Korea Coupling Co., Ltd.,

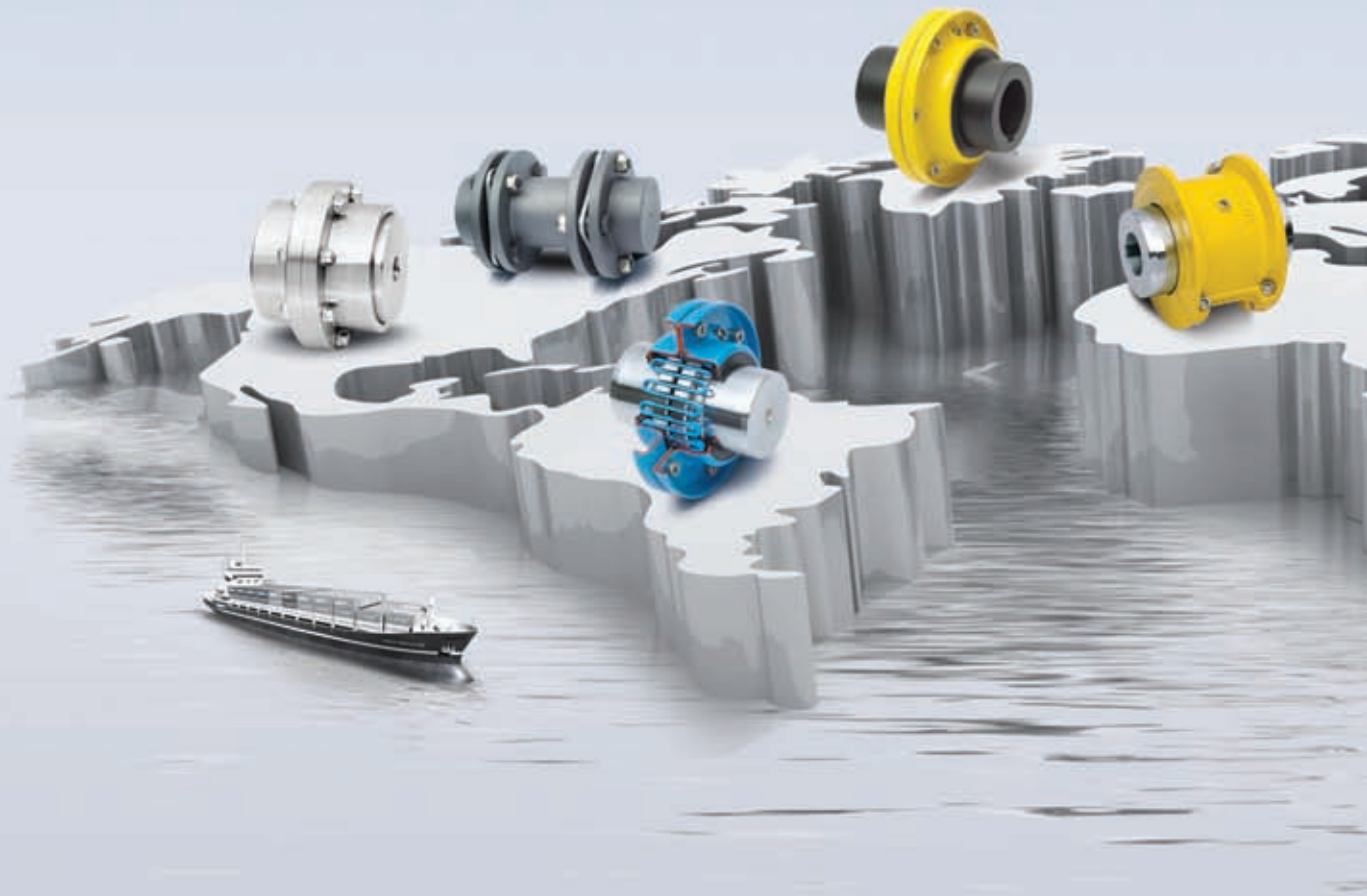
This is a specialist for power transmission equipments manufacturer including shaft couplings and supply high quality products to various industries, such as steel mills, paper, mining, chemical & cement.

They are mainly used with hydraulic machineries, pumps, blower fans, conveyors, cranes & general power driven industrial equipments.

Under our management philosophy which we should serve a customer with best products, we have been creating new markets,both domestic and international, as supplying the best quality products.

We will try best to improve our products with continuous technical researches and quality controls and assure you that you can find us of good services to you. Your deserved patronage / relationships and closer contacts will greatly be appreciated.

Wishing you everlasting prosperity and good co-operations always !



CONTENTS

GEAR COUPLING

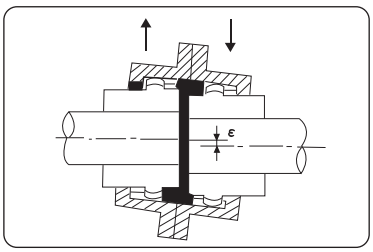
KCP Gear Coupling follows the international standards of AGMA and JIS, which easily allows to replace with major industrial products. Our Gear coupling compensate angular misalignment, parallel misalignment and end float. The fully crowned hub teeth provide minimum loading stress, and ensure longer life.

1. Characteristic

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

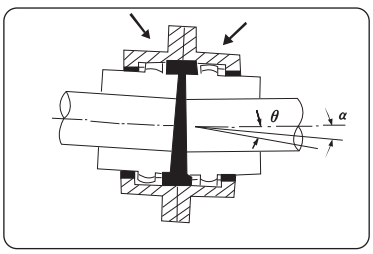
■ Parallel Misalignment

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



■ Anglular Misalignment

The driving and driven shaft installed with an limited angle.

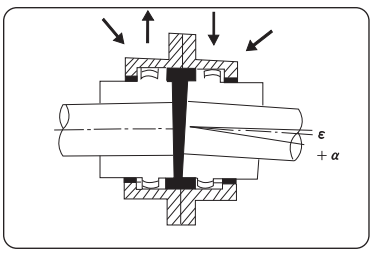


■ End Floating

The driving and driven shafts slide slightly along with the gear teeth.

■ Composite Misalignment

Most of cases, above 3 misalignments appear with mixed in general use.



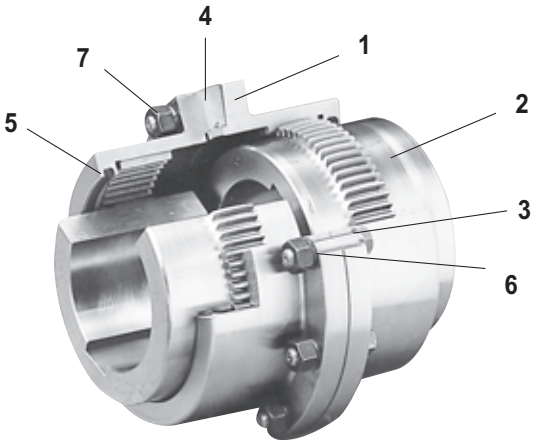
Allowable Misalignment

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° (α)	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)

■ Data subject to double engagement couplings.

5. The coupling made of S45C has a good endurance to high speed and peak load.
   Consult us for special materials, if required.
6. Customer´s requirements of special design can be acceptable.

2. Structure



1. Internal Gear(Flanged Sleeve)
2. Crown Gear(Crown Gear Hub)
3. Reamer Bolt or AGMA Bolt
4. Gasket
5. O-ring
6. Spring Washer
7. Hex. Bolt & Nut.

■ The crowned hub teeth provide larger contact area and decrease the stress.

2. Application

1. Heavy load, but compact design coupling.
2. Highs speed up to 5,000rpm (Depending on size, refer to the data)
3. Low speed, but high starting torque.
4. End float application.
5. Spacer required, dut to longer distance between shaft ends.
6. Low load and light weight application is not recommendable.

3. How to Select

Standard Selection Method
The standard selection method can be used for most motor, turbine, or engine driven applications.
The following information is required to select a gear coupling.

Kilowatt (kW) or torque (Nm)
Running rpm.
Application or type of equipment to be connected
(motor to pump, drive to conveyor, etc.).
Shaft diameters.
Shaft gaps.
Physical space limitations
Special bore or finish information and type of fit
Exceptions are High Peak Loads, Brake Applications or high frequency axial sliding (greater than 5 per hour). For these conditions, use the Formula Selection Method on the next page. Applications that require rapid changes in direction or torque reversals should be referred to Falk.

1. RATING : Determine system torque. If torque is not given, calculate as shown below.

$$\text{System Torque (Nm)} = \frac{\text{kW x 9549}}{\text{rpm}}$$

Where : kW (Kilowatt) is the actual or transmitted power required by the application (if unknown, use the motor or turbine nameplate rating) and rpm is the actual speed the coupling is rotating.

2. SERVICE Factor : Determine the appropriate service factor from Tables 4 and 5, Page 14, or Table 6, Page 15.

3. REQUIRED MINIMUM COUPLING RATING : Determine the required minimum coupling rating as shown below Minimum Coupling Rating = S.F.(Service Factor) x Torque(Nm)

4. TYPE : Refer to Pages 7-9 and select the appropriate coupling type.

5. SIZE : Determine proper size of type selected form Table 1 by tracing down torque column to a value that is equal or greater than that determined in Step 3 above. Then turn to the dimension pages of appropriate coupling type selected and check the following for the size selected.

6. Check : Coupling Capacities and Dimensions
A. Bores — Check shaft diameters against coupling maximum bore. If bore is inadequate, consider the use of a reduced key from engineering tables, or select a larger size coupling.

B. Speeds (rpm) — Check the operating rpm against the coupling allowable speed. If catalogued values are inadequate, consider balancing. Balancing may allow up to 50% increase in speeds shown. Contact Falk with complete application details.

C. Dimensions — Checks are: length of hubs and alignment clearances against shaft lengths, outside diameter of coupling against radial clearances.

STANDARD SELECTION EXAMPLE:

Select a gear coupling to connect a 350 kW 1000 rpm electric motor to a drive high speed shaft of a maneuvering winch. Maximum shaft spearation is 6 mm. Motor shaft diameter is 85 mm and key is 22 mm x 14 mm. Winch shaft diameter is 75 mm and key is 20 mm x 12 mm. Motor and winch extensions are both 150 mm long.

1. DETERMINE REQUIRED RATING :

$$\text{System Torque (Nm)} = \frac{\text{350 kW x 9549}}{\text{1000rpm}} \quad 3342$$

2. SERVICE FACTOR : From Service Factor Table 4, Page 14 = 1.5

3. REQUIRED MINIMUM COUPLING RATING :
1.5 X 3342 Nm = 5013 Nm

4. TYPE : From Page 7, to connect close coupled shafts (6 mm gap) the double engagement Type 1025GC02 or Type 1025G20 coupling is the selection. Refer to Pages 14 or 17 for dimensions.

5. SIZE : From Page 16, a Size 1025GC02 or Page 19, a Size 1025G20 is the proper selection based on a torque rating of 7470 Nm exceeding the required minimum coupling rating of 5013 Nm.

6. CHECK : Maximum speed capacity of 3,330 (1025GC02) and 5000 (1025G20) rpm exceeds required speed of 1000 rpm. Maximum bore capacity of 98 mm exceeds the actual shaft diameters.

TABLE 1 — Torque and Horsepower Ratings

Coupling Size	Torque Rating(Nm)	kW per 100 RPM
1010G/GS	1140	11,9
1015G/GS	2350	24,6
1020G/GS	4270	44,7
1025G/GS	7470	78,3
1030G/GS	12100	127
1035G/GS	18500	194
1040G	30600	321
1045G	42000	440
1050G	56600	593
1055G	74000	775
1060G	90400	947
1070G	135000	1420

Coupling		Torque Rating(Nm) × 10		kW per 100RPM	
		1000Series	2000Series	1000Series	2000Series
1080G	2080G	170	234	1780	2450
1090G	2090G	226	315	2360	3300
1100G	2100G	310	443	3250	4640
1110G	2110G	413	609	4320	6380
1120G	2120G	555	777	5810	8140
1130G	2130G	719	925	7530	9690
1140G	2140G	911	1140	9540	11900
1150G	2150G	1100	1350	11500	14200
1160G	2160G	1310	1640	13700	17100
1180G	2180G	1660	2140	17400	22400
1200G	2200G	2140	2850	22400	0298
1220G	2220G	2720	3560	28500	37300
1240G	2240G	3470	4480	36400	47000
1260G	2260G	4490	5480	47000	57400
1280G	2280G	5840	6760	61100	70800
1300G	2300G	6760	8190	70800	85700

4. Example

Select Gear Coupling to connect 450HP 1,170rpm electric motor wiith reducer. Motor shaft diameter is 80 mm, Reducer shaft diameter is 90Ø mm, Max. parallel alignment is 1.5mm.

① Select type KGD for higher valued application of parallel misalignment.
② Service factor is 2.0
③ Use the normal formula

$$\text{HP/100rpm} = \frac{450 \times 100 \times 2.0}{1.170} = 76.9$$

Size KGD25 is selected with rating of 90HP per 100rpm. To apply larger shaft dia 90 mm, finally KGD 30 is selected

5. Designation

KCP —— 1015 G20

Type of Gear Coupling

Size No.

KCP COUPLINGS

- G20 : Double Engagement Coupling
- G52 : Single Engagement Coupling
- KGD : Double Engagement Coupling
- KGDL : Double Engagement Large Coupling
- KGS : Single Engagement Coupling
- KGSL : Single Engagement Large Coupling
- KGDS : Spacer Coupling - Double Engagment
- KGF : With Floating Shaft Coupling

KCP —— 250 KSS

Type of Gear Coupling

Size No.

KCP COUPLINGS

- KSS : Double Engagement Coupling
- KSE : Single Engagement Coupling
- KCC : Double Engagement Coupling - Large type
- KCE : Single Engagement Coupling - Large type

6. Instruction for Installation

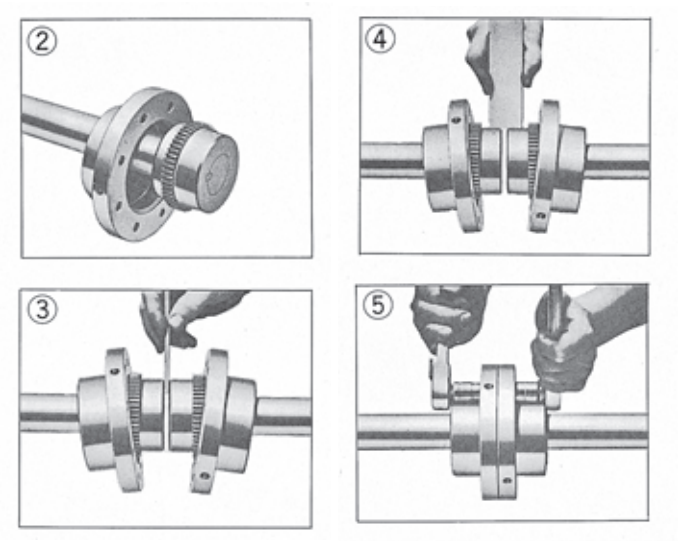
1. Small Size(up to size 60)

Hub bore and keyway must be machined accurately. During the key- fit to the shaft and the hub, be careful with the oil leakage.

① Clean all parts, Grease the crowned gear teeth and O-Ring. Put O-Ring into the shafts.

② Place the flanged sleeves on the shafts and mount the hubs.

③ Using a spacer bar, make the gap between the hubs equal to the normal gap specified.



④ Align the shaft with a straight 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 gasket between the flanged sleeves and fasten the bolts, positioning the lube plug at 90°

⑥ Fill grease until overflowing at the open opposite Lub plug hole.

Fig. 3 Operating Limits of misalignment (mm) **Table 3**

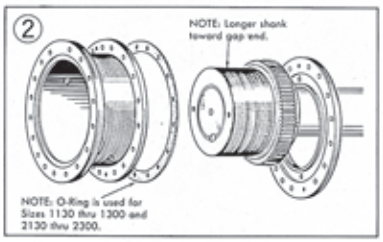
Size	10	15	20	25	30	35	40	45	50	55	60	70	80	90	100
Angular degree	0.125	0.125	0.25	0.25	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4
Gap	3	3	3	4.5	4.5	6	6	8	8	8	8	9.5	10	13	13
Flange Bolt Torque(kg · cm)	96	320	480	960	960	1,650	1,650	1,650	2,070	2,070	2,070	2,980			

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

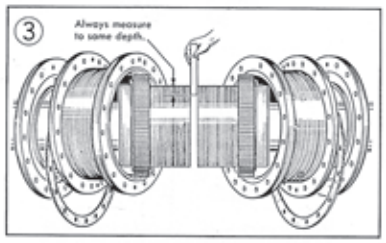
2. Large Size (over size 70)

Hub bore and Keyway must be machined accurately. During the Key-Fit work, be careful Internal Gear not to make oil leakage.

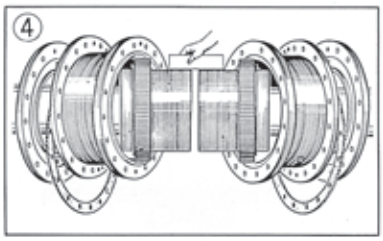
① Clean all parts. Pack with grease and seals with grease before assembly.



② Use a spacer bar equal into the gap. The difference in minimum and maximum measurements should not exceed the angular limit specified in table 3.

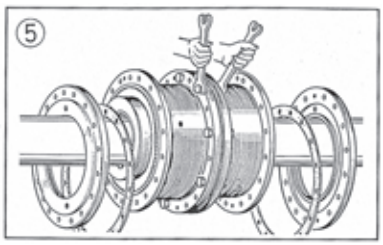


③ Use a spacer bar equal into the gap. The difference in minimum and maximum measurements should not exceed the angular limit specified in table 3.

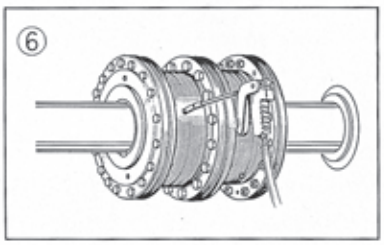


④ Align with a straightedge, rests squarelly at every 90° as shown in photo Check with feelers. The tolerance should not exceed the offest limit specified in Table 3.

⑤ Insert gasket between flanges. Position Internal Gears with lube holes at about 90° and then fasten the bolt & nuts.



⑥ Remove all lube plugs and fill recommended grease into the coupling until excess flow through the opposite lub plug hole. And screw down plugs.



7. Selection of Puller Holes

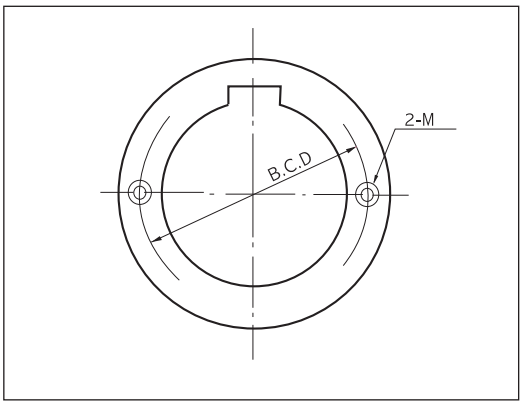
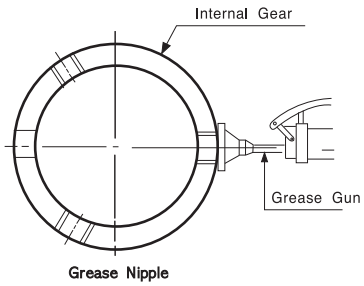


표4 Table4

Size	BCD	Tap Size
1020G	Ø91.6	M8
1025G	Ø114.3	M10
1030G	Ø131.7	M10
1035G	Ø155.9	M12
1040G	Ø184.8	M14
1045G	Ø209	M16
1050G	Ø227	M16
1055G	Ø249.7	M18
1060G	Ø274.4	M18
1070G	Ø322.3	M20

8. Lubrication and Handling

Information of the adequate lubricant for good performance and long life.



1. Lubricant

① Grease the Internal gear teeth and crown gear teeth, and fill enough lubricant Grease.

② Lub weight - Refer to “Dimensions Table” on page30.

③ Supplement and Replacement ;
Add grease every moth or every 240~250 hours operating.
Renew all the contaminated grease every 3 months or every 4,000 hours operationg

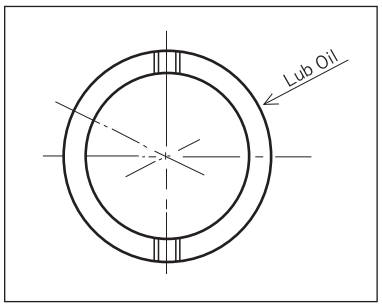
④ Selection
Allowable temperature of grease is from - 17C to 70C. Refer to the table 6 that shows the coupling RPM allowed for the listed grease.

Table 5

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

■ NOTE : Lubricants listed in this manual are typical products.

2. Lubricant Filling



① Place the Lub holes x 2EA horizontal level. Fill up Lubricant until its overflows from the opposite hole.

② Supplement every month, or 240-250 hours operating.

③ Replacement completely all the contaminated lubricant, every 3 months or every 4,000 hours operating.

3. Selection of Lubricant

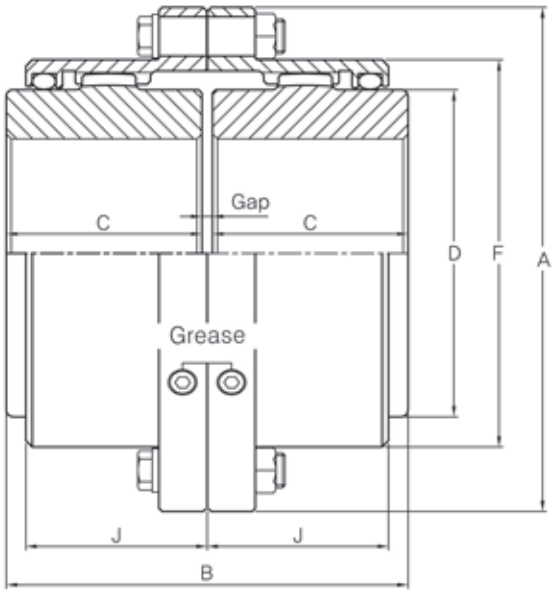
Table 6

Cmopany		Shell	Mobil	Michang	Buhmwoo	Gulf	Fujikosan Nipponkoju	Houghton	Hanil		Caltex
CST 40℃	CST 40℃	omala 68	Mobilgear 626	Pio Gear EP 68	Buhmwoo Gearlube BG-68	Gulf EP Lubricant R 68	Hirax ME GO 300	MP Gear Oil 68	Nico Gear SP 68	Daphne CE compound 68C	Meropa Lubricant 68
68	315										
100	465	omala 68		Pio Gear EP 68	Buhmwoo Gearlube BG-100	Gulf EP Lubricant HD 100	Hirax ME GO 500	MP Gear Oil 100	Nico Gear SP 100	Daphne CE compound 100S	Meropa Lubricant 100
150	700	omala 150	Mobilgear 629	Pio Gear EP 150	Buhmwoo Gearlube BG-150	Gulf EP Lubricant R150, HD150	Hirax ME GO 700	MP Gear Oil 150	Nico Gear SP 150	Daphne CE compound 150S	Meropa Lubricant 150, Synthetic Gear Lube
150	700	omala 220	Mobilgear 630	Pio Gear EP 220	Buhmwoo Gearlube BG-220	Gulf EP Lubricant R220, HD220	Hirax ME GO 1000	MP Gear Oil 220	Nico Gear SP 220	Daphne CE compound 220S	Meropa Lubricant 220
320	1500	omala 320	Mobilgear 632	Pio Gear EP 320	Buhmwoo Gearlube BG-320	Gulf EP Lubricant R320, HD320	Hirax ME GO 1500	MP Gear Oil 320	Nico Gear SP 320	Daphne CE compound 320S	Meropa Lubricant 320

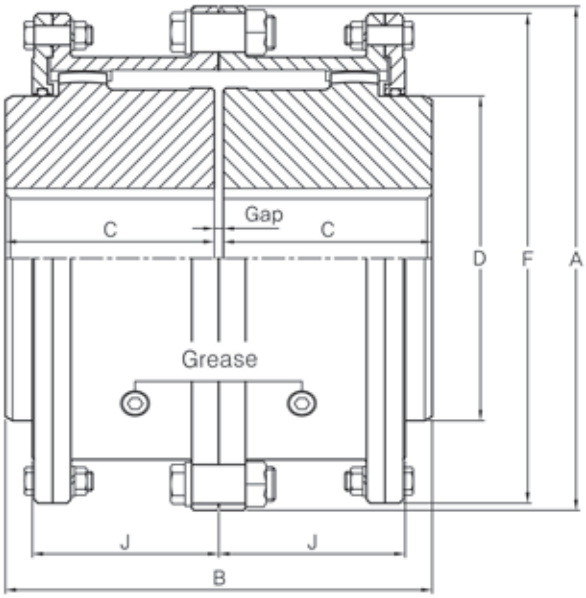
■ Aboves are sample products.

Type G20, KGD (Double Gear) & Type KGD (Double Gear)

Gear Coupling AGMA BOLT



Gear Coupling REAMERS BOLT



SIZE	Torque Rating (Nm)	Allow Speed rpm	Max Bore mm	Min Bore mm	Cplg WT with no Bore-kg G20	Lube WT kg	Dimension(mm)						
							A	B	C	D	F	J	Gap
1010G	1,140	8,000	50	13	4,54	0,0408	115,9	88,9	42,9	68,6	83,8	38,9	3
1015G	2,350	6,500	65	20	9,07	0,0726	152,4	101,6	49,3	86,4	105,2	47,8	3
1020G	4,270	5,600	78	26	15,9	0,113	177,8	127,0	42,0	105,2	126,5	59,4	3
1025G	7,470	5,000	98	32	29,5	0,2127	212,7	158,9	77,0	130,6	154,9	71,6	5
1030G	12,100	4,400	111	39	43,1	0,363	239,7	187,4	91,2	152,4	180,3	83,8	5
1035G	18,500	3,900	134	51	68,0	0,544	279,4	218,9	106,4	177,8	211,3	97,5	6
1040G	30,600	3,600	160	64	97,5	0,907	317,5	247,3	120,6	209,6	245,4	111,3	6
1045G	42,000	3,200	183	77	136	1,04	346,1	277,7	134,9	235,0	274,1	122,9	8
1050G	56,600	2,900	200	89	191	1,77	388,9	314,3	153,2	254,0	305,8	140,7	8
1055G	74,000	2,650	220	102	249	2,22	425,4	344,3	168,1	279,4	334,3	158,0	8
1060G	90,400	2,450	244	115	306	3,18	457,2	384,4	188,2	304,8	366,0	169,2	8
1070G	135,000	2,150	289	127	485	4,35	527,0	451,5	220,7	355,6	424,9	195,6	10

SIZE	Torque Rating (millions) (Nm)		Allow Speed rpm	Max Bore mm	Min Bore mm	Cplg WT with no Bore-kg G20	Lube WT kg	Dimension(mm)						
	1000 Series	2000 Series						A	B	C	D	F	J	Gap
1080G	0,170	0,234	1,750	266	101,60	703	9,5	590,6	508,5	249,2	355,6	571,5	242,8	10
1090G	2,226	0,315	1,550	290	114,30	984	12,2	660,4	565,4	276,4	393,7	641,4	265,2	13
1100G	0,310	0,443	1,450	320	127,00	1,302	15,0	711,2	622,3	304,8	444,5	698,5	293,6	13
1110G	0,413	0,609	1,330	373	139,70	1,678	17,7	774,7	679,2	333,2	495,3	749,3	322,3	13
1120G	0,555	0,777	1,200	400	152,40	2,114	20,9	838,2	717,8	352,6	546,1	825,5	341,4	13

■ Coupling weight is with unbored hub assembly.