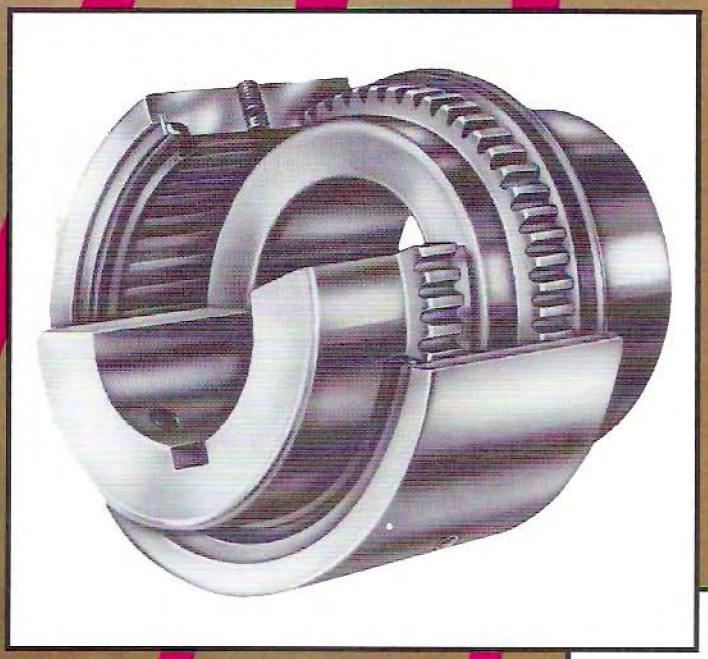
POWERTORK®
GEAR COUPLINGS

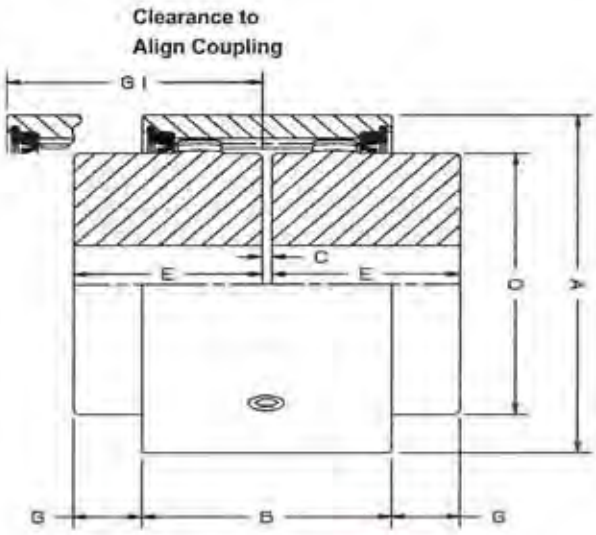


SYSTEM COMPONENTS, INC.

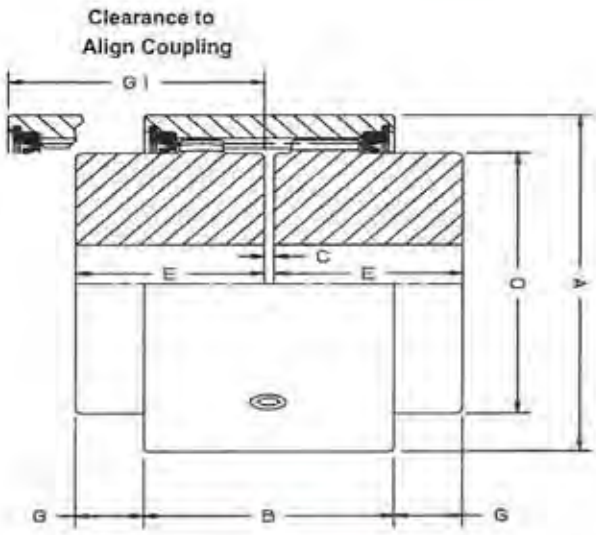
1635 Stieve Drive
South Haven, Michigan 49090
Phone 269-637-2191 FAX 269-637-8377

POWERTORK ®

Series "S" Continuous Sleeve Type Gear Coupling.



Full Flex



Flex Rigid (5)

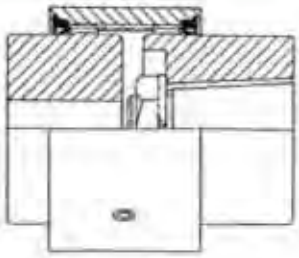
Series S Size		6	8	10	12	15	20	25	30	35	40	45
Rating (HP/100 RPM) (3)		4.5	7.0	15.5	22	31	51	90	152	240	360	530
Torque Capacity (IN·LBS x 10^3)		2.84	4.41	9.77	13.9	19.5	32.1	56.7	96	151	227	334
Maximum Speed (RPM) (1)		19000	16000	12600	11500	11000	8800	7500	6600	5800	4900	4400
Flex or Rigid Hub	Maximum Bore	1.06	1.31	1.63	1.94	2.13	2.75	3.25	3.75	4.25	5.00	5.50
	Standard Keyway	1/4 x 1/8	5/16 x 5/32	3/8 x 3/16	1/2 x 1/4	1/2 x 1/4	5/8 x 5/16	3/4 x 3/8	7/8 x 7/16	1 x 1/2	1-1/4 x 5/8	1-1/4 x 5/8
	Maximum Bore	1.13	1.38	1.75	2.06	2.31	2.88	3.38	3.88	4.50	5.25	5.75
	Reduced Depth Keyway	1/4 x 3/32	5/16 x 1/8	3/8 x 1/8	1/2 x 5/16	5/8 x 3/16	3/4 x 3/16	7/8 x 5/16	1 x 3/8	1 x 3/8	1-1/8 x 7/16	1-1/2 x 1/2
Parallel Offset Capacity		.009	.009	.015	.015	.039	.045	.057	.065	.078	.082	.094
A		2.38	2.81	3.44	3.94	4.13	5.13	6.03	6.84	7.88	9.13	10.41
B		1.41	1.41	1.84	1.84	2.78	3.23	3.88	4.53	5.41	5.59	6.66
C		.09	.09	.09	.09	.13	.13	.19	.19	.25	.25	.31
E		1.19	1.41	1.56	1.78	1.94	2.44	3.03	3.59	4.19	4.75	5.31
G		.53	.75	.69	.91	.61	.89	1.19	1.42	1.61	2.08	2.14
G1		1.50	1.50	1.88	1.94	2.91	3.31	4.06	4.72	5.66	5.84	6.97
O		1.56	1.97	2.38	2.78	3.05	3.97	4.66	5.19	5.91	7.09	7.88
Rough Stock Bore		-	-	-	-	-	-	-	-	-	2.09	2.25
Weight Solid Hubs (LBS) (2)		2.0	3.3	6.1	8.7	11.5	21.5	38	57	90	137	196
Grease (4)	Weight (LB-OZ.)	0-.09	0-.31	0-.34	0-.38	0-.88	0-1.63	0-2.81	0-4.63	0-6.44	0-9.5	1-3
	Volume (Pints)	.006	.019	.020	.022	.063	.13	.19	.31	.41	.56	1.03

Notes:

(1) Maximum speed without dynamic balancing 60% of values shown.
(2) Weights are for full flex or flex rigid couplings. Weights are approximate.
(3) Load ratings / torque capacities are based on full 1° misalignment per gear mesh. Selection service factors are required. See Data Sheet DS110.
(4) Lubrication values are for full flex or flex rigid couplings. Maximum angular misalignment 1 1/2° per gear mesh. For optimum performance, combined angular and offset misalignment should not exceed 3/4° per gear mesh. Application requirements in excess of 3/4° misalignment per flex half coupling should be referred to SCI.
(5) Flex rigid configuration should be purchased as an assembly from SCI to ensure proper fit.
(6) Larger sizes available upon request.

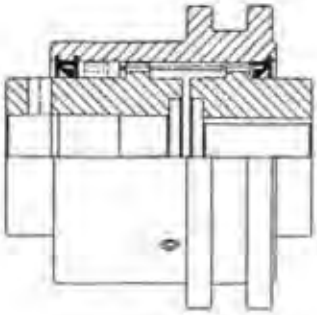
OTHER COUPLINGS AVAILABLE

SERIES "S"



o Mill Motor Couplings

Used frequently in many mill applications, taper bored mill motor hubs allow for rapid mounting and removal without damaging the shaft or bore. Hubs are available to suit standard AISE mill motor frames or can be produced to suit non standard tapers.

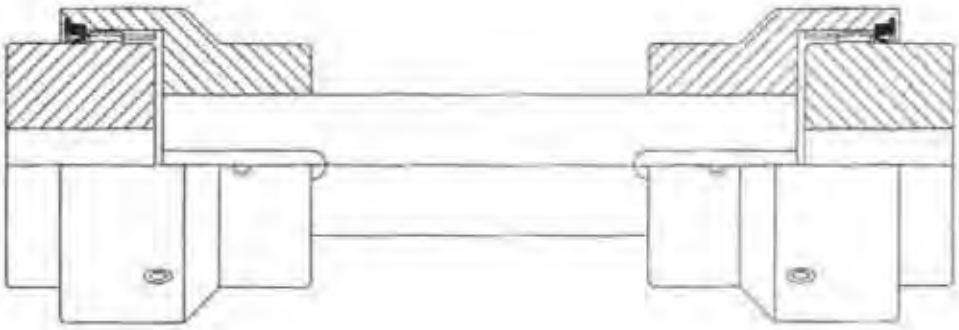


o Cutout Couplings

Pairs of cutout couplings are commonly used on dual drives, having an auxiliary prime mover (usually an engine or turbine) for emergency use. The changeover is performed at standstill by disengaging the coupling on the primary driver and engaging the coupling on the standby drive. With one cutout coupling, a unidirectional drive can be disconnected to permit partial System reversal. The first unit of a tandem drive can be similarly cut out.

o Floating Shaft Couplings

Floating shaft couplings accommodate applications having an increased distance between shaft ends. The offset misalignment capacity of the coupling increases proportionately with the increased shaft separation. Removal of the shaft is performed by removing the seals and sliding the rigid hub further on the shaft.



POWERTORK ®

SERIES "S" - COUPLING INSTALLATION AND MAINTENANCE INSTRUCTIONS

INSTALLATION

1) Make sure that all the proper coupling parts, keys, etc. are on hand.
2) Make sure that the prime mover is disconnected from the power source so that it cannot be started accidentally during installation.
3) Remove dirt and burrs from the shafts and coat with a suitable anti-galling lubricant.
4) Place one (1) snap ring and one (1) seal on each shaft. Be sure that the groove in the seals face toward the center of the coupling, the mold mark will be visible after the seals are installed in the coupling.
5) Insert keys in shaft keyways. Keys should have a snug fit to the sides of the keyways with slight clearance top to bottom.
6) Mount hubs on the shafts.
7) Slide the sleeve over the hub mounted on the longest shaft.
8) Align the shafts by placing the machines in their approximate positions. (Refer to Table No. 1 on back of sheet for the correct shaft separation.) Best coupling performance is obtained when the alignment is checked with dial indicators.

   NOTE: Always rotate the hub on which the indicator is mounted.

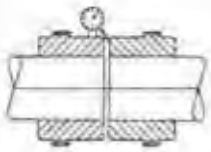


Figure 1.

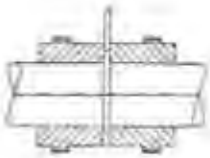


Figure 2.

A. Angular Alignment.
Check by mounting indicator on the body of one hub and placing the pointer on the end face of the other hub. (See Figure 1.) Adjust machines until the best possible alignment is obtained. As an alternate method, insert a feeler gage between the hubs at four points approximately 90° apart and adjust the machines. (See Figure 2.)

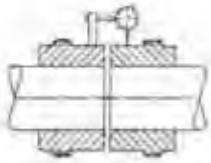


Figure 3.

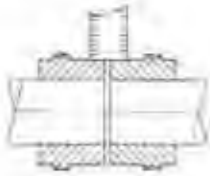


Figure 4.

B. Parallel Alignment.
Mount the indicator on the body of one hub and place the pointer on the body of the other hub. (See Figure 3.) Adjust machines until the indicator reading is the same at four points approximately 90° apart. As an alternate method, place a straight edge across one hub body and adjust the machines until the straight edge rests squarely on the other hub body. (See Figure 4.) This should be done at 90° intervals around the hub.

Securely tighten foundation bolts and recheck the alignment. Adjust the machines again, if necessary.

9) Assemble Coupling.
Coat hub teeth and body with coupling grease. Be sure sleeve teeth are free of dirt and burrs. Coat sleeve teeth with grease and lightly coat both seals with grease. Slide sleeve over hubs and center. Press seals in with a blunt tool until they are firmly seated against sleeve shoulders. Snap ring grooves should be completely visible. If the grooves are not visible, remove sleeve and carefully repeat steps 8 and 9. Insert snap rings in the grooves using a winding motion. Recheck to ensure that snap rings are positively seated and setscrews and lube plugs are tight.

10) Lubricate.
Remove pipe plugs from the sleeve with the position of the pipe plugs approximately 45° above and below horizontal and pump grease into the hole that is above horizontal until the grease flows from the hole that is below horizontal. Replace the pipe plugs making sure they are tightened firmly.

Note: Do not attempt to pump grease into the coupling by removing only one pipe plug.

CAUTION: INSTALL GUARDS AROUND COUPLING ACCORDING TO LOCAL AND NATIONAL CODES.

MAINTENANCE

1) Use only greases from the approved grease listing or equivalent.

2) Frequency of relubrication varies with application and ambient conditions. Six month relubrication is satisfactory for average operation. Other conditions such as slow speed, reversing drives or severe environments may require more frequent inspection and relubrication.

3) For optimum coupling performance, coupling alignment should be checked periodically. A well-aligned installation may change by the settling of foundations, shifting of machines, etc. Disassemble the coupling sleeve, clean the coupling hubs, inspect the gear teeth and follow Instruction Installations Steps 8, 9 and 10.

4) To disassemble coupling, remove one snap ring, slide sleeve off the hubs. The seal will be forced out of one end during this operation. Clean out old lubricant and inspect the seals and gear teeth. Reassemble starting at Installation Instructions Step 9.

TABLE No. 1

Series "S" Size	6	8	10	12	15	20	25	30	35	40	45
Lube Capacity											
Grease Weight (LBS-OZ)	0-.1	0-.3	0-.3	0-.4	0-.9	0-1.6	0-2.8	0-4.5	0-6.5	0-10	1-3
Volume (Pints)	.006	.019	.020	.022	.06	.13	.19	.31	.41	.56	1.03
Parallel Offset Capacity	.009	.009	.015	.015	.039	.045	.057	.065	.078	.082	.094
Shaft Separation	.09	.09	.09	.09	.13	.13	.19	.19	.25	.25	.31
Lube Plug Dia.	1/16	1/16	1/8	1/8	1/8	1/8	1/8	1/8	1/4	1/4	1/4
2/sleeve Thread	27 NPTF	27 NPTF	27 NPTF	27 NPTF	27 NPT	27 NPT	27 NPT	27 NPT	18 NPT	18 NPT	18 NPT

APPROVED GREASES

The following greases (or equivalents from other manufacturers) are suitable for most industrial applications with ambient temperatures up to 150°F. For higher temperatures, reciprocating machines, recurrent reverse loading and other unusual applications, consult SCI.

Amoco	Coupling Grease
Texaco	1912 Coupling Grease

CAUTION: INSTALL GUARDS AROUND COUPLING ACCORDING TO LOCAL AND NATIONAL CODES.

SELECTION GUIDE

1) Compute HP / 100 RPM or torque to be transmitted.

Determine HP / 100 RPM as follows:

$$\text{HP / 100 RPM} = \frac{\text{HP Transmitted} \times 100 \times \text{Service Factor}}{\text{RPM}}$$

or determine torque (IN·LBS) as follows:

$$\text{Torque} = \text{HP / 100} \times 630 \times \text{Service Factor}$$

or

$$\text{Torque} = \frac{\text{HP Transmitted} \times 63000 \times \text{Service Factor}}{\text{RPM}}$$

Now determine the coupling type from section 2.

2) Important considerations for selection of coupling type:

a. Maximum permissible diameter.
b. Maximum allowable speed (RPM).
c. Maximum allowable misalignment (angular and parallel).
d. Affect of inertia values.
e. Backlash limitations.
f. Noise considerations.
g. Electrical isolation.
h. Ease of service (i.e. replacement of wear elements without disturbing the alignment of driving or driven equipment).
i. Ease of installation.
j. Shock absorption capability.
k. Torsional tuning (a must for internal combustion engines (especially diesel engines) and reciprocating compressors)
l. Environmental requirements (low or high ambient temperatures no lubricant allowed, oil or chemical environment).
m. Tradition (on certain types of equipment the use of specific types of couplings has become customary).
n. Price.

3) Having now determined the required HP / 100 RPM rating and the type of coupling (gear type - sleeve or flange, elastomeric) the coupling size can now be selected from the appropriate catalog page. Compare its listed maximum bore with the specified shaft sizes of the driving and driven equipment. If one or both shaft sizes are larger than the maximum allowed bore, select a larger size coupling.

EXAMPLE:

Selection - Gear type Coupling.

Hoist application, reversing main hoist drive. Motor rating 250 HP at 1800 RPM with a 3 3/8" shaft diameter, driven shaft 2 3/4" diameter.

The service factor guide shows a value of 2.0 for main hoist drives with reversing, therefore:

$$\text{HP / 100 RPM} = \frac{250 \times 100 \times 2}{1800} = 28 \text{ HP / 100 RPM}$$

Main hoist drives traditionally employ gear couplings. Using the required HP / 100 RPM figure of 28 we could select a size 1 1/2 coupling but the maximum allowable bore is unacceptable. Therefore, a size 2 1/2 must be selected which allows a maximum bore of 3.50".

The proper choice is therefore a size 2 1/2 series F flange type, full flex double engagement coupling.

EXAMPLE:

Selection - Elastomeric Coupling.

Diesel engine driving a centrifugal blower. Engine: 4 cyl., turbocharged, rated 40 HP at 3200 RPM, with a 1 1/2" diameter flywheel stubshaft and a minimum operating speed of 1200 RPM.

Driven equipment: centrifugal blower, with a 1 3/4" shaft diameter.

The service factor guide advises to consult the factory for the proper value. A service factor of 2.0 was obtained. Therefore:

$$\text{HP / 100 RPM} = \frac{40 \times 100 \times 2}{1200} = 6.7 \text{ HP / 100 RPM.}$$

For optimum life of the engine and the driven equipment components, an elastomeric coupling should be used. Normally the diesel engine manufacturer or other capable institutions will run a torsional analysis of the system to determine the required stiffness range of the coupling. In the above case a stiffness rate of .08 x 10^6 to .6 x 10^6 IN·LBS/Radian was considered desirable.

The FLEXTORK size 40 EL elastomeric coupling fits the above ...erfectly. The coupling is rated for 10.1 HP / 100 RPM, ...ve the minimum required rating of 6.7 HP / 100 RPM and ...n bore of 2.63" is well above the required 1 3/4". ...s rate also falls within the specified range.

With all this in mind, we hope you agree System Components and its products deserve a closer look. Contact us for a list of satisfied customer contacts in any of dozens of power transmission applications. Learn from your colleagues why they prefer to deal with a couplings specialist . . . and how POWERTORK® couplings have consistently outperformed others to provide considerably better value, even at a typically lower price.