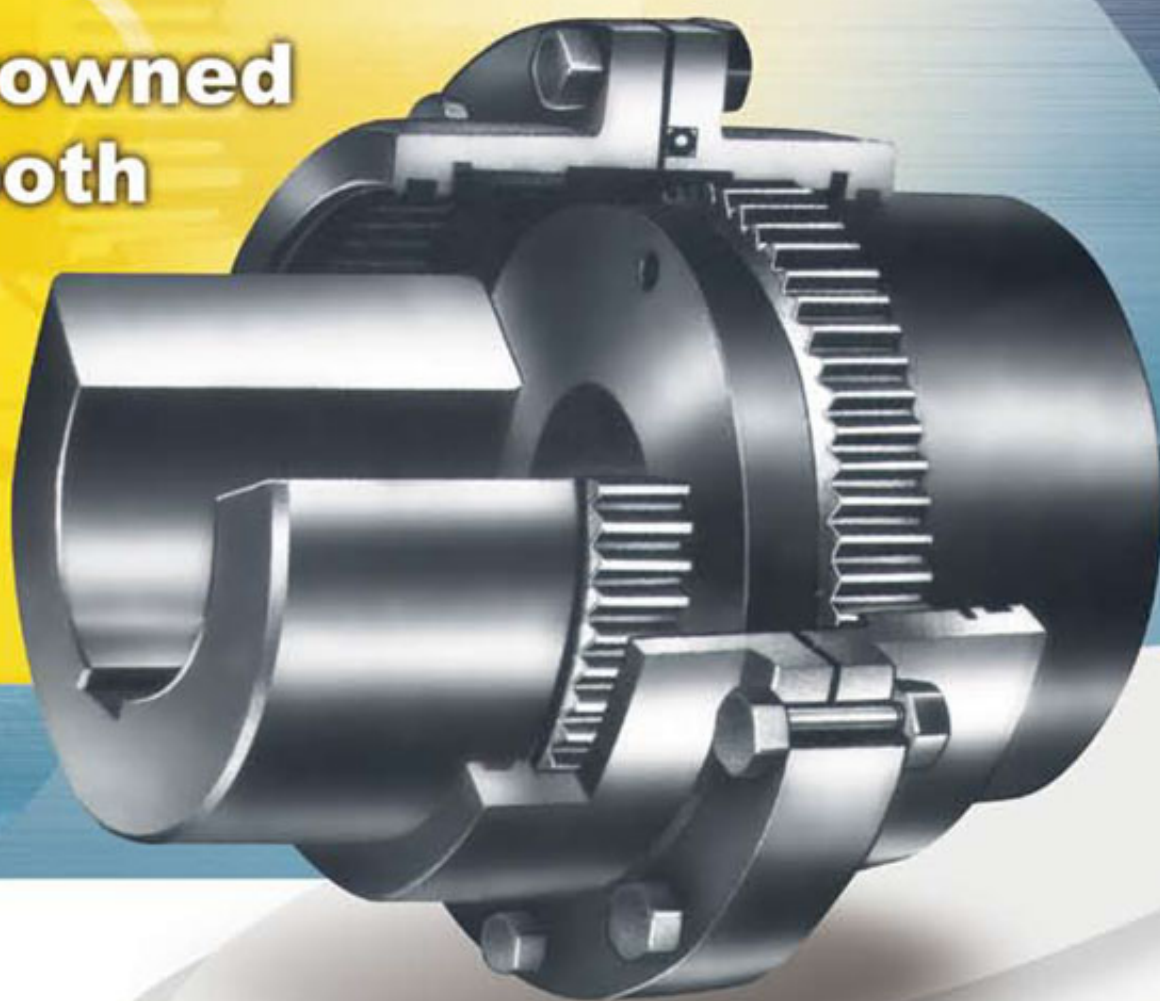




GEAR COUPLING

**Crowned
Tooth**



Crowned Tooth

Gear Coupling

index

▪ Product profile and features	2
▪ Structure and material	2
▪ Coupling model selection	3
▪ Coefficients of operations and examples	4
▪ Double engagement couplings TY-SB	5
▪ Single engagement couplings TY-EB	6
▪ Double side cover engagement couplings TY-TB	7
▪ Single side cover engagement couplings TY-CB	8
▪ Single engagement couplings with floating shafts TY-FSA	9
▪ Single engagement couplings with floating shafts TY-FSB	10
▪ Double engagement spacing coupling TY-PSB	11
▪ Double engagement couplings with taper bores for mill motor TY-SMA	12
▪ Vertical double engagement couplings TY-VA	13
▪ Vertical single engagement couplings TY-VB	14
▪ Double engagement double side gear coupling TY-MMSB	15
▪ Double engagement single side gear coupling TY-MSB	16
▪ Single engagement single side gear coupling TY-MEB	17
▪ Rigid coupling TY-EE	18
▪ Double engagement couplings TY-NS	19
▪ Single engagement couplings TY-NE	20
▪ Recommended axial diameters and bore tolerances in tight fit	21
▪ Importance notices on assembly and lubrication	22

TIEN YI

TIENTI GEAR SHAFTS COUPLINGS are manufactured with collection over thirty years of working experiences and many years technological skills of design by means of precision machinery equipment with exacting quality control by TIENTI GEAR WORKS CO., LTD.

TIENTI GEAR SHAFTS COUPLINGS are suitable for steel, iron, rubber, plastic, chemical engineering, cable and generally heavy machine in higher loads horse-power manufactory, until now the owner used our couplings get the fullest satisfaction.

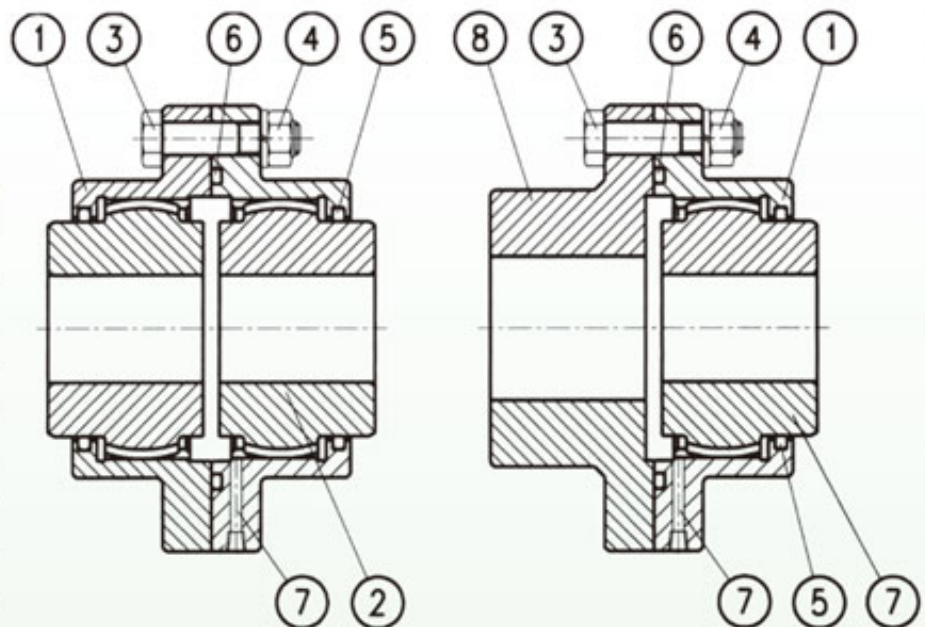
DISTINCTIVE FEATURES OF TIENTI GEAR SHAFTS COUPLINGS :

1. TIENTI GEAR SHAFTS COUPLINGS are crowned in order to increase flexibility, shaved by precision machine. And for the short tooth profile, a stub tooth with pressure angle of 20° is adopted. At the tooth top is rounded in contrary angle in order to permit larger error in shafts and higher loads in involving condition.
2. TIENTI GEAR SHAFTS COUPLINGS are given the special hardening treatment on the tooth surfaces to enable them having the strongest intensity and resisting-grind : so the tooth surfaces can receive the operation in larger loads and the connection in shafts rotating at relatively high speeds.
3. TIENTI GEAR SHAFTS COUPLINGS are the closed couplings for easily lubricated and usually kept the tooth surfaces in appropriately oil. So it not only prevent dust from going and oil leakage, but also prolong couplings life.
4. THE TYPE OF TIENTI GEAR SHAFTS COUPLINGS had been successful the first processing, It must be done the second procedure heat treating again according to material. And it were given them more rigidly precise, increasing stronger tenacity. At last removing the gravitation by striking-ball bearing when those steps all finished.

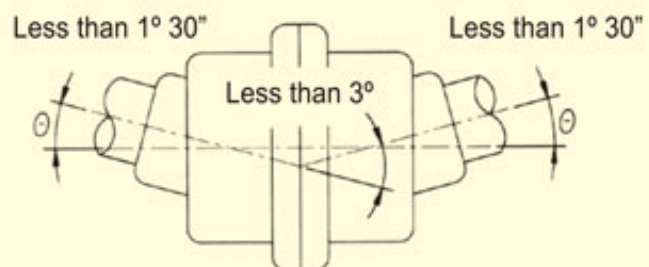
► STRUCTURE

▼ MATERIAL

Number	Name	Material
1	Sleeve	SF50
2	Hub	S45C or SF50
3	Bolt	SCM435
4	Nut	S45C
5	O-ring	NBR
6	O-ring	NBR
7	Oil Plug	SCM435
8	Rigid	S45C or SF50



▼ Allowable Error of Shaft Center

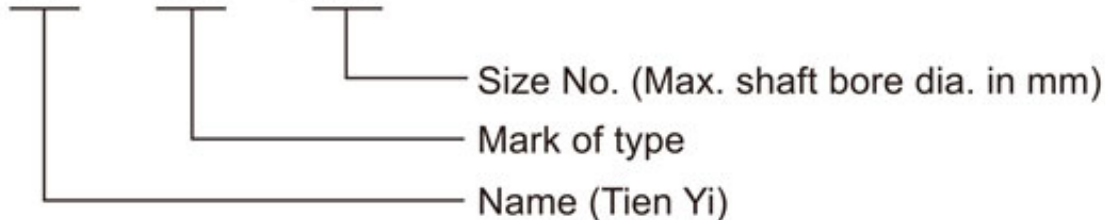


The hub gears in Tien Yi couplings are a crowned gear, which features stable rotation despite deviations take place in the connection between shafts. The tolerable deviations are listed in the right table.

Size No.	E (mm)	Size No.	E (mm)
35	1.0	150	2.0
45	1.0	175	2.1
55	1.1	200	2.3
65	1.2	225	2.6
75	1.4	250	4.5
90	1.4	28	4.8
105	1.5	320	5.3
115	1.7	365	5.4
135	1.8	400	5.8

DESIGNATION

TY - SB - 200



GEAR COUPLING SELECTION

$$T_a = 974 \times W/N \cdot S \text{ or}$$

$$T_a = 727 \times P/N \cdot S$$

T = torsional moment (kgf / m)

W = transmitting load (kw)

P = transmitting load (HP)

N = usage rpm (rpm)

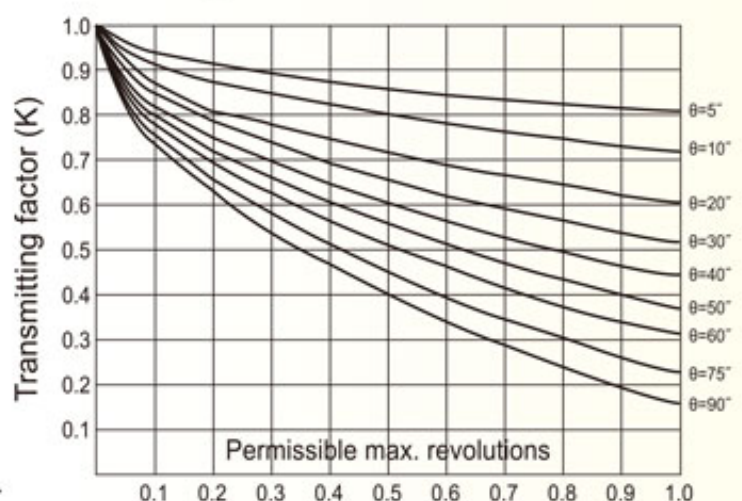
S = load factor

CONDITIONS FOR SELECTING GEAR COUPLING:

1. Model no. of gear coupling is selected based on the using conditions.
2. Using factor is selected based on using purpose. Gear coupling diameter can be checked so as to see if it is over the allowable maximum shaft diameter.
3. To deduce value of T_a , $K \cdot T > T_a$ is required. Actual rpm is over allowable maximum rpm. (For K, please refer to Table 2.)
4. When $K \cdot T > T_a$, this is the required model no..

Table 2

Transmitting correction factor



$$i = \frac{N}{N_{\max.}} = \frac{\text{Working revolutions}}{\text{Permissible max. revolutions}}$$

SERVICE FACTOR

DRIVING MACHINE DRIVEN MACHINE	ELECTRIC MOTOR	HYDRAULIC POWER RECIPROCATING MOTION	LOAD
Pumps Generators Blowers	1 - 1.25	1.25 - 1.5	Smooth
Compressors Machine Tool Wood Working Machines Textile Machines Mixers Grinders	1.5 - 1.8	1.8 - 2	Slight Shock
Elevators Ball and Roll Mills Reciprocating Compressors Hoists Reciprocating Pumps	2 - 2.3	2.3 - 2.5	Medium Shock
Steel & iron Manufacturing Machines Ore Crushers Rubber Mixer Bibrating Conveyors Cranes Paper Machines for Cutters	2.5 - 3	3 - 4	Extremely Heavy Shock

EXAMPLE FOR SELECTION

Ex.: The drive unit is a motor and the driven unit is a turbine pump

Transmitted capacity $W=400\text{kw}$, speed $N=1800\text{rpm}$, axial dia. $D=75\text{mm}$

Calculate as follows: by the equation $T_a=974 \times W/N \cdot S$

$$1. T_a=974 \times \frac{400}{1800} \times 1.5=325\text{kgf-m}$$

2. Axial diameter of the drive motor being $\varnothing 75$, calculate with SB-75 model

$$3. \theta=90' \times \frac{E'}{E} \quad E'=(i)^2$$

$$\therefore E=1.4 \text{ (look up in Table-1)}$$

$$E'=\left(\frac{1800}{4000}\right)^2=0.2025$$

$$\theta=90' \times \frac{0.2025}{1.4}=13'$$

$$\therefore K=0.82$$

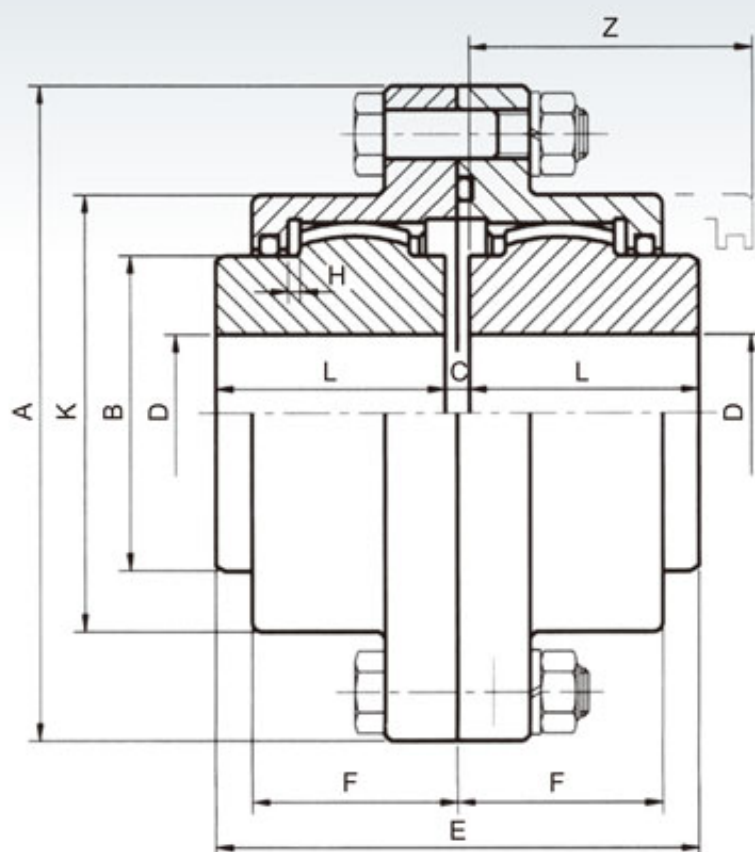
4. $T=410 \text{ kgf-m}$ (look up the index for the torque)

$$K.T=410 \times 0.82=337 \text{ kgf-m}$$

$$\therefore K.T > T_a$$

DOUBLE ENGAGEMENT COUPLINGS

Larger error or angle error and also simultaneous error are allowed. It is suitable for all parallel and close coupling purposes. Such as: blower, tower crane, feeder, conveyor, steel-work factory, paper mill factory, etc.



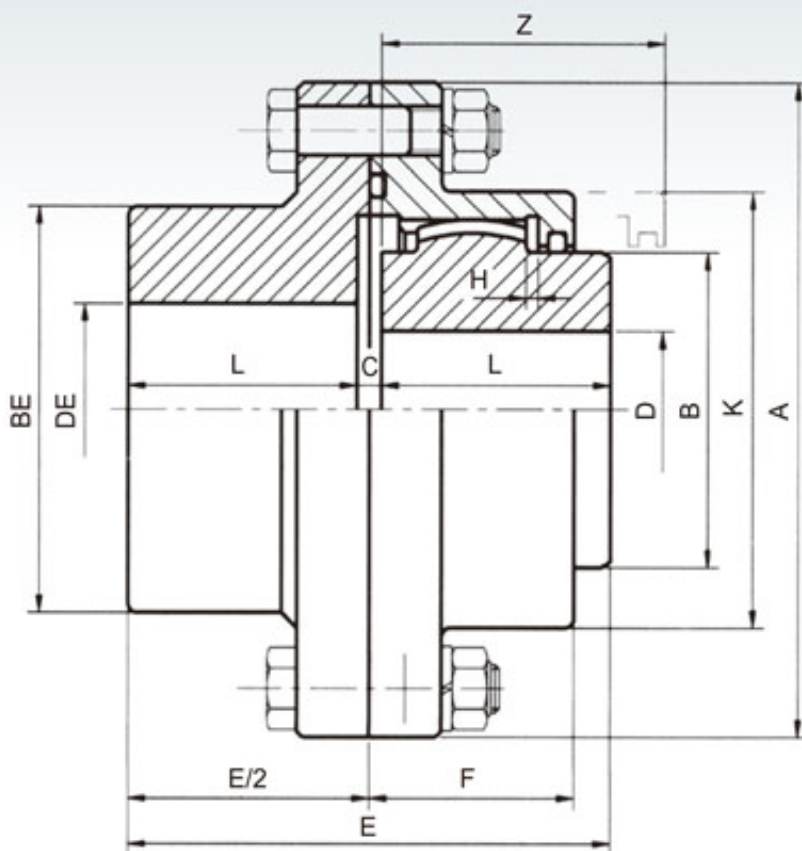
Specifications

"Z"— Minimum distance for assembly required

Model No.	Torsional moment (kgf/m)	Maximum rpm (RPM)	Maximum hole diameter (mm)	Minimum hole diameter (mm)	Weight (kg)	Lubricant weight (g)	Size (mm)								
							L	C	E	A	B	F	K	H	Z
35	53	4000	35	14	3.5	40	40	8	88	120	50	38	71	5	55
45	88	4000	45	16	4	40	45	8	98	137	60	44	92	5	65
55	147	4000	55	22	5	50	50	8	108	154	75	45	110	5	70
65	246	4000	65	37	12	65	63	8	134	168	90	49	120	5	85
75	410	4000	75	37	18	85	80	10	170	184	105	54	140	5	100
90	670	4000	90	37	23	140	90	10	190	206	125	55	160	5	110
105	980	3750	105	37	34	190	100	10	210	221	140	59	175	5	120
115	1420	3300	115	42	42	280	112	12	236	244	155	71	188	5	130
135	2100	3000	135	42	60	400	125	12	262	266	180	73	214	5	140
150	3100	2650	150	47	84	500	140	14	294	292	200	82	240	6	170
175	4550	2350	175	80	127	800	160	14	334	311	235	85	285	6	195
200	6650	2100	200	80	170	1000	180	16	376	365	265	95	313	6	240
225	9700	1850	225	100	238	1700	200	18	418	412	300	104	350	6	250

SINGLE ENGAGEMENT COUPLINGS

Only allowable for angle transmission. Main purpose is to coordinate with floating shaft. It is also suitable for driven shaft equipment. There is only one coupling of diametrical bearing supporter.



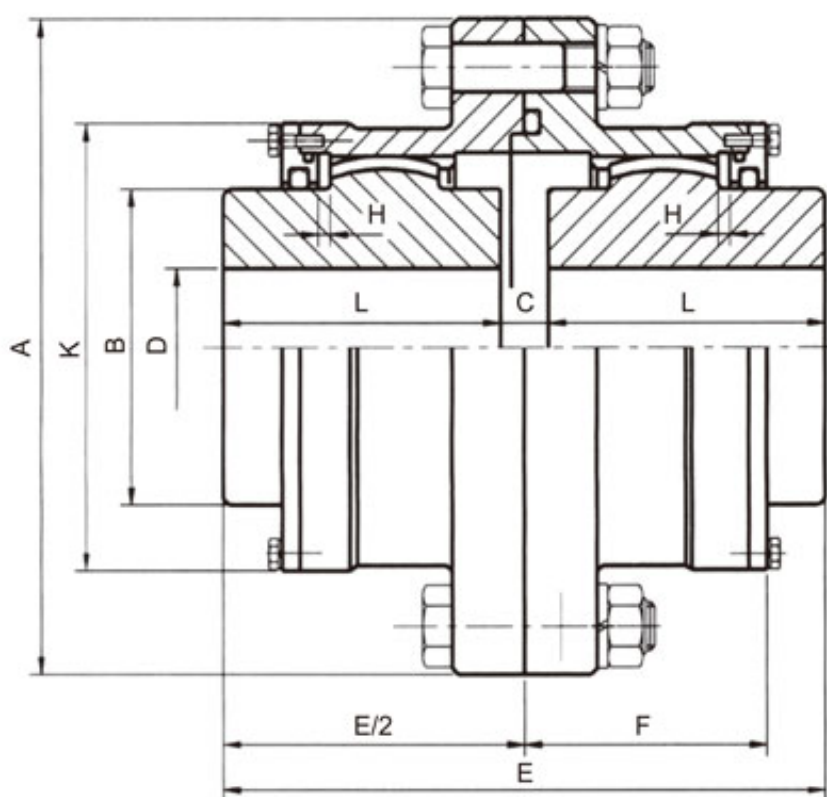
Specifications

"Z" — Minimum distance for assembly required

Model No.	Torsional moment (kgf/m)	Maximum rpm (RPM)	Maximum hole diameter (mm)		Minimum hole diameter (mm)	Weight (kg)	Lubricant weight (g)	Size (mm)									
			Feasibly	Rigid				L	C	E	A	B	F	K	H	BE	Z
35	53	4000	35	50	14	3.5	40	40	8	88	120	50	38	71	5	71	55
45	88	4000	45	60	16	4.5	40	45	8	98	137	60	44	92	5	92	65
55	147	4000	55	70	22	6.5	50	50	8	108	154	75	45	110	5	110	70
65	246	4000	65	80	37	13	65	63	8	134	168	90	49	120	5	120	85
75	410	4000	75	90	37	19	80	80	10	170	184	105	54	140	5	140	100
90	670	4000	90	105	37	26	130	90	10	190	206	125	55	160	5	160	110
105	980	3750	105	115	37	37	170	100	10	210	221	140	59	175	5	175	120
115	1420	3300	115	130	42	50	250	112	12	236	244	155	71	188	5	188	130
135	2100	3000	135	150	42	65	350	125	12	262	266	180	73	214	5	214	140
150	3100	2650	150	165	47	95	450	140	14	294	292	200	82	240	6	240	170
175	4550	2350	175	175	80	144	720	160	14	334	311	235	85	285	6	285	195
200	6650	2100	200	200	80	205	900	180	16	376	365	265	95	313	6	313	240
225	9700	1850	225	225	100	267	1300	200	18	418	412	300	104	350	6	350	250

DOUBLE SIDE COVER ENGAGEMENT COUPLINGS

Larger error or angle error and also simultaneous error are allowed. It is suitable for all parallel and close coupling purposes. Such as: blower, tower crane, feeder, conveyor, steelwork factory, paper mill factory, etc.

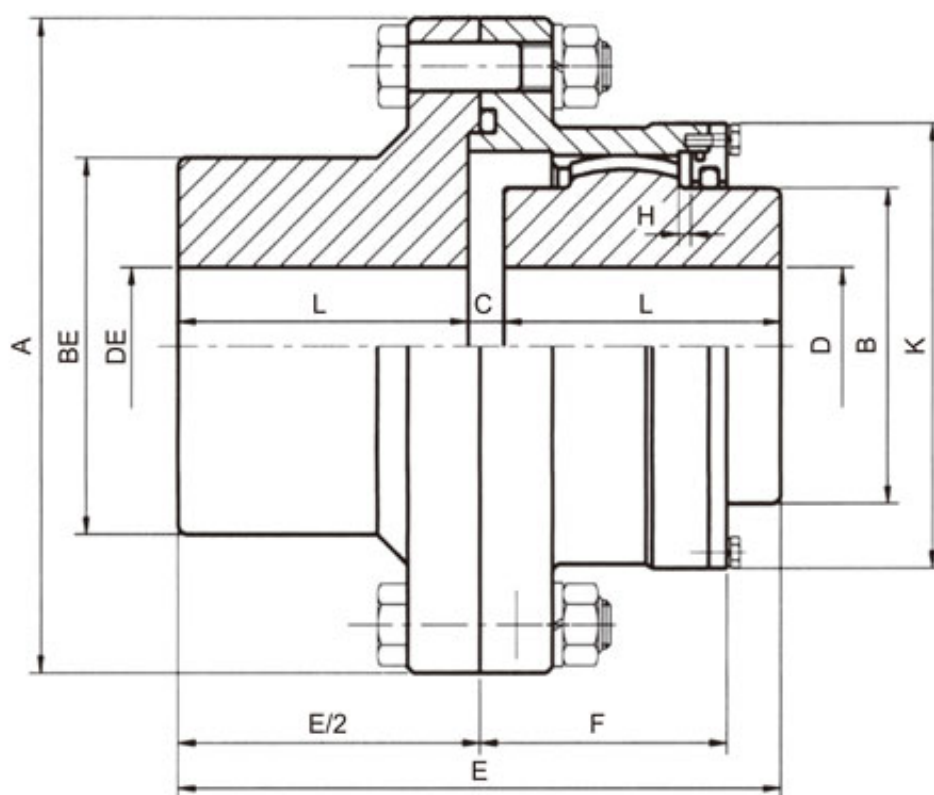


Specifications

Model No.	Torsional moment (kgf/m)	Maximum rpm (RPM)	Maximum hole diameter (mm)	Minimum hole diameter (mm)	Weight (kg)	Lubricant weight (g)	Size (mm)							
							L	C	E	A	B	F	K	H
250	15.3	1650	250	165	300	2600	224	22	470	462	330	148	422	6
285	22.4	1500	285	190	470	3800	250	22	522	530	380	158	470	6
320	31.8	1200	320	215	680	4600	280	28	588	590	430	177	522	8
365	48	1200	365	245	1050	6700	315	28	658	650	490	182	582	8
400	67	1050	400	270	1500	9400	355	28	738	738	540	215	658	8

SINGLE SIDE COVER ENGAGEMENT COUPLINGS

Only allowable for angle transmission. Main purpose is to coordinate with floating shaft. It is also suitable for driven shaft equipment. There is only one coupling of diametrical bearing supporter.



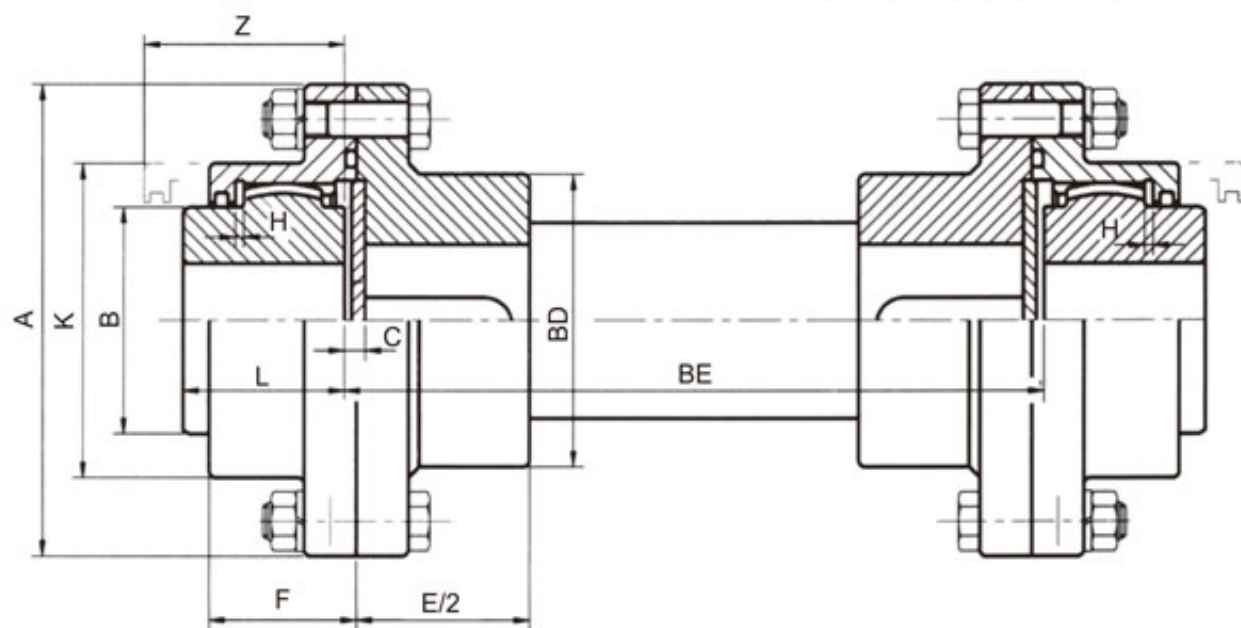
Specifications

Model No.	Torsional moment (kgf/m)	Maximum rpm (RPM)	Maximum hole diameter (mm)		Minimum hole diameter (mm)	Weight (kg)	Lubricant weight (g)	Size (mm)								
			Flexibly	Rigid				L	C	E	A	B	F	K	H	BE
250	15.3	1650	250	250	165	310	2300	224	22	470	462	330	148	422	6	390
285	22.4	1500	285	285	190	485	3500	250	22	522	530	380	158	470	6	435
320	31.8	1200	320	320	215	695	4300	280	28	588	590	430	177	522	8	490
365	48	1200	365	365	245	1080	6400	315	28	658	650	490	182	582	8	550
400	67	1050	400	400	270	1580	9000	355	28	738	738	540	215	658	8	625

SINGLE ENGAGEMENT COUPLINGS with FLOATING SHAFTS

Single-engaging coupling and floating shaft—a standard combination with floating shafts, including two single-engaging couplings, two middle plates and one floating shaft. The applications are mostly to connect with equipment that is at a larger distance.

The floating shaft can do eliminate the need of extra bearing support because it is supported by a single-engaging coupling on each end.



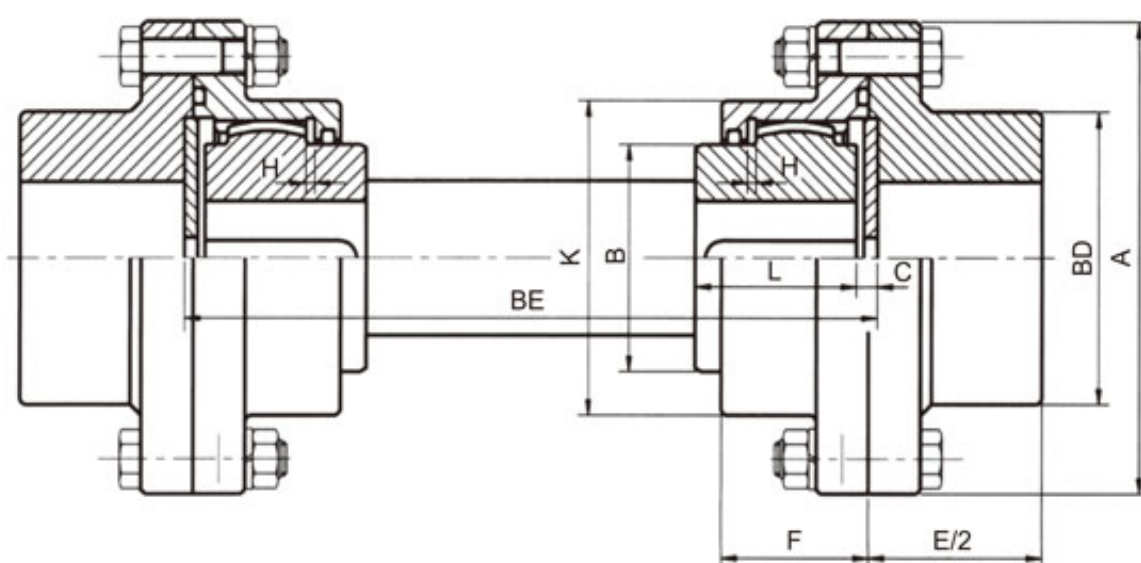
Specifications

"Z"— Minimum distance for assembly required

Model No.	Torsional moment (kgf/m)	Maximum rpm (RPM)	Maximum hole diameter (mm)		Minimum hole diameter (mm)	Weight (kg)	Lubricant weight (g)	Size (mm)										
			Flexibly	Rigid				L	C	E	A	B	F	K	H	BD	Z	BEmin
35	53	4000	35	50	14	3.5	40	40	8	88	120	50	38	71	5	71	55	100
45	88	4000	45	60	16	4.5	40	45	8	98	137	60	44	92	5	92	65	110
55	147	4000	55	70	22	6.5	50	50	8	108	154	75	45	110	5	110	70	140
65	246	4000	65	80	37	13	65	63	8	134	168	90	49	120	5	120	85	170
75	410	4000	75	90	37	19	80	80	10	170	184	105	54	140	5	140	100	200
90	670	4000	90	105	37	26	130	90	10	190	206	125	55	160	5	160	110	235
105	980	3750	105	115	37	37	170	100	10	210	221	140	59	175	5	175	120	260
115	1420	3300	115	130	42	50	250	112	12	236	244	155	71	188	5	188	130	275
135	2100	3000	135	150	42	65	350	125	12	262	266	180	73	214	5	214	140	330
150	3100	2650	150	165	47	95	450	140	14	294	292	200	82	240	6	240	170	370
175	4550	2350	175	175	80	144	720	160	14	334	311	235	85	285	6	285	195	400
200	6650	2100	200	200	80	205	900	180	16	376	365	265	95	313	6	313	240	460
225	9700	1850	225	225	100	267	1300	200	18	418	412	300	104	350	6	350	250	550

SINGLE ENGAGEMENT COUPLINGS with FLOATING SHAFTS

Single-engaging couplings can be connected with resilient hubs or rigid hubs. When connecting by resilient hubs and floating shafts, it offers larger bores to connect with other devices and allows easier replacement of the worn parts. When connecting by rigid hubs and floating shafts, it accommodates axial centerline misalignment and allows the use of longer drive shafts.



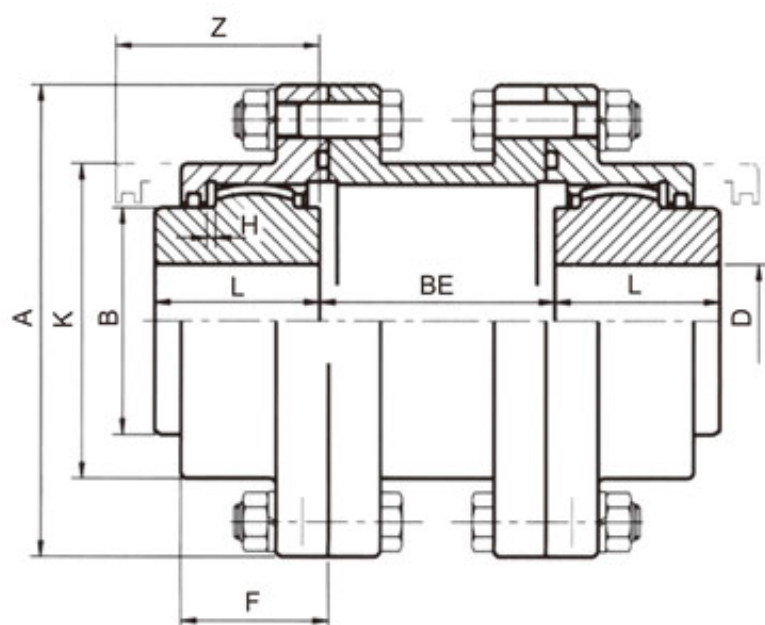
Specifications

Model No.	Torsional moment (kgf/m)	Maximum rpm (RPM)	Maximum hole diameter (mm)		Minimum hole diameter (mm)	Weight on one side (kg)	Lubricant weight (g)	Size (mm)									
			Flexible	Rigid				L	C	E	A	B	F	K	H	BD	BEmin
35	53	4000	35	50	14	3.5	40	40	8	88	120	50	38	71	5	71	150
45	88	4000	45	60	16	4.5	40	45	8	98	137	60	44	92	5	92	160
55	147	4000	55	70	22	6.5	50	50	8	108	154	75	45	110	5	110	190
65	246	4000	65	80	37	13	65	63	8	134	168	90	49	120	5	120	240
75	410	4000	75	90	37	19	80	80	10	170	184	105	54	140	5	140	270
90	670	4000	90	105	37	26	130	90	10	190	206	125	55	160	5	160	300
105	980	3750	105	115	37	37	170	100	10	210	221	140	59	175	5	175	325
115	1420	3300	115	130	42	50	250	112	12	236	244	155	71	188	5	188	350
135	2100	3000	135	150	42	65	350	125	12	262	266	180	73	214	5	214	400
150	3100	2650	150	165	47	95	450	140	14	294	292	200	82	240	6	240	440
175	4550	2350	175	175	80	144	720	160	14	334	311	235	85	285	6	285	500
200	6650	2100	200	200	80	205	900	180	16	376	365	265	95	313	6	285	560
225	9700	1850	225	225	100	267	1300	200	18	418	412	300	104	350	6	322	650

TY-PSB

DOUBLE ENGAGEMENT SPACING COUPLING

Comprises a double-engaging coupling and a spacer, this suits all applications with horizontally near connection. For example, blower, overhead crane, conveyor and steel mill. This type features great convenience in maintenance as there is no need to move the connected equipment.



TY-PSB type couplings are in standard lengths available.

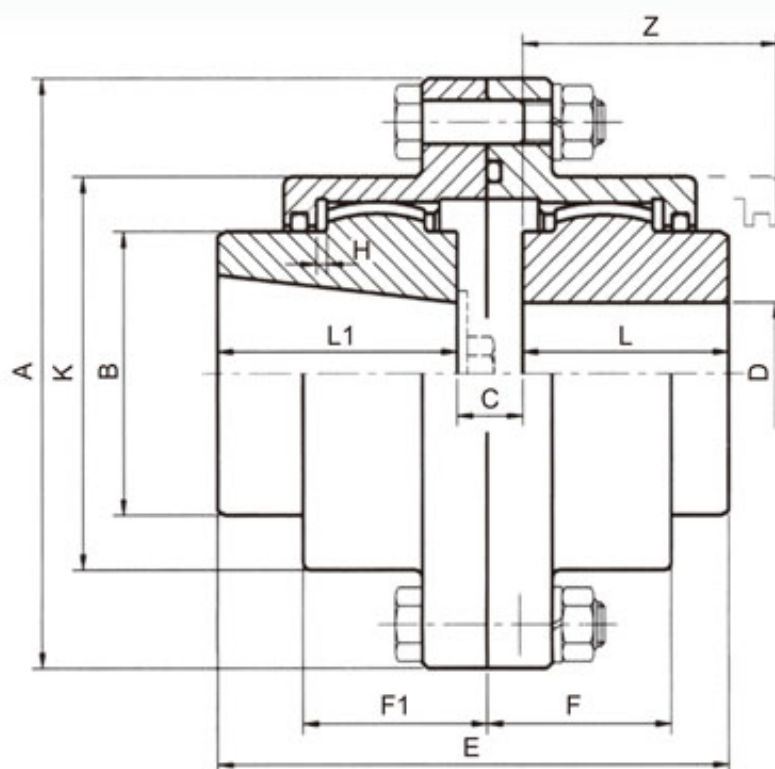
MODEL	BE mm			
TY-PSB 35	125	150		
TY-PSB 45	125	150		
TY-PSB 55	125	150		
TY-PSB 65		150	180	
TY-PSB 75			180	200
TY-PSB 90			180	200
TY-PSB 105			180	200

Specifications

"Z" — Minimum distance for assembly required

Model No.	Torsional moment (kgf/m)	Maximum rpm (RPM)	Maximum hole diameter (mm)	Minimum hole diameter (mm)	Weight (kg)	Lubricant weight (g)	Size (mm)								
							L	A	B	F	K	H	Z	BE _{min}	BE _{max}
35	53	4000	35	14	3.5	40	40	120	50	38	71	5	55	50	320
45	88	4000	45	16	4	40	45	137	60	44	92	5	65	55	320
55	147	4000	55	22	5	50	50	154	75	45	110	5	70	60	320
65	246	4000	65	37	12	65	63	168	90	49	120	5	85	73	320
75	410	4000	75	37	18	85	80	184	105	54	140	5	100	90	320
90	670	4000	90	37	23	140	90	206	125	55	160	5	110	100	320
105	980	3750	105	37	34	190	100	221	140	59	175	5	120	110	320
115	1420	3300	115	42	42	280	112	244	155	71	188	5	130	122	320
135	2100	3000	135	42	60	400	125	266	180	73	214	5	140	135	320
150	3100	2650	150	47	84	500	140	292	200	82	240	6	170	150	320
175	4550	2350	175	80	127	800	160	331	235	85	285	6	195	170	400
200	6650	2100	200	80	170	1000	180	365	265	95	313	6	240	190	400
225	9700	1850	225	100	238	1700	200	412	300	104	350	6	250	210	400

DOUBLE ENGAGEMENT COUPLINGS with TAPER BORES for MILL MOTOR



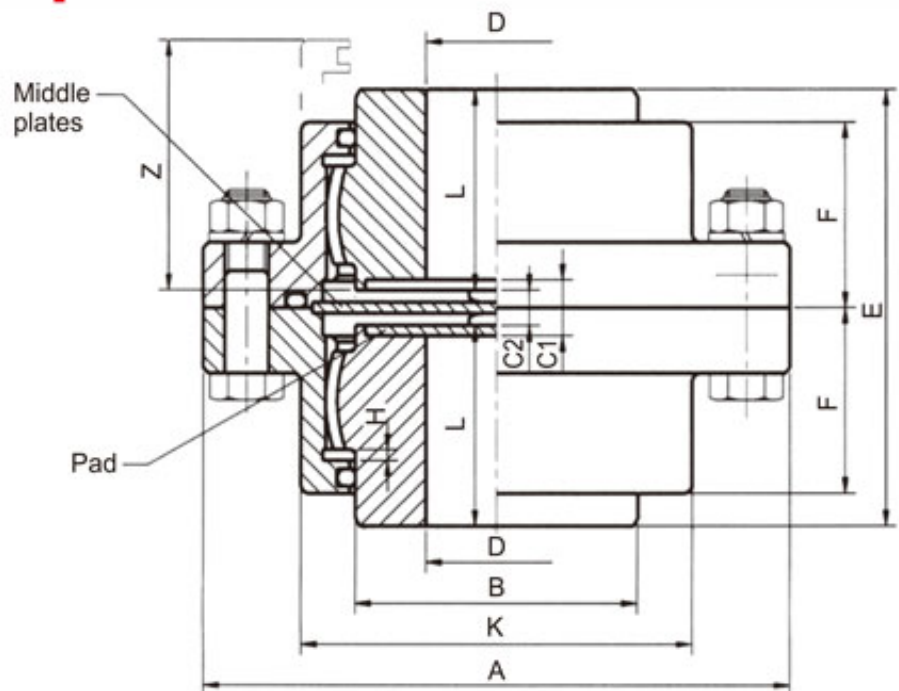
Specifications

"Z"— Minimum distance for assembly required

Model No.	Motor Model	Torsional moment (kgf/m)	Maximum hole diameter (mm)	Minimum hole diameter (mm)	Weight (kg)	Lubricant weight (g)	Size (mm)									
							L1	L	C	E	A	B	F1	F	K	H
55	802A 802B 802C	103	55	22	8.5	60	75	50	33	158	154	75	66	45	95	5
65	803 804	172	65	37	15	75	90	63	33	186	168	90	70	49	116	5
75	806	287	75	37	23	95	100	80	40	220	184	105	80	54	134	5
90	808	470	90	37	30	155	115	90	41	246	206	125	81	55	153	5
105	810	670	105	37	42	210	115	100	45	260	221	140	89	59	170	5
115	812	980	115	42	56	300	125	112	52	289	244	155	106	71	186	5
135.a	814	1420	135	42	72	430	125	125	55	305	266	180	112	73	212	5
135.b	816	1420	135	42	75	430	140	125	57	322	266	180	112	73	212	5
150	818	2100	150	47	105	550	150	140	49	339	292	200	112	82	239	6
175	620	3100	175	52	155	850	170	160	59	389	331	235	125	85	276	6
200.a	622	4550	200	52	240	1200	185	180	76	441	365	265	149	95	313	6
200.b	624	4550	200	52	270	1200	235	180	76	491	365	265	149	95	313	6

VERTICAL DOUBLE ENGAGEMENT COUPLINGS

A modified version of standard horizontal double-engaging coupling, with middle plates inserted to prevent the housing coming off and colliding with the teeth edge of the hub.



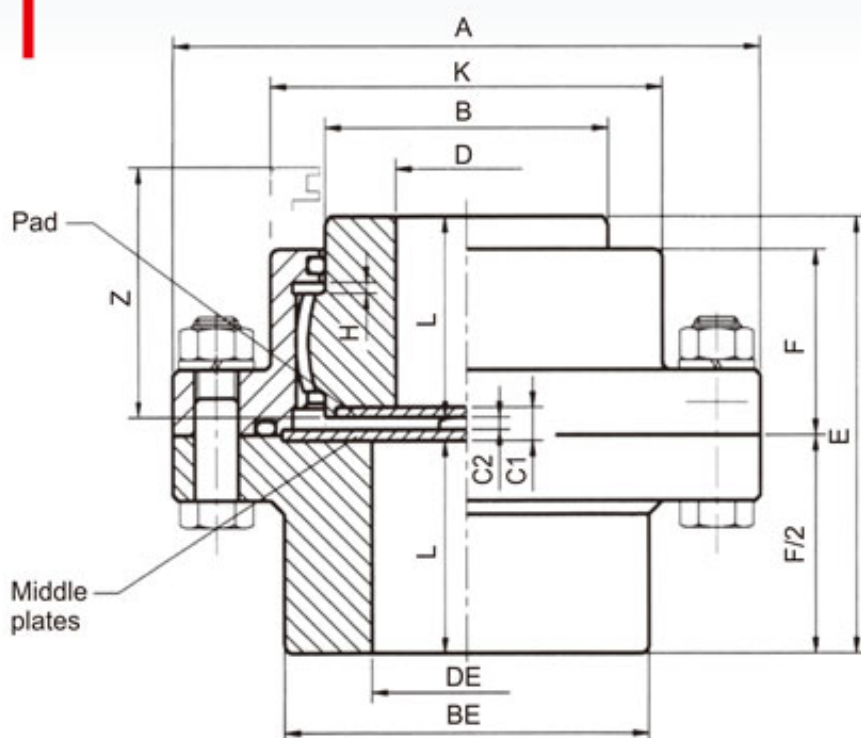
Specifications

"Z" — Minimum distance for assembly required

Model No.	Torsional moment (kgf/m)	Maximum rpm (RPM)	Maximum hole diameter (mm)	Minimum hole diameter (mm)	Weight (kg)	Lubricant weight (g)	Size (mm)									
							L	C1	E	A	B	F	K	H	Z	C2
35	53	4000	35	14	3.5	40	40	24	92	120	50	38	71	5	55	12
45	88	4000	45	16	4	40	45	24	102	137	60	44	92	5	65	12
55	147	4000	55	22	5	50	50	26	112	154	75	45	110	5	70	12
65	246	4000	65	37	12	65	63	26	138	168	90	49	120	5	85	12
75	410	4000	75	37	18	85	80	26	174	184	105	54	140	5	100	14
90	670	4000	90	37	23	140	90	28	194	206	125	55	160	5	110	14
105	980	3750	105	37	34	190	100	28	214	221	140	59	175	5	120	14
115	1420	3300	115	42	42	280	112	32	240	244	155	71	188	5	130	16
135	2100	3000	135	42	60	400	125	35	266	266	180	73	214	5	140	16
150	3100	2650	150	47	84	500	140	35	298	292	200	82	240	6	170	18
175	4550	2350	175	80	127	800	160	38	338	331	235	85	285	6	195	18
200	6650	2100	200	80	170	1000	180	42	380	365	265	95	313	6	240	20
225	9700	1850	225	100	238	1700	200	42	422	412	300	104	350	6	250	22

VERTICAL SINGLE ENGAGEMENT COUPLINGS

When working with a vertical floating shaft, a TY-VB vertical single-engaging coupling is disposed on the under side to support the floating shaft. The other comprising members include a coupling on the upper side, which is a standard TY-VB single-engaging gear coupling, a resilient hub, a rigid hub and the resilient housing as well as the middle plates.



Specifications

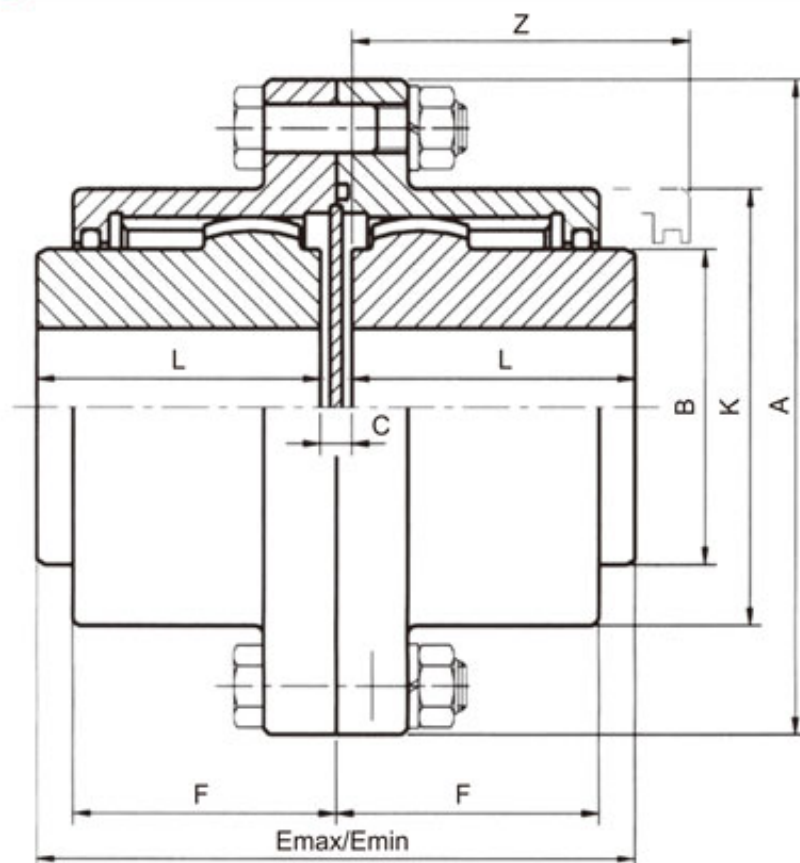
"Z"— Minimum distance for assembly required

Model No.	Torsional moment (kgf/m)	Maximum rpm (RPM)	Maximum hole diameter (mm)		Minimum hole diameter (mm)	Weight (kg)	Lubricant weight (g)	Size (mm)										
			Flexibly	Rigid				L	C1	E	A	B	F	K	H	BE	Z	C2
35	53	4000	35	50	14	3.5	40	40	16	90	120	50	38	71	5	71	55	4
45	88	4000	45	60	16	4.5	40	45	16	100	137	60	44	92	5	92	65	4
55	147	4000	55	70	22	6.5	50	50	17	110	154	75	45	110	5	110	70	4
65	246	4000	65	80	37	13	65	63	17	136	168	90	49	120	5	120	85	4
75	410	4000	75	90	37	19	80	80	18	172	184	105	54	140	5	140	100	4
90	670	4000	90	105	37	26	130	90	19	192	206	125	55	160	5	160	110	4
105	980	3750	105	115	37	37	170	100	19	242	221	140	59	175	5	175	120	4
115	1420	3300	115	130	42	50	250	112	22	238	244	155	71	188	5	188	130	5
135	2100	3000	135	150	42	65	350	125	23.5	264	266	180	73	214	5	214	140	5
150	3100	2650	150	165	47	95	450	140	24.5	296	292	200	82	240	6	240	170	5
175	4550	2350	175	175	80	144	720	160	26	336	311	235	85	285	6	250	195	5
200	6650	2100	200	200	80	205	900	180	29	378	365	265	95	313	6	286	240	5
225	9700	1850	225	225	100	267	1300	200	30	420	412	300	104	350	6	322	250	6

TY-MMSB

DOUBLE ENGAGEMENT DOUBLE SIDE GEAR COUPLING

This type of coupling is a TY-SB double-engaging coupling with the housing extended in length to suit a driven unit. For example, paper mill, refiner, fiber collector at a fiber plant.



Specifications

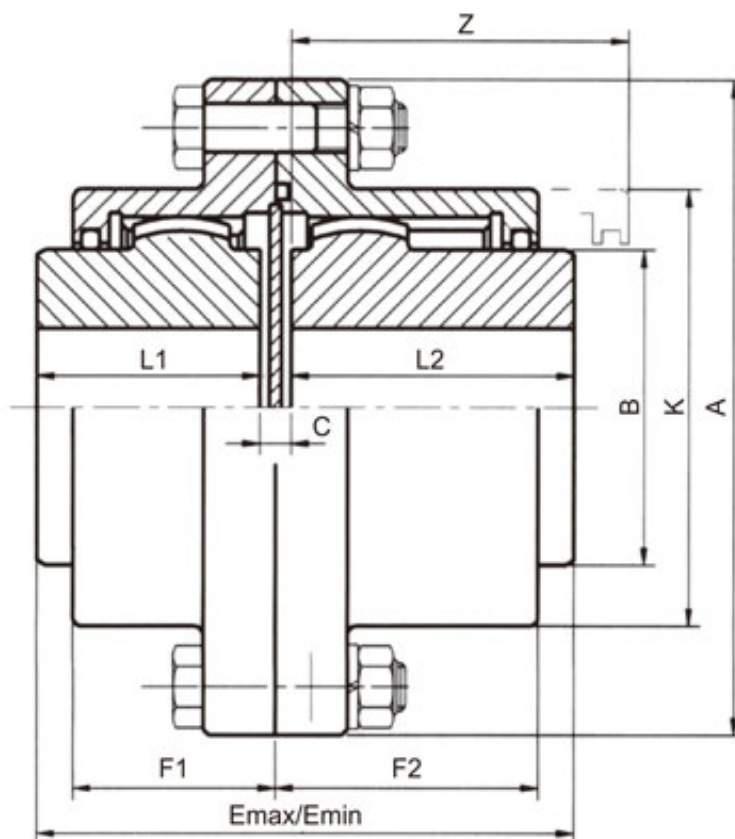
"La" is the max. distance of double-sided slide.

"Z"— Minimum distance for assembly required.

Model No.	Torsional moment (kgf/m)	Maximum rpm (RPM)	Maximum hole diameter (mm)	Minimum hole diameter (mm)	Weight (kg)	Lubricant weight (g)	Size (mm)									
							L	C	A	B	F	K	La	Emax	Emin	Z
75	410	4000	75	37	20	93	100	12	184	105	85	140	60	272	212	151
90	670	4000	90	37	26	152	100	12	206	125	90	160	60	272	212	155
105	980	3750	105	37	37	209	100	12	221	140	90	175	60	272	212	151
115	1420	3300	115	42	46	308	112	12	244	155	100	188	80	316	236	159
135	2100	3000	135	42	66	440	125	12	266	180	105	214	80	342	262	172
150	3100	2650	150	47	92	550	140	12	292	200	110	240	80	372	292	198
175	4550	2350	175	80	139	880	160	12	331	235	110	285	80	412	332	220

DOUBLE ENGAGEMENT SINGLE SIDE GEAR COUPLING

This type of coupling is a TY-SB double-engaging coupling with its housing on either side extended in length to suit smaller axial displacements.



Specifications

"La" is the max. distance of single-sided slide.
"Z"— Minimum distance for assembly required.

Model No.	Torsional moment (kgf/m)	Maximum rpm (RPM)	Maximum hole diameter (mm)	Minimum hole diameter (mm)	Weight (kg)	Lubricant weight (g)	Size (mm)											
							L1	L2	C	A	B	F1	F2	K	La	Emax	Emin	Z
75	410	4000	75	37	19	89	80	100	12	184	105	54	85	140	30	222	192	151
90	670	4000	90	37	25	147	90	100	12	206	125	55	90	160	30	232	202	155
105	980	3750	105	37	35	199	100	100	12	221	140	59	90	175	30	242	212	151
115	1420	3300	115	42	44	294	112	112	12	244	155	71	100	188	40	276	236	159
135	2100	3000	135	42	63	420	125	125	12	266	180	73	105	214	40	302	262	172
150	3100	2650	150	47	88	525	140	140	12	292	200	82	110	240	40	332	292	198
175	4550	2350	175	80	133	840	160	160	12	331	235	85	110	285	40	372	332	220