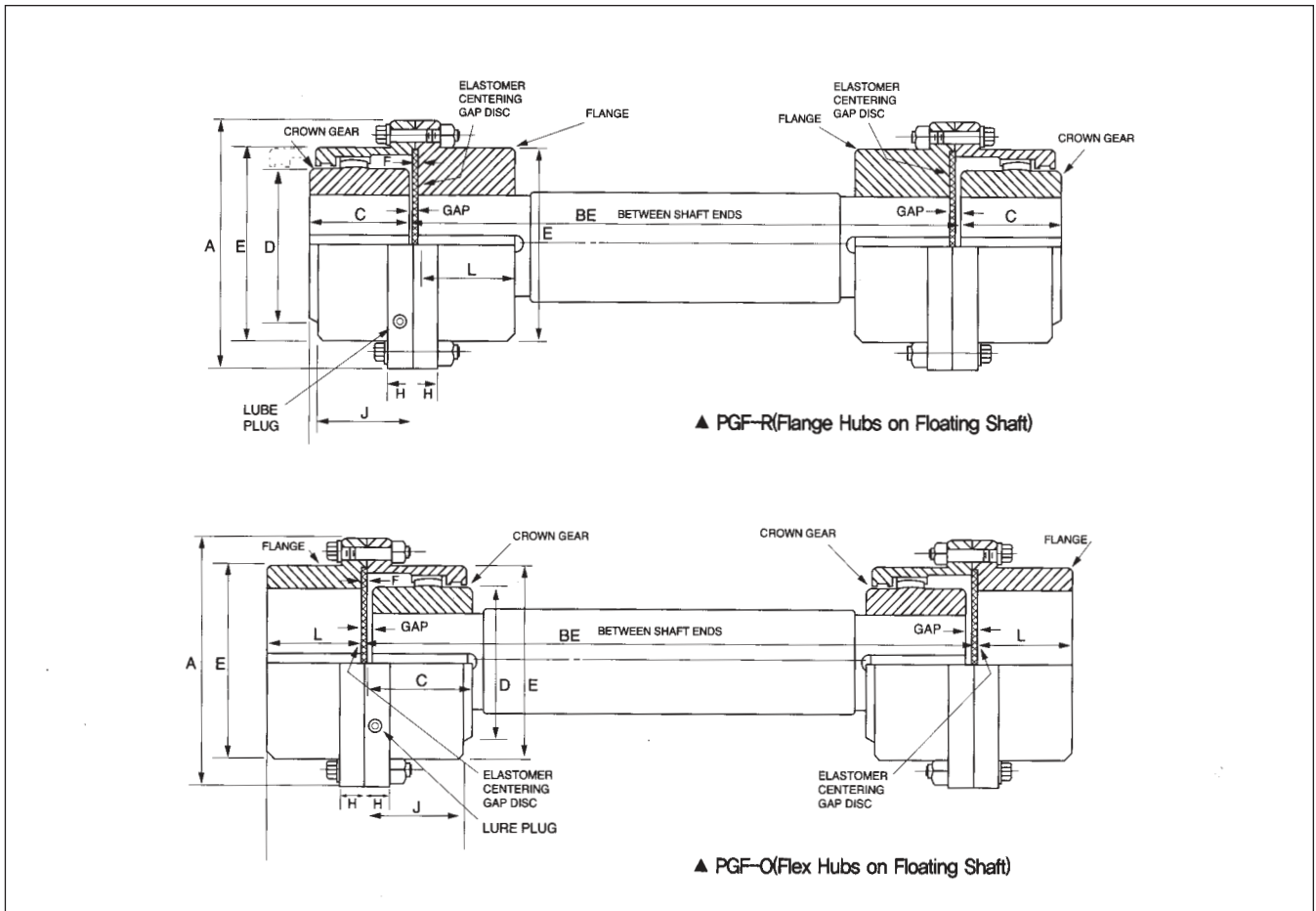
Cplg Size	Standard Brake Wheel					
	Motor Power (40% ED KW)			Brake Torque (Nm.)		
10PG	2.2	3.7	5	6.7		
15PG	5.5	7.5	11	10	14	21.2
20PG	15			30		
25PG	22			40		
30PG	30			53		
35PG	37	45	63	80		
40PG	55			132		
45PG	75	90	180			
50PG	110	132	335			
55PG	160	200	400	475		
60PG	250	300	900			
70PG	350	400	1,500			

Motor Crane
Based on Crane motor

Size	Brakewheel Size (mm)		Max.Brake Rating of Cplg (Nm.)	Bore Dia (mm)			Dimensions (mm)														Lube wt (kg)	
	AB	JB		Max.	Min.	A	B		C	D	E	F	H	J	L	M	W	GAP		GD	GS	
							Gear	Flange										GD	GS			GD
10PG	160	80	255	50	60	13	116	99	97	43	69	2.5	84	14	39	40	51	10	13	14	0.04	0.03
15PG	200	100	570	65	75	19	152	114	112	49	86	2.5	105	19	48	46	61	13	16	17	0.09	0.05
20PG	250	125	1,052	78	92	25	178	140	137	62	105	2.5	126	19	59	58	76	13	16	17	0.14	0.09
25PG	250	125	1,899	98	111	32	213	173	170	77	131	2.5	155	22	72	74	91	14	19	19	0.27	0.16
30PG	315	160	3,200	110	130	38	240	201	198	91	152	2.5	180	22	84	88	107	14	19	19	0.41	0.23
35PG	355	180	4,815	135	149	51	279	237	233	106	178	2.5	211	28	98	102	130	19	25	25	0.57	0.34
40PG	400	200	7,325	160	171	64	318	267	262	121	210	4	245	28	111	115	145	19	25	26	0.91	0.54
45PG	450	224	10,037	183	194	76	346	297	293	135	235	4	274	28	123	131	165	19	27	27	1.13	0.64
50PG	500	250	13,563	200	222	89	389	339	334	153	254	5	306	38	141	147	183	25	33	34	1.87	1.13
55PG	560	280	17,802	224	248	102	425	369	375	168	279	5	334	38	158	173	203	25	33	34	2.32	1.36
60PG	762	362	23,057	244	267	114	457	409	410	188	305	6.6	366	25	169	176	229	25	33	36	3.40	1.93
70PG	762	362	33,500	265	305	127	527	477	479	221	356	8	425	28	196	220	267	25	33	38	4.45	2.61

Coupling weight, without Bore machining

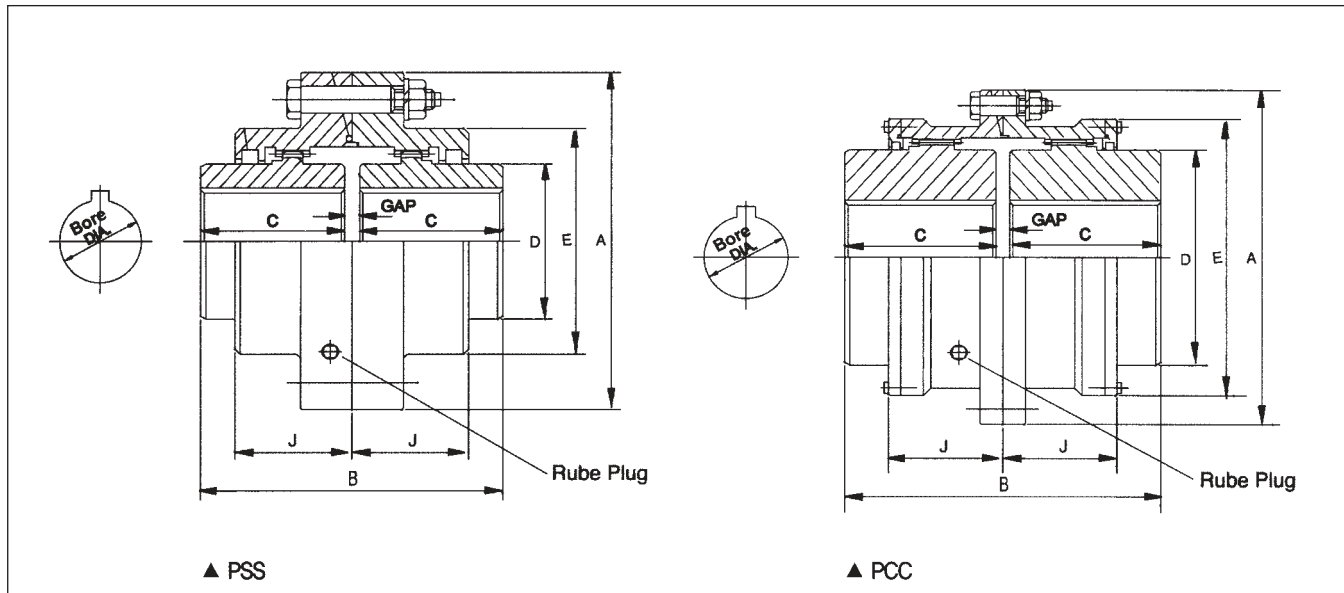
■ Type PGF(Single Engagement Coupling with Floating Shafts)



Size	Nominal Torque (Nm)	Max. Speed (rpm)	Max. shock load Torque (Nm)	bore Dia (mm)			Dimensions (mm)											Cplg wt (kg)	Lube wt (kg)	
				Max. Gear	Min. Flange	Min.	A	BE Min.		C	D	F	E	H	J	L	Q			GAP
								GF-R	GF-O											
10PGF	1,250	8,000	2,500	50	60	13	116	92	133	43	69	2.5	84	14	39	40	42	4.0	4.5	0.02
15PGF	2,560	6,500	5,120	65	75	19	152	105	159	49	86	2.5	105	19	48	46	49	4.0	9.1	0.04
20PGF	4,870	5,600	9,740	78	92	25	178	129	197	62	105	2.5	126	19	59	58	61	4.0	15.9	0.07
25PGF	8,750	5,000	17,500	98	111	32	213	162	241	77	131	2.5	155	22	72	74	76	5	27.2	0.12
30PGF	13,780	4,400	27,560	110	130	38	240	189	279	91	152	2.5	180	22	84	88	90	5	43.1	0.18
35PGF	20,500	3,900	41,000	135	149	51	279	219	324	106	178	2.5	211	28	98	102	105	5.5	68.0	0.27
40PGF	31,700	3,600	63,400	160	171	64	318	248	419	121	210	4.1	245	28	111	115	119	7	99.8	0.47
45PGF	43,700	3,200	87,400	183	194	76	346	281	508	135	235	4.1	274	28	123	131	135	8	136.1	0.57
50PGF	58,950	2,900	117,900	200	222	89	389	316	533	153	254	5.1	306	38	141	147	152	9	195.0	0.91
55PGF	77,000	2,650	154,000	224	248	102	425	367	572	168	279	5.1	334	38	158	173	178	9	263.1	1.13
60PGF	92,400	2,450	184,800	244	267	114	457	397	597	188	305	6.6	366	25	169	186	193	10	324.3	1.70

Coupling weight, without Bore machining

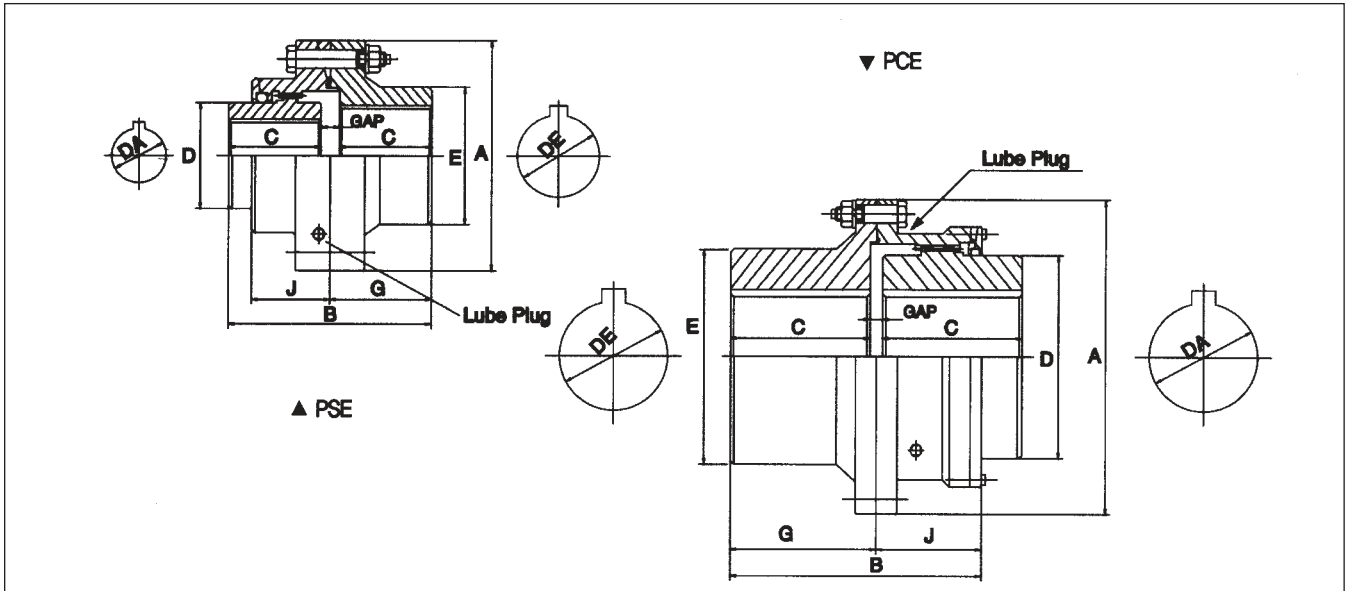
■ Type PSS(Gear Double), PCC(Gear Double Large)



Size	Max. Speed (rpm)	Basic Torque (Nm)	Bore Dia (mm)		Dimensions (mm)						Gap	Cplg wt (kg)	Lube wt (kg)
			Max.	Min.	A	B	C	D	E	J			
PSS112	4,000	860	40	16	112	98	45	58	79	40	8	4.6	0.04
PSS125	4,000	1,524	50	31	125	108	50	70	92	43	8	6.7	0.05
PSS140	4,000	2,194	56	31	140	134	63	80	107	47	8	9.3	0.07
PSS160	4,000	3,358	65	31	160	170	80	95	120	52	10	14	0.09
PSS180	4,000	5,157	75	45	180	190	90	105	134	56	10	19	0.12
PSS200	3,810	8,300	85	45	200	210	100	120	149	61	10	26	0.15
PSS224	3,410	11,300	100	51	224	236	112	145	174	65	12	38	0.25
PSS250	3,050	16,000	115	51	250	262	125	165	200	74	12	56	0.35
PSS280	2,720	24,990	140	51	280	294	140	190	224	82	14	83	0.48
PSS315	2,420	39,390	165	112	315	334	160	225	260	98	14	135	0.77
PSS355	2,150	59,310	185	125	355	376	180	250	288	108	16	184	0.94
PSS400	1,900	83,325	215	140	400	416	200	285	329	114	16	261	1.36
PCC450	1,690	112,800	220	140	450	418	200	290	372	151	18	304	1.79
PCC500	1,520	177,450	255	170	500	470	224	335	425	168	22	453	2.64
PCC560	1,360	254,550	290	190	560	522	250	385	475	187	22	664	3.23
PCC630	1,210	397,500	340	224	630	588	280	455	548	213	28	1,020	4.93
PCC710	1,070	570,000	380	250	710	658	315	510	622	242	28	1,460	6.63
PCC800	950	816,450	420	280	800	738	355	570	690	267	32	2,090	9.35
PCC900	840	1,230,000	515	315	900	832	400	670	792	295	32	3,030	12.63
PCC1000	760	1,695,000	560	355	1,000	932	450	720	858	322	32	4,120	13.75
PCC1120	682	2,475,000	670	400	1,120	1,040	500	840	990	360	40	5,920	15.45
PCC1250	610	3,180,000	750	500	1,250	1,160	560	960	1,126	399	40	9,410	18.25

Coupling weight, without Bore machining

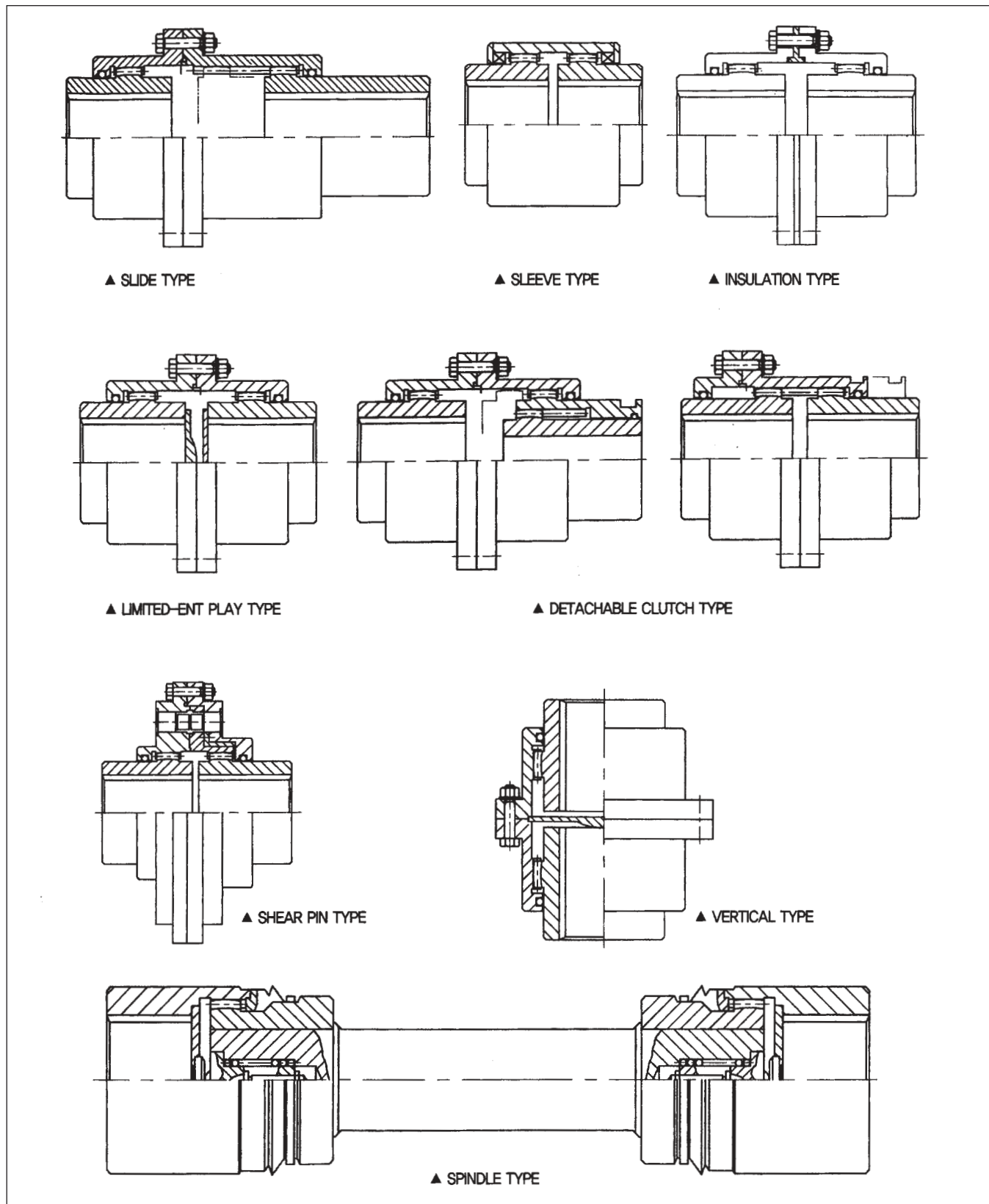
■ Type PSE (Gear Single), PCE (Gear Single Large)



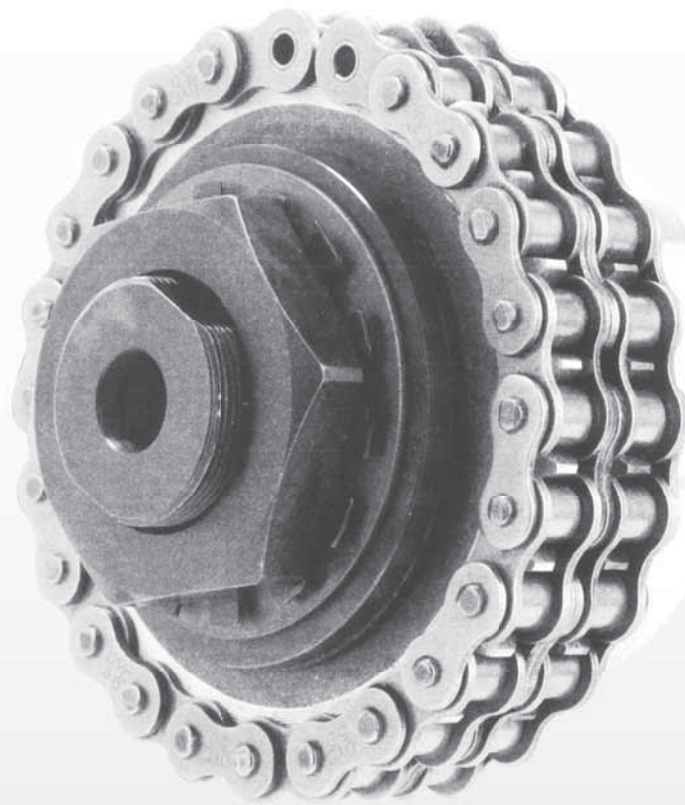
Size	Max. Speed (rpm)	Basic Torque (Nm)	Bore Dia (mm)			Dimensions (mm)								Cplg wt (kg)	Lube wt (kg)
			Max.		Max.	A	B	C	D	E	G	J	Gap		
			DA	DE											
PSE112	4,000	860	40	50	16	112	98	45	58	79	49	40	8	4.6	0.04
PSE125	4,000	1,524	50	56	31	125	108	50	70	92	54	43	8	6.7	0.05
PSE140	4,000	2,194	56	63	31	140	134	63	80	107	67	47	8	9.3	0.07
PSE160	4,000	3,358	65	75	31	160	170	80	95	120	85	52	10	14	0.09
PSE180	4,000	5,157	75	80	45	180	190	90	105	134	95	56	10	19	0.12
PSE200	3,810	8,300	85	95	45	200	210	100	120	149	105	61	10	26	0.15
PSE224	3,410	11,300	100	110	51	224	236	112	145	174	118	65	12	38	0.25
PSE250	3,050	16,000	115	135	51	250	262	125	165	220	131	74	12	56	0.35
PSE280	2,720	24,990	140	160	51	280	294	140	190	224	147	82	14	83	0.48
PSE315	2,420	39,390	165	190	112	315	334	160	225	260	167	98	14	135	0.77
PSE355	2,150	59,310	185	200	125	355	376	180	250	288	188	108	16	184	0.94
PSE400	1,900	83,325	215	240	140	400	416	200	285	329	208	114	16	261	1.36
PCE450	1,690	112,800	220	250	140	450	418	200	290	372	209	151	18	304	1.79
PCE500	1,520	177,450	255	280	170	500	470	224	335	425	235	168	22	453	2.64
PCE560	1,360	254,550	290	310	190	560	522	250	385	475	261	187	22	664	3.23
PCE630	1,210	397,500	340	380	224	630	588	280	455	548	294	213	28	1,020	4.93
PCE710	1,070	570,000	380	410	250	710	658	315	510	622	329	242	28	1,460	6.63
PCE800	950	816,450	420	450	280	800	783	355	570	690	369	267	28	2,090	9.35
PCE900	840	1,230,000	515	550	315	900	832	400	670	792	416	295	32	3,030	12.63
PCE1000	760	1,695,000	560	600	355	1,000	932	452	720	858	466	322	32	4,130	13.75
PCE1120	682	2,475,000	670	700	400	1,120	1,040	500	840	990	520	360	40	5,940	15.45
PCE1250	610	3,180,000	750	850	500	1,250	1,160	560	960	1,126	580	399	40	9,820	18.25

Coupling weight, without Bore machining

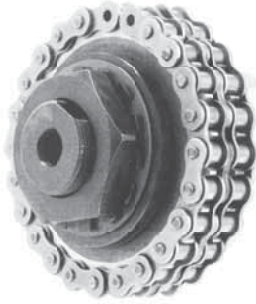
■ Special Type Gear coupling request.



TECHNO**FLEX**



TORQUE LIMITERS



Characteristic

- They can easily be adjusted to slip at a desired overload, automatically re-engaged when overload is removed.
- Overload should be removed promptly since prolonged slippage can be detrimental to the friction disc.
- No resetting generally is required after the Torque Limiter has slipped. Torque Limiters prevent machine damage, product damage and costly down time caused by shock loads, overloads or machine jams.
- They should be used as clutches or to prevent personal injury.
- Torque Limiters are primarily for use with sprockets, gears and pulleys.

Selection

When the torque at which the device should slip is determined, simply choose a Torque Limiter from Table, which has a maximum torque rating as great as or greater than the required torque. Check to see if required bore is available. It is good practice to select the Torque Limiter with a maximum torque rating reasonably greater than the required torque if possible.

Torque Limiters should not be used on High Speed Drivers.

Torque Limiter Adjustment

Adjustment of Torque Limiters is simple and positive.

Only an open end wrench and a socket head set screw wrench are needed.

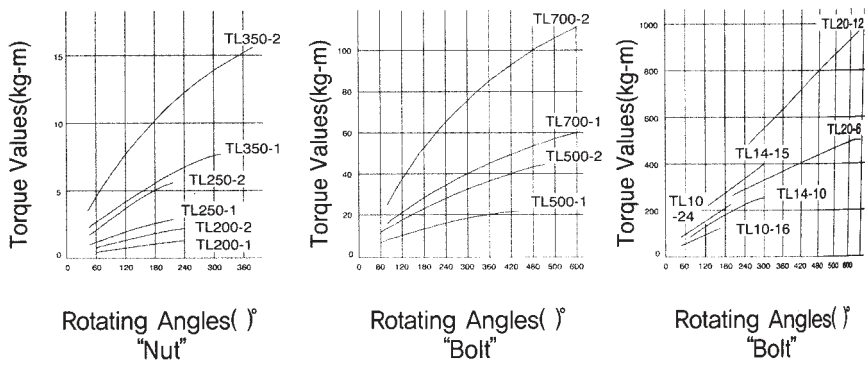
: Back-off the three cap screws until the points are recessed in the threaded adjusting collar.

: Tighten the threaded adjusting collar by hand and then tighten the cap screws with an open end wrench until the heads bottom.

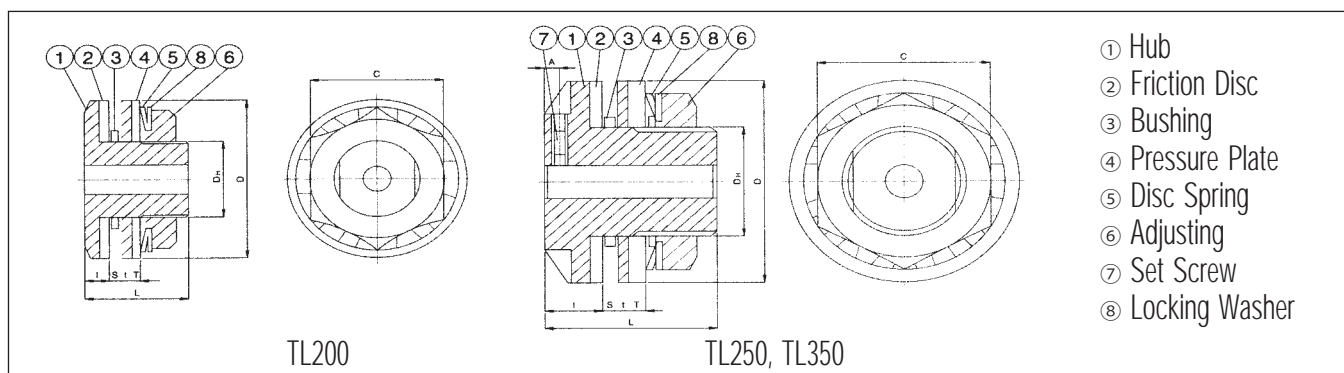
: Try the unit in its application and if further adjustments are necessary, loosen cap screws until points are recessed in the adjusting collar. Torque can also be checked by applying tension to one strand of chain with a spring scale or other means.

: Tighten or loosen the adjusting collar as needed, then retighten the cap screws until the heads bottom.

Torque Values Rotating Angles



Structure and Dimensions



SIZE	Basic torque (kgf.cm)	Finished Bore (H10)	Max. Bore Dia	Bushing		Driver Member Bore	Dimensions (mm)											Weight (kgf)
				Width	Out Dia		D	DH	L	I	T	t	S (Max)	A	C	⑥	⑦	
TL-200-1	0.3~1	8	14	3.8	30 ^{-0.024} _{-0.049}	30 ^{+0.03} ₀	50	24	29	6.5	2.6	2.5	7	-	38	M24 x1.0	-	0.2
TL-200-2	0.7~2			6.0	50		24	29	6.5	2.6	2.5	7	-	38	M24 x1.0	-	0.2	
TL-250-1	0.7~2.8	10	22	4.5	41 ^{-0.010} _{-0.045}	41 ^{+0.05} ₀	65	35	48	16	4.5	3.2	9	4	50	M35 x1.5	M5	0.5
TL-250-2	1.4~5.5			6.5	65		35	48	16	4.5	3.2	9	4	50	M35 x1.5	M5	0.5	
TL-300-1	2.0~7.6	17	25	4.5	49 ^{-0.025} _{-0.065}	49 ^{+0.05} ₀	89	42	62	19	4.5	3.2	16	6	63	M42 x1.5	M5	1.2
TL-350-2	3.5~15.2			9.5	89		42	62	19	4.5	3.2	16	6	63	M42 x1.5	M5	1.2	

MIDDLE SIZE TORQUE LIMITER

- ① Hub
- ② Friction Disc
- ③ Bushing
- ④ Pressure Plate
- ⑤ Disc Spring
- ⑥ Adjusting
- ⑦ Set Screw
- ⑧ Locking Washer

SIZE	Basic torque (kgf.cm)	Finished Bore (H10)	Max. Bore Dia	Bushing		Driver Member Bore	Dimensions (mm)											Weight (kgf)
				Width	Out Dia		D	DH	L	I	T	t	S (Max)	A	⑦	⑧	⑨	
TL-500-1	4.8~21.4	20	42	6.5	74 ^{-0.05} _{-0.10}	74 ^{+0.05} ₀	127	65	76	22	5.7	3.2	16	7	M65 x1.5	M8 x1.5	M8	3.0
TL-500-2	9~42.9			9.5	127		65	76	22	5.7	3.2	16	7	M65 x1.5	M8 x1.5	M8	3.0	
TL-700-1	11.8~58.1	30	64	9.5	100 ^{-0.010} _{-0.045}	41 ^{+0.05} ₀	178	95	98	24	7.7	3.2	29	8	M95 x1.5	M35 x1.5	M10	6.7
TL-700-2	22.8~110.6			12.5	178		95	98	24	7.7	3.2	29	8	M95 x1.5	M35 x1.5	M10	6.7	

LARGE SIZE TORQUE LIMITER

- ① Hub
- ② Friction Disc
- ③ Bushing
- ④ Pressure Plate
- ⑤ Pressure Plate
- ⑥ Disc Spring
- ⑦ Spring Plate
- ⑧ Pilot Plate
- ⑨ Adjusting Bolt
- ⑩ Snap Ring
- ⑪ Snap Lock
- ⑫ Spring Pin

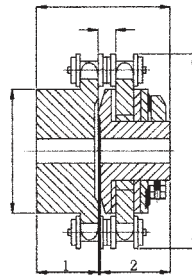
SIZE	Basic torque (kgf.cm)	Finished Bore (H10)	Max. Bore Dia	Bushing		Driver Member Bore	Dimensions (mm)											Weight (kgf)
				Width	Out Dia		D	DH	L	I	T	T1	T2	t	S (Max)	C	⑨	
TL-10-16	40~130	30	72	12.5	135 ^{-0.085} _{-0.125}	135 ^{+0.07} ₀	254	100	115	23	15	15	-	4.0	24	19	M24 x1.0	0.2
TL-10-24	60~190			15.5	254		100	115	23	15	15	-	4.0	24	19	M24 x1.0	0.2	
TL-14-10	90~272	40	100	15.5	183 ^{-0.07} _{-0.12}	183 ^{+0.07} ₀	356	145	150	31	13	13	13	4.0	29	27	M35 x1.5	0.5
TL-14-15	200~400			19.5	356		145	150	31	13	13	13	4.0	29	27	M35 x1.5	0.5	
TL-20-6	250~500	50	130	15.5	226 ^{-0.07} _{-0.12}	266 ^{+0.07} ₀	508	185	175	36	15	15	18	4.0	31	36	M42 x1.5	1.2
TL-20-12	470~950			19.5	508		185	175	36	15	15	18	4.0	31	36	M42 x1.5	1.2	

■ TORQUE LIMITER COUPLING

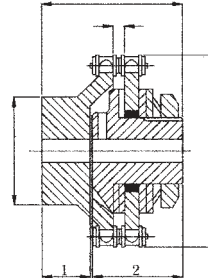
Dimension Torque Limiter Couplings

Torque Limiter Coupling is a flexible Coupling which consists of a torque limiter and a special type steel sprocket connected with a steel double roller chain.

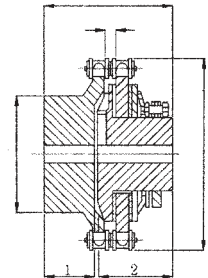
Easily centering and simply installation.



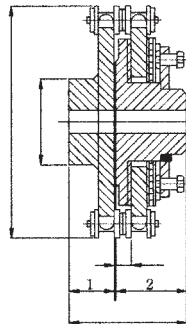
TL200-C



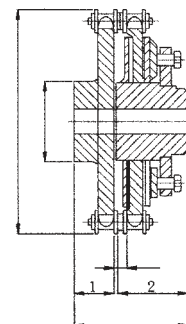
TL250-C, TL350-C



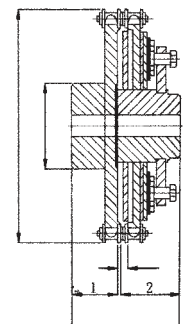
TL500-C, TL700-C



TL10-C



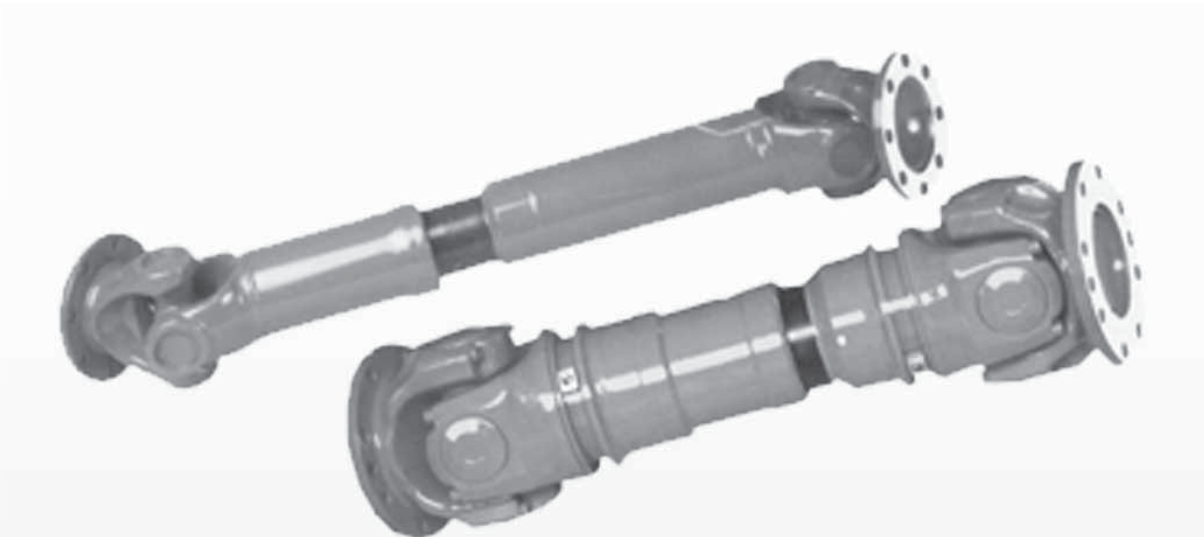
TL14-C



TL20-C2

Size No.	Rated torque (kgf.cm)	Max. RPM	Finished Bore (H)		Max. Bore		Approcated Sprocket	Dimensions (mm)					Weight (kgf)	
			Sprocket	Torque	Sprocket	Torque		D	DH	L	l 1	l 2		S
TL-200-1C	0.3~1	1200	8	8	8	8	#40-16T	76	50	55	24	29	7.4	1.0
TL-200-2C	0.7~2.0													
TL-250-1C	0.7~2.8	1000	13	10	13	10	#40-22T	102	56	76	25	48	7.4	2.0
TL-250-2C	1.4~5.5													
TL-350-1C	2.0~7.6	800	12	17	12	17	#50-24T	137	72	103	37	62	9.7	5.2
TL-350-2C	3.5~15.2													
TL-500-1C	4.8~21.4	500	18	20	18	20	#60-28T	188	105	120	40	76	11.6	12.3
TL-500-2C	9.0~42.9													
TL-700-1C	11.8~58.1	400	23	30	23	30	#80-28T	251	150	168	66	98	15.3	31.0
TL-700-2C	22.8~110.6													
TL-10-16C	40~130	300	33	30	33	30	#140-22T	355	137	189	71	115	26.2	66
TL-10-24C	60~190													
TL-14-10C	90~272	200	38	40	38	40	#160-26T	470	167	235	80	150	30.1	140
TL-14-15C	200~400													
TL-20-6C	250~500	140	43	50	43	50	#160-36T	631	237	300	120	175	30.1	285
TL-20-12C	470~950													

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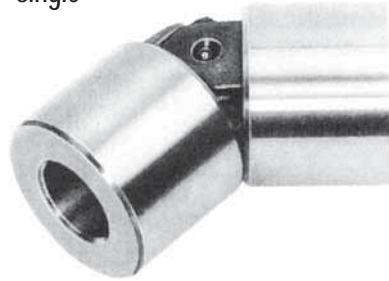


UNIVERSAL JOINTS COUPLINGS

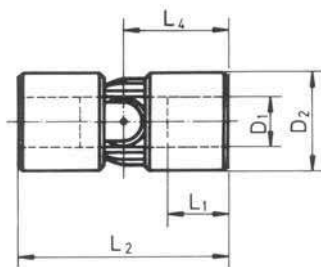
Precision universal joints with friction bearings (bracket version)

Technoflex precision universal joints are top-quality products made of high-grade steel. All friction areas are hardened and polished. The bracket are mounted almost backlash-free.

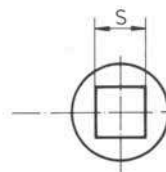
single



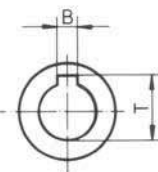
Size		Length			keyway Din 6885		square S	weight kg/piece ≈
D ₁ H7	D ₂	L ₁ -1	L ₂ ±1	L ₄ ±0.5	B P9	T +0,2		
6	16	9	34	17	-	-	12	4X13.8
8	18	11	40	20	-	-	14	5X16.3
10	22	14	48	24	3	11,4	16	5X18.3
12	26	16	56	28	4	13,8	18	6X20.8
14	29	17	60	30	5	16,3	20	6X22.8
16	32	20	68	34	5	18,3	22	6X24.8
18	37	21	74	37	6	20,8	25	8X28.3
20	42	23	82	41	6	22,8	30	8X33.8
22	47	25	95	47,5	6	24,8	35	10X38.3
25	52	29	105	52,5	8	28,3	40	12X43.3
30	58	34	122	61	8	33,3	50	14X53.8



standard version : round
(shape E)



square
(V)



keyway
(N)

Order sample :

Cross-section	version round	version round	version N	version N	version V	version V	version round	version N	version round	version V	version N	version V
	designations											
for shape E	universal joint LAS-E25x52-G		universal joint LAS-EN25x52-G		universal joint LAS-EV25x52-G		universal joint LAS-E25xN25x52-G		universal joint LAS-E25xV25x52-G		universal joint LAS-E25xV25x52-G	

Explanation : D₁ = 25 mm, D₂ = 52 mm, N = keyway B 8 mm x T 28, 3 mm, V = square S 25 mm

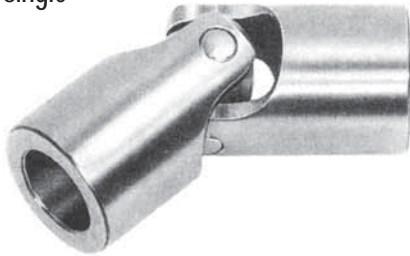
Abbreviations : E = single, LAS = joint with bracket version, N = keyway, square

When drilling the pin holes for Technoflex universal joints, it is important to make sure that the brackets are not damaged.

Precision universal joints with friction bearings DIN 808-G (previously DIN 7551)

Technoflex precision universal joints are top-quality products made of high-grade steel. All friction areas are hardened and friction polished. The joint components are assembled almost backlash-free.

single

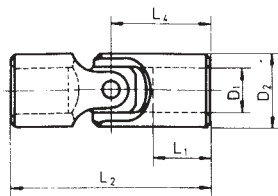


double

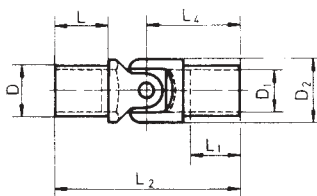


Size		Length			keyway Din 6885		square S	shape EB		weight kg/piece »
D ₁ H7	D ₂	L ₁ -1	L ₂ ±1	L ₄ ±0.5	B P9	T +0,2		D h7	L -1	
6	10	14	40	20	-	-	-	-	-	0,014
8	13	13	42	21	2	9,0	6	10	12	0,024
10	16	17	52	26	3	11,4	8	13	15	0,047
12	20	20	62	31	4	13,8	10	16	18	0,089
16	25	23	74	37	5	18,3	14	20	22	0,160
20	32	25	86	43	6	22,8	19	25	25	0,310
25	40	32	108	54	8	28,3	24	32	32	0,625
32	50	41	132	66	10	35,3	30	40	40	1,200
40	63	47	166	83	12	43,3	36	50	50	2,400

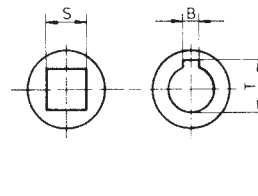
Size		Length			keyway Din 6885		square S	shape DB		weight kg/piece »
D ₁ H7	D ₂	L ₁ -1	L ₂ ±1	L ₄ ±0.5	B P9	T +0,2		D h7	L -1	
8	13	13	60	21	2	9,0	6	10	12	0,035
10	16	17	74	26	3	11,4	8	13	15	0,068
12	20	20	88	31	4	13,8	10	16	18	0,130
16	25	23	104	37	5	18,3	14	20	22	0,237
20	32	25	124	43	6	22,8	19	25	25	0,463
25	40	32	156	54	8	28,3	24	32	32	0,920
32	50	41	188	66	10	35,3	30	40	40	1,800
40	63	47	236	83	12	43,3	36	50	50	3,500



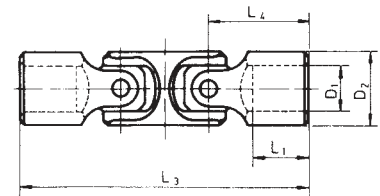
standard version : round
(shape E)



standard version : round
(shape EB)



square
(V) keyway
(N)



standard version : round
(shape D)

Order sample :

Cross-section	version round	version round	version N	version N	version V	version V	version round	version N	version round	version V	version N	version V
designations												
for shape E	universal joint DIN808-E25x40-G		universal joint DIN808-EN25x40-G		universal joint DIN808-EV24x40-G		universal joint DIN808-E25xN25x40-G		universal joint DIN808-E25xV24x40-G		universal joint DIN808-EN25xV24x40-G	
for shape EB	universal joint EB25x32x40											
for shape D	universal joint DIN808-DN25x40-G		universal joint DIN808-DN25x40-G		universal joint DIN808-DV24x40-G		universal joint DIN808-D25xN25x40-G		universal joint DIN808-D25xV24x40-G		universal joint DIN808-DN25xV24x40-G	
for shapeDB (without illustration)	universal joint DB25x32x40-G											

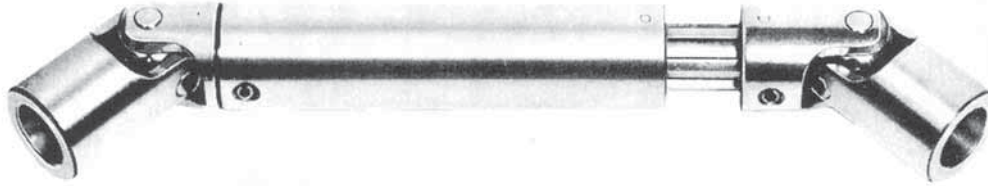
Explanation : D₁ = 25 mm, D₂ = 40 mm, D 32 mm, N = keyway B 8 mm x T 28, 3 mm, V = square S 24 mm

Abbreviations : E = single, EB = single + version, D = double, DB = double + special version, N = keyway, V = square

Technoflex universal joints are also available as unhardened, unpolished, less expensive standard versions with greater backlash (UNGG).

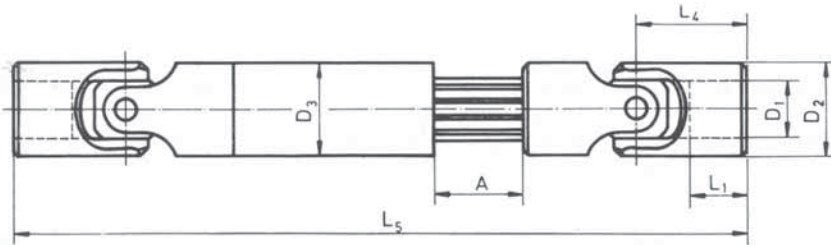
Precision shaft joints-extendable with DIN 808-G universal joints

Technoflex precision shaft joints are top-quality products made of high-grade steel. The universal joints are hardened and friction polished. The joint parts are assembled almost backlash-free. The universal joints are also available with brackets.

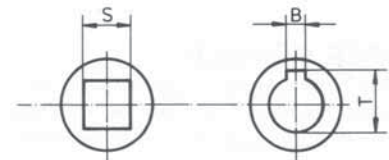


Size		Length			L_{min} L_5-A	Teles-cope A	L_{max} L_5 ± 1	Splined shaft Profile DIN ISO 14	keyway Din 6885		square S	weight kg/piece \approx
D_1 H7	D_2	D_3	L_1 -1	L_4 ± 0.5					B	T		
8	13	13,0	13	21	130	40	170	With square	2	9,0	6	0,100
10	16	19,5	10	20	150	50	200	6x11x14	3	11,4	8	0,234
12	20	19,5	13	24	190	60	250	6x11x14	4	13,8	10	0,341
16	25	26,5	23	37	230	70	300	6x13x16	5	18,3	14	0,657
20	32	31,5	25	43	270	80	350	6x16x20	6	22,8	19	1,214
25	40	39,5	32	54	400	100	500	6x21x25	8	28,3	24	2,500
32	50	51,5	41	66	500	150	650	6x26x32	10	35,3	30	5,350
40	63	59,5	47	83	550	200	750	8x32x38	12	43,3	36	8,780
40	75	59,5	43	80	570	200	770	8x32x38	12	43,3	36	11,230
50	90	79,5	52	95	700	200	900	8x42x48	14	53,8	-	21,600

Intermediate lengths are also possible, Please contact us for further details



standard version : round



square
(V)

keyway
(N)

Order sample (for intermediate lengths also specify L_{min} and L_{max}) :

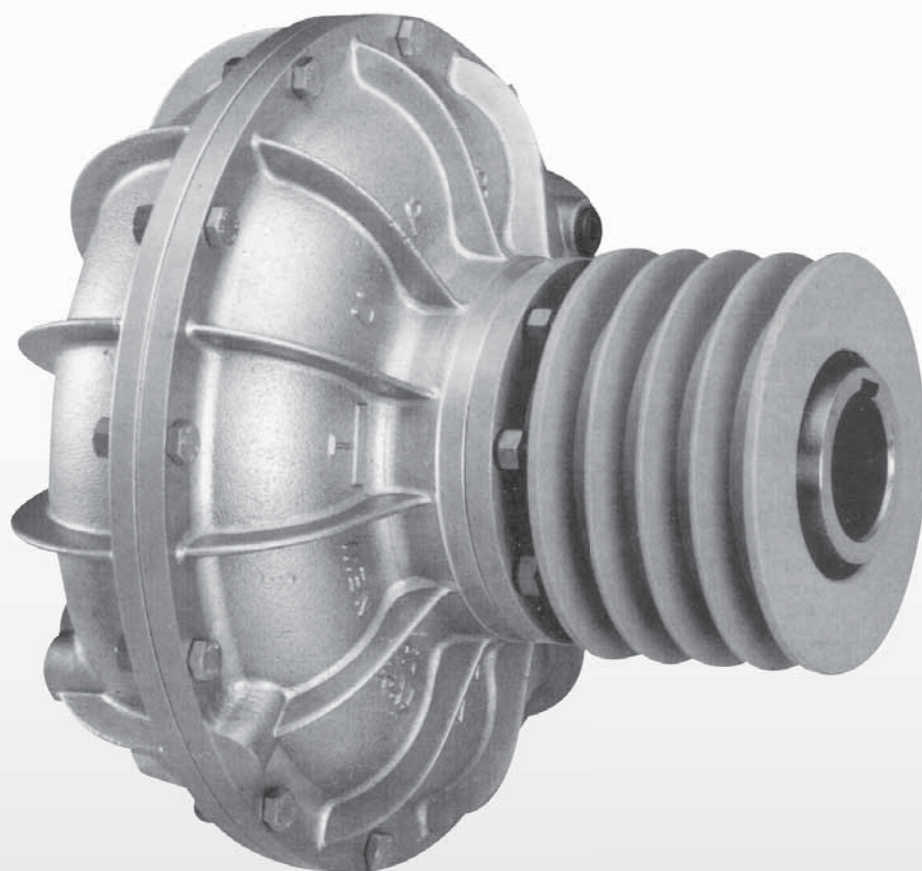
Cross-section	version round	version round	version N	version N	version V	version V	version round	version N	version round	version V	version N	version V
designations	shaft joint GW-25x40-G		shaft joint GW-N25x40-G		shaft joint GW-V24x40-G		shaft joint GW-25xN25x40-G		shaft joint GW-25xV24x40-G		shaft joint GW-N25xV24x40-G	

Explanation : $D_1 = 25$ mm, $D_2 = 52$ mm, N = keyway B 8 mm x T 28, 3 mm, V = square S 25 mm

Abbreviations : GW = shaft joint, N = keyway, V = square L_{min} = contracted, L_{max} = extended

Technoflex precision shaft joints are marked during assembly. When putting the shaft joint together again, make sure that the markings on both halves of the joint are opposite to each other.

TECHNO  **FLEX**



HYDRODYNAMIC COUPLINGS
FROM 0,37 TO 1,470 KW

Products by Turbostart made in Italy

The Hydrodynamic Coupling is a device of transmission of primary importance has a large field of application. It is simultaneously a gradual starter and a stress eliminator and it is able to create in every moment and automatically an equilibrium between the motor and the transmission of the operating machine; therefore it eliminates every dangerous and unexpected overload and protects the motor and the transmissions as well.

PRINCIPLE OF OPERATION

The Hydrodynamic Coupling Technoflex consists of two impellers with symmetric vanes, a primary (pump) and a secondary (turbine). The primary impeller driven by a motor sends a continuous flow of oil against the second impeller, transmitting therefore power to the other device.

Since the two impellers are opposite and have symmetric vanes, the result is that the Hydrodynamic Coupling has a perfect reversible function; also it is able to work horizontally, vertically or inclined (for size 18-19-110 P it's important to specify).

The output speed of the standard Hydrodynamic Coupling is always lower than the input speed; the difference between the two speeds is commonly called "slip" and it is measured in percentage (%). Under a constant torque the slip is maintained constant but if the output load increases, the secondary impeller (turbine) will slow down.

As a consequence there is an increase of liquid velocity into the fluid coupling and resulting in an increase of kinetic energy. This increase of energy on the secondary impeller (turbine), balances the increase output load.

If this new output load is maintained constant and the motor is capable of supplying the equivalent power, a new equilibrium is established, characterised by a greater constant slip. On the contrary, at a decreasing output load, everything described above is inverted and the slip diminishes.

According to the slip we can determine the efficiency of the coupling and the value of power that is transformed into heat. An accurate selection based on the effective power absorbed by the driven equipment determines the selection of the Hydrodynamic Coupling able to dissipate by natural ventilation the heat produced. A Hydrodynamic Coupling with normal seals can normally withstand a maximum temperature of approximately 100 C and, with special seals, approximately 200 C.

ADVANTAGE

The Hydrodynamic Coupling, inserted into a transmission for starting up a high inertia machine controller by an asynchronous electric motor with Direct on Line Starting has the following advantages;

- **Eliminates the rigidity** of the mechanical transmissions and guarantees the flexibility of a Hydraulic transmission with standing all the shocks, torsional vibrations and unexpected overloads, and protects the motor and driving machine.
- **Reduces peak Current** during start-up, The electric motor rapidly reaches the operating speeds with low peak current.
- **Permits smaller motor sizes** according to the power demand of the driven machine.
- **Permits a high stop start** duty cycle even under load, sudden changes of direction and plug (reverse) braking.
- **Distributes the load in installations** where two or more motors are installed. The Hydrodynamic Coupling allows every motor to reach its own operating speed, automatically distributing load demand.

EXAMINATION OF THE BEHAVIOUR OF THE ELECTRIC MOTOR AND THE HYDRODYNAMIC COUPLING DURING THE START-UP

To fully realize the above mentioned advantages, it is necessary to select the correct hydrodynamic coupling. Let us consider the behaviour of both the motor and hydrodynamic coupling when the two items are working together, from the moment of the start to full speed.

Examining the diagram Torque (C) vs Speed (V) Fig. 1 on which the curves:

M - torque curve of a direct start (DOL) asynchronous electric motor.

I - Current vs Speed (v).

Following the curve M during starting (when v=0) we notice that the available torque C" is approximately 1.5 times the rated torque Ca on DOL starting and approximately 0.6 times Cn on Star Delta Starting (Cst).

Normally the motor operates at speed n1 where the rated torque Cn is equal to the working torque.

It should be noted that the motor produces maximum torque Cm of 2.5 times the rated torque Cn at the speed nm (90% of rated speed).

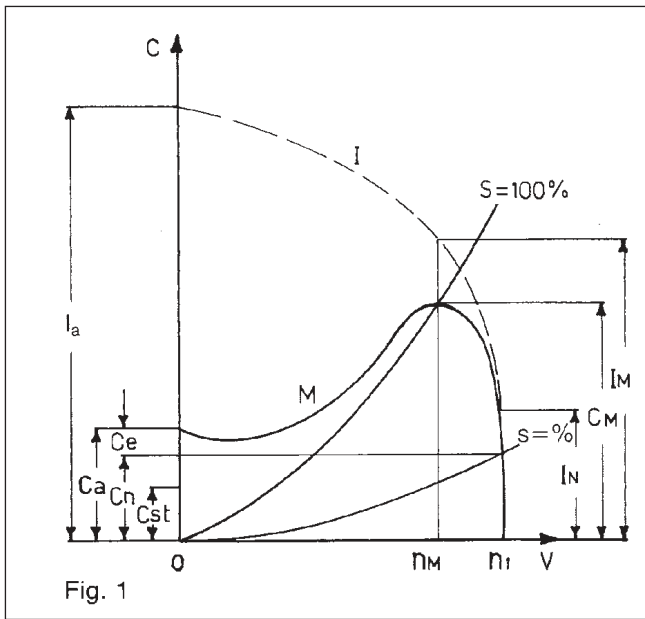


Fig. 1

Following curve I we note that the current at start I_a is 5-6 times the nominal rated current.

At this the motor temperature is rather high.

At speed n_m the current I_m is about 3 times the rated current I_n and the temperature of the motor is noticeable reduced; also the elevated speed of the motor facilitates its own cooling.

Therefore, during startup the motor must reach speed n_m as quickly as possible in order to avoid overheating, and to deliver maximum available torque to the driven machine.

If there is an exceeding torque C_e , comparatively low, and no hydraulic coupling is used, the duty will be quite slow, and this could result in damage being done to the motor, unless the motor has adequately oversized.

VARIATION OF START CONDITIONS UTILISING THE HYDRODYNAMIC COUPLING

Let us consider a coupling having a slip $S=100\%$ crossing the curve M at the point nearest to the maximum torque (fig.1). Since a speed $v=0$ the coupling transmits no torque, the electric motor has all torque C_a available for the rotor acceleration. During the acceleration the oil moved by the pump element of the hydrodynamic coupling, gets in greater quantity into the circuit, acting more and more on the turbine element connected to the driven machine.

As soon as the torque produced by the coupling overcomes the resisting torque, the driven machine starts moving. At this stage the torque available for the acceleration of the driven machine is $C_m - C_n$ therefore of higher value of torque C_n , which is the starting torque available if no hydraulic coupling is used. It is important to note that the availability of the high accelerating torque is obtained at a current I_m which is approximately half of the value of the current I_a , corresponding to the acceleration torque C_a and the heating of the electric motor is reduced.

As the oil enters the circuit, the difference of speed between the motor and the driven machine diminishes, until an equilibrium is reached between the dragging torque and the resisting torque when the motor reaches its operating speed n_1 . Then the coupling will work at normal slips.

THE BEST USE OF MAX MOTOR TORQUE

If the curve of motor torque M meets the curve of coupling torque S before the point of max value, it means that the selected coupling is overdimensioned, or there is too much oil inside. Under this condition the rotor has difficulty to accelerate and the hydrodynamic coupling rotates without being able to accelerate the driven machine.

To obviate the inconvenient it is necessary to drain some oil to get a lower slip curve of the hydrodynamic coupling.

Instead, if the curve meets after the point of maximum torque value, it means that the selected coupling is underdimensioned. It is to be born in mind that the slip of a coupling-filled with a special quality of oil- is a function of the rotating speed, of the resisting torque and of the quantity of oil.

Moreover, if a coupling is requested to operate at different speeds, at equal slip the power and torque transmitted are directly proportional to the cube and square of the requested speeds. The standard Turbostart Hydrodynamic Coupling can be fitted with a partial oil drainage device, allowing the best use of the maximum motor torque (page 10).

USE OF THE HYDRODYNAMIC COUPLING WITH DIESEL ENGINES

The diesel engine has an unstable torque curve and a minimum operating speed below which the engine stalls.

When the stall is caused by overloads the use of the hydrodynamic coupling eliminates the problem and offers the following advantages.

- **Stabilizes the operation of the engine.** Considering the curve M (fig.2) obtained with a partial supply, we reach a point of equilibrium P4 when the engine output torque at a speed of V1, is equal to the resistive torque transmitted by the hydrodynamic coupling with a slip $s = \%$.

At increasing of resistive torque the point of equilibrium is transferred to P3, at an engine speed V3, and the coupling gradually reaches a 100% slip.

At this stage the governor of the diesel engine increases the speed to V2, and the torque to a new point of equilibrium C1, is obtained with an output torque supplied by the coupling with a slip of 5%.

These variations are controller by the hydraulic coupling, which maintains the engine very stable.

- **Facilitates the starting of the engine.** On starting and at low input speed, the hydrodynamic coupling does not oppose to the engine which is free the rated speed. When it is inserted between the engine and a mechanical clutch, noticeably it reduces clutch wear.

- **Prevents the engine stall.** When the driven torque, is higher than the supplied torque the slip of the coupling goes to 100% maintaining the engine a speed higher than the stall speed. Obviously at this condition the driven machine should

be disengaged to avoid build up of temperature into the hydrodynamic coupling.

- **Absorbes torsional vibrations.** This feature is very important when controlling machines operating at frequent load variations.

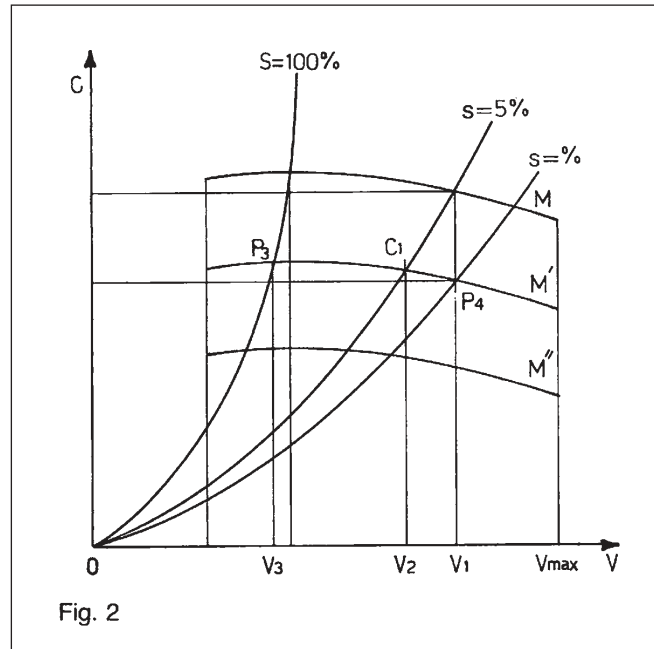
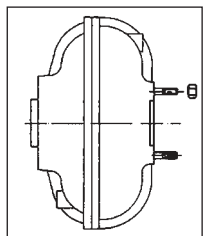
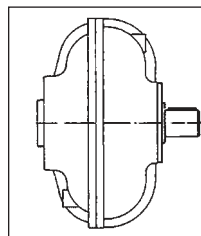


Fig. 2

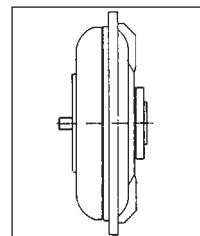
PRODUCTION PROGRAM



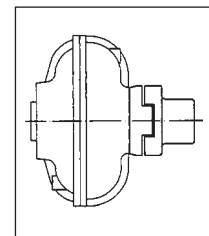
L/S with stud bolts



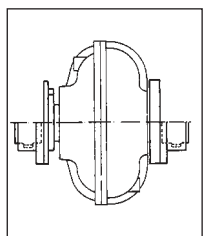
L/MU with stub shaft



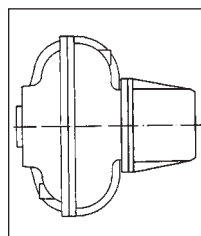
VD for diesel engine



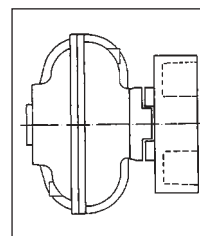
L/E with flexible coupling



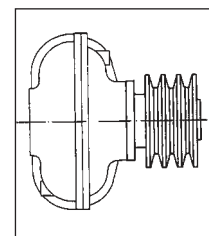
CF with flanges for half gear couplings



All version (VD excepted) can be fitted out with partial



FF with flexible coupling and brake drum or brake disc



P for pulleys

Knowing the input power and speed of the coupling, we use the diagram on page 5 (to select the right coupling).
For a continuous operation it is enough to consider the power demand of the driven machine.

For higher start-stop duty cycle and if the selection point (input speed/power) is close to the high limit of the band that defines the characteristics of the coupling, we have to select the net size up of the coupling and use high temperature seals. The oil level must be adjusted to not overload the motor during the start.

PERFORMANCE CALCULATION AND CHECK

Data:

- Speed of driven machine: n_2 (RPM)

- Inertia: I (kgm²) $\left(\frac{PD^2}{4} \text{ or } \frac{GD^2}{4} \right)$

- Absorbed power: P_a (kW)

- Input speed: n_1 (RPM)

- Ambient temperature: T (°C)

Inertia of driven machine referred to Motor shaft (kgm²)

$$I_{n_1} = I \cdot \left(\frac{n_2}{n_1} \right)^2$$

Coupling output speed (RPM)

$$n_g = n_1 \cdot s$$

s = slip

You can get it from diagram input speed according to the absorbed torque C_c (Nm) or by using an average from 5 to 3 (from small to big units)

Motor power (kW)

$$P_m = \frac{I_{n_1} \cdot n_1^2}{9.12 \cdot 10^4 \cdot t_a}$$

t_a = starting time

Nominal torque (Nm)

$$C_m = \frac{9550 \cdot P_m}{n_1}$$

Torque absorbed by driven machine (Nm)

$$C_c = \frac{9550 \cdot P_a}{n_g}$$

Starting torque (Nm)

$$C_a = 1.6 \cdot C_m - C_c$$

For couplings with R, reduce from 1.6 to 1.4

Starting time (sec)

$$t_a = \frac{n_g \cdot I_{n_1}}{9.55 \cdot C_a}$$

Temperature generated during acceleration (K cal.)

$$Q = \frac{n_g}{10^4} \left(\frac{I_{n_1} \cdot n_g}{76.25} + \frac{C_c \cdot t_a}{8} \right)$$

Thermal capacity of the coupling (Mo) (K cal/°C)
Add metal+oil (see table)

THERMAL Capacity

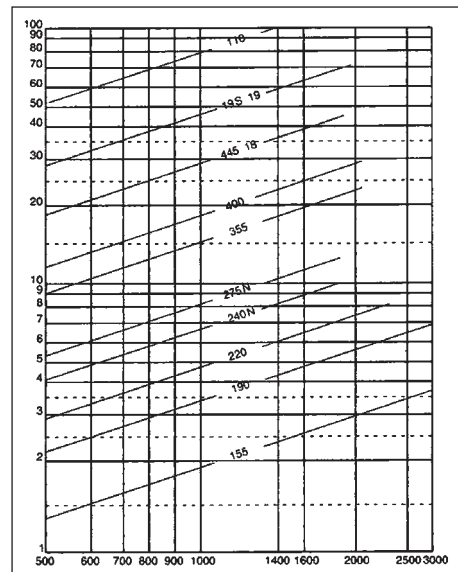
Coupling size	Metal K cal/°C	Oil K cal/°C
155	0.75	0.43
190	1.16	0.92
220	1.63	1.26
240 N	2.24	1.73
275 N	3.20	2.10
355	5.60	3.60
400	7.20	4.30
445	12.1	6.60
18	12.1	6.60
195	17.4	12.3
19	17.4	12.3
110	33.7	23.7

For couplings with "R", multiply values by 1.15 about.

Increase of temperature during acceleration (°C)

$$T_i = \frac{Q}{M_o}$$

Factor K



Increase of temperature during steading running (°C)

$$T_{\Delta} = 2.4 \cdot \frac{P_a \cdot S}{K}$$

Final temperature (°C)

$$T_f = T + T_i + T_{\Delta}$$

T : ambient temperature

T_i : has to be lower than 110 °C

For higher temperature and till 175 °C, special seals are necessary

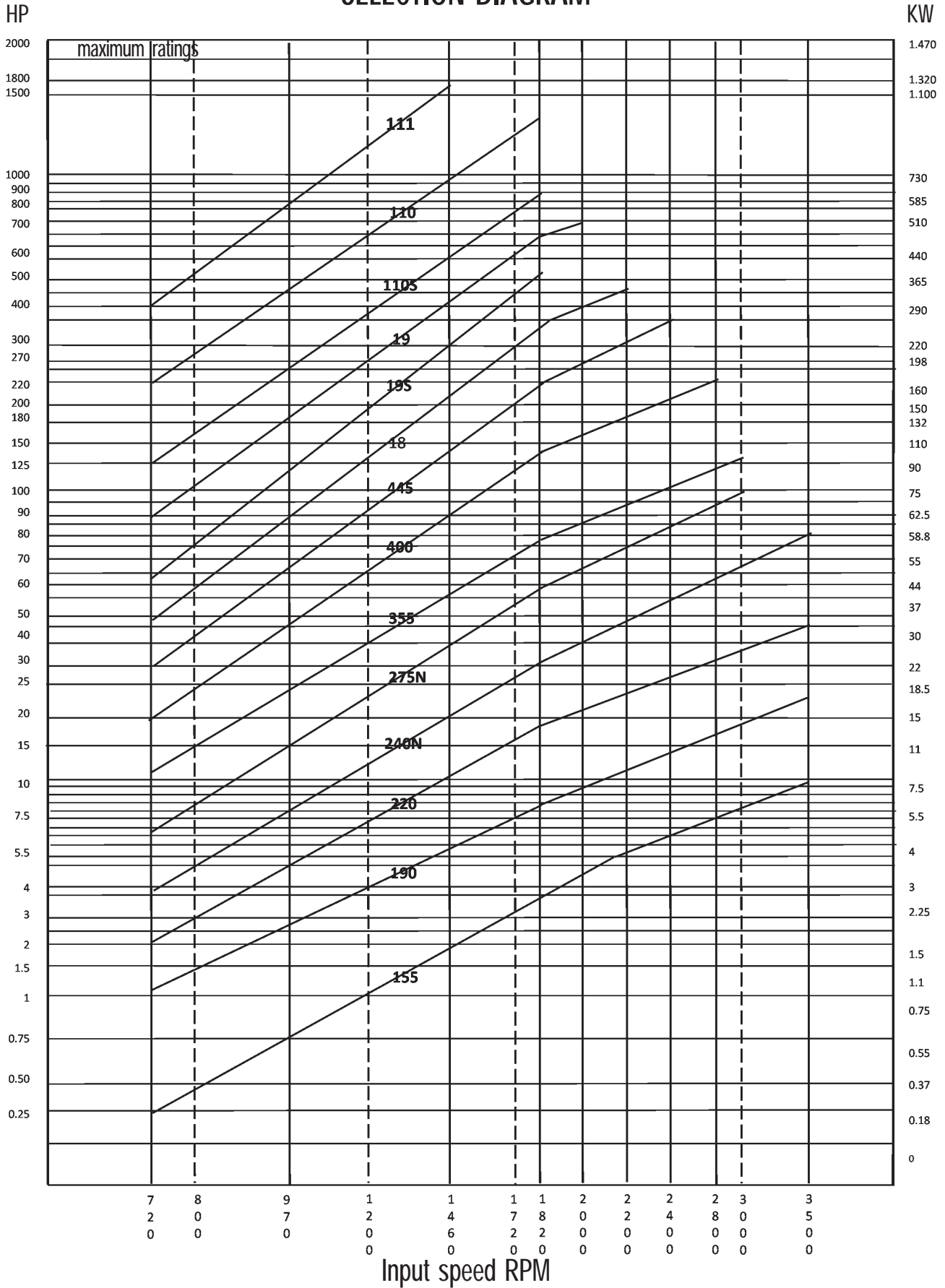
Minimum working time at continuous running (sec)

$$t_w = 10^3 \cdot \frac{Q}{T_i \cdot K}$$

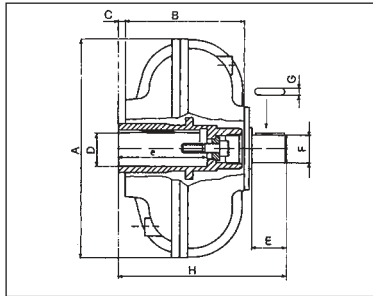
Maximum working cycle for hour

$$A = \frac{3600}{t_a + t_w}$$

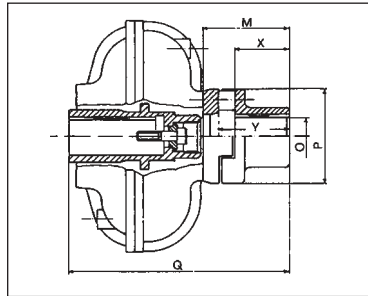
SELECTION DIAGRAM



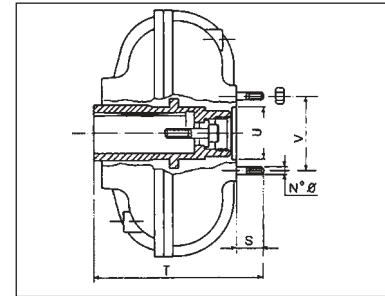
INLINE VERSION TYPE L-LR



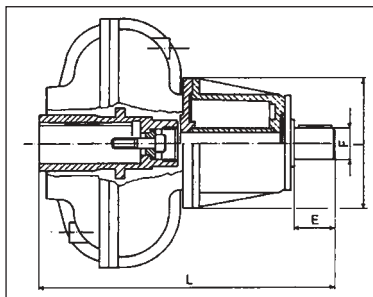
L/MU with stub shaft



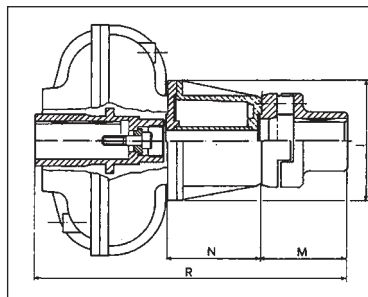
L/E with flexible coupling



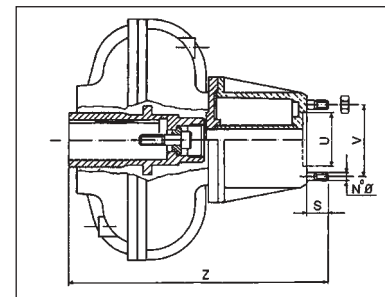
L/S with stud bolts



L-R/MU with partial draining device and stub shaft



L-R/E with partial draining device and flexible coupling



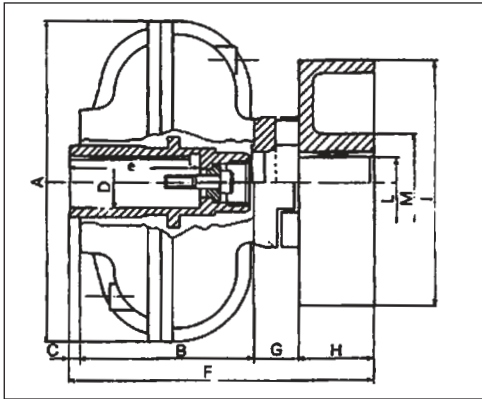
L-R/S with partial draining device and stud bolts

DIMENSIONS (mm)

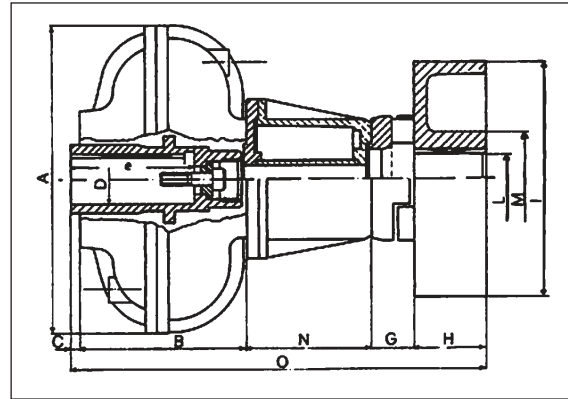
C.SIZE	FLEXIBLE COUPLING	A	B	C	D G7	e min	E	F h6	G	H	I	L +/ -1	M +/- 0.5	N	O MAX	P	Q +/- 0.5	R	S	T +/- 0.5	U G7	V +/- 0.2	X	Y	Z +/- 0.5	N°	Ø
155	E10	193	91	10	19-24 28*	40-50 60	30	19	6	139	126	243	52	104	24	70	153	257	16	117	40	52	30	40	221	6	M6
190	E20	232	113	10	19-24 28-38*	40-50 60-80	31 38*	24 38*	8 10*	162 173*	126	266 277*	76	104	38	96	199 277*	303 315*	16	139 151*	47	73	42	60	243 255	6	M6
220	E30	280	157	10	28-38 42-48*	60-80 110	46	38	10	221	156	320	95	99	48	122	262	361	25	192	62	89	55	72	291	6	M8
240 N	E30	296	161	9	38-42 48	80 110	46	38	10	224	156	345	95	121	48	122	265	386	25	195	62 68	89	55	72	316	6	M8
275 N	E40	340	176	25	48-55 60	110 140	66	48	14	277	185	417	119	140	60	150	320	460	30	231	72 90	112	73	95	371	8	M10
355	E40	430	190	15	48-55 60-65	110 140	66	48	14	281	186	421	119	140	60	150	324	463	30	235	72 85	112	73	95	375	8	M10
400	E50	468	197	23 43	55 60-65 75*	110 140 140	66	55	16	296 316	240	447 467	119	151	70	175	339 359	490 510	30	250 270	85	136	73	95	401 421	8	M10
445	E60	527	230	35	65-75 80	140 170	70	55	16	347	250	517	142	170	80	220	407	577	35	300	120	168	88	115	470	8	M10
18	E60	527	240	32	65-75 80	140 170	70	55	16	354	250	556	142	214	80	220	414	616	35	307	120	168	88	115	509	8	M10
19 S	E70	626	236	54	75 80-90 100	140 170 210	85	70	20	401	290	621	181	220	100	250	471	691	45	355	140	196	110	145	555	10	M12
19	E70	626	261 316	20 15	80-90 100-110*	170 210-230	85	70	20	392 442	290	636 686	181	267	100	250	162 512	706 756	45	326 376	140	196	110	145	570 620	10	M12
110 S	E75	800	B+C 300	B+C 300	80-90 100-120	170 210	100	80	22	425	530	535	185	110	120	320	485	595	50	350	180	250	140	180	460	10	M14
110	E80	800	330	26	80-90 100-120	170 210	100	80	22	481	365	752	228	291	120	320	584	855	50	406	180	250	141	190	677	10	M14
111	E90	1000	B+E 387	B+E 387	MAX 150	265	150	140	36	587	537	718 818	208	131 231	160	425	595	726 826	60	447	200	570 480 V1	180	185	578 678	12 10 V1	M14 M16 V1

Special manufactured on request - Fixing screws and washers as per UNI 6604-69 - Fixing screw and washers supplied on request - For size 1105 and 111, consult manufacturer for recommendations
 Keyways as per UNI 6604-69 per DIN 332
 DIN 6885/1

INLINE VERSION TYPE L/E BD L-R/E BD



L/E BD with brake drum

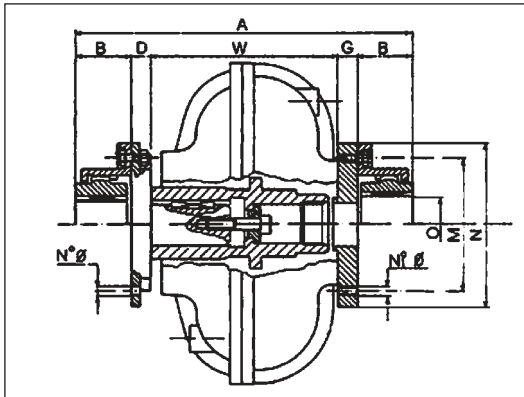


L/R/E BD with partial draining device and brake drum

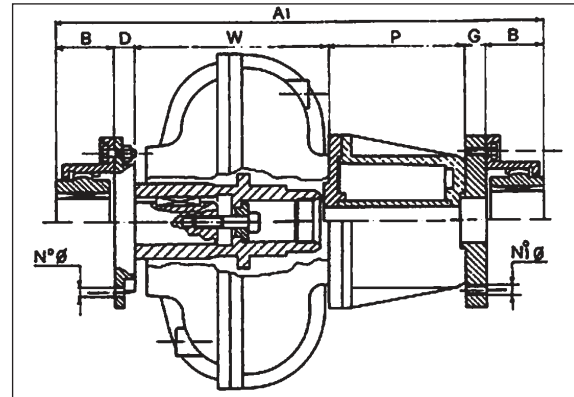
DIMENSIONS (mm)													
Coupling size	A	B	C	D G7	e min	+/- F 1,5	G	H	I	J G7	M	N	O +/- 1,5
155	193	91	10	19-24 28*	40-50 60	183	22	60	160	24	50	104	287
190	232	113	10	19-24 28-38*	40-50 60-80	217	34	60	160	28	60	104	321
220	280	157	10	28-38 42-48*	60-80 110	267	40	60	160	48	80	99	366
240 N	296	161	9	38-42 48	80 110	285	40	75	200	48	80	121	406
275 N	340	176	25	48-55 60	110 140	306 321	46	60 75	160 200	55	90	140	446 461
355	430	190	15	48-55 60-65	110 140	326 346	46	75 95	200 250	65	90	140	466 486
400	468	197	23	55 60-65 75*	110 140 140	362 385	47	95 118	250 315	65	110	151	513 536
445	527	230	35	65-75 80	140 170	437 469	54	118 150	315 400	80	130	170	607 639
18	527	240	32	65-75 80	140 170	444 476	54	118 150	315 400	80	130	214	646 678
19 S	626	236	54	75 80-90 100	140 170 210	478 510	70	118 150	315 400	80	130	220	698 730
19	626	261 265	20 0	80-90 100*	170 210	501 541	70	150 190	400 500	90	160	267	745 785
110 S	800	300 b+c	300 b+c	80-90 100-120	170 210	570	80	190	500	120	200	110	680
110	800	330	26	80-90 100-120	170 210	626	80	190	500	120	200	291	897
111	1000	387 b+c	387 b+c	MAX 150	265	595	-	265	630	Max 160	-	131 231	726 826

* Special on request

INLINE VERSION TYPE CF, CF-R
(Disassembling without removing either of the shafts)



CF for half gear coupling



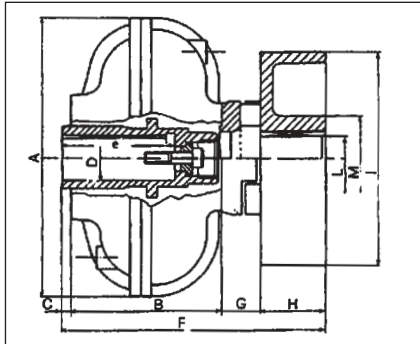
CF/R with partial device for half gear couplings

DIMENSIONS (mm)												
COUPLING SIZE	A +/-1	Ai +/-1,5	B	D	G	W	M +/-0,2	N	O ø MAX	P	N° ø	N°1 ø
155	222	326	44.5	16	16	101	96	116	44	104	6 8	6 MB
190	244	348	44.5	16	16	123	96	116	44	104	6 8	6 MB
220	308	407	51.5	19	19	167	122	152	60	99	8 10	8 M10
240 N	335	456	63.5	19	19	170	148	180	75	121	10 10	10 M10
275 N	402	542	78.5	22	22	201	178	215	95	140	10 12	10 M12
355	406	546	78.5	22	22	205	178	215	95	140	10 12	10 M12
400	421	572	78.5	22	22	220	178	215	95	151	10 12	10 M12
445	494	664	92.5	22	22	265	203	240	110	170	12 12	12 M12
18	489.5	703.5	92.5	22	22	290.5	203	240	110	124	12 12	12 M12
19 S	564	784	108	28.5	28.5	291	236	280	132	220	12 16	12 M16
19	531	798	108	28.5	28.5	258	236	280	132	267	12 16	12 M16
110 S	603	713	123	28.5	28.5	300	270	320	150	110	14 16	14 M16
110	639.5	930.5	123	28.5	28.5	336.5	270	320	150	291	14 16	14 M16
111	717	880 980	123	34	50	387	279.4	318	160	163	8 19.05	8 3/4 UNC

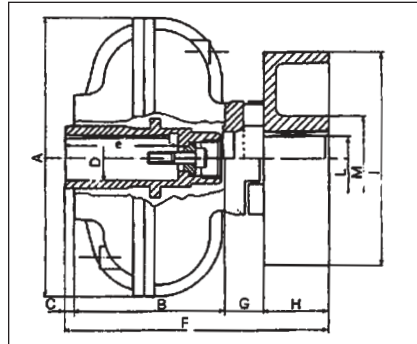
Half gear couplings supplied on request

For the size 110 S and 111, consult manufacturer for recommendations

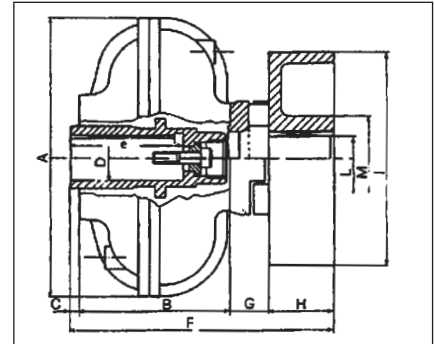
INLINE VERSION TYPE L/E BD L-R/E BD



Type P for pulley



Type P/R for pulley with partial draining device

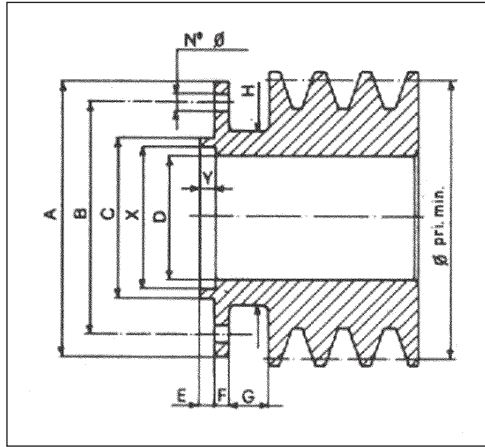


Type P/I with incorporated pulley

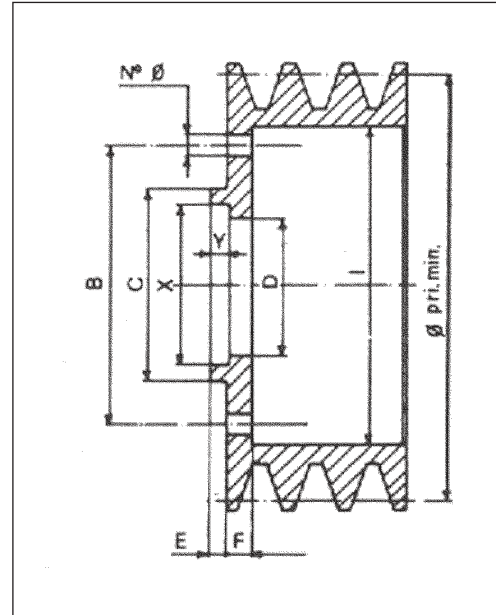
DIMENSIONS (mm)

Coupling size	A +/-1	B +/-1	C +/-1	D G7	e min	F +/-1	G	H +/-0,2	I G7	L	M	N	O	P +/-1,5	Stud bolts		E	Coupling size
															N°	Ø		
155	193	91	147 163	19-24 28*	40-50 60	56 72	35 40	75	62 68	85	6	126	104	251 267	6	M6	17	155
190	323	113 125	169 185 181-197	19-24 28 38*	40-50 60 80	56 72 72	40 40 55	80	55 65	95	6	126	104	273 289 301	6	M6	17	190
220	280	157	271	38-42 48*	80-110 110	114	56	105	90 95	130	6	156	99	370	8	M8	25	220
240 N	296	161	275 292	38-42 48	80-110 110	114 131	65	114	80	130	6	156	121	396 413	8	M8	25	240 N
275 N	340	176	325	48-55 60	110 140	149	75	150	130	165	7	186	140	465	8	M10	30	275 N
355	430	20	357	48-55 60-65	110 140	155	85	140	105	165	7	186	140	497	8	M12	30	355
400	468	225	380	55 60-65 75*	110 140 140	155	85 95	140	105 115	165	7	210	151	531	8	M12	30	400
445	527	262	442	65-75 80	140 170	180	110	170	130	190	7	250	170	612	8	M12	30	445
18 F	527	308	498	65-75 80	140 170	190	110	190	170	210	7	250	214	712	10	M12	30	18 F
19 SF	626	266	456	75 80-90	140 170	190	120	205	180	226	7	290	220	676	10	M12	30	19 SF
110 S	800	330	585	80-90 100-120	170 210	255	150	240	210	265	6	530	110	695	12	M12	30	110 S

* Special on request - Keyways as per UNI 6604-69 DIN 6885/4
 - Fixing screws and washers as per DIN 332
 - Fixing screws and washers are supplied on request



Flanged Pulley

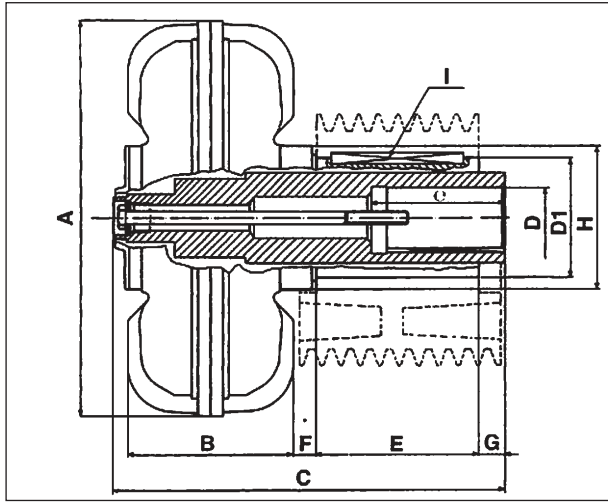


Hollowed pulley

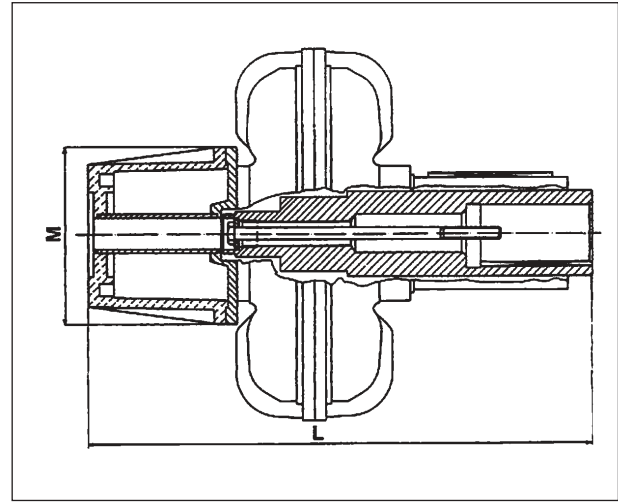
Coupling size	DIMENSIONS (mm)											PULLEY		
	A	B +/-0.2	C g6	D Min.	E -0.1	F	G	H	I Min.	X	Y	N° ø	Flanged P.D in mm	Hollowed P.D. in mm
155	85	75	62	36 41*	4	5	14	60	86	-	-	6 6.5	A 65-70* B 75-80*	A 115 B 125
190	95	80	55	41-57*	5	5	14	66	95	-	-	6 6.5	A 70-88* B 80-95*	A 125 B 135
220	130	105	90-95*	57 62*	5-10*	10	16	85	100 110*	-	-	8 8.5	A 90-95* B 95-100*	A 155 B 165
240 N	130	114	80	67	5	10	16	85	130	-	-	8 8.5	A 98 B 105	A 162 B 170
275 N	165	150	130	77	6	14	20	125	168	120	7	8 10.5	B 120 C 128	B 210 C 218
355	165	140	105	87	6	15	20	115	160	-	-	8 12.5	B 130 C 140	B 205 C 210
400	165	140	105	87 97*	6	15	20	115	160	-	-	8 12.5	B 130-140 C 140-150	B 205 C 210
445	190	170	130	112	6	15	20	145	190	-	-	8 12.5	B 160 C 170	B 235 C 250
18 F	210	190	170	112	6	15	20	155	210	150	7	10 12.5	B 160 C 170	B 255 C 268
19 SF	225	205	180	112	6	20	20	160	225	160	7	10 12.5	C 180	C 280
110 S	265	240	210	153	4	20	20	215	260	-	-	12 12.5	C 220	320

* For motor shaft diameter D of the above table

PULLEY VERSION FOR KEYPED PULLEY TYPE P,P-R



Type P

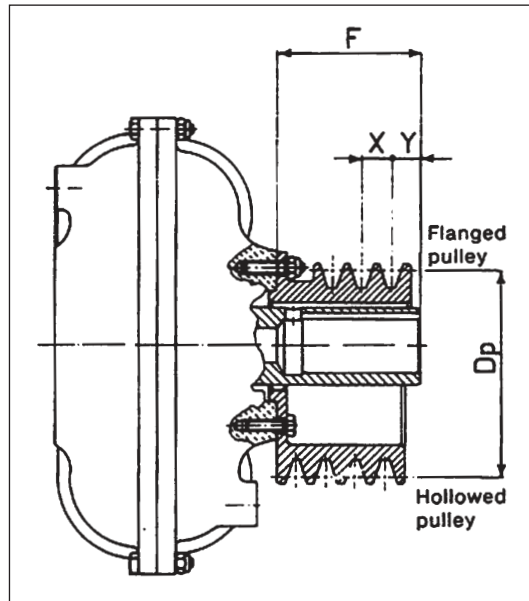


Type P/R with partial draining device

COUPLING SIZE	DIMENSIONS (mm)												
	A	B ₊₂	C ₊₂	D _{G7}	E _{min}	D _j _{h6}	E	F ₋	G	H	I	L ₋	M
18	527	240	516	85-95	140	160	220	20	31.5	195	20	708	250
19S	626	220	535	80-90	170	185	307	7-8	0	225	25	755	290
19	626	260	568	89-90	170	185	250	24	20	225	25	805	290
110S	800	190	610	80-90	170	220	300	18	2	275	25	720	530
110	800	350	670	80-90	170	260	300	15	5	290	25	951	365

IMPORTANT : For versions P-R, when mounting is vertical axis, it is essential for the coupling to be placed under the motor.

RECOMMENDED PULLEYS



COUPLING SIZE	F	N° grooves	ø Pr.	Y	X	Weight Kg.
155	56	2A-2SPA	70-80-100	12	15	1-1.3
190	56 72	2A-2SPA 3A-3SPA	90-100 125*-150*	12 13 31 32	15	1.4-2
220 240N	114	5A-5SPA 4B-4SPB 3B-3SPB	112 125-150 180*	18 18.5 63.5	15 19	4-5
275N	149	5B-5SPB 4B-4SPB 4C-4SPC	150 180 224*	26.5 45.5 64	19 26.5	7-12
355	155	6B-6SPB	150-180 205	12.5 47.5	19	9-11
400	155	6B-6SPB 5C-5SPC	180 250*-280*	12.5 44.5	19 25.5	9-25
445	180	10B-10SPB	250* 300*	31	19	25-45

COUPLING SIZE	WEIGHTS WITHOUT OIL (Kgs)					
	P	P-R	L/MU	L-R/MU	L/E	CF
155	3.2	3.7	3.2	3.7	3.9	5.4
190	5	5.6	5	5.6	6.7	7.2
220	10	11	10	11	12.5	15.5
240N	11	12.5	11	12.5	14.5	19
275N	26	30	26	30	31	39
355	36.5	41.5	31.5	36.5	35.5	43.5
400	47	53	40	46	48	52
445	74.5	83.5	63	72	75	80.5
18	90	100	65	75	77	82.5
19S	100	113	91	104	113	122
19	140	155	100	115	119	128
110S	200	210	130	140	190	185
110	230	245	150	165	210	185
111	--	--	358	373-383	449	436

Weights are approximate and change according to the bore on the shaft and on the flexible coupling (L/E, L-R/E.)

■ PARTIAL DRAINING DEVICE-R

During start the hydrodynamic couplings with the standard oil level do not allow the produced torque to increase above 200% of motor rated torque. It is possible to reduce this limit further without reducing the quantity of oil by using the device R which, when the coupling is stationary, collects some of the oil from the circuit.

During start the low level of oil facilitates the fast acceleration of the electric motor and causes the coupling to transmit a very limited torque (phase1).

Subsequently the oil contained in the tank of the device R is gradually brought into the circuit by the internal movement through the calibrated holes of the diaphragm situated between the device R and the coupling (phase2).

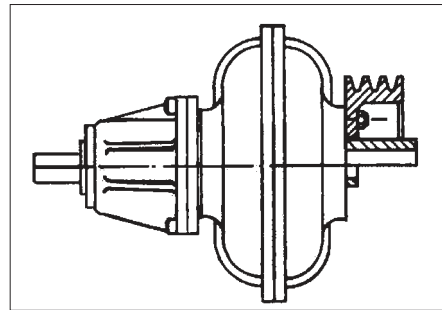
When the driven machine is up to operating speed, all the oil is into the coupling which is now capable to produce the maximum work (phase3).

With the device R the starting torque can therefore be reduced to 140% of the rated motor torque.

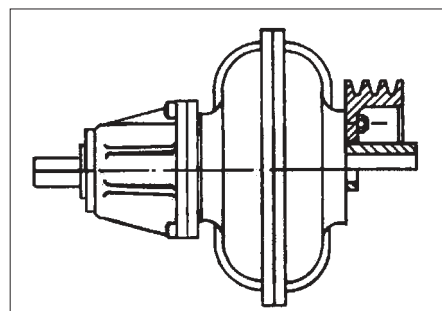
The use of the option is suggested for the starting of :

- Machines with high inertia
- Machines driven at high speed
- Machines that require soft starting.

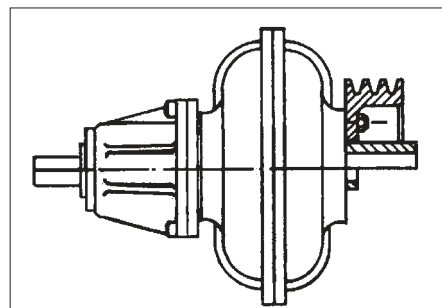
All the Hydrodynamic Turbostart models can be fitted with the device R (VD excepted).



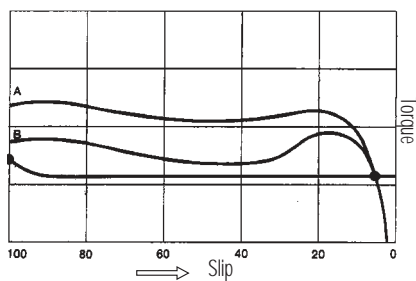
Oil level at rest (phase1)



Oil level at startup (phase2)



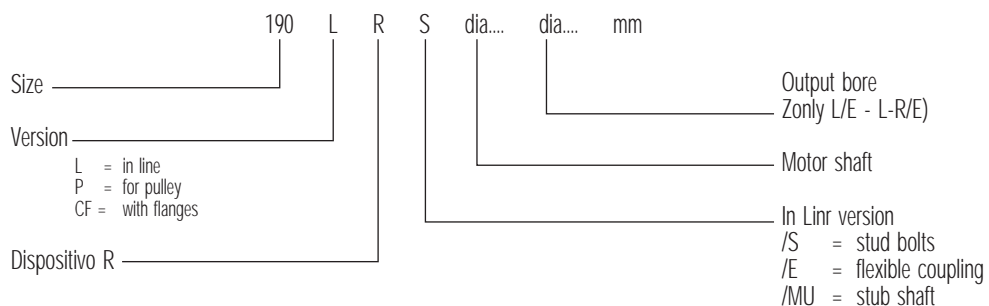
Oil level during work (phase3)



Acceleration torque of Turbostart Hydrodynamic Coupling

- A with standard circuit
- B with partial draining device

Part numbering system

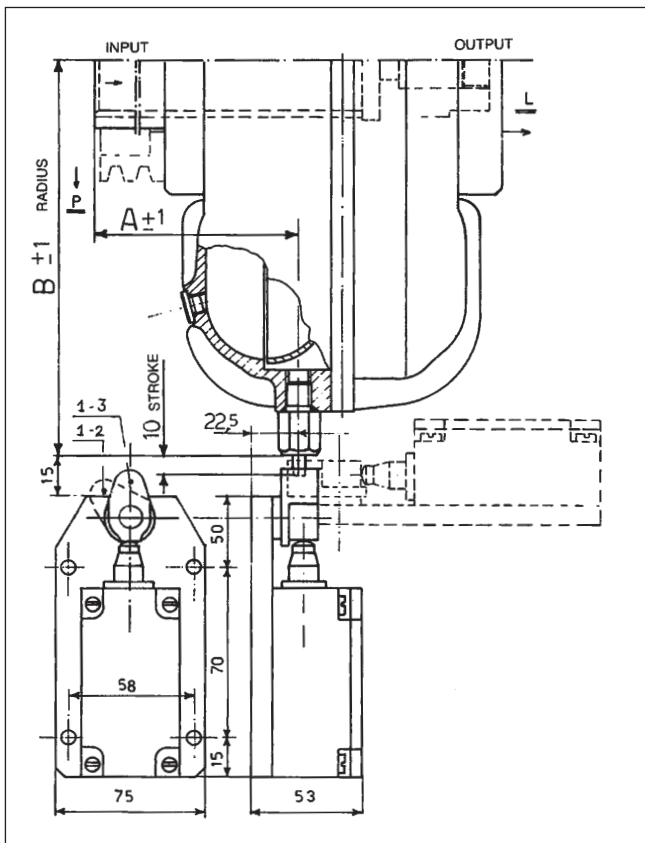


■ PROTECTION DEVICE

On request hydrodynamic and hydromechanic Technoflex couplings can be supplied with protecting devices for the protection of the coupling against possible extended overloads.

THERMAL TRIGGER DEVICE

At a certain predetermined temperature the little piston leaves its seat and acts on a limit switch, stopping the machine or giving a warning signal. The device is reset by replaceme not this trigger.

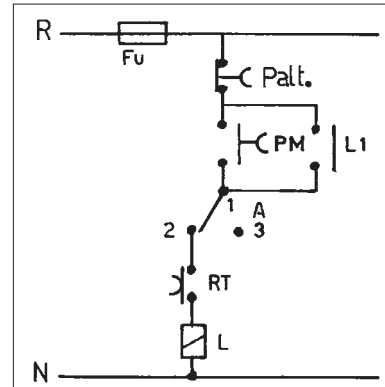


Coupling size		A±1	B±1	Coupling size	A±1	B±1
240N	L	65,5	171,5	18	L	130
	P	169,5			P	369,5
275N	L	90,5	194		PF	347
	P	224,5				
355	L	94	238	19S	L	162
	P	246,5			P	327
400	L	75	260	19	L	119
	P	237			P	399
445	L	137	286,5	110	L	162
	P	314			P	470

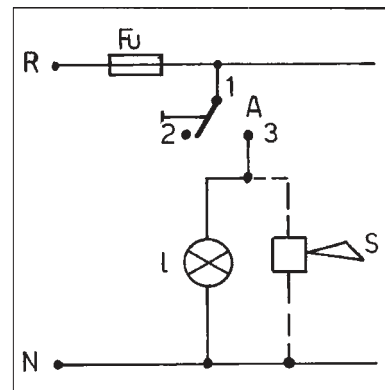
For the size 110S and 111, consult manufacturer for recommendations

In case of extended overload the high slip produced causes the oil temperature to rise triggering the protective device which can be used to stop the machine or give an acoustic or visible alarm.

SHUTDOWN WIRING DIAGRAM

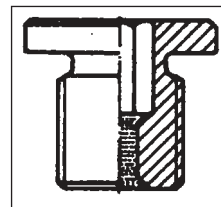


ALARM SYSTEM WIRING DIAGRAM



FUSIBLE PLUG DEVICE

At the selected temperature (145°C or 175°C) the fusible material of the plug melts and the oil gets out of the coupling and causes the transmission stall.



Fusible at 145°C or 175°C on request

■ **ALIGNING FLEXIBLE COUPLING**

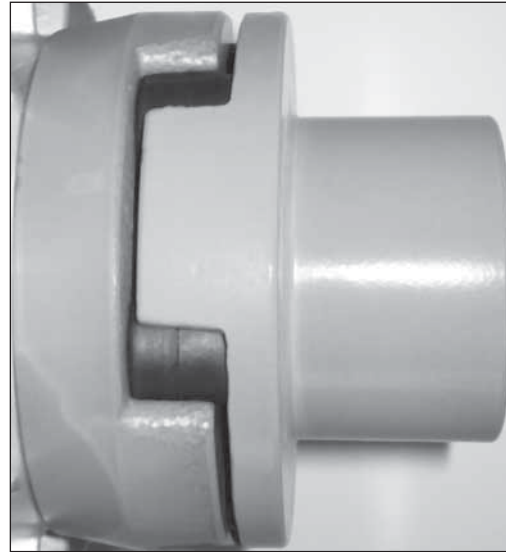
Technoflex flexible couplings with high torsional strength, can be supplied according to standard version with two stub shafts or flange and stub shaft version for mounting on Technoflex Hydraulic Coupling.

They have a rational easy mounting and can offer the following advantages :

- Neutralisation of misalignment effects
- Protection of transmission.

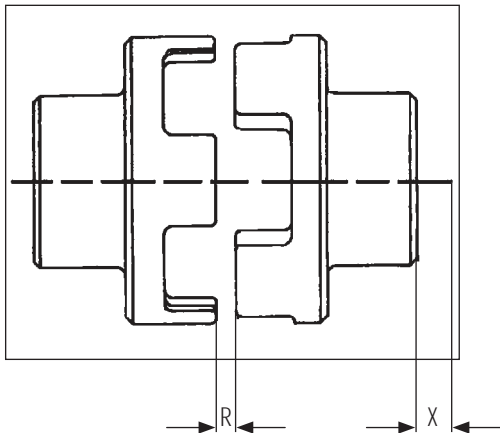
Performance - Service factor 1

Flexible coupling Type	E-10	E-20	E-30	E-40	E-50	E-60	E-70	E-80
Torque max. (Nm)	20	70	15	360	540	1500	3050	5350
Speed max. (RPM)	6000	5000	4000	3200	2800	2500	2000	2000

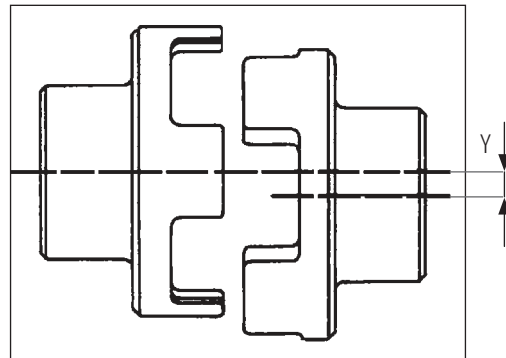


MAXIMUM DISPLACEMENT

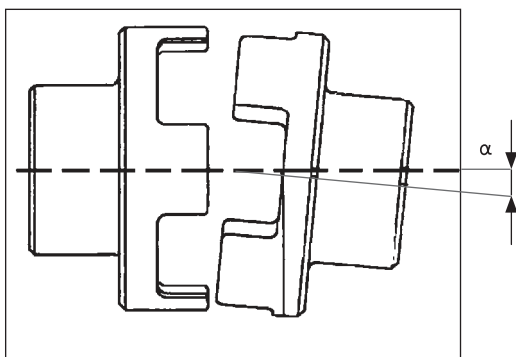
AXIAL



RADIAL



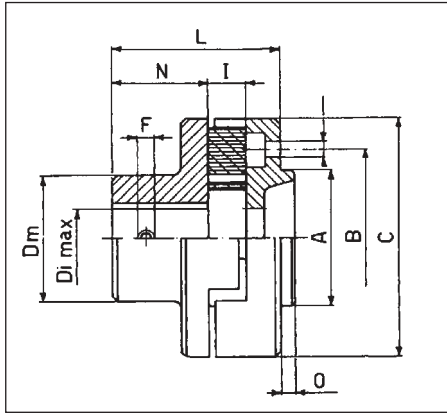
ANGULAR



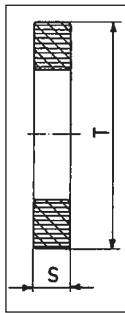
Flexible coupling Type.	E-10	E-20	E-30	E-40	E-50	E-60	E-70	E-80
R	12	20	20	25	25	30	40	50
X (max)	1.3	1.7	2.0	2.2	2.8	3.2	4.0	4.8
Y (max)	0.7	1.0	1.0	1.3	1.3	1.6	1.8	2.0
α (max)	1°30	1°30	1°30	1°30	1°30	1°30	1°30	1°30

R : minimum travel to disengage half coupling to replace the insert.

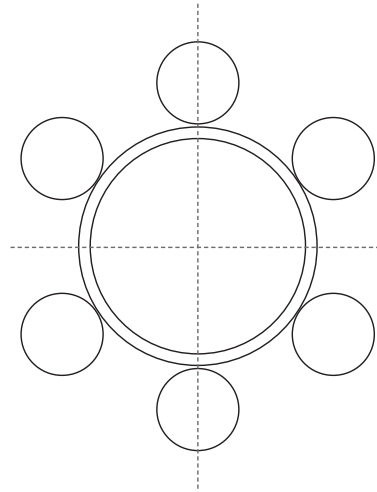
Type A



Rubber insert

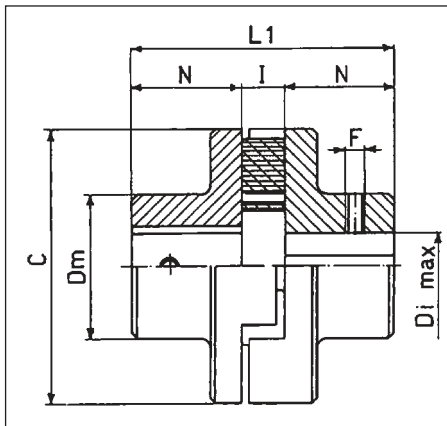


Flange and stub shaft type for L/E Turbostart Hydrodynamic Couplings.



Flexible element
6 rubber cylinders (E10-E20-E30)
8 rubber cylinders (E40-E50-E60)
10 rubber cylinders (E70-E80)

Type B



Standard type with two stub shaft

The couplings can be supplied with finished and Keyed bores on request.

Flexible coupling	DIMENSIONS (mm)															Weight Kg.		Rubber Insert Cyl.N°
	max bore G ₇ (Di)	Dm	N	I	L	L1	A F7	B	O	Ø d	N° fori	C	F	S	T	Type	Type	
E 10	24	46	30	12	52	72	40	52	3	6.5	6	70	M 6	12	65	0,800	1,000	6
E 20	38	55	42	20	76	104	47	73	3	6.5	6	96	M 8	20	92	1,800	2,000	6
E 30	48	76	55	20	95	130	62	89	3	8.5	6	122	M 8	20	112	4,000	4,000	6
E 40	60	86	73	25	119	171	72	112	3	10.5	8	150	M 10	25	140	6,000	7,200	8
E 50	70	105	73	25	119	171	85	136	4	10.5	8	175	M 10	25	164	9,000	11,000	8
E 60	80	124	88	30	142	206	120	168	8	10.5	8	220	M 12	30	200	16,000	19,000	8
E 70	100	150	111	40	181	262	140	196	9	12.5	10	250	M 12	40	235	26,000	32,000	10
E 80	110	200	141	50	221	332	180	250	10	14.5	10	320	M 14	50	300	70,000	90,000	10

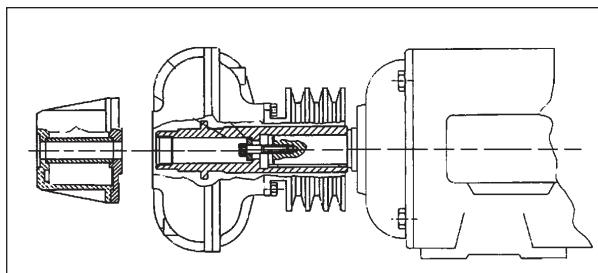
INSTRUCTIONS FOR INSTALLATION AND MAINTENANCE

PRINCIPLE OF OPERATION

- Lubricate the surfaces to be assembled with oil or antiseize grease.
- Check that the connection to the driven shaft is slightly loose but precise to avoid vibrations.

Model with pulley P

- After having checked the correct balancing, assemble the pulley on the hydrodynamic coupling.
- Secure the coupling on the shaft with the fixing screw B and washer C (fig.1)
- Check pulley alignment and belt tension to avoid bearing damage.

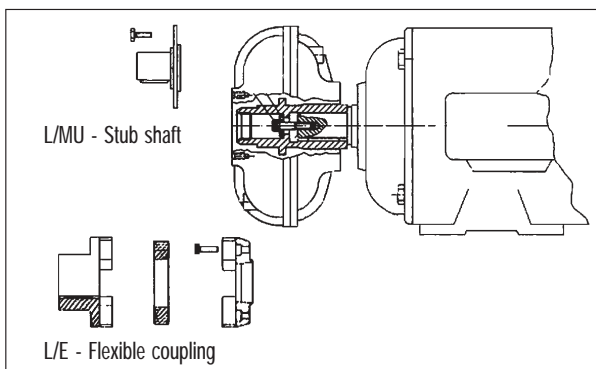


Draining device with through hole

Fig.1

In line model L

- Remove the flexible coupling (L/E) or remove the output shaft (L/MU).
- Secure the hydrodynamic coupling on the shaft with the fixing screw B and washer C (fig.2)



- Refit the flexible coupling on the driven shaft (L/E) or reinstall the output shaft (L/MU).
- Align the electric motor to the machine leaving 2+3 mm. gap in the flexible coupling (L/E)
- Check the radial alignment of the flexible coupling by making sure that the alignment of the external machined surfaces are within 0,5 mm. maximum using a rule.

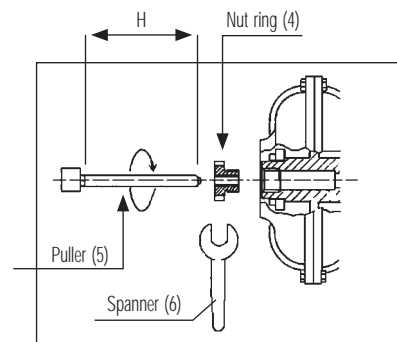
- Check with a feeler guage the angular alignment of the flexible coupling by turning the coupling 360 and testing with the guage every 90, the T.I.R. difference should be within 35' of one angular degree.
A good alignment prevents premature wear of the flexible coupling element.

Models with the delay chamber device "R"

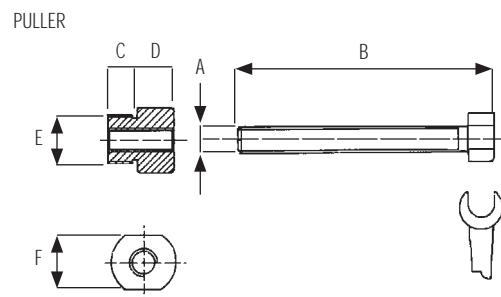
- Proceed as per models P or L. The coupling is fixed on the shaft with the fixing screw through the hole in the device (fig.1)

DISASSEMBLY

- Remove the fixing screw and washer (B,C) and with the puller dislocate the coupling from the shaft (fig.3).
- Arrest the housing with a spanner on nut ring and screw the puller.



(parts 4 - 5 - 6 are supplied on request)



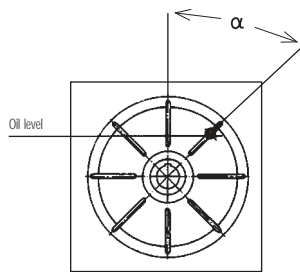
Coupling Size	A	B	C	D	E	F
155	M12	250	10	20	M26xp.2 left	Key 28
190	M24	450	15	55	M40xp.2 left	Key 42
Da220 a110	M45	700	-	-	-	-

OIL FILLING

The Technoflex hydrodynamic coupling are normally supplied complete with oil filling and ready to put into operation. To refill the oil during maintenance, proceed as follow :

- Arrange the coupling with horizontal axis;
- Place the arrow marked on the casting at 12 o'clock position (rotating towards the top the filler plug will be at an inclination in relation to vertical according to the angle inclined in the table below and fig.2.

Fill oil through one of the filler parts until the oil begin running out, paying attention that no air bubble is present. The coupling have never to be totally filled in order to avoid damages to the seals due to the inner pressure. For the oil quantity required please refer to the table below.



Recommended oils SAE 10 :

- | | |
|-----------------------------|-----------------|
| Agip OSO 32 | Fina Hydran 32 |
| BP Energol HLP 32 | Mobil DTE 24 |
| CHEVRON Hydraulic oil EP 32 | SHELL Tellus 32 |
| ESSO NUTO H 32 | Total Azolla 32 |

For special conditions (temperature, ambient) please contacts Technodrive.

OPERATION

The maximum operative temperature should not exceed 90 C. In heavy duty working cycle, it is possible to exceed this value by using special seals.

High operating temperature can be caused by :

- insufficient oil filling
- high absorbed power, due to an extended overload
- long starting time and too frequent starts
- high ambient temperature
- insufficient air ventilation due to carter. Adequate ventilating temperatures should be provided.

MAINTENANCE

After few hours of operation, check the tightness of bolts and screws.

From time to time check that no oil leakages are present. Check the oil level once a month.

The oil should be changed every 4000 hours of operation or every 12 months.

GUARANTEE

The couplings are guaranteed for 6 months of operation and in any case no more than 12 months from the date of invoice. The guarantee is void if the installation and maintenance instruction are not complied with, if non balance accessories are used, if connecting dimensions are out of tolerance.

OIL QUANTITY

Coupling Size	Standard version			Version with devic R		
	Angle	litres	Kgs	Angle	litres	Kgs
155 L e P	30°	0,770	0,670	70°	0,800	0,700
190 L e P	30°	1,300	1,130	70°	1,350	1,180
220 L e P	30°	2,100	1,830	60°	2,200	1,920
240 N	30°	2,850	2,500	60°	3,000	2,620
275 N	30°	4,370	3,800	60°	4,610	4,010
355 L e P	30°	5,570	4,850	60°	5,900	5,140
400 L e P	30°	8,700	7,400	70°	9,300	7,900
445 L e P	45°	10,300	9,000	70°	11,000	9,580
18 L	45°	15,520	13,500	80°	16,670	14,500
18P	45°	15,670	13,630	80°	16,830	14,640
19 SL	45°	20,000	17,400	80°	21,400	18,620
19 SP	45°	20,150	17,530	80°	21,560	18,760
19 L	45°	23,570	20,510	80°	25,220	21,950
19 P	45°	23,720	20,640	80°	25,380	22,090
110 SL	45°	45,000	39,300	58°	53,000	46,000
110 L	45°	55,200	48,030	80°	59,500	51,700
111 L	59°	82,500	72,100	72°	92,500	80,900

For the sizes 110 S and 111, consult manufacturer for recommendations

TECHNO FLEX



BACK STOP, CAM CLUTCH

Products by Sam bo clutch

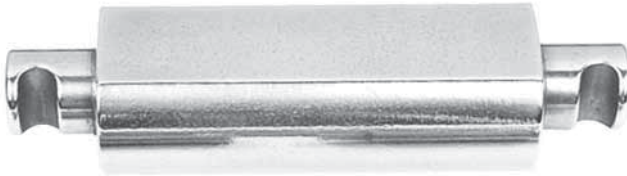
TYPE OF CAMS



Small size
(BS30K~BS75K)



Medium size
(BS85K~BS200K)



Large size
(BS200K over)



MZ-K, PB-K, B200K Series



MG-K, PNC-K Series



Speciality



BS-200K Series

CONTENTS OF CAM CLUTCHES

FOR THE ONLY BACKSTOPPING (HIGH TORQUE, LOW SPEED)

BS-K
Series



For backstopping application only (Grease Lubrication)
Torque range : 30~32,000 kgf.m
Bore range : \varnothing 20~ \varnothing 350

BS-RK
Series



For backstop application only (Oil Lubrication)
BS-RK Series is with oil reservoirs, over running speed is high than BS-K Series
Torque range : 2,500~32,000 kgf.m
Bore range : \varnothing 100~ \varnothing 350

FOR THE ONLY BACKSTOPPING, OVERRUNNING, INDEXING (LOW-MEDIUM SPEED, LIGHT LOAD)

LD-K
Series



Suitable for the low speed, Light load (Grease Lubrication)
Torque range : 0.6~5 kgf.m
Bore range : \varnothing 10~ \varnothing 30

B200K
Series



B200K series are supported by bearing and shaft mounted directly.
Torque range : 4~142 kgf.m
Bore range : \varnothing 16.5~ \varnothing 79.3

PB-K
Series



Outer race is easy to mounting gear, pulleys, sprockets.. etc.
(Grease Lubrication)
Torque range : 3~215 kgf.m
Bore range : \varnothing 10~ \varnothing 45

NFS-K, NSS-K
Series



Clutches have same diameters as metric ball bearing, require bearing support. (Grease Lubrication)
Torque range : 1.3~142 kgf.m
Bore range : \varnothing 8~ \varnothing 60

FOR THE BACKSTOPPING, OVERRUNNING, INDEXING (HIGH SPEED, HEAVY LOAD)

MZ-K
Series



For general purpose (Pre-lubricated with a grease)

Torque range : 33~3,100 kgf.m

Bore range : 20~70

Bore range : $\varnothing 20\text{--}\varnothing 70$

MZ-CK
MG-CK
Series



This series are clutch with couplings utilizing MZ-K, MG-K series

Torque & Bore range : MZ-K, MG-K series

Bore range of coupling : $\varnothing 40\text{--}\varnothing 80$ (MZ-K)

Bore range of coupling : $\varnothing 56\text{--}\varnothing 285$ (MG-K)

MG-K
MI-K
MR-K
Series



For high speed, precision, general purpose (Oil Lubrication)

Torque range : 32~18,000 kgf.m

Bore range : $\varnothing 19\text{--}\varnothing 250$

MG-RK
Series



For backstopping application with high speed (Oil Lubrication)

This series consist of MG-K series and oil reservoir type

Torque range : 32~18,000 kgf.m

Bore range : $\varnothing 19\text{--}\varnothing 250$

OTHER
Series

PNC-K Series

BSD-K Series

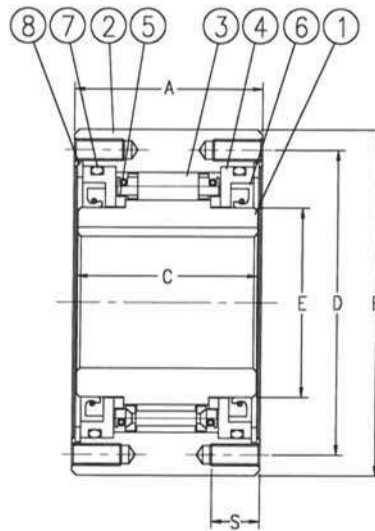
GFR-K Series



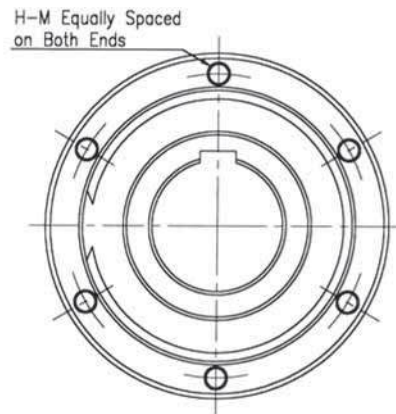
FOR BACKSTOP APPLICATION ONLY

BS-K Series

FOR BACKSTOP APPLICATION



- 1. Inner Race
- 2. Outer Race
- 3. Cam Cage Assembly
- 4. Seal Supporter
- 5. Oil Seal
- 6. O Ring
- 7. Snap Ring
- 8. Dust Protective Plate



Specification

Dimensions-mm

Model	Max Torque (kgf-m)	Stock Bore Size	Normal Overrunning Drag (kgf-m)	Max. Overrunning (rpm) Inner Race	A	B	C	D	E	S	H-M No. of Tapped Hoies x Dia x Pitch	Grease Filler Hole	Q'ty of Grease (gf)	Weight (kgf)
BS 30K	30	20~30	0.06	200	64	90	64	80	45	10	4 x M6 x 1.0	-	-	2.1
BS 50K	80	30~50	0.1	200	67	125	67	110	70	12	4 x M8 x 1.25	-	-	4.0
BS 65K	160	40~65	0.4	150	90	160	85	140	90	20	6 x M10 x 1.5	-	-	11.5
BS 75K	250	50~75	0.6	150	90	170	85	150	100	20	6 x M10 x 1.5	-	-	13.5
BS 85K	600	60~85	0.8	150	115	210	110	185	115	30	6 x M12 x 1.75	-	-	24.7
BS 95K	800	70~95	1.0	150	115	230	110	200	130	30	6 x M14 x 2.0	-	-	29.4
BS 110K	1,100	80~110	1.5	150	115	270	110	220	150	30	6 x M16 x 2.0	-	-	34.2
BS 135K	1,600	90~135	2.0	100	135	320	130	280	180	30	8 x M16 x 2.0	-	-	68.0

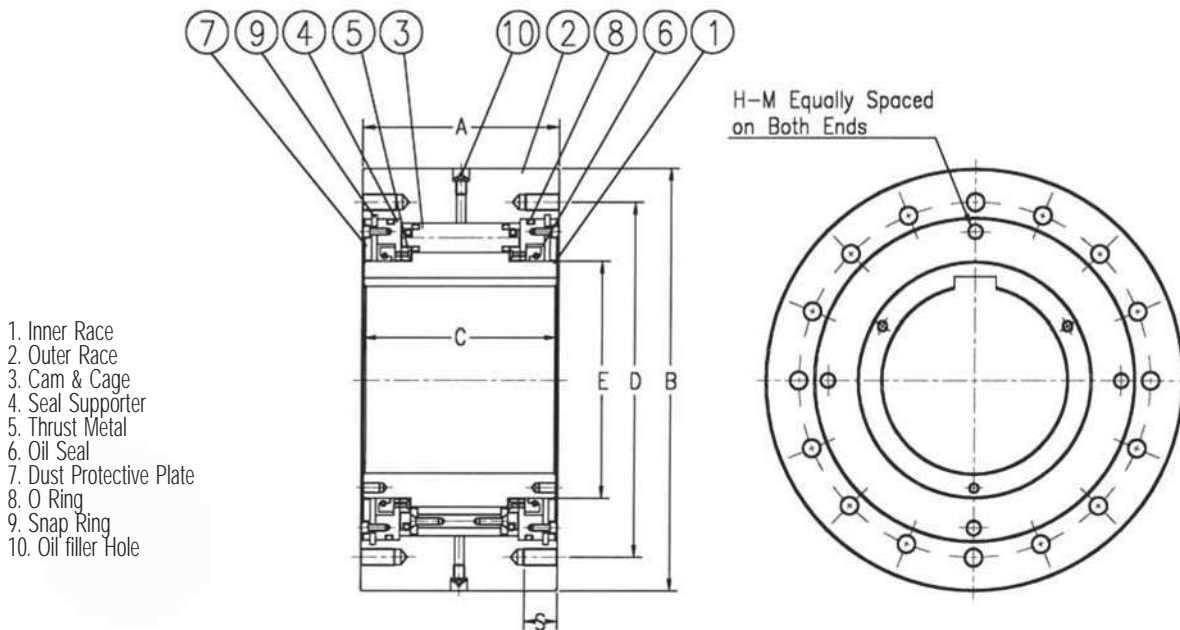
Character

1. For the only backstop application in slant conveyors and bucket elevators.
2. Pre-lubricated with grease and no lubrication maintenance required.

*Specify the Bore & key way dimension when ordering

BS-K Series

FOR BACKSTOP APPLICATION



Specification

Dimensions-mm

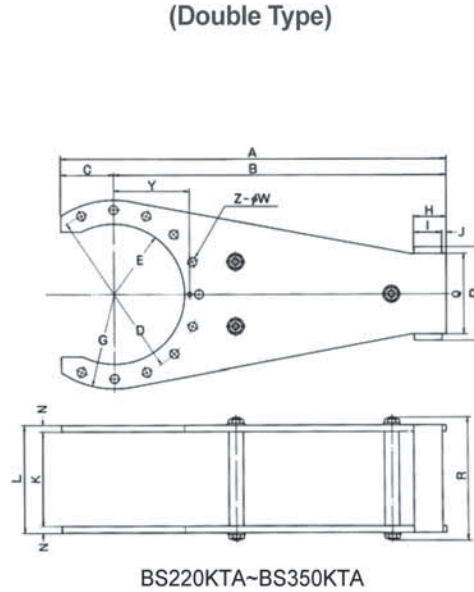
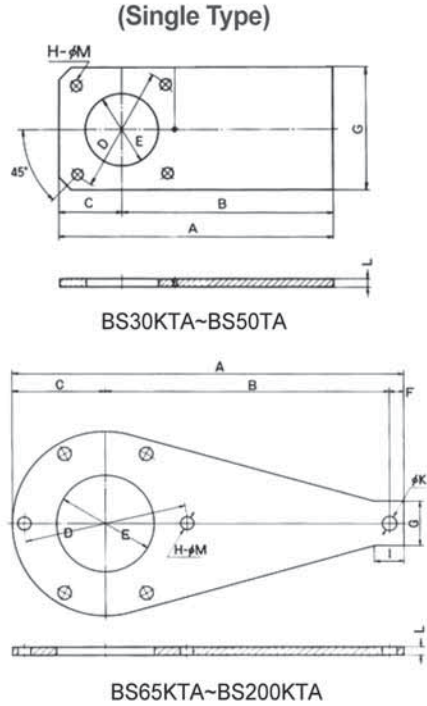
Model	Max Torque (kgf-m)	Stock Bore Size	Normal Overrunning Drag (kgf-m)	Max. Overrunning (rpm) Inner Race	A	B	C	D	E	S	H-M No. of Tapped Holes x Dia x Pitch	Grease Filler Hole	Q'ty of Grease (gf)	Weight (kgf)
BS 160K	2,500	100-160	3.5	100	135	360	130	315	210	40	10 x M20 x 2.5	PT $\frac{1}{4}$	300	85.6
BS 200K	3,800	110-200	4.5	100	150	430	145	380	260	40	8 x M22 x 2.5	PT $\frac{1}{4}$	380	140.0
BS 220K	5,000	150-220	7.5	80	235	500	230	420	280	40	16 x M20 x 2.5	PT $\frac{1}{4}$	1,100	263.5
BS 250K	9,000	180-250	9.5	50	295	600	290	530	340	50	16 x M24 x 3.0	PT $\frac{1}{4}$	3,200	580.0
BS 270K	12,500	200-270	9.5	50	295	650	290	575	370	50	16 x M24 x 3.0	PT $\frac{1}{4}$	3,600	620
BS 300K	18,000	230-300	11.0	50	295	780	290	690	470	60	16 x M30 x 3.5	PT $\frac{1}{4}$	4,500	850
BS 350K	32,000	250-350	16.0	50	320	930	360	815	535	70	16 x M36 x 4.0	PT $\frac{1}{4}$	5,200	1,605

Character

Grease lubrication and lubrication maintenance is necessary.

TORQUE ARM (OPTION)

Torque Arm is at your option (For BS-K, BS-RK series)



Dimension (Single Type)

Dimensions-mm

Torque Arm No.	A	B	C	D	E	F	G	I	K φ	L	H-M φ	Approx. Weight (kg)
BS 30KTA	168	130	38	80	55	-	75	-	-	6	4-6.6	0.5
BS 50KTA	230	180	50	110	80	-	100	-	-	6	4-9	0.8
BS 65KTA	306	210	80	140	90	16	50	30	13.5	6	6-11	1.7
BS 75KTA	354	250	85	150	100	19	65	35	16.5	6	6-11	2.3
BS 85KTA	434	300	105	185	115	29	95	45	20.5	9	6-14	5.0
BS 95KTA	497	350	115	200	130	32	105	55	20.5	9	6-16	6.2
BS 110KTA	560	385	135	220	140	40	110	60	26	12	6-18	10.5
BS 135KTA	666	470	160	280	180	36	120	65	26	12	8-18	14.8
BS 160KTA	792	580	180	315	260	32	120	65	31	19	10-22	27.4
BS 200KTA	838	580	215	380	310	43	130	70	41	19	8-24	34.2

Dimension (Single Type)

Dimensions-mm

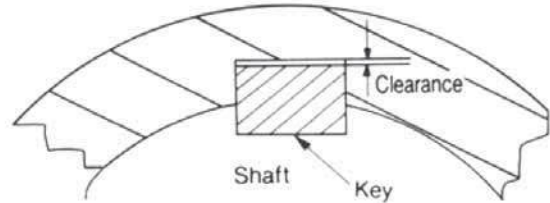
Torque Arm No.	A	B	C	D	E	G	H	I	J	K	L	N	P	Q	R	Z-W φ	Approx. Weight (kg)
BS 220KTA	950	820	130	420	176	235	80	70	10	235	259	12	238	200	311	11-22	58
BS 250KTA	1170	1000	170	530	214	300	100	90	10	295	319	12	288	250	375	11-26	95
BS 270KTA	1270	1100	170	575	235	325	110	100	10	295	319	12	298	260	375	11-26	110
BS 300KTA	1480	1300	180	690	285	390	135	120	15	295	333	19	356	300	395	11-32	200
BS 350KTA	1850	1600	250	815	328	465	135	120	15	320	385	19	414	350	430	11-39	330

INSTALLATION

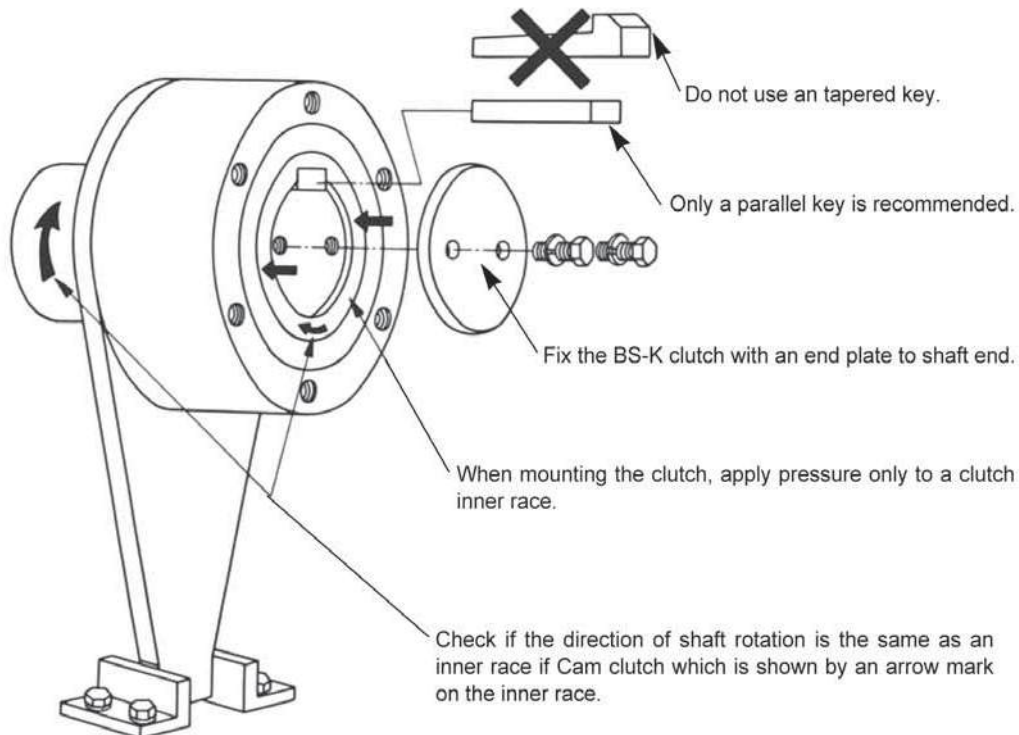
Installation of BS-K series

Installation procedure

1. Before installation, check if the direction of shaft rotation is the same as an inner race of cam clutch which is shown by an arrow mark on the inner race.
2. Recommended fit of bore to shaft is H8 (clutch bore) to h8 (shaft) or H7 to h7.
Interference fit and shrinkage fit are prohibited for clutch fixing.
3. When mounting the cam clutch, apply pressure only to a clutch inner race with soft hammer (Do not hit a clutch outer race, a seal supporter nor a dust protective cover.)
4. Only a parallel key is recommendable for clutch fixing. Do not use an inclined key. And there shall be clearance between clutch keyway and key ceiling. (refer the side drawing)
5. Fix clutch with an end plate to shaft end. (refer the below drawing)



Loose on top key
Tight fit on both sides of key



INSTALLATION

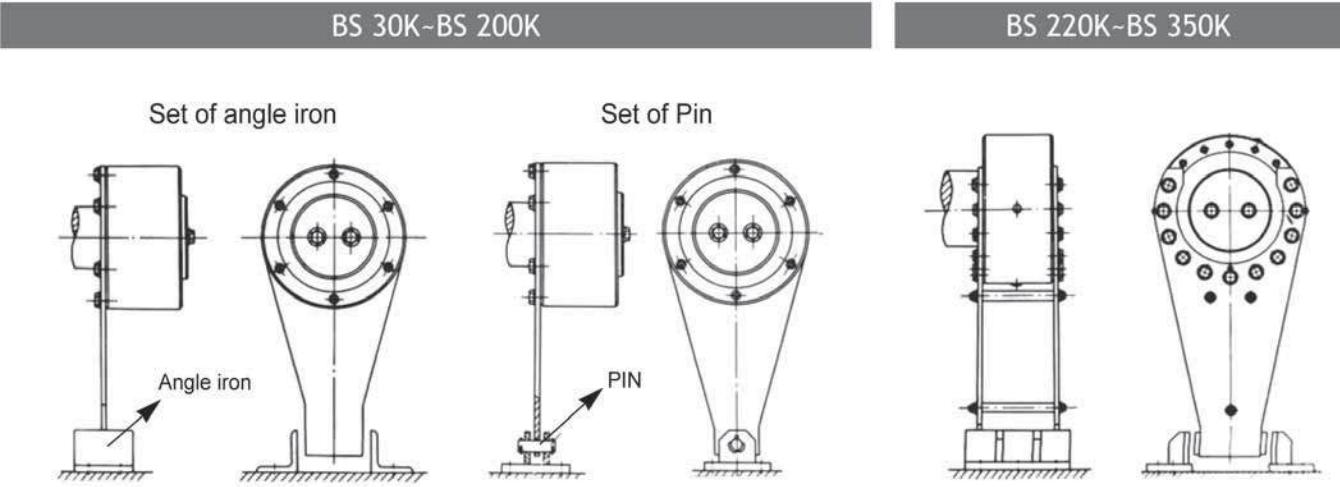
Installation of torque arm (BS-K series)

Installation procedure of torque arm

1. Before mounting a torque arm onto a clutch outer race, clean off contact-area of a torque arm and a clutch outer race.
2. High tension bolts (over 11T in Jis standard) are recommended for torque arm fixing, and screw all bolts tightly
3. The end of torque arm shall be restrained to prevent rotation either by a pin or a set of angle iron.(refer the below drawing)
 - For fixing by a pin, pin diameter should be smaller by 1-2 mm than that of pin hole the torque arm end.

Note : The torque arm should be free axially in order to prevent the clutch from any load induced by misalignment and distortion
 - The end of torque arm shall not be welded

*BS 30K-BS 200K & BS 160RK-BS 200RK : Use a single torque arm
 *BS 220K-BS 350K & BS 220RK-BS 350RK : Use a double torque arm



Note : Torque Arm end must axially free.

LUBRICATION & MAINTENANCE

BS30K-BS135K

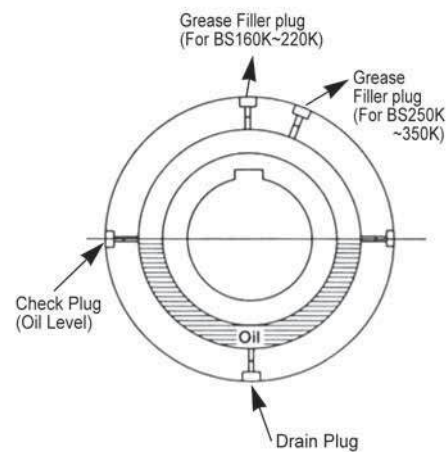
PRE-LUBRICATED WITH GREASE TYPE

No lubrication maintenance is required. (Special grease for very low temperatures must be used in surroundings below - 10°C.)

BS 160RK-BS 350K

GREASE LUBRICATED TYPE

1. Use four plugs on the clutch outer race for grease fill, level check and drain. (locate one of the plugs at the top as grease filler then, the other plugs are for grease level checking and grease draining)
2. Detach plugs for grease level check. and pour grease through grease filler hole (top) until grease flows out from level check hole (middle). then attach the plugs and screw tightly.
3. Grease shall be added at 3 months intervals after initial grease fill and change whole grease at six months intervals. (after draining old grease, clean inside of the clutch and fill the clutch with new grease.

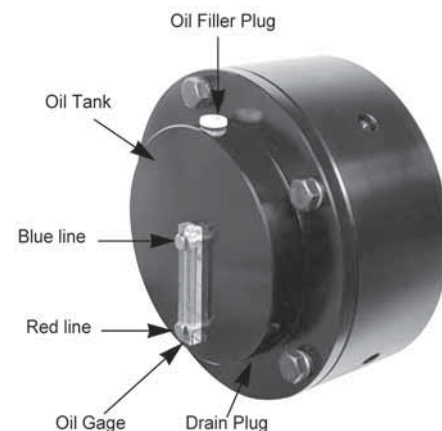


BS 160RK-BS 350RK

OIL-LUBRICATED OIL RESERVOIR TYPE

1. Detach the oil plug installed on the oil reservoir and pour oil into the oil reservoir up to the blue line of the oil level gage.
 - oil level : Blue line on the oil gage show level for oil fill, Red line shows the lowest level of oil during operation
2. Periodical check is necessary to maintain proper oil level, that is, oil is above the red line of the oil gage. Whole oil shall be changed once a year to receive the fine long life service of the cam clutch.

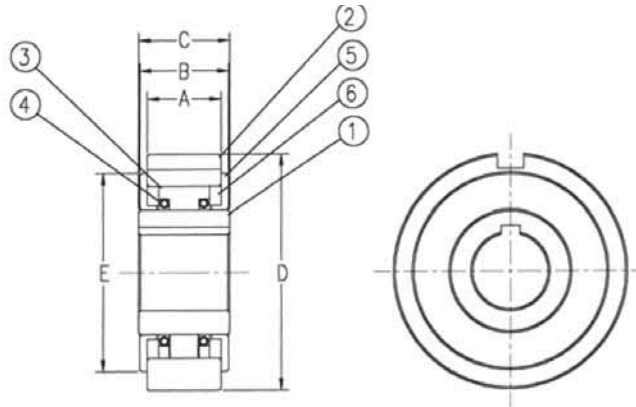
*Recommended Grease & Oil



BACKSTOPPING / OVERRUNNING / INDEXING (FOR LIGHT LOAD)

LD-K Series

FOR LIGHT DUTY AT LOW SPEED



- 1. Inner Race
- 2. Outer Race
- 3. Cam and Roller
- 4. Spring
- 5. Side Plate
- 6. Thrust Plate

Specification

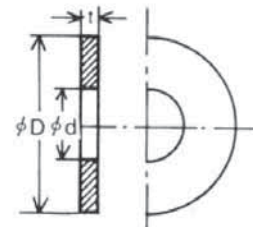
Dimensions-mm

Model	Max Torque (kgf-m)	Nominal Overrunning Drag (kgf-m)	Max. Overrunning (rpm) Inner Race	Max. Indexing (cycle/min)	(kgf)	Stock Bore Size		A	B	C	D	E	Outer Race Keyway	Weight (kgf)
						Dia (H7)	Key way							
LD 04K	0.6	0.02	300	100	20	10	4 x 1.5	19.5	23.9	24	47 ^{+0.014} _{-0.039}	40	5 x 3	0.24
LD 05K	1.0	0.03	300	100	30	14	5 x 2	19.5	23.9	24	52 ^{+0.017} _{-0.042}	45	5 x 3	0.28
LD 06K	2.0	0.03	200	100	50	20	5 x 2	19.5	23.9	24	62 ^{+0.017} _{-0.042}	52	7 x 4	0.40
LD 07K	3.0	0.04	200	100	70	25	7 x 3	19.5	23.9	24	72 ^{+0.017} _{-0.042}	62	7 x 4	0.53
LD 08K	5.0	0.05	200	100	80	30	7 x 3	19.5	23.9	24	80 ^{+0.017} _{-0.042}	70	10 x 4.5	0.64

Character

1. Be sure to attach the plate, this prevents the outer race from slipping away from the innerrace.
2. Never apply thrust loads to the clutch.
3. The bores of the pulley, sprocket, etc., should have a tolerance of H6 or H7.

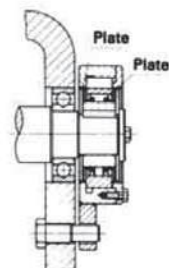
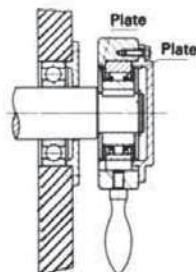
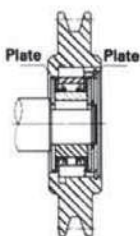
■ Plate Dimensions



Dimensions-mm

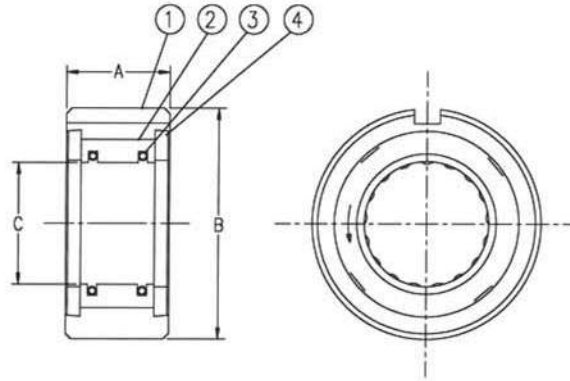
Model	t	dφ	φD
LD 04K	2	10	40
LD 05K	2	14	45
LD 06K	3	20	52
LD 07K	3	25	62
LD 08K	3	30	70

■ Application



B200K Series

SHAFT MOUNTED TYPE



- 1. Inner Race
- 2. Cam
- 3. Spring
- 4. Side Plate

Specification

Dimensions-mm

Model	Max Torque (kgf-m)	Normal Overrunning Drag (kgf-m)	Overrunning (rpm)		Max. Indexing (cycle/min)	Dimension			Keyway	Bearing Number	Weight (kgs)
			Max.	Min.		A	B	C			
B203K	4	0.01	2,400	500	150	25.0	40 ^{-0.014} _{-0.039}	16.510	4 x 2.5	6203	0.16
B204K	6	0.01	2,400	500	150	25.0	47 ^{-0.014} _{-0.039}	18.796	5 x 3	6204	0.25
B205K	10	0.02	1,800	400	150	25.0	52 ^{-0.014} _{-0.039}	23.622	5 x 3	6205	0.29
B206K	24	0.02	1,800	350	150	28.0	62 ^{-0.014} _{-0.039}	32.766	7 x 4	6206	0.42
B207K	38	0.02	1,800	300	150	28.0	72 ^{-0.014} _{-0.039}	42.088	7 x 4	6207	0.50
B208K	56	0.02	1,800	200	150	32.0	80 ^{-0.014} _{-0.039}	46.761	10 x 4.5	6208	0.73
B209K	56	0.02	1,800	200	150	32.0	85 ^{-0.020} _{-0.045}	46.761	10 x 4.5	6209	0.89
B210K	80	0.03	1,200	200	150	32.0	90 ^{-0.020} _{-0.045}	56.109	10 x 4.5	6210	0.87
B211K	80	0.03	1,200	200	150	32.0	100 ^{-0.020} _{-0.050}	56.109	10 x 4.5	6211	1.24
B212K	125	0.03	1,200	180	150	42.0	110 ^{-0.020} _{-0.050}	70.029	10 x 4.5	6212	1.56
B213K	125	0.03	1,200	180	150	42.0	120 ^{-0.020} _{-0.050}	70.029	10 x 4.5	6213	2.07
B214K	142	0.04	1,000	180	150	42.0	125 ^{-0.024} _{-0.060}	79.356	12 x 4.5	6214	2.05

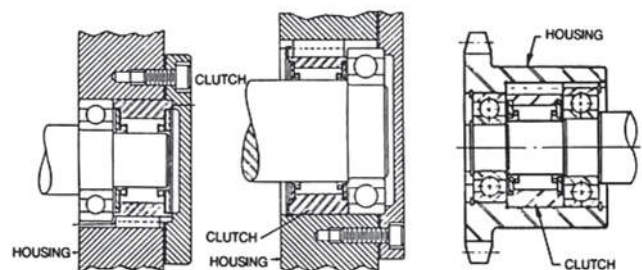
Character

- 200K Series are shaft mounted directly.
- Clutch have the same O.D as the ball bearing.
For installation of clutch, shaft must be supported by bearings. (refer the side drawing)

■ Tolerance of housing bore

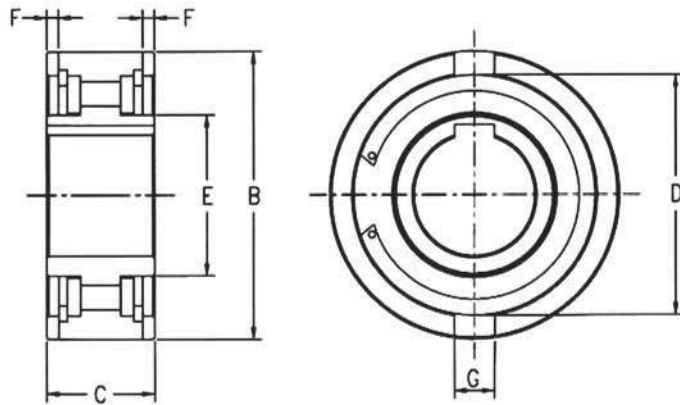
Model	Tolerance of housing bore
B203K, B204K	0 to + 0.025
B205K, B206K, B207K, B208K	0 to + 0.030
B210K, B211K, B212K, B213K	0 to + 0.035
B214K	0 to + 0.040

■ Application



NFS-K Series

FOR INNER RACE HIGH SPEED, GENERAL PURPOSE



Specification

Dimensions-mm

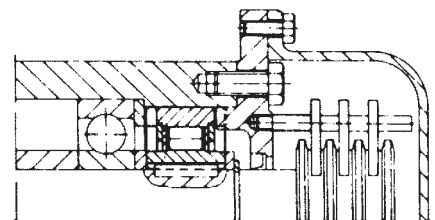
Model	Torque Capacity kgf*m	Max. Overrunning (rpm)		Stock Bore Size		B (n6)	C	D	E	F	G	Weight (kgs)
		Inner Race	Outer Race	Dia (H7)	Key Way							
NFS-15K	2.9	3,500	1,800	15	5 x 1.2	42	18	36	22	1.8	5	0.13
NFS-17K	5.1	3,200	1,600	17	5 x 1.2	47	19	37	23	2.3	5	0.18
NFS-20K	8.6	2,500	1,300	20	6 x 1.6	52	21	45	29	2.3	6	0.22
NFS-25K	13.1	2,000	1,000	25	8 x 2.0	62	24	52	35	2.8	8	0.37
NFS-30K	20.4	1,600	800	30	8 x 2.0	72	27	60	40	2.5	10	0.55
NFS-35K	48.5	1,400	700	35	10 x 2.4	80	31	70	48	3.5	12	0.73
NFS-40K	62.0	1,300	650	40	12 x 2.2	90	33	78	55	4.1	12	1.02
NFS-45K	77.1	1,100	550	45	14 x 2.1	100	36	85	59	4.6	14	1.36
NFS-50K	114.7	1,000	500	50	14 x 2.1	110	40	92	65	5.6	14	1.82
NFS-60K	201.5	840	420	60	18 x 2.3	130	46	110	80	5.5	18	2.96
NFS-70K	256.5	750	380	70	20 x 2.7	150	51	125	90	6.9	20	4.26
NFS-80K	402.3	670	340	80	22 x 3.1	170	58	140	105	7.5	20	6.25

Character

1. NFS-K Series is Cam type clutch
2. Clutches have same diameters as metric medium series ball bearing.
3. Clutches require bearing support to assure concentricity between inner and outer race.
4. Clutches must be lubricated before putting in service.

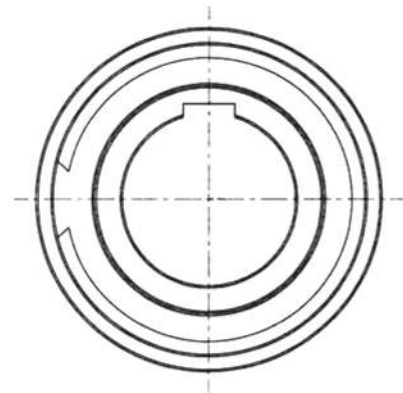
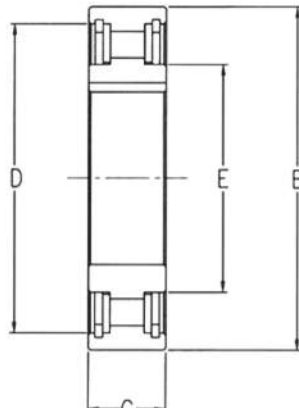
*The key way is in accordance with DIN 6885 sheet 3.

Application



NSS-K Series

FOR INNER RACE HIGH SPEED, GENERAL PURPOSE



Specification

Dimensions-mm

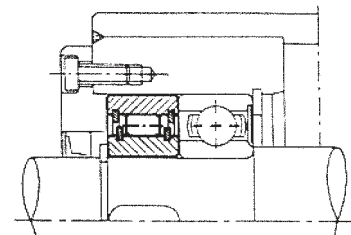
Model	Torque Capacity kgf*m	Max. Overrunning (rpm)		Stock Bore Size		B (n6)	C	D	E	Weight (kgf)
		Inner Race	Outer Race	Dia (H7)	Key Way					
NSS-20K	4.2	2,600	1,300	20	6 x 1.6	47	14	40	26	0.12
NSS-25K	5.7	2,200	1,100	25	8 x 2.0	52	15	45	32	0.15
NSS-30K	10.7	1,800	900	30	8 x 2.0	62	16	55	42	0.23
NSS-35K	13.9	1,600	800	35	10 x 2.4	72	17	62	48	0.33
NSS-40K	30.2	1,400	700	40	12 x 2.2	80	18	72	53	0.40
NSS-45K	35.4	1,300	650	45	14 x 2.1	85	19	75	57	0.47
NSS-50K	41.1	1,200	600	50	14 x 2.1	90	20	80	62	0.53
NSS-60K	66.2	910	460	60	18 x 2.3	110	22	100	78	0.91

Character

1. NSS-K Series is Cam type clutch
2. Clutches have same diameters as metric medium series ball bearing.
3. Clutches require bearing support to assure concentricity between inner and outer race.
4. Clutches must be lubricated before putting in service.
5. Excellent for applications where space is restricted.

*The key way is in accordance with DIN 6885 sheet 3.

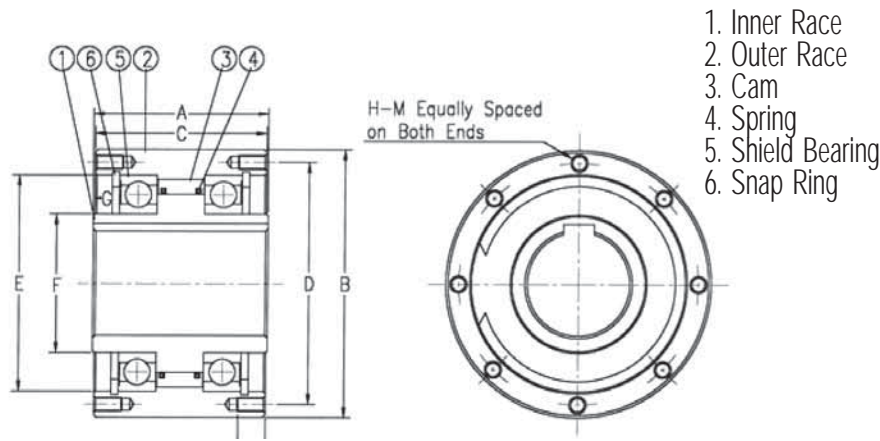
Application



BACKSTOPPING / OVERRUNNING / INDEXING (FOR HEAVY LOAD)

MZ-K Series

FOR GENERAL PURPOSES



Specification

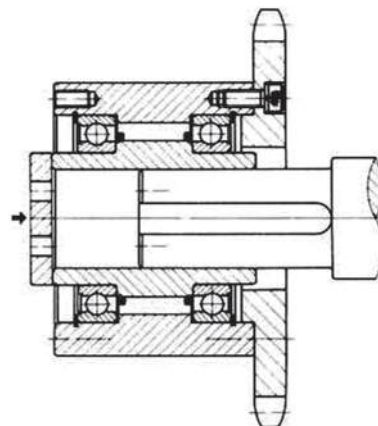
Dimensions-mm

Model	Max. Torque (kgf-m)	Nominal Overrunning Drag (kgf-m)	Max. Overrunning (rpm)		Max. Indexing (cycle/min)	Stock Bore Size		A	B (n6)	C	D	E (M6)	F	G	H-M No. of Tapped Holes x Dia x Pitch	S	Weight (kgf)
			Inner Race	Outer Race		Dia (H7)	Key Way										
MZ-20K	33	0.03	1,600	700	150	20	6 x 2.8	67	80	65	68	55	30	7.6	6 x M6 x 1.0	13	2.0
MZ-30K	75	0.04	1,500	500	150	30	10 x 3.3	82	100	80	88	75	45	8.9	6 x M8 x 1.25	16	3.6
MZ-45K	165	0.07	1,400	300	150	45	14 x 3.8	92	125	90	110	95	60	8.4	8 x M8 x 1.25	16	6.0
MZ-60K	215	0.10	1,200	250	150	60	18 x 4.4	102	155	100	140	125	80	9.1	8 x M8 x 1.25	16	9.9
MZ-70K	310	0.13	1,100	250	150	70	20 x 4.9	105	175	103	162	145	95	8.6	8 x M8 x 1.25	20	12.9

Character

- MZ-K Series are shielded by bearings on both ends, packed with a grease.
- High tension bolts are recommended for pulleys, gears or sprockets fixing to the outer race of cam clutch. (refer the drawing)
- Fix Clutch by an end plate to shaft end. (refer the side drawing)
- Ambient temperature range is -5 °C to +40 °C

Application

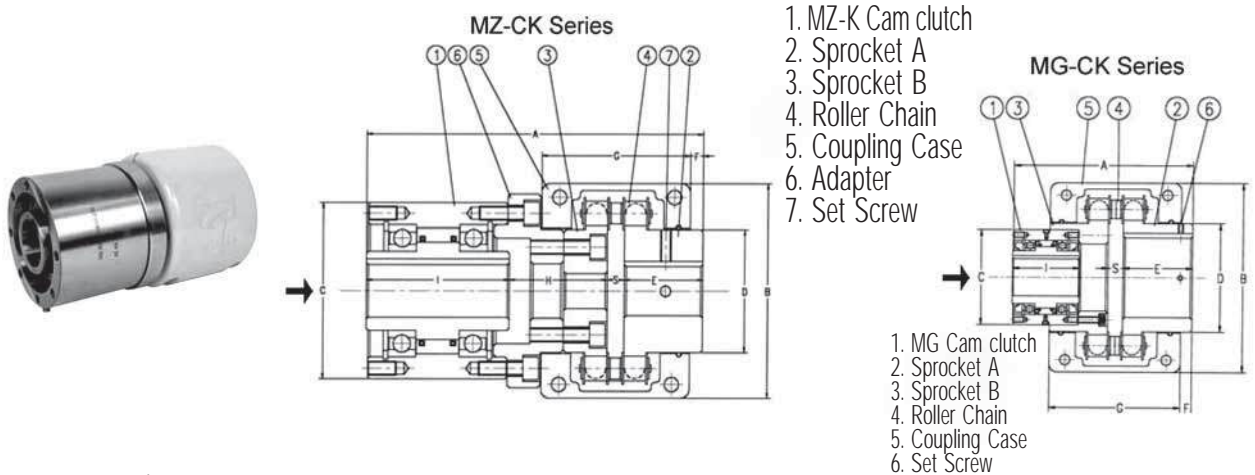


Shaft Tolerance

Model	Shaft Tolerance
MZ-20K	0 to - 0.021
MZ-30K	0 to - 0.021
MZ-45K	0 to - 0.025
MZ-60K	0 to - 0.030
MZ-70K	0 to - 0.030

MZ-CK, MG-CK Series

CAM CLUTCH WITH COUPLING



Specification / MZ-CK Series

Model	Max. Torque (kgf-m)	Nominal Overrunning Drag (kgf-m)	Max. Overrunning (rpm)		Clutch Side Stock Bore Size		Coupling Side Stock Bore Size		Dimensions-mm											Weight (kgf)					
									Inner Race	Outer Race	Dia (J7)	Key Way	Min.	Max.	A	B	C (h7)	D	E		F	G	H	I	S
MZ 20CK	33	0.03	1,600	700	20	6 x 2.8	15	40	174	111	80	60	45	7.35	85	52.3	67	9.7	6.1						
MZ 30CK	75	0.04	1,500	500	30	10 x 3.3	15	45	194	122	100	70	45	7.35	85	57.3	82	9.7	9.4						
MZ 45CK	165	0.07	1,400	300	45	14 x 3.8	20	56	226	142	125	85	56	8.7	106	66.5	92	11.5	15.8						
MZ 60CK	215	0.10	1,200	250	60	18 x 4.4	20	75	236	167	155	110	56	8.7	106	66.5	102	11.5	24.5						
MZ 70CK	310	0.13	1,100	250	70	20 x 4.9	25	80	260	186	175	115	63	5.6	130	76.8	105	15.2	32.6						

Specification / MG-CK Series

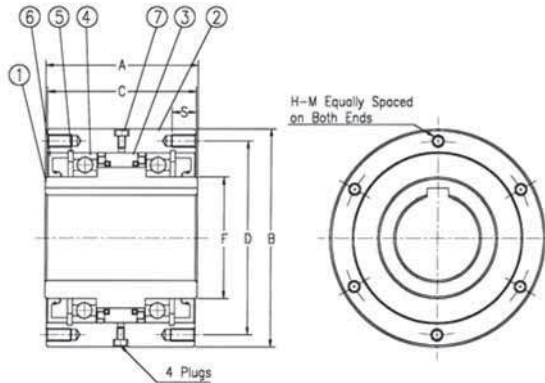
Model	Max. Torque (kgf-m)	Nominal Overrunning Drag (kgf-m)	Max. Overrunning (rpm)		Clutch Side Stock Bore Size		Coupling Side Stock Bore Size		Dimensions-mm											Weight (kgf)				
									Inner Race	Outer Race	Dia (H7)	Key Way	Min.	Max.	A	B	C (h7)	D	E		F	G	S	I
MZ 300CK	32	0.023	2,800	900	19	5 x 2	20	56	155	142	77	85	56	8.7	106	11.5	63	8.5						
MZ 400CK	55	0.029	2,600	800	22	5 x 2	20	75	160	167	88	110	56	8.7	106	11.5	70	13.5						
MZ 500CK	165	0.052	2,400	800	31.5	7 x 3	30	100	195	220	108	140	71	13.55	130	15.2	89	28						
MZ 600CK	320	0.086	2,100	700	50	12 x 3.5	45	125	250	307	136	170	90	24.8	181	22.7	95	52						
MZ 700CK	600	0.173	1,500	500	70	18 x 6	55	150	275	357	180	210	100	24.8	181	22.7	127	80						
MZ 750CK	970	0.35	1,400	500	85	24 x 6	60	160	340	406	200	224	112	2.1	250	30.1	153	147						
MZ 800CK	1,800	0.55	1,300	475	110	28 x 7	75	200	370	472	250	280	140	30	250	30.1	158	182						
MZ 900CK	2,500	0.69	1,200	400	135	35 x 9	98	260	496	578	300	374	241	121.7	280	37.5	165	420						
MZ 1000CK	3,450	0.83	1,200	325	160	38 x 10	108	285	510	-	370	408	241	-	-	37.5	188	470						

Character of MZ-CK, MG-CK Series

1. MZ-CK Series & MG-CK Series are clutch coupling utilizing MZ-K, MG-K Series clutches.
2. Specify right hand (R.H) or left hand (L.H) inner race drive viewed from direction of arrow mark when ordering (Refer the above drawing)
3. Accurately align both sprockets

MG-K, MI-K, MR-K Series

FOR HIGH SPEED, GENERAL PURPOSE



1. Inner Race
2. Outer Race
3. Cam Cage Assembly
4. Bearing
5. Snap Ring
6. Oil Seal
7. Lubrication Filler Plug

Specification

Dimensions-mm

Model	Max. Torque (kgf-m)	Nominal Overrunning Drag (kgf-m)	Max. Overrunning (rpm)		Max. Indexing (cycle/min)	Stock Bore Size		A	B (h7)	C	D	F	S	H-M No. of Tapped Holes x Dia x Pitch	Lubrication filler Plug Dia. x Pitch	Oil (CC)	Weight (kgf)
			Inner Race	Outer Race		Dia (H7)	Key Way										
MG 300K MI 300K	32	0.023 0.031	2,800 50	900 -	300 -	19	5 x 2	63	77	60	66	30	13	4 x M6 x 1.0	M6 x 1.0	25 50	1.7
MG 400K MI 400K	55	0.029 0.038	2,600 50	800 -	300 -	22	5 x 2	70	88	67	73	35	16	4 x M8 x 1.25	M6 x 1.0	30 60	2.4
MG 500K MI 500K	165	0.052 0.069	2,400 50	800 -	300 -	31.5	7 x 3	89	108	86	92	50	16	4 x M8 x 1.25	M6 x 1.0	50 100	4.5
MG 600K MI 600K	320	0.086 0.158	2,100 30	700 -	300 -	50	12 x 3.5	95	136	92	120	75	16	6 x M8 x 1.25	M6 x 1.0	80 160	7.5
MG 700K MI 700K	600	0.173 0.268	1,500 30	500 -	300 -	70	18 x 6	127	180	124	160	100	20	6 x M10 x 1.5	M6 x 1.0	135 260	17.5
MG 750K MI 750K MR 750K	970	0.35 0.42 -	1,400 30 575	500 2,600 -	300 -	85	24 x 6	153	200	150	175	110	25	8 x M14 x 2.0	M8 x 1.25	400 800 400	35.7
MG 800K MI 800K MR 800K	1,800	0.55 0.85 -	1,300 20 475	475 2,100 -	300 -	110	28 x 7	158	250	155	220	140	25	8 x M16 x 2.0	M8 x 1.25	500 1000 500	40.0
MG 900K MI 900K MR 900K	2,500	0.69 0.96 -	1,200 20 475	400 1,850 -	300 -	135	35 x 9	165	300	160	265	170	32	10 x M16 x 2.0	M8 x 1.25	620 1,240 620	70.5
MG 1000K MI 1000K MR 1000K	3,450	0.83 1.30 -	1,200 20 325	325 1,600 -	300 -	160	38 x 10	188	370	180	325	200	32	12 x M16 x 2.0	M8 x 1.25	850 1,700 850	108.5

Character

This series are precision clutches comprised ball bearing. (oil lubrication)

- MG-K Series : For high speed of inner race with overrunning applications.
- MI-K Series : For indexing applications.
- MR-K Series : For high speed of outer race with overrunning applications.

■ Shaft Tolerance

Model	Shaft Tolerance	Model	Shaft Tolerance
MG, MI-300K & 400K	+0 to - 0.021	MG, MI-500K & 600K	+0 to - 0.025
MG, MI-700K	+0 to - 0.030	MG, MI, MR-750K & 800K	+0 to - 0.035
MG, MI, MR-900K & 1000K	+0 to - 0.040		

LUBRICATION & MAINTENANCE

Maintenance of each Series

Model		Lubrication	Maintenance
MZ-K, LD-K		Pre-lubricated with grease	No lubrication maintenance required
B200K, PB-K, NFS-K		Grease Lubrication	Change the grease every six months
MG, MI, MR, PNC, PHC, GFR, BSD-K		Oil Lubrication	Add oil every 100 hours, change every 3 months
MG-RK		Oil Lubrication	Add oil every 300 hrs, change every 3 months
BS-K	30~135	Pre-lubricated with grease	No lubrication maintenance required
	160~350	Grease Lubrication	Change grease two times a year
BS-RK	160R~350R	Oil Lubrication	Change oil once a year

*Ref. : Clean inside of clutch when change oil grease.

Recommended Oil

Maker	Overrunning application		Indexing application
	In low speed or temperature -10 °C to 30 °C applications	In high speed or temperature 30 °C to 50 °C applications	
Shell Oil	Dexron II Rimulla CT Oil 10W Shell Clavus Oil 17 Rotella S Oil 10W	Rimulla CT Oil 20W/20,30 Rotella S Oil 20W/20,30	Shell Clavus Oil 15
Mobil Oil	ATF 220 Delvas 1310 DTE Oil Light	Delvac 1330	Gargoyle Arctic Light

Recommended Grease

Maker	BS-K Series	B200, PB, LD, NFS, MZ-K Series
Shell Oil	Alvania Grease No.1	Alvania Grease No.2
Mobil Oil	Mobilux Grease No.1	Mobilux Grease No.2

BORE TOLERANCE & KEY WAY CLASS

BORE TOLERANCE OF JIS STANDARD

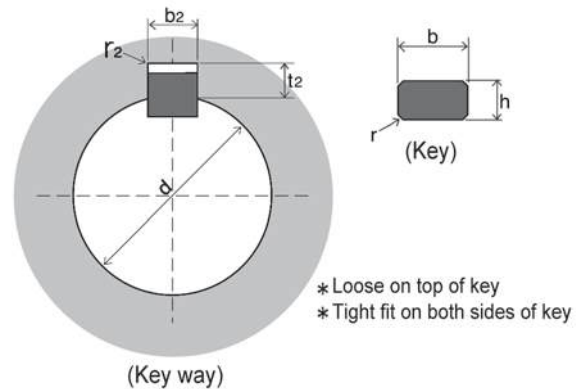
*BS 30K ~ BS 110K Clutch Bore tolerance : H7 (JIS B 0401~1965)
 *RS 135K ~ BS 350K Clutch Bore tolerance : H8 (JIS B 0401~ 1965)

The keyway is in accordance with JIS standard class II Parallel keys.

JIS B 0401-1965

Bore Range (mm)	H7 Tolerance	H8 Tolerance
30~50	+0.025 0	+0.039 0
50~80	+0.030 0	+0.046 0
80~120	+0.035 0	+0.054 0
120~180	+0.040 0	+0.063 0
180~250	+0.046 0	+0.072 0
250~315	+0.052 0	+0.081 0
315~400	+0.057 0	+0.089 0
400~450	+0.063 0	+0.097 0

key way and key dimension



JIS STANDARD PARELLEL KEY & KEYWAY CLASS

JIS B1301-1959/KSB 1311-77

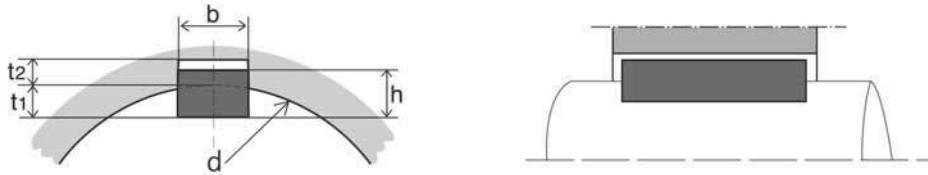
Standard Key bxh	Range of Dia. d (mm)	Key Dimension					Key Dimension				
		Tolerance		Tolerance		chamber	Tolerance		Tolerance		chamber
		b	(h8)	h	(h10)	r	b2	(E9)	t2	r2	
10x8	Above 30 to 40	10	-0.0022	8			10	+0.061 +0.025	3.5	+0.200 0	0.6
12x8	Above 40 to 45	12		8	-0.058	0.8	12		3.5		
15x10	Above 50 to 60	15	-0.0022	10			15	+0.075 +0.032	5		
18x12	Above 60 to 70	18		12			18		6	+0.300 0	1.0
20x13	Above 70 to 80	20		13	0	1.2	20		6		
24x16	Above 80 to 95	24	-0.0022	16	-0.039		24	+0.092 +0.046	8		
28x18	Above 95 to 110	28		18			28		9		
32x20	Above 110 to 125	32		20			32		10		
35x22	Above 125 to 140	35		22			35		11		
38x24	Above 140 to 160	38	0	24	-0.084		38	+0.122	12		
42x26	Above 160 to 180	42	-0.039	26		2	42	+0.050	13		
45x28	Above 180 to 200	45		28			45		14	+0.400 0	1.6
50x31.5	Above 200 to 224	50		31.5			50		15.5		
56x35.5	Above 224 to 250	56		35.5			56		17.5		
63x40	Above 250 to 280	63	0	40	-0.100	3	63	+0.0134	20	+0.400 0	2.5
71x45	Above 280 to 315	70	-0.046	45			71	+0.060	22.5		
80x50	Above 315 to 355	80		50			80		25		
90x56	Above 355 to 400	90	0	56	0	3	90	+0.159	28	+0.400 0	2
100x63	Above 400 to 450	100	-0.054	63	-0.120		100	+0.072	31.5		

JIS STANDARD PARELLEL KEY & KEYWAY CLASS

JIS B1301-1976/KSB 1311- 84

Standard Key bxh	Bore Range d (mm)	Key Dimension				Key way Dimension					
		Tolerance		Tolerance		chamber	Tolerance		Tolerance		chamber
		b	(h8)	h	(h10)	r	b2	(E9)	t2		r2
5x5	Above 12 to 17	5	0	5	0	0.25	5	±0.0150	2.3	+0.1 0	0.16
6x6	Above 17 to 22	6	-0.039	6	-0.030		6		2.8		
7x7	Above 20 to 25	7	0 -0.036	7	0 -0.036	0.40	7	±0.0180	3.0	+0.2 0	0.25
8x7	Above 22 to 30	8		8			8		3.3		
10x8	Above 30 to 38	10	0 -0.090	8	0 -0.090	0.40	10	±0.0215	3.3	+0.2 0	0.25
12x8	Above 38 to 44	12		8			8		3.3		
14x9	Above 44 to 50	14	0 -0.043	9	0 -0.110	0.60	14	±0.0260	3.8	+0.2 0	0.40
16x10	Above 50 to 58	16		10			10		4.3		
18x11	Above 58 to 65	18	0 -0.052	11	0 -0.110	0.60	18	±0.0310	4.4	+0.3 0	0.40
20x12	Above 65 to 75	20		12			12		4.9		
22x14	Above 75 to 85	22	0 -0.062	14	0 -0.130	0.60	22	±0.0370	5.4	+0.3 0	0.40
25x14	Above 85 to 95	25		14			14		5.4		
28x16	Above 95 to 110	28	0 -0.074	16	0 -0.160	0.80	28	±0.0435	6.4	+0.3 0	0.60
32x18	Above 110 to 130	32		18			18		7.4		
36x20	Above 130 to 150	36	0 -0.087	20	0 -0.160	1.00	36	±0.0435	8.4	+0.3 0	0.70
40x22	Above 150 to 170	40		22			22		9.4		
45x25	Above 170 to 200	45	0 -0.087	25	0 -0.160	1.20	45	±0.0435	10.4	+0.3 0	1.00
50x28	Above 200 to 230	50		28			28		11.4		
56x32	Above 230 to 260	56	0 -0.074	32	0 -0.160	1.60	56	±0.0435	12.4	+0.3 0	1.20
63x32	Above 260 to 290	63		32			32		12.4		
70x36	Above 290 to 330	70	0 -0.087	36	0 -0.160	2.00	70	±0.0435	14.4	+0.3 0	1.60
80x40	Above 330 to 380	80		40			40		15.4		
95x45	Above 380 to 440	90	0 -0.087	45	0 -0.160	2.50	90	±0.0435	17.4	+0.3 0	2.00
100x50	Above 440 to 500	100		50			50		19.5		

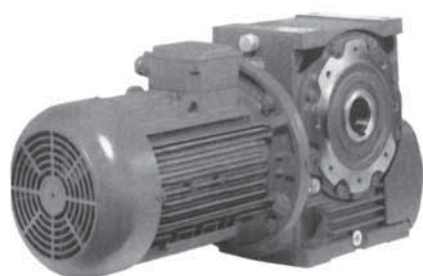
DIN STANDARD PARELLED KEY & KEYWAY CLASS



Bore Range d(mm)	DIN 6885, sheet 1				DIN 6885, sheet 3			
	b JS10	h	t1	t2	b JS10	h	t1	t2
From 6 to 8	2 ±0.020	2	1.2+0.1	1 +0.3				
From 8 to 10	3 ±0.020	3	1.8+0.1	1.4+0.3				
From 10 to 12	4 ±0.024	4	2.5+0.1	1.8+0.3				
From 12 to 17	5 ±0.024	5	3 +0.1	2.3+0.3	5±0.024	3	1.9+0.1	1.2+0.3
From 17 to 22	6 ±0.024	6	3.5+0.1	2.8+0.3	6±0.024	4	2.5+0.1	1.6+0.3
From 22 to 30	8 ±0.029	7	4 +0.2	3.3+0.4	8±0.029	5	3.1+0.1	2 +0.3
From 30 to 38	10 ±0.029	8	5 +0.2	3.3+0.4	10±0.029	6	3.7+0.2	2.4+0.3
From 38 to 44	12 ±0.035	8	5 +0.2	3.3+0.4	12±0.035	6	3.9+0.2	2.2+0.3
From 44 to 50	14 ±0.035	9	5.5+0.2	3.8+0.4	14±0.035	6	4 +0.2	2.1+0.3
From 50 to 58	16 ±0.035	10	6 +0.2	4.3+0.4	16±0.035	7	4.7+0.2	2.4+0.3
From 58 to 65	18 ±0.035	11	7 +0.2	4.4+0.4	18±0.035	7	4.8+0.2	2.3+0.3
From 65 to 75	20 ±0.042	12	7.5+0.2	4.9+0.4	20±0.042	8	5.4+0.2	2.7+0.3
From 75 to 85	22 ±0.042	14	9 +0.2	5.4+0.4	22±0.042	9	6 +0.2	3.1+0.4
From 85 to 95	25 ±0.042	14	9 +0.2	5.4+0.4	25±0.042	9	6.2+0.2	2.9+0.4
From 95 to 110	28 ±0.042	16	10 +0.2	6.4+0.4	28±0.042	10	6.9+0.2	3.2+0.4
From 110 to 130	32 ±0.050	18	11 +0.2	7.4+0.4	32±0.050	11	7.6+0.2	3.5+0.4
From 130 to 150	36 ±0.050	20	12 +0.3	8.4+0.4	36±0.050	11	8.3+0.2	3.8+0.4

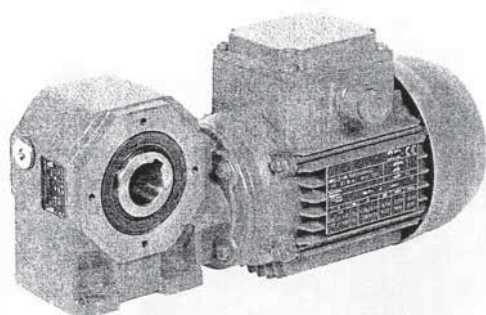
ROSSI PRODUCTS

WORM GEAR REDUCERS AND GEARMOTORS



WORM GEAR REDUCERS AND GEARMOTORS A SERIES

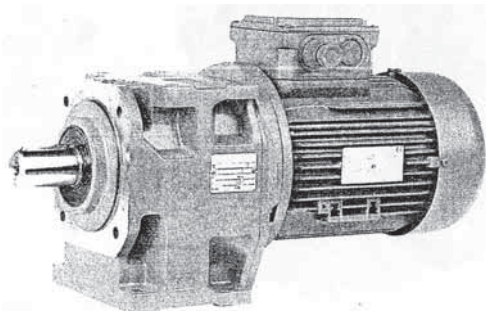
Size		14 sizes (32 ... 250)
Power	P_1	0.09 ... 55 kW
Nominal torque	T_{N2}	$\leq 19,000$ N m
Transmission ratio	i_N	7 ... 16,000



WORM GEARMOTORS STANDARDFIT AS SERIES

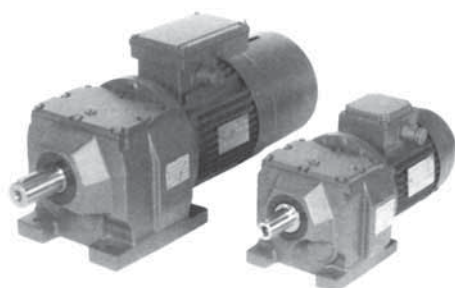
Size		6 sizes (118 ... 742)
Power	P_1	0.09 ... 55 kW
Nominal torque	T_{N2}	≤ 670 N m
Transmission ratio	i_N	6 ... 75

COAXIAL GEAR REDUCERS AND GEARMOTORS



COAXIAL GEARMOTORS STANDARDFIT ES SERIES

Size		16 sizes (32 ... 180)
Power	P_1	0.09 ... 75 kW
Nominal torque	T_{N2}	$\geq 10,000$ N m
Transmission ratio	i_N	6.3 ... 6,300



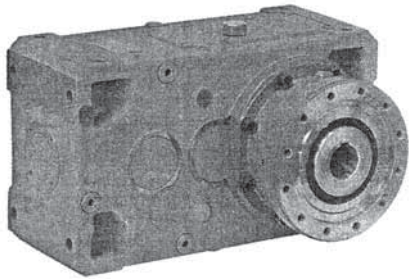
COAXIAL GEARMOTORS STANDARDFIT ES SERIES

Size		8 sizes (0 ... 7)
Power	P_1	0.09 ... 11 kW
Nominal torque	T_{N2}	≤ 900 N m
Transmission ratio	i_N	4 ... 200

HELICAL AND BEVEL-HELICAL GEAR REDUCERS AND GEARMOTORS

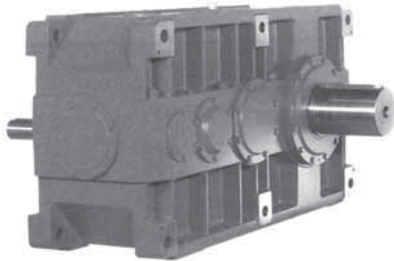


HELICAL AND BEVEL-HELICAL GEAR REDUCERS AND GEARMOTORS G SERIES (STANDARD AND LONG)		
Size		18 sizes (40 ... 360)
Power	P_1	0.09 ... 160 kW
Nominal torque	T_{N2}	$\leq 71,000$ N m
Transmission ratio	i_N	2.5 ... 12,500



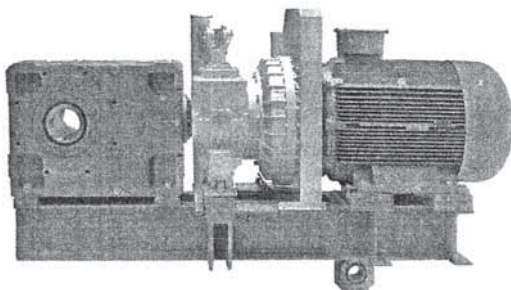
HELICAL AND BEVEL-HELICAL GEAR UNITS FOR EXTRUDERS GX SERIES		
Size		16 sizes (100 ... 451)
Power	P_{N2}	$\leq 1,710$ kW
Nominal torque	T_{N2}	$\leq 132,000$ N m
Transmission ratio	i_N	6.3 ... 28

INDUSTRY GEAR REDUCERS



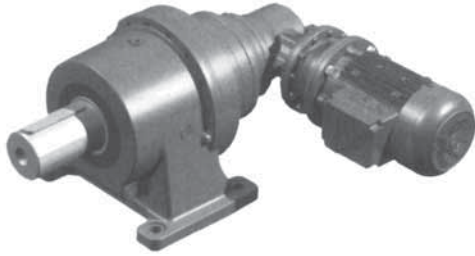
INDUSTRY HELICAL GEAR UNITS H SERIES		
Size		10 sizes (400 ... 631)
Nominal power	P_{N2}	16 ... 3,650 kW
Nominal torque	T_{N2}	$\leq 400,000$ N m
Transmission ratio	i_N	8 ... 315

DRIVE UNITS ON SWING BASE



DRIVE UNITS ON SWING BASE RE SERIES		
Gear reducer sizes		140 ... 631
Motor sizes		132 ... 400
Nominal torque	T_{N2}	$\leq 400,000$ N m

PLANETARY GEAR SYSTEMS



PLANETARY GEARMOTORS (COAXIAL AND BEVEL-COAXIAL GEAR UNITS) EP SERIES

Size		14 sizes (001 ... 085)
Power	P_1	0.18 ... 90 kW
Nominal torque	T_{N2}	9 ... 85,000 N m
Transmission ratio	i_N	9 ... 3,000 (coax) 9 ... 2,500 (right angle)



SLEWING DRIVES EPS SERIES

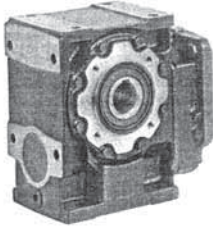
Size		13 sizes (100 ... 10,000)
Nominal torque	T_{N2}	1,500 ... 125,000 N m
Transmission ratio	i_N	50 ... 1,000



WIND DRIVES - YAW AND PITCH EPW SERIES

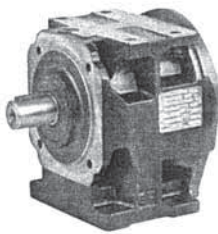
Size		15 sizes (100 ... 10,000)
Nominal torque	T_{N2}	1,600 ... 125,000 N m
Transmission ratio	i_N	42.5 ... 3,150

MOTION CONTROL PRODUCTS



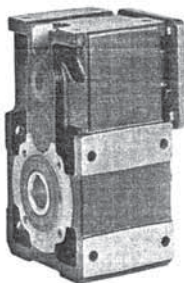
WORM SERVO GEAR REDUCERS SR SERIES

		7 sizes (32 ... 81)
Accelerating torque	T_{A2}	36 ... 747 N m
Transmission ratio	i	7 ... 239



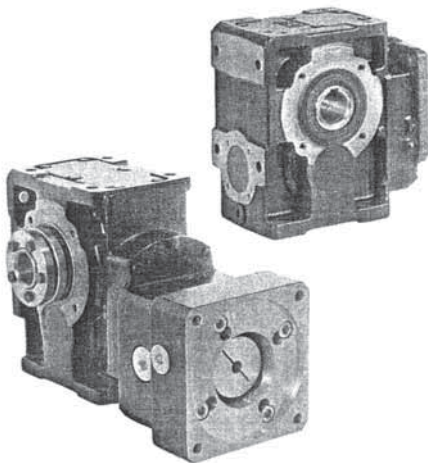
COAXIAL SERVO GEAR REDUCERS SR SERIES

		11 sizes (32 ... 101)
Accelerating torque	T_{A2}	31.5 ... 2,000 N m
Transmission ratio	i	4 ... 118



HELICAL SERVO GEAR REDUCERS SR SERIES

		8 sizes (40 ... 125)
Accelerating torque	T_{A2}	64 ... 3,000 N m
Transmission ratio	i	6.41 ... 110



BEVEL-HELICAL SERVO GEAR REDUCERS SR SERIES

		8 sizes (40 ... 125)
Accelerating torque	T_{A2}	66 ... 3,000 N m
Transmission ratio	i	6 ... 124