A Gorman-Rupp Company

GRID COUPLING <FM> CERTIFIED RATINGS & INSTALLATION INSTRUCTIONS

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Revision 1

<FM> CERTIFIED RATINGS BHP AT RPM

Certified couplings for rated BHP's and speed given above can be used for fixed speed Centrifugal Fire Pumps **with service factor 1.0.**

PATTERSON ELECTRIC DRIVER
COUPLING RATINGS

	1450	1750	1800	3000	3600	TORQUE (IN-LBS)
P1040	50	61	62	105	125	2204
P1050	88	106	110	183	219	3850
P1060	139	168	172	288	345	6054
P1070	202	244	252	418		8798
P1080	417	503	518			18144
P1090	725	852				33013

PATTERSON DIESEL DRIVEN
COUPLING RATINGS

	1470	1760	2100	2350	2400	2600	2800	3000
P1040	51	61	73	82	83	90	97	105
P1050	89	107	128	143	146	158	171	183
P1060	141	169	201	225	230	249	269	288
P1070	205	245	293	328	335			
P1080	423	506	604	676				
P1090	716	857						

SERIES P1000 HORIZONTALLY SPLIT COVER COUPLINGS

COUPLING DATA

SIZE	COUPLING RATING (IN-LBS)	MAX SPEED	MIN BORE (IN)	MAX BORE (IN)	COUPLING WEIGHT(LBS)	WR^2 (LBS/FT^2
P1040	2204	3600	0.5	1.63	7.1	11.3
P1050	3850	3600	0.5	1.88	11.5	23.9
P1060	6054	3600	0.75	2.13	15.7	41
P1070	8798	3600	0.75	2.5	22.3	61.5
P1080	18144	3000	1.06	3	39	153.8
P1090	33013	1800	1.06	3.5	54	268.9

Coupling weight and WR^2 are with no bore
Max bore is with square key
Standard couplings are designed for clearance fit with one set screw over key way.

<FM> CERTIFIED RATINGS BHP AT RPM

ELECTRIC DRIVER
COUPLING RATINGS

Evaluated Coupling HP with <FM> required service factor

	1450	1750	1800	3000	3600	TORQUE (IN-LBS)
P1040	50	61	62	105	125	2204
P1050	88	106	110	183	219	3850
P1060	139	168	172	288	345	6054
P1070	202	244	252	418		8798
P1080	417	503	518			18144
P1090	725	852				33013

DIESEL COUPLING RATINGS

Evaluated Coupling HP with <FM> required service factor

	1470	1760	2100	2350	2400	2600	2800	3000
P1040	26	31	37	41	42	45	49	53
P1050	45	54	64	72	73	79	86	92
P1060	94	113	134	150	153	166	179	192
P1070	137	163	195	219	223			
P1080	282	337	403					
P1090	472	571						

SERIES P1000 HORIZONTALLY SPLIT COVER COUPLINGS

COUPLING DATA

SIZE	COUPLING RATING (IN-LBS)	MAX SPEED	MIN BORE (IN)	MAX BORE (IN)	COUPLING WEIGHT(LBS)	WR^2 (LBS/FT^2
P1040	2204	3600	0.5	1.63	7.1	11.3
P1050	3850	3600	0.5	1.88	11.5	23.9
P1060	6054	3600	0.75	2.13	15.7	41
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Max bore is with square key
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APPLICATION GUIDE

The calculated driver torque, and adjusted by the motor service factor and above service factor, shall not exceed the maximum torque and service factor rating of the flexible coupling. Per <FM> 1336.

BHP = torque (ft – lb.) X RPM / 5252

MATERIAL OF CONSTRUCTION

Part	Material uses Grid Coupling	Produce method
Hub	Steel SM45C (Equivalent to AISI 1045)	Machining
Grid	Spring Steel HSWR82B (Equivalent to SAE 9254)	Forming - Heat Treatment - Peening and Powder Coating (or Phosphate Coating)
Cover H-type	Aluminum alloy ALDCS/8 (Equivalent to ASTM 380)	Die-Casting
Gasket	Fiber	
Oil seal	NBR	

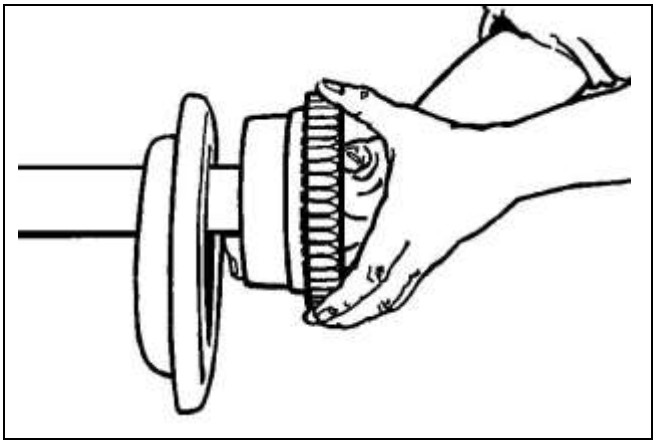
Recommended Grease:

SKF – LMC or 1/0.035

Technical data

Designation	**LMCG 1/(pack size)**	
DIN 51825 code	G0G1G-0	**Corrosion protection**
NLGI consistency class	1	SKF Emcor:
Soap Type	Polyethylene	-standard ISO 11007
Colour	Brown	-salt water test(100%)
Base oil type	Mineral	**Copper corrosion ASTM**
Operating temperature range	0 to 120°C	24 hrs at 100°C
	(32 to 248°C)	**EP performance**
Dropping point DIN ISO 2176	210°C (410°F)	Wear scar DIN 51350
Base oil viscosity		4-ball test, welding
40°C, mm^2/s	670	**Koppers Method ASTM**
100°C, mm^2/s	34	K36, 24h
Penetration DIN ISO 2137		**Approximate density**
60 strokes, 10^{-1} mm	310-340	At 20 C, IPPM-CS/03

General Guidance for the installation of Patterson grid couplings

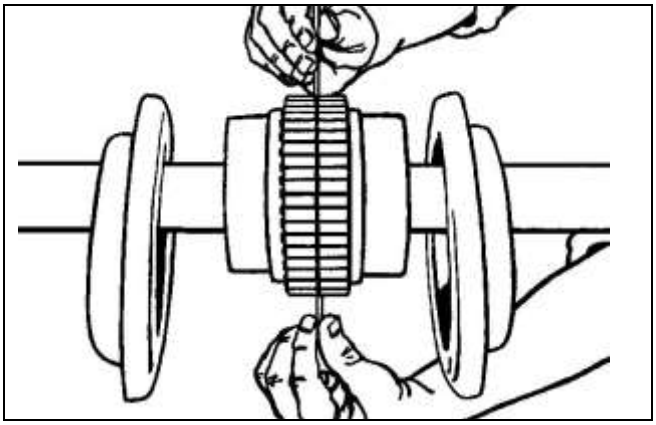


1. Mount Seals and Hubs

P1000 Series (horizontal split cover). Lightly smear seals with grease and place on shafts before mounting hubs.

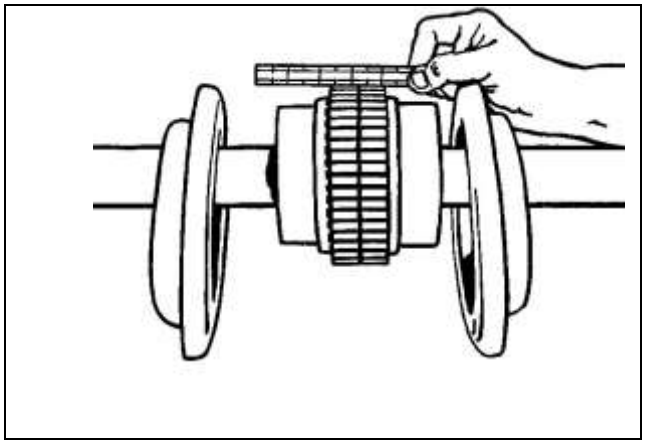
2. Alignment

Satisfactory alignment can be achieved with the use of a straight edge and feeler gauge, although a dial indicator would generally improve accuracy.



3. Gap and Angular Alignment

Set gap using a spacer bar equal in thickness to the nominal gap specified in



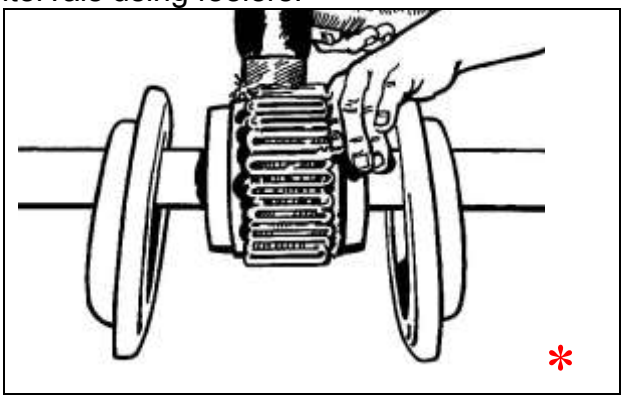
4. Parallel Offset Alignment

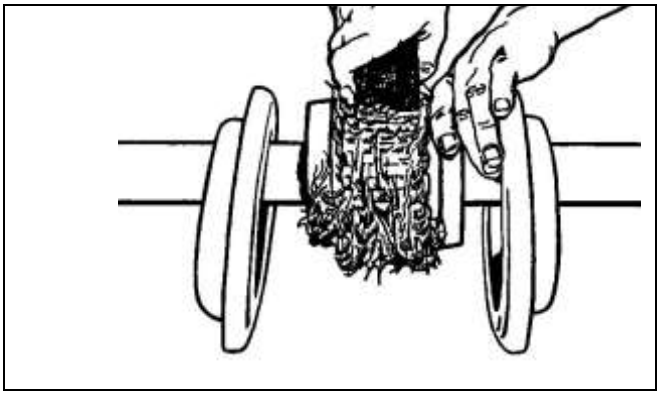
Use a straight edge and feelers, or dial indicator, over the tops of the coupling teeth, taking measurements at 90° intervals. Error should not exceed offset limit specified in the table on back page. (page 4)

5. Be sure to tighten & torque all Set screw & final alignment

Tighten all equipment based plate bolts. Repeat step 3 & 4 and if necessary re-align.

the table on back page. With the spacer bar inserted to the same depth, measure clearance between bar and hub face at 90° intervals using feelers.





6. Grid Assembly

*Before inserting the grid segments, thoroughly pack the grooves with NGLI #2 lubricant. A list of recommended lubricants can be found on the back page. Lubricant packages are included with sizes P1040 through P1090.

When grids are supplied in two or more segments assemble so the cut ends at a segment joint extend in the same direction. Spread the grid slightly so that it will pass over the coupling teeth, and tap all the rungs into the respective slots with a soft mallet.

7. Cover Assembly

Pack the spaces around the grid with lubricant and wipe off the excess flush with top of grid.

P1000 (horizontally split cover): Position seals on hubs so that they line up with grooves on cover. Position gaskets on lower cover half and assemble covers so that match marks are on the same side. If using the coupling in any position other than horizontal, assemble cover halves with the lug and match mark up, or on the high side. Fasten the cover halves to the torque specified in the table on back page.

Maintenance

Check coupling misalignment every year and adjust if required. Excessive misalignment, high ambient temperatures and/or frequent rapid reversing may necessitate more frequent inspections.

If quantity of lubricant appears low, check for leaks and change seals. If necessary, replenish lubricant.

Clean coupling of all old lubricant and replace annually.

Table 1 – Misalignment & End Float

Size	Installation Alignment Limits						Operation Alignment Limits				Cover Bolt Tightening Torques			
	Parallel Offset		Angular		Hub Gap ±10%		Parallel Offset		Angular		P1000			
	Max Inch	Max mm	Max Inch	Max mm	Max Inch	Max mm	Max Inch	Max mm	Max Inch	Max mm	Nm	(in-lb)	Size	
P1040	0.006	0.15	0.003	0.08	0.125	3.2	0.012	0.30	0.013	0.33	11	100	M6	
P1050	0.008	0.20	0.004	0.10	0.125	3.2	0.016	0.40	0.016	0.40	22	200	M8	
P1060	0.008	0.20	0.005	0.12	0.125	3.2	0.016	0.40	0.018	0.45	22	200	M8	
P1070	0.008	0.20	0.005	0.12	0.125	3.2	0.016	0.40	0.020	0.50	22	200	M8	
P1080	0.008	0.20	0.006	0.15	0.125	3.2	0.016	0.40	0.024	0.60	22	200	M8	
P1090	0.008	0.20	0.007	0.18	0.125	3.2	0.016	0.40	0.028	0.70	22	200	M8	

Table 1 – Misalignment & End Float

Size	Max RPM	Lube Wt	
	P1000	lb	kg
P1040	3600	0.12	0.05
P1050	3600	0.15	0.05
P1060	3600	0.19	0.09
P1070	3600	0.25	0.11
P1080	3000	0.38	0.17
P1090	1800	0.56	0.25

Table 2 – Lubricants

Manufacturer	Product
American Lubricants Co. (Dayton, OH)	Alubco Bison 1650
Brooks Technology (Cleveland, OH) (Fuchs Lubricants)	Superplex EP #1 or Benalene 350 EP #2
Chevron Lubricants	Coupling Grease or Duralith EP2
Citgo Petroleum Corp.	Premium Lithium EP2
Exxon / Mobil Corp.	Mobilux EP111
Fiske Bros. Refining Co.	Lubriplate 630AA
Anderol Inc. (Houghton, Canada)	Anderol 786
Kendall Motor Oil	L-424
Lyondell Lubricants (Houston, TX)	Litholene H EP 2
Maryn International/ Power Up Lubricants (Calgary, Canada	Thixogrease EP #2
Pennzoil / Quaker State	Pennlith EP711 or Pennlith EP712
Syn-Tech Ltd. (Addison, IL)	NS-2913-G1
Texaco Inc.	Mulifax EP2 or Texaco Coupling Grease
UNOCAL 76 (TOSCO Corporation)	UNOBA EP2

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