PIX-Gear Couplings

PIX Gear type couplings are made for high mechanical flexibility, and torsionally rigid design. PIX Gear coupling consists of two hubs, which have external teeth crowned over them, and two outer sleeves which have internal spur teeth.

Carbon steel is used to manufacture hubs and sleeves, and are provided with proper hardness and dimensions with very close tolerances, which result in proper tooth meshing and inter changeability.

Key Features :

- Comprises of two hubs having external teeth and two sleeves having internal spur teeth, which couple together to provide highly efficient coupling.
- Easy to install and maintain, and require no special knowledge or skill.
- Hubs and sleeves are manufactured with carbon steel, and very fine surface finish is maintained so as to provide flawless dimensional accuracy and efficient meshing of tooth.
- These are designed to resist corrosion, so as to increase the scope of application in various industries.
- Curved tooth profile brings about high mechanical flexibility.

DRIVE DESIGN

Service factor: Determine the required service factor from the 'Table-1'.

Design power: Multiply the normal running power by the service factor. This gives the design power which is used as a basis for selecting the coupling.

Coupling size: Refer to power rating from 'Table-2' and from the appropriate speed read across until a power greater than OR equal to that required design power is found. The size of coupling required is given in the header of that column.

Bore size: From 'Table-3', select the appropriate coupling size with available bore dimension details.

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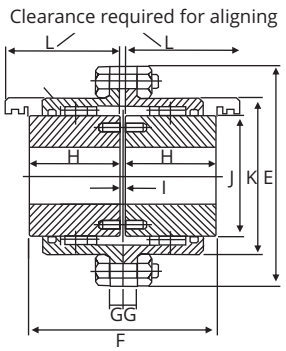
Table-1

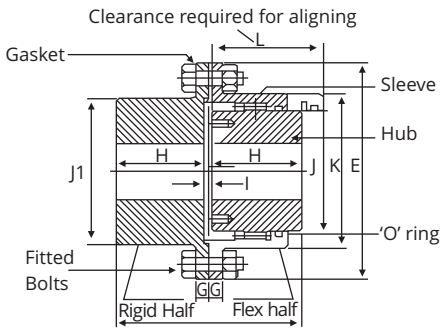
A list of service factors for the more common type of machines is given below	Prime Mover		
Drive unit (Machinery)	**Electric motors, steam turbine shafting**	**Gasoline or diesel engine 4 or more cylinder**	**Gasoline or diesel engine more than 6 cylinders**
LIGHT: Uniform of Steady load never exceeding horse rating, infrequent starting; Agitators, blowers, can filling machines, conveyors, fans, generators, pumps, steering gear, stokers	1.0	1.5	2.0
MODERATE: Heavy inertia, moderate shock, frequent starting; peak loads do not exceed 125 per cent average horsepower. Uneven load : conveyors, feeders, welding, laundry washers, mixers, paper mills, printing presses, screens, textile industry, car pullers.	1.5	2.0	2.5
HEAVY: Heavy shock conditions or frequent reversing peak loads do not exceed 150 per cent average horse power. Uneven load. cranes & hoists, crushers, Dredges, Elevators, hammer mills, lumber Industry, machine tools, metal mills, oil industry, rubber Industry, windlass	2.0	2.5	3.0

Table-2: Power rating

Coupling size	Power at 100rpm (kW)	Max. Torque (Nm)	Amount of grease (kg)
PGC-01	11.40	1100	0.25
PGC-02	28.40	2720	0.50
PGC-03	51.40	4920	0.80
PGC-04	96.40	9220	1.00
PGC-05	150.00	14320	1.80
PGC-06	230.00	21960	2.40
PGC-07	390.00	37250	3.50
PGC-08	515.20	49180	4.10
PGC-09	644.20	61500	5.40
PGC-10	930.00	88800	8.60
PGC-11	1265.00	120800	12.60
PGC-12	1600.00	152800	14.00



Coupling sizes 1 to 10



Half Flexible Couplings

PIX-Gear Couplings

Table-3: Product range

Coupling Size	Unit	Hub Bore			Dimensions								
		Rigid Max.	Flex Min	Flex Max	E	F	G	H	I	J	J1	K	L
PGC-1	*mm*	60	14	55	170	115	17	55	5	78	90	110	65
	inch	2 1/3	5/9	2 1/6	6 2/3	4 1/2	2/3	2 1/6	1/5	3	3 1/2	4 1/3	2 5/9
PGC-2	*mm*	75	20	60	185	145	17	70	5	85	110	125	85
	inch	3	4/5	2 1/3	7 2/7	5 5/7	2/3	2 3/4	1/5	3 1/3	4 1/3	5	3 1/3
PGC-3	*mm*	90	30	75	220	175	20	85	5	107	130	150	105
	inch	3 1/2	1 1/6	3	8 2/3	6 8/9	4/5	3 1/3	1/5	4 1/5	5 1/8	6	4 1/7
PGC-4	*mm*	110	40	100	250	215	20	105	5	138	160	178	125
	inch	4 1/3	1 4/7	4	9 5/6	8 1/2	4/5	4 1/7	1/5	5 3/7	6 2/7	7	5
PGC-5	*mm*	130	46	120	290	240	25	115	10	166	185	204	140
	inch	5 1/8	1 4/5	4 5/7	11 3/7	9 4/9	1	4 1/2	2/5	6 1/2	7 2/7	8	5 1/2
PGC-6	*mm*	150	50	125	320	260	25	125	10	176	215	230	155
	inch	6	2	5	12 3/5	10 1/4	1	5	2/5	7	8 1/2	9	6 1/9
PGC-07	*mm*	170	60	145	350	290	25	140	10	208	240	260	175
	inch	6 2/3	2 1/3	5 5/7	13 7/9	11 3/7	1	5 1/2	2/5	8 1/5	9 4/9	10 1/4	6 8/9
PGC-08	*mm*	200	70	165	380	330	25	160	10	230	285	290	200
	inch	7 7/8	2 3/4	6 1/2	15	13	1	6 2/7	2/5	9	11 2/9	11 3/7	7 7/8
PGC-09	*mm*	220	80	200	430	340	25	165	10	270	315	332	210
	inch	8 2/3	3 1/7	7 7/8	17	13 2/5	1	6 1/2	2/5	10 5/8	12 2/5	13	8 1/4
PGC-10	*mm*	260	100	230	490	370	25	180	10	315	370	390	230
	inch	10 1/4	4	9	19 2/7	14 4/7	1	7	2/5	12 2/5	14 4/7	15 1/3	9
PGC-11	*mm*	280	110	260	545	410	30	200	10	350	380	445	270
	inch	11	4 1/3	10 1/4	21 1/2	16 1/7	1 1/6	7 7/8	2/5	13 7/9	15	17 1/2	10 5/8
PGC-12	*mm*	310	150	300	590	490	30	240	10	404	420	490	300
	inch	12 1/5	6	11 4/5	23 2/9	19 2/7	1 1/6	9 4/9	2/5	16	16 1/2	19 2/7	11 4/5

* Apart from above, higher range sizes would be available on request.

Application

Dredgers, cranes, paper machinery, metal rolling mills, conveyors & elevators, cement plants, fans & blowers, compressors, rubber & plastic industries

DRIVE DESIGN EXAMPLE

Select a coupling to connect the low speed shaft of conveyor drive to a speed reducer. The 300 kW, 1500 RPM, electric motors are driving the reducer with an output speed of 50 RPM. The reducer low speed shaft diameter is 215mm and the conveyor head shaft diameter is 225mm.

Step – 1: Determine service factor

Selected appropriate service factor (SF) is 1.5 from 'Table-1'

Step – 2: Determine design power

Design power is determined by multiplying motor power and service factor

Therefore, Design power (Pd) = P x SF

=300 x 1.5

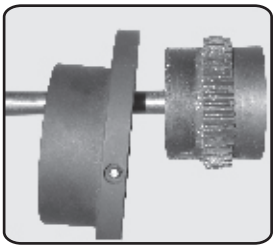
=450 kW

Step 3: Determine coupling size

From power rating 'Table-2', PGC–03 is selected which exceeds the requirement of minimum power rating of 450 kW. (PGC-03 Coupling power rating is 51.40/100 RPM therefore, PGC-03 for 1500 rpm will be 771 kW.

PIX-Gear Couplings

Installation

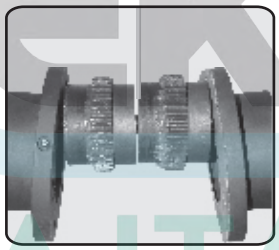


Install the flange sleeves with the seal rings before the hubs. Clean all the metal parts using non-flammable solvent and check the hubs, shafts and keyways for burrs and remove, if necessary.

Apply light coat of grease to the seals and place it back on the shafts prior to mounting the hubs. Both the shafts can be lubricated with light oil or anti-seize compound. Mount the hubs on their respective shafts so that each hub face is flushed with the end of the shaft.

Alignment

Angular Alignment: Insert a 'Feeler gauge' equal to the thickness of the gap specified in ' Table-4'. Insert the gauge as shown in image & measure the clearance between the gauge and hub face. The difference in the minimum and the maximum measurements must not exceed the angular limits specified in 'Table-4'.



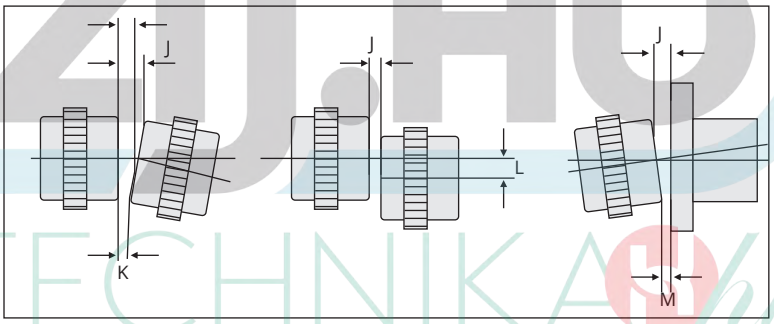


Table-4: Misalignment allowance

Coupling Size	Installation max. parallel offset (P) (mm)	Angular offset (J-K)	Operating max. parallel offset (L)	Angular offset (J-K)	Coupling Gap Nominal
PGC-01	0.05	0.15	0.66	1.8	3
PGC-02	0.08	0.23	1.02	2.74	3
PGC-03	0.13	0.33	1.52	3.99	5
PGC-04	0.18	0.46	2.13	5.49	6
PGC-05	0.23	0.56	2.72	6.65	8
PGC-06	0.28	0.66	3.35	7.98	8
PGC-07	0.33	0.79	3.94	9.32	10
PGC-08	0.41	0.81	2.46	4.83	10
PGC-09	0.43	0.91	2.64	5.49	13
PGC-10	0.48	1.02	2.97	6.15	13
PGC-11	0.56	1.14	3.30	6.81	13
PGC-12	0.58	1.24	3.50	7.49	13

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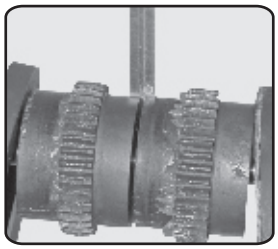
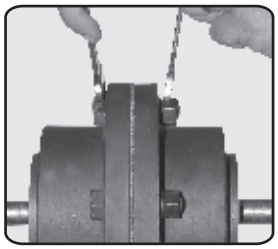
Parallel Alignment: Align the two hubs so that a straight edge rests squarely on both the hubs at various positions. The clearance must not exceed the parallel offset installation limits specified in 'Table-4'. Tighten all foundation bolts and repeat steps 2 and 3. Realign the Coupling, if necessary.





Fill with grease & assemble the sleeves: Fill the gear of the hubs with grease & Insert a gasket between the sleeves. Position the sleeves with the lubrication holes approximately 90° apart. Then push the sleeves into it using the fasteners, bolt the sleeves together. Once the Coupling is assembled, remove the lubrication plugs from the sleeves. Insert grease fitting in one of the holes and pump grease into the sleeve until it is forced out of the opposite lubrication hole. Replace the lubrication plugs, the installation is complete.