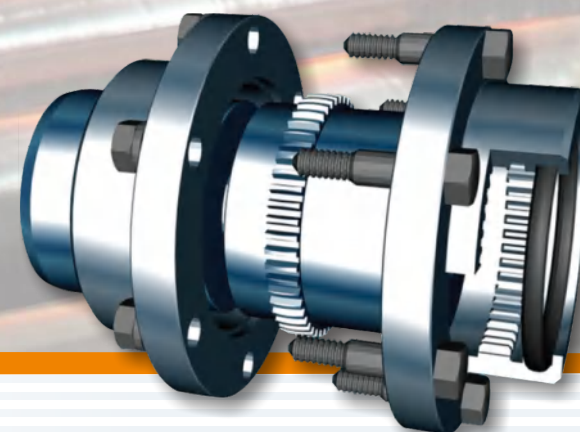


## GEAR COUPLING

GEKU-N  
KWN 22140



KUDOSWORLD CORPORATION

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**Product | Engineering Services  
Maintenance**

## Gear Coupling

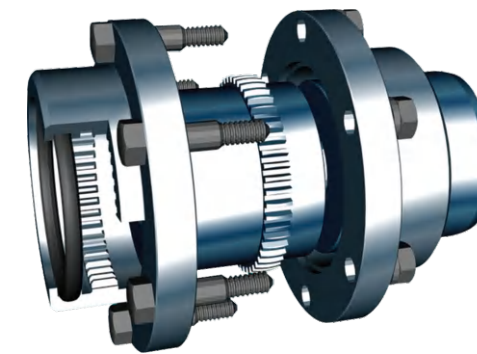


Fig.1

Gear coupling is a kind of positive locking and torsional rigid coupling used for torque transmission. The hub is connected to the working machine by assembly key, gear shaft or interference fit assembly. The tooth shape of hub is realized by crown drum tooth. The tooth thickness decreases with the increase of tooth width. The engagement of the crown drum teeth makes the rotation range achieve a small backlash. The combination of small backlash and ring gear center allows the coupling to operate smoothly over the entire speed and torque range.

### Distinctive

1. Compared with other types of coupling, the gear coupling has strong ability to bear heavy load, compact structure, small volume and light weight, even in high-speed operation with low noise and small vibration.
2. The coupling teeth are crown drum shaped teeth, realizing a small tooth side clearance, increasing the wear resistance of the teeth, being able to well compensate the radial, axial and angular deviation, and making the equipment run more smoothly.
3. The sleeve contact surface is designed with concave and convex groove, which is easy to assemble and disassemble.
4. The coupling adopts tempered steel to treat the yield strength of  $f_{un}350\text{mpa}$ . In addition, nitriding heat treatment and surface high-frequency quenching treatment can be carried out according to the requirements. In high speed rotation and high load operation, the wear resistance is good.
5. The grease ensures low maintenance workload and long durability. Insert O-ring or double lip seal to seal the coupling space full of grease.
6. Considering special working conditions such as dust flying, extreme dislocation, low-temperature operation and other working conditions, we have provided our company's patented metal bellows sealing form, which belongs to absolute sealing and zero leakage.

### Structure

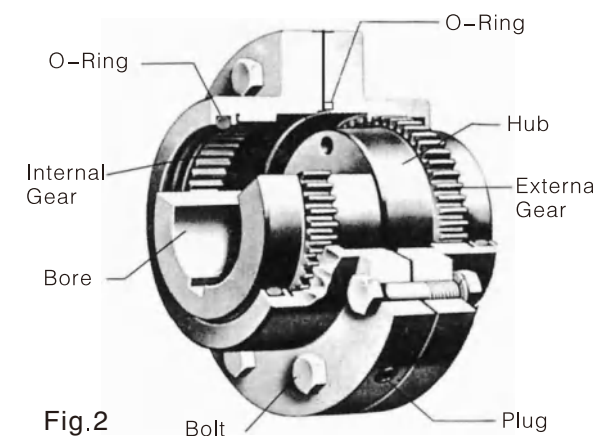


Fig.2

1. The coupling is composed of inner gear ring and outer gear sleeve with drum shaped teeth, which is in engagement state during assembly. When working, when radial and angular deviation occurs, the drum shaped teeth fit along the gap of the arc surface, effectively avoiding the stress concentration of the tooth edge, transferring the power and effectively compensating the radial, angular and axial displacement.
2. When there is no displacement deviation in the working condition, and there is no deviation in the coupling installation, the drum shaped tooth center of the inner ring gear ( $R_o$ ) Contact with the outer gear sleeve, and when there is eccentricity and deflection angle, contact at a certain distance ( $R$ ) from the center point of the tooth profile. (see Fig.3)



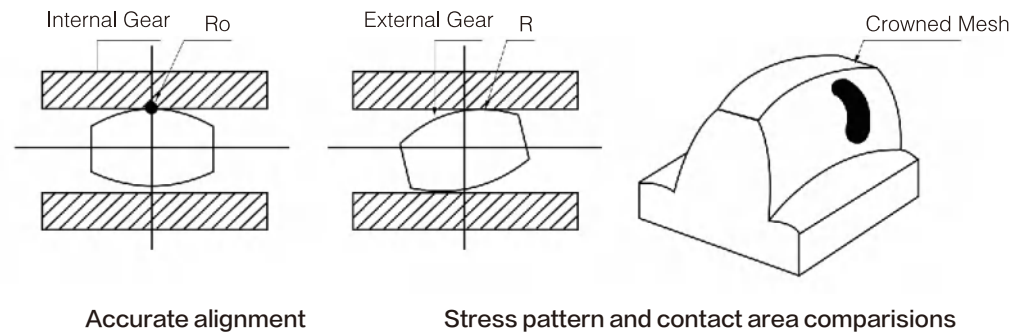


Fig.3

## Misalignment

### 1. Parallel Misalignment

The driving shaft and the driven shaft are parallel to each other but not on the same straight line.

### 2. Angular Misalignment

The driving shaft and driven shaft cross to each other but not on the same straight line.

### 3. Composite Misalignment

The driving shaft and the driven shaft do not cross to each other nor are they parallel to each other.

### 4. Axial Misalignment

The driving shaft and the driven shaft are on the same line but the distance between the two shafts varies.

(The permissible axial Misalignment is  $\pm 25\%$  of C).

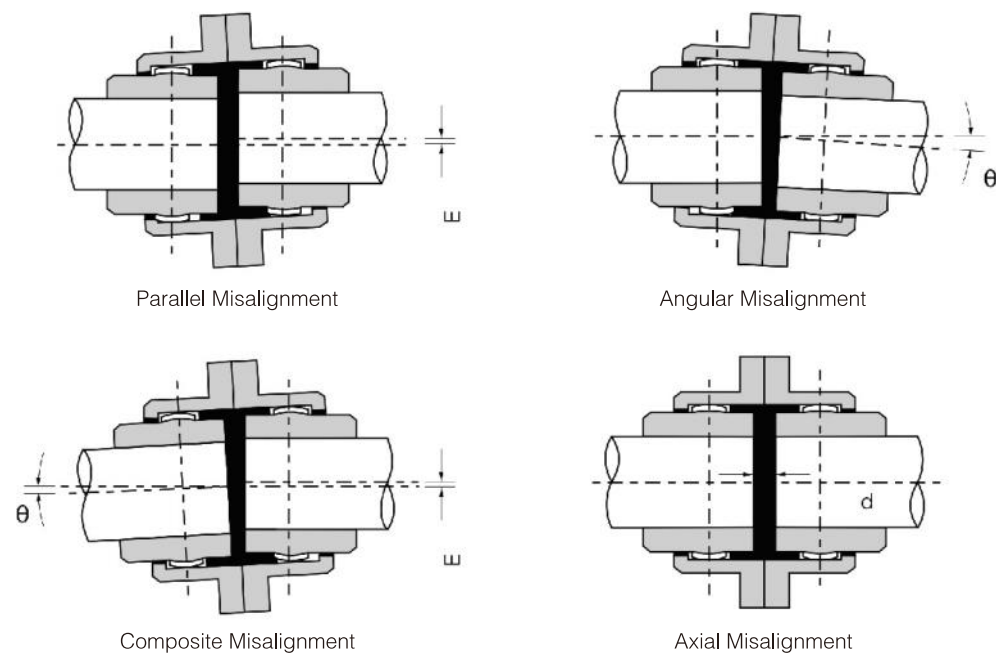


Fig.4

## The Allowable Range of Displacement

### Allowable amount of misalignments of SSM, CCM-type

Coupling Size	Parallel misalignment (mm)	Axial misalignment (mm)	Angular misalignment (°)	Coupling Size	Parallel misalignment (mm)	Axial misalignment (mm)	Angular misalignment (°)	Coupling Size	Parallel misalignment (mm)	Axial misalignment (mm)	Angular misalignment (°)
112	1	2	3°	250	2	4	3°	560	4	6.5	2°
140	1.25	2.5	3°	315	2.5	5	3°	710	5	8.5	2°
160	1.25	3	3°	355	3	5.5	3°	800	5.5	9.5	2°
180	1.5	3	3°	400	3	6.5	3°	900	6.5	10.5	2°
200	1.5	3	3°	450	3	5	2°	1000	7	12	2°
224	1.5	4	3°	500	3.5	6	2°	1120	8	13	2°

### Allowable amount of misalignment of GD, GDL-type

Coupling Size	Parallel misalignment (mm)	Axial misalignment (mm)	Angular misalignment (°)	Coupling Size	Parallel misalignment (mm)	Axial misalignment (mm)	Angular misalignment (°)	Coupling Size	Parallel misalignment (mm)	Axial misalignment (mm)	Angular misalignment (°)
10	1	1.5	3°	40	3.4	3.5	3°	80	6.6	5	2°
15	1.3	1.5	3°	45	3.7	4	3°	90	7.5	5	2°
20	1.6	2	3°	50	4	4	3°	100	8.4	6	2°
25	2	3	3°	55	4.5	5	3°	110	12.3	6	2°
30	2.5	3	3°	60	5	5	3°	120	12.7	8	2°
35	3	3	3°	70	6	5	2°				

## Application

Recommendable	Not Recommendable	Symbol
(1)	(5)	
(2)	(6)	
(3)	(7)	
(4)	(8)	

Fig.6

- In case of SEM it will be used like (1) or (2). The case such as (5) must be basically avoided except for when shafts are in complete alignment.
- When SSM are coupled with an intermediate shaft, the shaft requires fixed supports as (3). Avoid the case such as (7), because there is no fixed support, resulting in vibration.
- When SSM is used together with SEM, an inclinable bearing supporting the intermediate shaft must be set up.
- If the intermediate shaft is in inclining state, the case such as (8) causes vibration.
- 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.

## Lubrication and Handling

1. We advise the adequate lubricant to be used for gear coupling to support good performance and long life.
2. Grease lubricant  
When assembling, pack the coupling sleeve and the coupling hub with the recommended grease until their teeth become invisible, and after tightening the reamer bolts, add the grease through the oil plug hole using a grease gun, etc.
3. Supplement and Replacement  
Every month, or 240–250 hours after operation, you should supply grease. Every 3 months or 4,000 hours after operation, you should replace grease after you get rid of the bad.
4. Selection of grease  
The handling range of temperature for grease is from  $-17^{\circ}\text{C}$  to  $70^{\circ}\text{C}$ . You choose grease according to the rpm and circumstance.
5. How to fill up lube oil  
The sleeve is provided with 2 oil holes, as shown in Fig. 8, with one hole inclined at about  $30^{\circ}$  upwards. Open the plug and supply oil through this port. Oil should be supplied until it overflows from the oil hole.
6. Change and inspection of lube oil  
It is desirable to change oil after 3 months of operation for the first time, and subsequently, every 6 months. If leakage of lube oil is found during operation, be sure to check the cause of leakage and after taking necessary measures, check the amount of oil and replenish it if necessary.
7. Cautions for oil lubrication  
In the case of oil lubrication, the enclosed oil may leak between the key and keyway then you should apply either a sealant to the key or to mount a cover on the hub shaft end to prevent oil leakage.

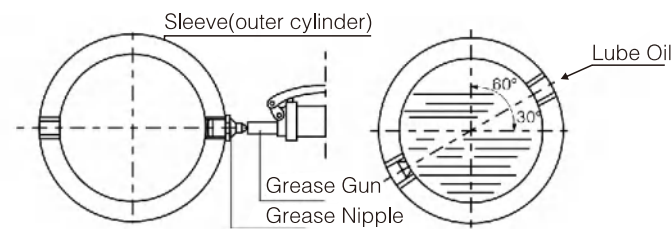


Fig.7 How to apply grease

Fig.8 How to fill lube oil

### Recommended Lubricants

MAKERS	GEAR OIL	GREASE
ESSO	SPARTAN EP 680	PEN-O-LED EP #1
SHELL	OMURA OIL 680	ALVANIA EP #1
MOBIL	MOBIL GEAR 636	MOBIL PLEX 46
CALTEX	MULTIFAK EP #1	MEROPA 680

## Maintenance & Check

1. There are any vibration and noise in coupling.
  2. There is any oil leakage in the coupling.
  3. There are any damage in the teeth.
  4. There is any deterioration and damage in the "O" ring.
  5. There is any deterioration in the lubricating oil.
  6. There is any variation in the oil quantity.
- Always check the 1&2 above which can be observed from outside and compare them with those under normal operation. For the items other than 1&2 above, check them every 6 months.
- For the extreme overload operation, excessive both-way rotation, and large misalignment, shorten the interval of check.

## Selection Method

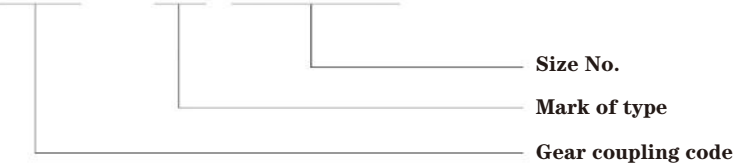
1. From the following formula, obtain torque required for selection  
 $T_a = 974 \times (KW/N) \times SF$  or  $T_a = 716 \times (HP/N) \times SF$   
 $T_a$  = Selected torque(kg.m)  
 $KW$  = Transmitted load(kw)  
 $HP$  = Transmitted load(HP)  
 $N$  = Working revolution(rpm)  
 $S,F$  = Recommended Service Factor
2. First select the same or greater size by comparing with basic torque of each size and calculated torque and then examine the suitability of boring driver.

Driving machines			Load	Examples of driven machines
Electric motor of turbine	Hydraulic power	Reciprocation motion		
1	1.25	1.5	Smooth	Pumps, Blowers, Generators, and Exciters.
1.5	1.8	2	Light shock	Compressors, Mixers, Grinders, Machine Tools, Wood Working Machines, and Textile Machines.
2	2.3	2.5	Medium shock	Ball and Roll Mills, Reciprocating Compressors, Elevators, Paper Machines, Punch Press.
2.5	2.8	3	Heavy shock	Steel & Iron Manufacturing Machines, Mining Machines, Roll Mills, and Rubber Mixers.
3	3.5	4	Extremely heavy shock	Ore Crushers, Vibration Conveyors, and Cutters.

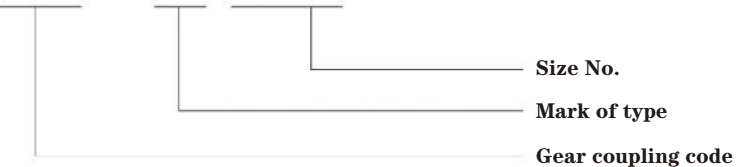
\*The above service factors applied to the general conditions, the service factor should be considered according to the actual conditions.

## Designation

**GEKU - N SSM 112**

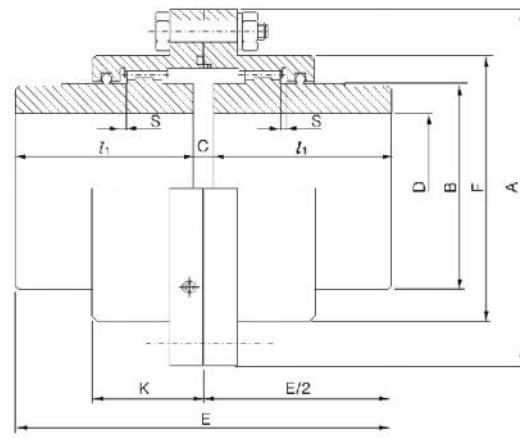


**GEKU - N GD 10**

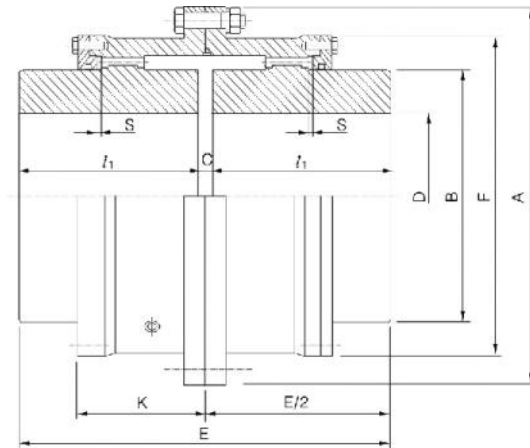


**SSM, GD:** Gear double engagement type  
**CCM, GDL:** Gear double engagement type  
**SEM, GS:** Gear Single engagement type  
**CEM, GSL:** Gear Single engagement large type

### Dimensions



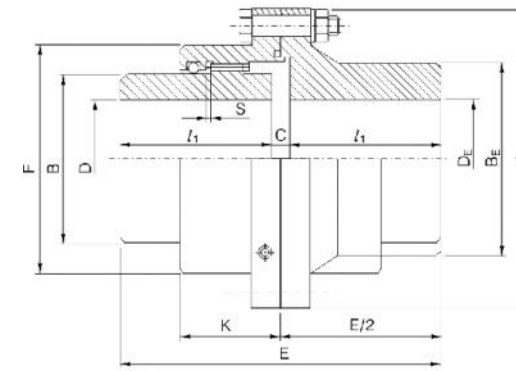
GEKU-N SSM



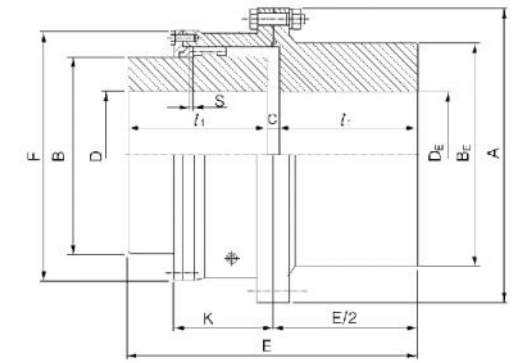
GEKU-N CCM

Size	Torque Rating (kgf · m)	Max Speed (rpm)	Dimensions (mm)									Grease Qty (l)	Weight (kg)	Gd <sup>2</sup> (kgf · m <sup>2</sup> )
			Bore D		E	l <sub>1</sub>	C	B	F	K	S			
			Min	Max										
SSM 112	80.3	4000	17	40	108	50	8	58	79	40	2	0.055	4.3	0.0198
SSM 125	142	4000	22	50	134	63	8	70	92	43	2.5	0.072	6.6	0.0353
SSM 140	205	4000	22	56	150	71	8	80	107	47	2.5	0.11	9.3	0.0612
SSM 160	314	4000	22	65	170	80	10	95	120	52	3	0.14	14	0.113
SSM 180	482	4000	32	75	190	90	10	105	134	56	3	0.18	19	0.191
SSM 200	689	3810	32	85	210	100	10	120	149	61	3	0.24	26	0.315
SSM 224	1000	3410	42	100	236	112	12	145	174	65	4	0.36	39	0.599
SSM 250	1470	3050	42	115	262	125	12	165	200	74	4	0.53	55	1.08
SSM 280	2340	2720	42	135	294	140	14	190	224	82	4.5	0.69	81	2.06
SSM 315	3680	2420	100	160	356	170	16	225	260	98	5.5	1.1	129	4.24
SSM 355	5550	2150	125	180	396	190	16	250	288	108	5.5	1.3	177	7.13
SSM 400	7790	1900	140	200	418	200	18	285	329	114	6.5	2.0	242	12.5
CCM 450	11000	1690	140	205	418	200	18	290	372	151	5	2.6	298	16.6
CCM 500	16600	1520	170	250	494	236	22	335	424	168	6	3.8	446	36.9
CCM 560	25500	1360	190	280	552	265	22	385	472	187	6.5	4.6	642	67.6
CCM 630	42000	1210	224	325	658	315	28	455	544	213	8	6.7	1010	137
CCM 710	61200	1070	250	360	738	355	28	510	622	242	8.5	9.4	1440	250
CCM 800	87500	950	280	405	832	400	32	570	690	267	9.5	13	2030	441
CCM 900	125000	840	315	475	932	450	32	670	792	295	10.5	17	3030	860
CCM 1000	171000	760	355	510	1040	500	40	720	858	322	12	23	4120	1380
CCM 1120	240000	682	400	600	1160	560	40	840	990	360	13	31	5920	2650
CCM 1250	331000	610	500	710	1460	710	40	960	1126	399	14	45	9410	5290

### Dimensions



GEKU-N SEM

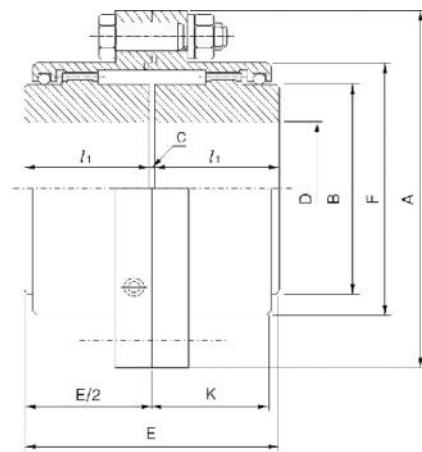


GEKU-N CEM

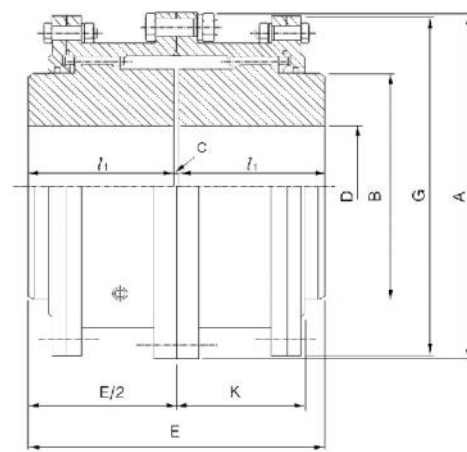
Size	Torque Rating (kgf · m)	Max Speed (rpm)	Dimensions (mm)													Grease Qty (l)	Weight (kg)	GD <sup>2</sup> (kgf · m <sup>2</sup> )
			Bore D		Bore D <sub>E</sub>		E	l <sub>1</sub>	C	B	F	K	B <sub>E</sub>	S				
			Min	Max	Min	Max												
SEM 112	80.3	4000	17	40	17	50	108	50	8	58	79	40	70	2	0.042	4.6	0.0197	
SEM 125	142	4000	22	50	22	56	134	63	8	70	92	43	80	2.5	0.056	6.7	0.0348	
SEM 140	205	4000	22	56	22	63	150	71	8	80	107	47	90	2.5	0.085	9.3	0.0591	
SEM 160	314	4000	22	65	22	75	170	80	10	95	120	52	105	3	0.11	14	0.111	
SEM 180	482	4000	32	75	32	80	190	90	10	105	134	56	115	3	0.14	19	0.183	
SEM 200	689	3810	32	85	32	95	210	100	10	120	149	61	135	3	0.18	26	0.317	
SEM 224	1000	3410	42	100	42	105	236	112	12	145	174	65	150	4	0.29	38	0.579	
SEM 250	1470	3050	42	115	42	125	262	125	12	165	200	74	180	4	0.41	56	1.08	
SEM 280	2340	2720	42	135	42	150	294	140	14	190	224	82	210	4.5	0.56	83	2.14	
SEM 315	3680	2420	100	160	100	180	356	170	16	225	260	98	250	5.5	0.90	135	4.55	
SEM 355	5550	2150	125	180	125	200	396	190	16	250	288	108	275	5.5	1.1	184	7.50	
SEM 400	7790	1900	140	200	140	236	418	200	18	285	329	114	325	6.5	1.6	261	14.1	
CEM 450	11000	1690	140	205	140	225	418	200	18	290	372	151	320	5	2.1	304	18.2	
CEM 500	16600	1520	170	250	170	270	494	236	22	335	424	168	380	6	3.1	453	37.0	
CEM 560	25500	1360	190	280	190	305	552	265	22	385	472	187	430	6.5	3.8	664	70.0	
CEM 630	42000	1210	224	325	224	355	658	315	28	455	544	213	500	8	5.8	1020	139	
CEM 710	61200	1070	250	360	250	400	738	355	28	510	622	242	565	8.5	7.8	1460	252	
CEM 800	87500	950	280	405	280	450	832	400	32	570	690	267	635	9.5	11	2090	451	
CEM 900	125000	840	315	475	315	510	932	450	32	670	792	295	715	10.5	14	3020	743	
CEM 1000	171000	760	355	510	355	570	1040	500	40	720	858	322	800	12	20	4130	1440	
CEM 1120	240000	682	400	600	400	640	1160	560	40	840	990	360	900	13	26	5970	2810	
CEM 1250	331000	610	500	710	500	800	1460	710	40	960	1126	399	1060	14	37	9820	5630	



### Dimensions



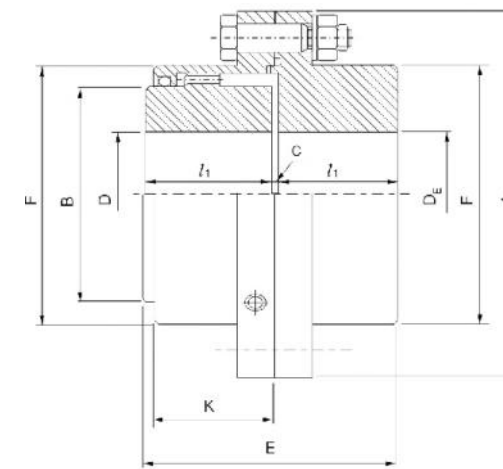
GEKU-N GD



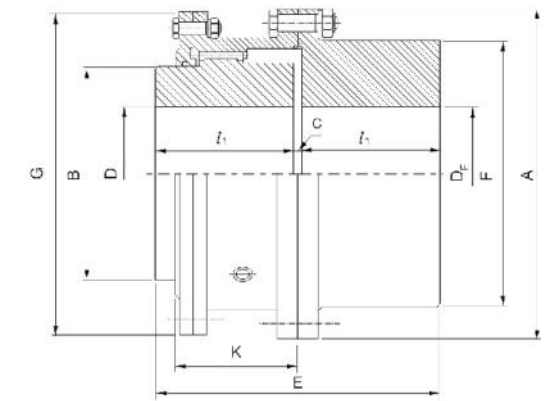
GEKU-N GDL

Size	HP Per 100 rpm	Max. Speed (rpm)	Basic Torque (kgf · cm)	Bore D(mm)		Dimensions (mm)							Weight (kg)	Grease wt(kg)	
				Max	Min	A	E	$l_1$	B	F	K	G			C
10GD	12	8,000	8,594	48	13	116	89	43	69	84	39		3	4.5	0.04
15GD	27	6,500	19,337	60	19	152	101	49	86	105	48		3	9.1	0.07
20GD	50	5,600	35,810	73	25	178	127	62	105	126	59		3	15.9	0.11
25GD	90	5,000	64,458	92	32	213	159	77	131	155	72		5	29.5	0.23
30GD	150	4,400	107,430	105	38	240	187	91	152	180	84		5	43.1	0.36
35GD	230	3,900	164,726	124	51	279	218	106	178	211	98		6	68.0	0.54
40GD	350	3,600	250,670	146	64	318	248	121	210	245	111		6	97.5	0.91
45GD	480	3,200	343,776	165	76	346	278	135	235	274	123		8	136.1	1.04
50GD	650	2,900	465,530	178	89	389	314	153	254	306	141		8	190.5	1.77
55GD	850	2,650	608,770	197	102	425	344	168	279	334	158		8	249.5	2.22
60GD	1,100	2,450	787,820	222	114	457	384	188	305	366	169		8	306.2	3.18
70GDL	1,600	2,150	1,145,920	254	89	527	451.5	221	343		196	517	9.5	485.4	4.35
80GDL	2,100	1,750	1,504,020	279	102	591	507.5	249	356		243	572	9.5	703.1	9.53
90GDL	2,850	1,550	2,041,170	305	114	660	565	276	394		265	641	13	984.3	12.25
100GDL	4,000	1,450	2,864,800	343	127	711	623	305	445		294	699	13	1302.0	14.97
110GDL	5,500	1,330	3,939,400	387	140	775	679	333	495		322	749	13	1678.3	17.69
120GDL	7,000	1,200	5,013,400	425	152	838	719	353	546		341	826	13	2113.8	20.87

### Dimensions



GEKU-N GS

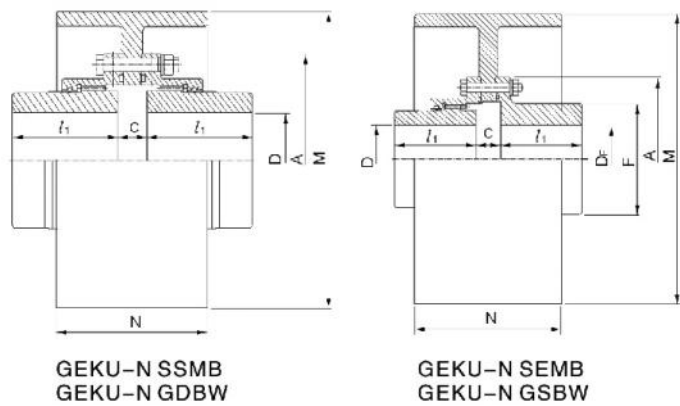


GEKU-N GSL

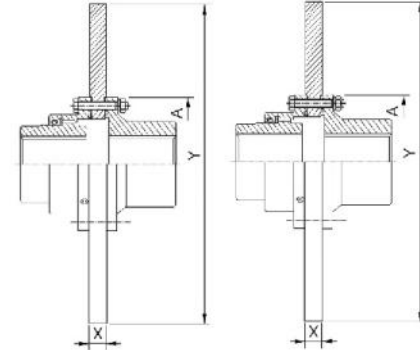
Size	HP Per 100 rpm	Max. Speed (rpm)	Basic Torque (kgf · cm)	Bore D(mm)			Dimensions (mm)							Weight (kg)	Grease wt(kg)		
				Max $D_E$	Min D	Min	A	E	$l_1$	B	F	K	$l_2$			G	C
10GS	12	8000	8594	60	48	13	116	87	43	69	84	39	40		4	4.5	0.02
15GS	27	6500	19337	75	60	19	152	99	49	86	105	48	46		4	9.1	0.04
20GS	50	5600	35810	92	73	25	178	124	62	105	126	59	58		4	15.9	0.07
25GS	90	5000	64458	111	92	32	213	156	77	131	155	72	74		5	27.2	0.12
30GS	150	4400	107430	130	105	38	240	184	91	152	180	84	88		5	43.1	0.18
35GS	230	3900	164726	149	124	51	279	213.5	106	178	211	98	102		5.5	61.2	0.27
40GS	350	3600	250670	171	146	64	318	243	121	210	245	111	115		7	99.8	0.47
45GS	480	3200	343776	194	165	76	346	274	135	235	274	123	131		8	136.1	0.57
50GS	650	2900	465530	222	178	89	389	309	153	254	306	141	147		9	195.0	0.91
55GS	850	2650	608770	248	197	102	425	350	168	279	334	158	173		9	263.1	1.13
60GS	1100	2450	787820	267	222	114	457	384	188	305	366	169	186		10	324.3	1.70
70GSL	1600	2150	1145920	305	254	89	527	454	221	343	425	196	220	517	13	508.0	2.27
80GSL	2100	1750	1504020	343	279	102	591	511	249	356	451	243	249	572	13	698.5	4.99
90GSL	2850	1550	2041170	381	305	114	660	566	276	394	508	265	276	641	14	984.5	6.35
100GSL	4000	1450	2864800	406	343	127	711	626	305	445	530	294	305	699	16	1251.9	7.71
110GSL	5500	1330	3939400	445	387	140	775	682	333	495	584	322	333	749	16	1637.5	9.07
120GSL	7000	1200	5013400	495	425	152	838	722	353	546	648	341	353	826	16	2077.5	10.89

## Dimensions

Brake Drum Type



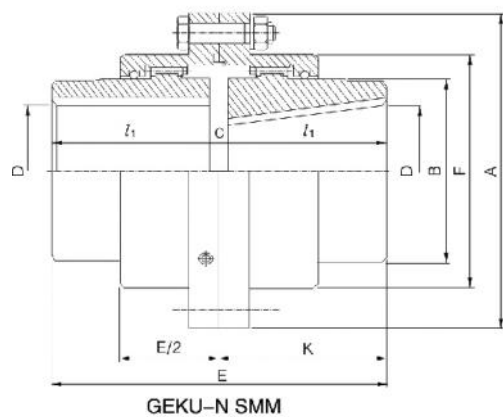
Brake Disc Type



Size	SSMB			DRUM SIZE		GDBW, GSBW							Size
	l <sub>1</sub>	C	D	DE	M	N	D	DE	C	l <sub>1</sub>	l <sub>2</sub>	A	
			max/min	max/min			max/min	max/min					
140	63	24	56/22	63/22	200	100	75/19	60/19	16	49	46	152	15G
160	80	26	65/22	75/22			95/25	73/25	16	62	58	178	20G
180	90	29	75/32	80/32	250	125	113/32	92/32	19	77	74	213	25G
200	100	29	85/32	95/32									
224	112	31	100/42	105/42	315	160	130/38	105/38	19	91	88	240	30G
250	125	31	115/42	125/42									
280	140	31	135/42	150/42	355	180	149/51	124/51	25	106	102	279	35G
315	160	41	160/100	180/100	400	200	171/64	146/64	25	121	115	318	40G
355	180	43	180/125	200/125	450	224	194/76	165/76	27	135	131	346	45G
400	200	49	200/140	236/140	500	250	222/89	178/89	33	153	147	389	50G

"M" and "N" are variable according to the space of machine.

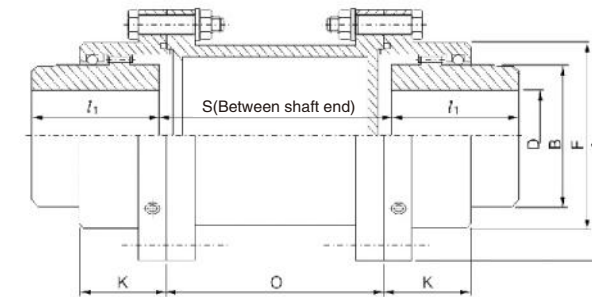
## Mill Motor Type



Size	DIMENSIONS						GD <sup>2</sup> (kgf · m <sup>2</sup> )
OUTSIDE Dia A	E	l <sub>1</sub>	l <sub>2</sub>	C	K <sub>1</sub>	K <sub>2</sub>	
SMM 125(a)	157	50	75	32	43	66	0.038
SMM 125(b)	172	50	90	32	43	66	0.039
SMM 140	185	63	90	32	47	72	0.066
SMM 160	220	80	100	40	52	82	0.123
SMM 180	246	90	115	41	56	87	0.208
SMM 200	260	100	115	45	61	93	0.336
SMM 224	289	112	125	52	65	102	0.637
SMM 250	305	125	125	55	74	105	1.09
SMM 280(a)	339	140	140	59	82	115	2.09
SMM 280(b)	339	140	150	49	82	115	2.13
SMM 315(a)	386	160	170	56	98	128	4.27
SMM 315(b)	421	160	185	76	98	143	4.42
SMM 355	491	180	235	76	108	155	7.79

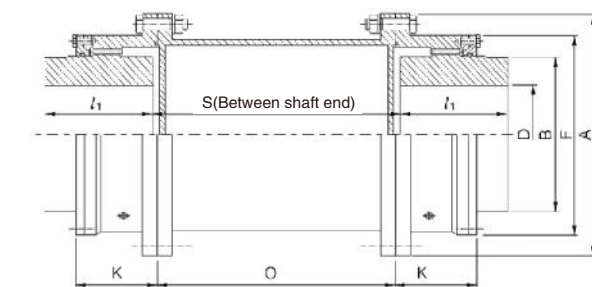
## Special Applications

GEKU-N SAM  
GEKU-N GDS



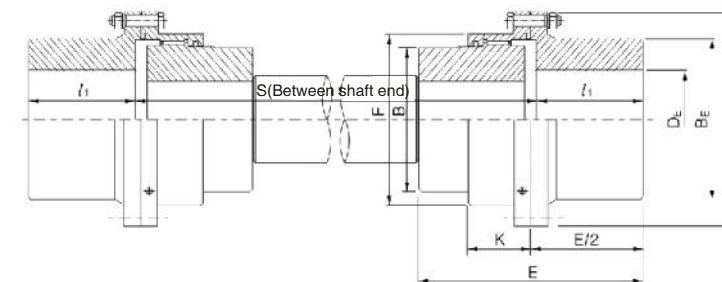
GEKU-N SSM112-400  
GEKU-N GD10-60

GEKU-N CAM

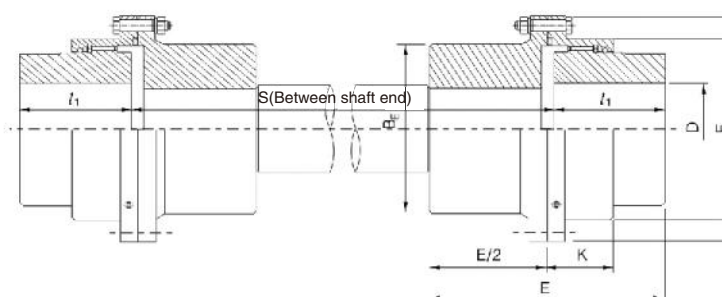


GEKU-N CCM450-1250

GEKU-N SHM  
GEKU-N GFO

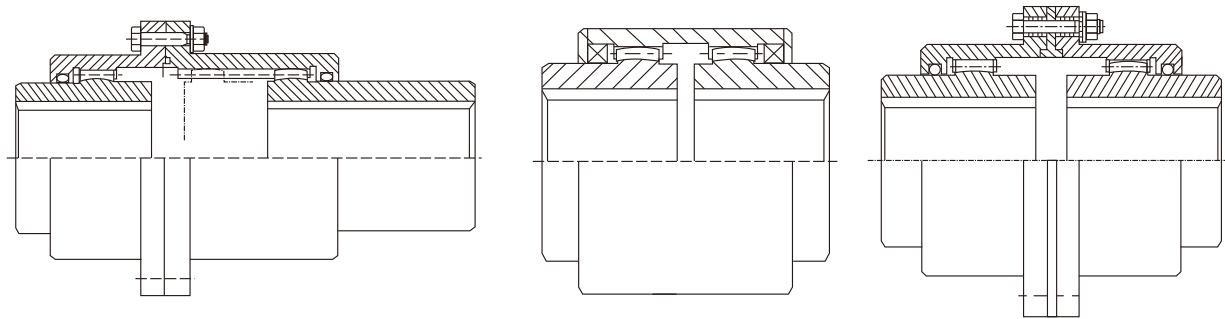


GEKU-N SFM  
GEKU-N GFR



\* "S" is the distance between shaft ends. Please give us further information on "S" when you order.  
NOTE: The detail dimensions on the above figures are the same as our original standard size (SSM, SEM, GD, GS).

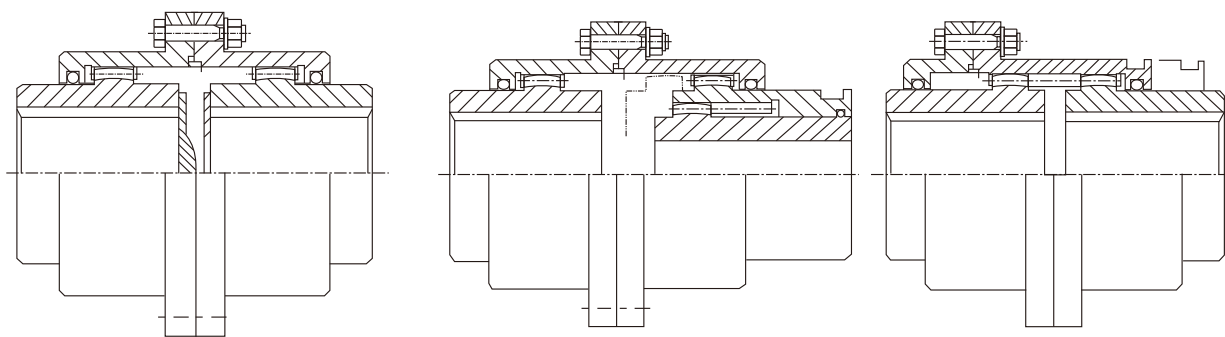
## Special Applications



• Slide Type

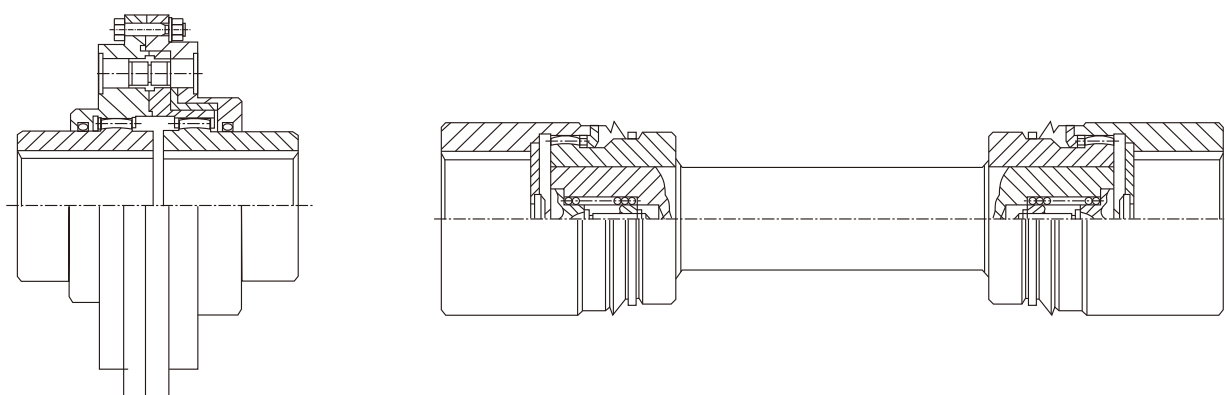
• Sleeve Type

• Insulation Type



• Limited-end Play Type

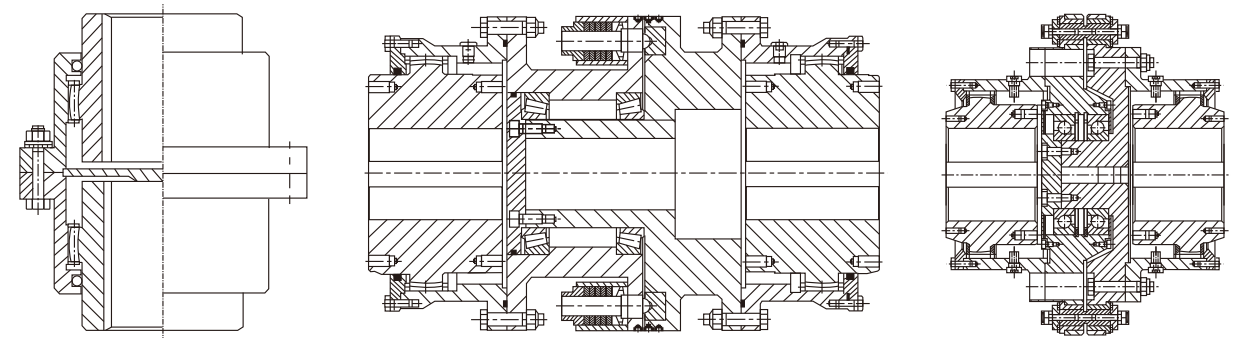
• Detachable Clutch Type



• Shear Pin Type

• Spindle Type

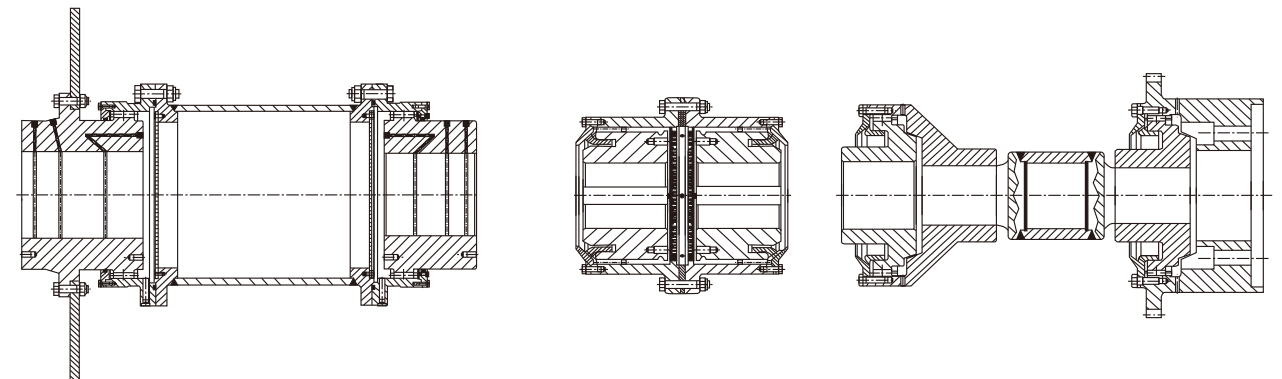
## Special Form



• Vertical mounted

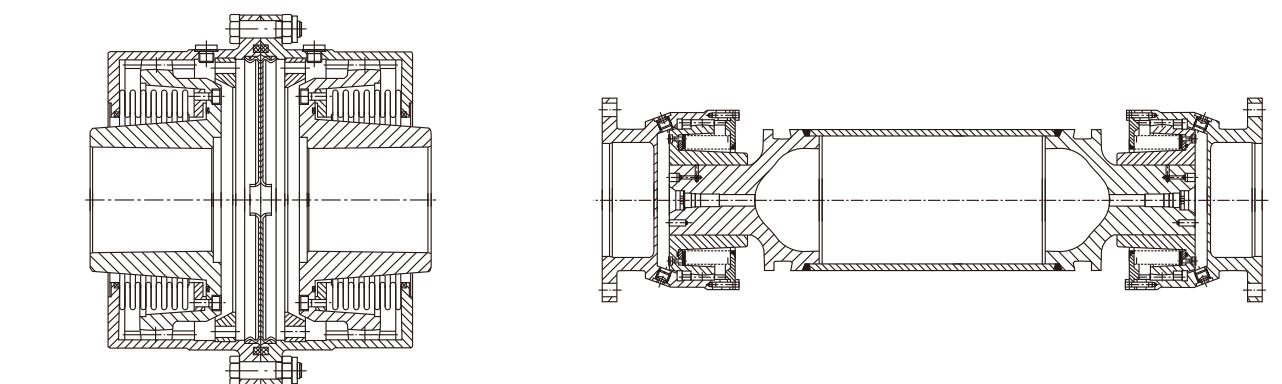
• With torque limiting function

• With compression bolt and continuous oil lubricated type



• The gear coupling with brake disc is arranged on the wheel hub for transverse drive of rolling mill

• With the highest speed and oil lubricated



• Patented metal corrugated seal (high shaft displacement – long oil change interval – possible oil lubrication – no leakage)

• With the patented metal corrugated seal as an alternative to the Hyun chain shaft (long interval between oil changes – possible oil lubrication – no leakage)