WALDRON® FLEXALIGN®
Gear Couplings Size 1 through 7

High Strength 40° Tooth

Superior High Misalignment Seal

Economical Gear Coupling Design

POWERLIGN® Flangeless Couplings for a Rugged, Compact Design

For More Information

Visit www.kopflex.com

Index:

WALDRON® ADVANTAGES:

IMPROVED SOFT SEAL offers superior sealing under misaligned conditions.

UNIQUE TOOTH FORM using a 40° pressure angle, distributes the load over a larger area than couplings which use a 20° pressure angle.

FULL TOOTH ENGAGEMENT reduces uneven wear on teeth that results in longer life plus improved performance.

QUALITY EXPOSED FASTENERS consists of SAE Grade 5 bolts with hex nuts and lock washers. Installation is simple, without special tools. Shrouded bolts optional.

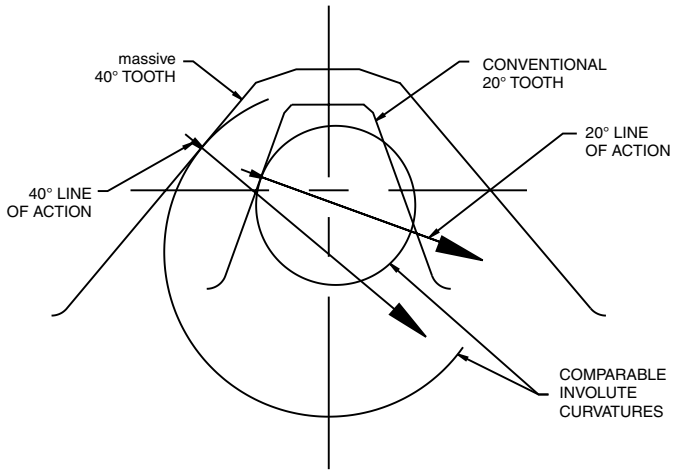
CLEAR RUST INHIBITIVE AND CORROSION RESISTANT FINISH protects coupling in normal industrial environments.

AVAILABLE OFF-THE-SHELF in reborables with large bore capabilities or stock finish bored.

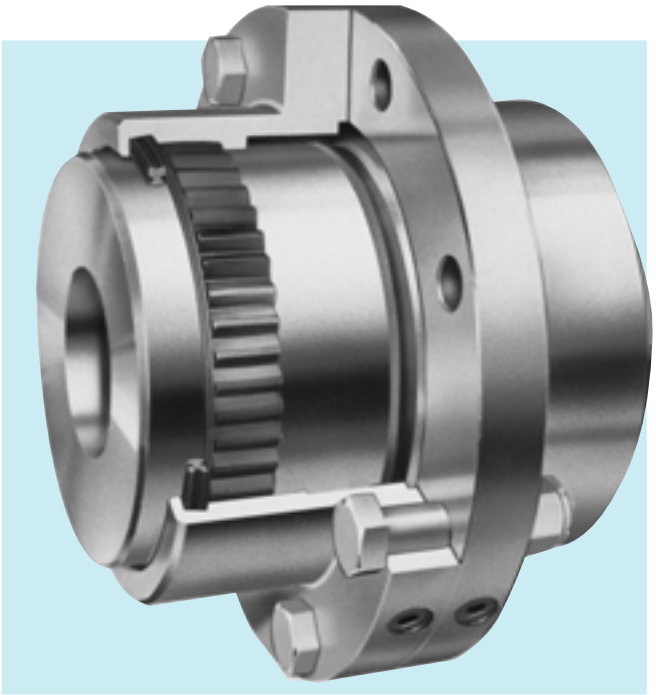
OPTIONAL PILOT RINGS provides positive register between identical halves. Eliminates selective assembly required in male, female sleeves.

INTERCHANGEABLE by half coupling with competitive coupling designs.

HIGHER MISALIGNMENT CAPABILITY sizes 1-7 compensate for up to ±1 1/2° static angular misalignment per gear mesh.



20° vs. 40° Tooth Comparison on the same pitch diameter



WALDRON® Size 1-7

Advantages of the 40° Pressure Angle Tooth

- **STRONGER TOOTH**
  The line of action of the force exerted at the pitch line of the new Performance Profile crosses the root circle near the center of the tooth rather than outside the tooth, as in the case of conventional gear teeth. The result is an appreciable reduction in root stress which helps protect against tooth failure.

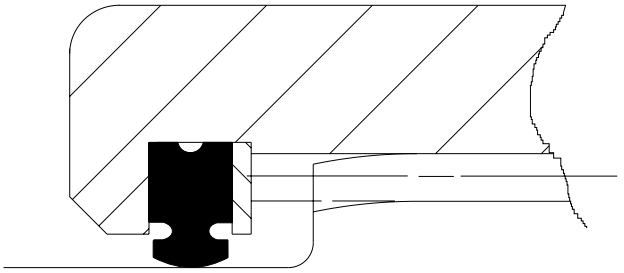
- **GREATER TOOTH CONTACT AREA**
  The profile of the tooth is significantly flatter due to the large involute radius of curvature. This causes the load to be distributed over a larger area. As a result, compressive stresses, lubricant film pressure and tooth wear are minimized.

- **GREATER SLEEVE CENTERING ABILITY**
  The 40° pressure angle tooth produces greater radial forces which helps to maintain sleeve concentricity with respect to the axis of rotation. As a result, inherent unbalance and centrifugal forces are minimized and a smooth and efficient operation is imparted to the coupling.

- **INCREASED ARC OF CONTACT**
  With the 40° pressure angle tooth there is less tendency for some of the teeth to lose contact during misalignment. This prevents a drastic reduction in torque rating with increased misalignment.

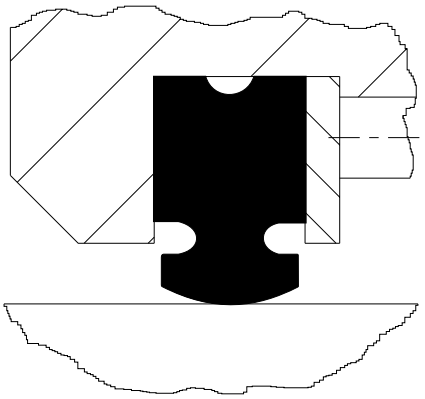
- **INCREASED STRENGTH AND DURABILITY**
  Under maximum loading and misaligned conditions, the stronger tooth, the greater intimacy between the teeth and the increased arc of contact all combine to produce a coupling unit that is additionally rugged and efficiently useful for longer periods of time.

FULL ENGAGEMENT TEETH



The WALDRON® gear coupling has been designed with full length tooth engagement with the inherent result of longer life and improved performance.

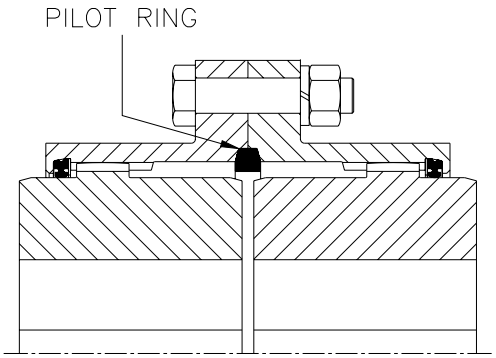
HIGH MISALIGNMENT SEAL



Competitive gear couplings incorporate an O-ring seal. In order to conform with today's high misalignment capacities, this O-ring must fit into a groove that is larger than the ring. WALDRON® couplings use a truly high misalignment seal that seals remarkably under misaligned conditions.

Optional Pilot Rings

The standard WALDRON® coupling consists of two identical half couplings. Optional precision steel pilot rings are available when more accurate centering of the two sleeves is required.

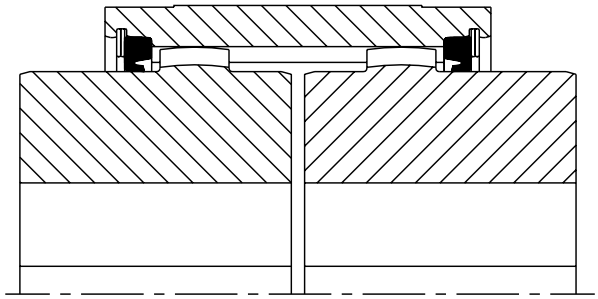


Basic Coupling Size	Pilot Ring Part No.	Wt. (lb.)
1	1W PR	.06
1 1/2	1 1/2W PR	.09
2	2W PR	.12
2 1/2	2 1/2W PR	.21
3	3W PR	.25
3 1/2	3 1/2W PR	.25
4	4W PR	.98
4 1/2	4 1/2W PR	1.1
5	5W PR	1.2
5 1/2	5 1/2W PR	1.5
6	6W PR	1.9
7	7W PR	2.9

WALDRON POWERLIGN

This flangeless design transmits identical torques as the standard WALDRON® Coupling. Having a smaller outside diameter, however, it is more compact, lighter, and can run at greater speeds.

This alternative may be selected for applications where space is limited.



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Service Factors

Values listed are intended only as a general guide, and are typical of usual service requirements. For systems which frequently utilize the peak torque capability of the power source, verify that the magnitude of this peak torque does not exceed the 1.0 Service Factor Rating of the coupling selected. Applications which involve extreme repetitive shock or high-energy load absorption characteristics should be referred — with full particulars — to KOP-FLEX.

Values contained in the table are to be applied to smooth power sources such as electric motors and steam turbines. For drives involving internal combustion engines of four or five cylinders, add 1.0 to the values listed; for six or more cylinders, add 0.5 to the values listed. For systems utilizing AC or DC Mill Motors as the prime mover, refer to Note (1).

⚠CAUTION All peoplemoving applications must be referred to engineering.

Application	Typical Service Factor
AGITATORS	
Pure Liquids	1.0
Liquids & Solids	1.25
Liquids — Variable Density	1.25
BLOWERS	
Centrifugal	1.0
Lobe	1.5
Vane	1.25
BRIQUETTE MACHINES	2.0
CAR PULLERS — Intermittent Duty	1.5
COMPRESSORS	
Centrifugal	1.0
Centriaxial	1.25
Lobe	1.5
Reciprocating — Multi-Cylinder	2.0
CONVEYORS — LIGHT DUTY UNIFORMLY FED	
Apron, Bucket, Chain, Flight, Screw	1.25
Assembly, Belt	1.0
Oven	1.5
CONVEYORS — HEAVY DUTY NOT UNIFORMLY FED	
Apron, Bucket, Chain, Flight, Oven	1.5
Assembly, Belt	1.25
Reciprocating, Shaker	2.5
CRANES AND HOISTS (NOTE 1 and 2)	
Main hoists, Reversing	2.5
Skip Hoists, Trolley & Bridge Drives	2.0
Slope	2.0
CRUSHERS	
Ore, Stone	3.0
DREDGES	
Cable Reels	1.75
Conveyors	1.5
Cutter Head Jig Drives	2.5
Maneuvering Winches	1.75
Pumps	1.75
Screen Drives	1.75
Stackers	1.75
Utility Winches	1.5
ELEVATORS (NOTE 2)	
Bucket	1.75
Centrifugal & Gravity Discharge	1.5
Escalators	1.5
Freight	2.5
FANS	
Centrifugal	1.0
Cooling Towers	1.5
Forced Draft	1.5
Induced Draft without Damper Control	2.0
FEEDERS	
Apron, Belt, Disc, Screw	1.25
Reciprocating	2.5
GENERATORS —	
(Not Welding)	1.0
HAMMER MILLS	2.0
LAUNDRY WASHERS —	
Reversing	2.0
LAUNDRY TUMBLERS	2.0
LINE SHAFT	1.5
LUMBER INDUSTRY	
Barkers — Drum Type	2.0
Edger Feed	2.0
Live Rolls	2.0
Log Haul — Incline	2.0
Log Haul — Well type	2.0
Off Bearing Rolls	2.0
Planer Feed Chains	1.75
Planer Floor Chains	1.75
Planer Tilting Hoist	1.75
Slab Conveyor	1.5
Sorting Table	1.5
Trimmer Feed	1.75
MARINE PROPULSION	
Main Drives	2.0
MACHINE TOOLS	
Bending Roll	2.0
Plate Planer	1.5
Punch Press — Gear Driven	2.0
Tapping Machines	2.5
Other Machine Tools	
Main Drives	1.5
Auxiliary Drives	1.25
METAL MILLS	
Draw Bench — Carriage	2.0
Draw Bench — Main Drive	2.0
Forming Machines	2.0
Slitters	1.5
Table Conveyors	
Non-Reversing	2.25
Reversing	2.5
Wire Drawing & Flattening Machine	2.0
Wire Winding Machine	1.75
METAL ROLLING MILLS (NOTE 1)	
Blooming Mills	*
Coilers, hot mill	2.0
Coilers, cold mill	1.25
Cold Mills	2.0
Cooling Beds	1.75
Door Openers	2.0
Draw Benches	2.0
Edger Drives	1.75
Feed Rolls, Reversing Mills	3.5
Furnace Pushers	2.5
Hot Mills	3.0
Ingot Cars	2.5
Kick-outs	2.5
Manipulators	3.0
Merchant Mills	3.0
Piercers	3.0
Pusher Rams	2.5
Reel Drives	1.75
Reel Drums	2.0
Reelers	3.0
Rod and Bar Mills	1.5
Roughing Mill Delivery Table	3.0
Runout Tables	
Reversing	3.0
Non-Reversing	2.0
Saws, hot & cold	2.5
Screwdown Drives	3.0
Skelp Mills	3.0
Slitters	3.0
Slabbing Mills	3.0
Soaking Pit Cover Drives	3.0
Straighteners	2.5
Tables, transfer & runout	2.0
Thrust Block	3.0
Traction Drive	3.0
Tube Conveyor Rolls	2.5
Unscramblers	2.5
Wire Drawing	1.5
MILLS, ROTARY TYPE	
Ball	2.25
Dryers & Coolers	2.0
Hammer	1.75
Kilns	2.0
Pebble & Rod	2.0
Pug	1.75
Tumbling Barrels	2.0
MIXERS	
Concrete Mixers	1.75
Drum Type	1.5
OIL INDUSTRY	
Chillers	1.25
Paraffin Filter Press	1.75
PAPER MILLS	
Barker Auxiliaries, Hydraulic	2.0
Barker, Mechanical	2.0
Barking Drum Spur Gear Only	2.25
Beater & Pulper	1.75
Bleacher	1.0
Calenders	2.0
Chippers	2.5
Coaters	1.0
Converting Machines, except Cutters, Platers	1.5
Couch Roll	1.75
Cutters, Platers	2.0
Cylinders	1.75
Disc Refiners	1.75
Dryers	1.75
Felt Stretcher	1.25
Felt Whipper	2.0
Jordans	1.75
Line Shaft	1.5
Log Haul	2.0
Pulp Grinder	1.75
Press Roll	2.0
Reel	1.5
Stock Chests	1.5
Suction Roll	1.75
Washers & Thickeners	1.5
Winders	1.5
PRINTING PRESSES	1.5
PULLERS — Barge Haul	2.0
PUMPS	
Centrifugal	1.0
Boiler Feed	1.5
Reciprocating	
Single Acting	
1 or 2 Cylinders	2.25
3 or more Cylinders	1.75
Double Acting	2.0
Rotary, Gear, Lobe, Vane	1.5
RUBBER INDUSTRY	
Mixer — Banbury	2.5
Rubber Calendar	2.0
Rubber Mill (2 or more)	2.25
Sheeter	2.0
Tire Building Machines	2.5
Tire & Tube Press Openers	1.0
Tubers & Strainers	2.0
SCREENS	
Air Washing	1.0
Grizzly	2.0
Rotary — Stone or Gravel	1.5
Traveling Water Intake	1.25
Vibrating	2.5
SEWAGE DISPOSAL EQUIPMENT	
Bar Screens	1.25
Chemical Feeders	1.25
Collectors, Circuline or Straightline	1.25
Dewatering Screens	1.25
Grit Collectors	1.25
Scum Breakers	1.25
Slow or Rapid Mixers	1.25
Sludge Collectors	1.25
Thickeners	1.25
Vacuum Filters	1.25
STEERING GEAR	1.0
STOKERS	1.0
WINCH	1.5
WINDLASS	1.75

* Refer to KOP-FLEX

NOTES
(1) Maximum Torque at the coupling must not exceed Rated Torque of the coupling.
(2) Check local and industrial safety codes.

Selection Procedure

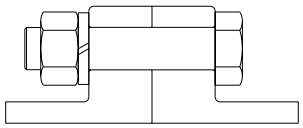
1. **Select Coupling Based on Bore Capacity.** Select the coupling size that has a maximum bore capacity equal to or larger than the larger of the two shafts. For interference fits larger than AGMA standards, consult KOP-FLEX.
2. **Verify Coupling Size Based on Load Rating**.
   a. Select the appropriate Service Factor from the Table on page 194.
   b. Calculate required HP / 100 RPM:

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

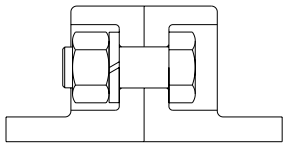
   c. Verify that the selected coupling has a rating greater than or equal to the required HP / 100 RPM.
3. **Check Balance Requirements.** Consult the Dynamic Balancing Guide on page 163 to help determine if balancing is required. Verify that the maximum operating speed does not exceed the maximum speed rating of the coupling. The maximum speed rating does not consider lateral critical speed considerations for floating shaft applications. WALDRON® couplings are available component balanced only.

Note: Care must be exercised on proper selection of any shaft coupling. The Users must assure themselves that the design of the shaft to coupling hub connection is adequate for the duty intended.

Fastener Data



TYPE EB - EXPOSED BOLTS



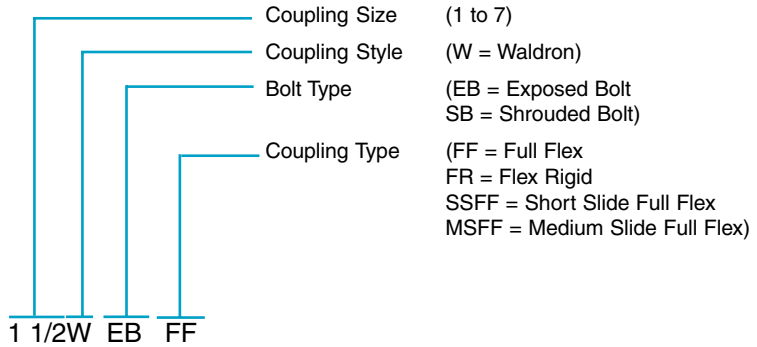
TYPE SB - SHROUDED BOLTS

Coupling Size	Type EB Exposed Bolt			Type SB Shrouded Bolt		
	Qty.	Size & Length	Bolt Circle	Qty.	Size & Length	Bolt Circle
1	6	1/4 x 1 1/2	3 3/4	6	1/4 x 7/8	3 3/4
1 1/2	8	3/8 x 2	4 13/16	8	3/8 x 1	4 13/16
2	6	1/2 x 2 1/2	5 7/8	10	3/8 x 1	5 13/16
2 1/2	6	5/8 x 2 3/4	7 1/8	10	1/2 x 1 5/16	7
3	8	5/8 x 2 3/4	8 1/8	12	1/2 x 1 5/16	8
3 1/2	8	3/4 x 3 3/8	9 1/2	12	5/8 x 1 5/8	9 9/32
4	8	3/4 x 3 3/8	11	14	5/8 x 1 5/8	10 5/8
4 1/2	10	3/4 x 3 3/8	12	14	5/8 x 1 5/8	11 3/4
5	8	7/8 x 4 1/4	13 1/2	14	3/4 x 2 1/8	13 3/16
5 1/2*	14	7/8 x 3 1/4	14 1/2	-	-	-
6*	14	7/8 x 3 1/4	15 3/4	-	-	-
7*	16	1 x 3 5/8	18 1/4	-	-	-

Sizes #5 1/2 and larger are available in exposed bolts only.

HOW TO ORDER

PART NUMBER EXPLANATION
Complete Rough Bore Coupling



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Visit www.kopflex.com

Coupling Parts

Description

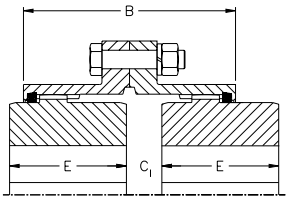
*FHUB = Flex Hub
*VHUB = Vertical Hub
*RHUB = Rigid Hub
SLEEVE = Standard Sleeve
FS = Fastener Set (w/gasket)
LEFD = LEF Disk
SPRxxx = Spacer for x.xx shaft separation
SP = Stop Plate for Slide Couplings
VP = Vertical Plate

* For finish bored hubs, add FB and bore size. All finish bores and keyways per AGMA 9002-A86 with interference fits. Clearance bores are available on request with one setscrew over keyway.

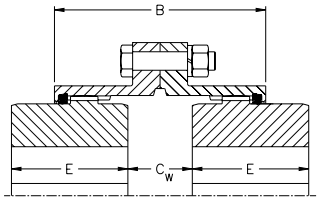
1 1/2W FHUB FB

Full Flex Coupling Size 1-7

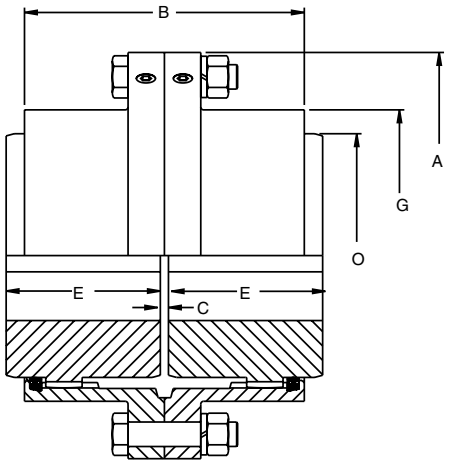
A conventional 4-bearing system has two bearings on the driving shaft and two bearings on the driven shaft. Both angular and offset shaft misalignment will be present to some degree and a full flex coupling is mandatory. The full flex coupling is the standard coupling having two gear ring sets, one set per half coupling. For selection procedure see page 195.



ONE HUB REVERSED



TWO HUBS REVERSED



Coupling Size	Maximum Bore with Standard Key	Rating HP / 100 RPM	Torque Rating (lb.-in.)	Peak Torque Rating (lb.-in.)	Maximum Speed (RPM)	Dimensions							
						A	B	C	C_l	C_w	E	G	O
1	1 5/8	10	6300	12600	10000	4 9/16	3 3/16	1/8	3/8	5/8	1 11/16	3	2 5/16
1 1/2	2 3/16	24	15100	30200	7400	6	3 7/8	1/8	9/16	1	2 1/16	3 13/16	3 1/8
2	2 3/4	50	31500	63000	5900	7	4 5/8	1/8	13/16	1 1/2	2 7/16	4 13/16	4
2 1/2	3 1/4	90	56700	113400	5000	8 3/8	5 11/16	3/16	29/32	1 5/8	3 1/32	5 23/32	4 23/32
3	4	150	94500	189000	4300	9 7/16	6 9/16	3/16	1 1/32	1 7/8	3 19/32	6 23/32	5 5/8
3 1/2	4 3/4	230	145000	290000	3900	11	7 5/8	1/4	1 5/16	2 3/8	4 3/16	7 3/4	6 5/8
4	5 3/8	350	221000	442000	3500	12 1/2	8 5/8	1/4	1 7/16	2 5/8	4 3/4	8 31/32	7 1/2
4 1/2	6	480	300000	600000	3200	13 5/8	9 5/8	5/16	1 5/8	2 15/16	5 3/8	10 1/8	8 1/2
5	6 3/4	650	410000	820000	2900	15 5/16	10 13/16	5/16	1 11/16	3 1/16	6 1/8	11 3/8	9 1/2
5 1/2*	7 1/2	850	536000	1072000	2700	16 3/4	11 5/8	5/16	1 7/8	3 7/16	6 5/8	12 9/16	10 27/64
6*	8 1/4	1100	693000	1386000	2500	18	13 1/4	5/16	2 5/16	4 5/16	7 3/8	13 7/8	11 3/4
7*	9 1/4	1600	1010000	2020000	2200	20 3/4	14 3/4	3/8	2 3/16	4	8 11/16	15 3/4	13 1/4

* Sizes 5 1/2, 6 and 7 are only available with exposed bolt sleeves. Type EB exposed bolt sleeves are standard.

Coupling Type EB (Exposed Bolts) Part Numbers

Coupling Size	Full Flex Coupling			Fastener Set (Includes Gasket)		Sleeve		Flex Hub		
	No Bore Part No.	Wt.	Finish Bore① Part No.	Part No.	Wt.	Part No.	Wt.	No Bore Part No.	Wt.	Finish Bore① Part No.
1	1W EB FF	10	1W EB FF FB	1 EB FS	1	1W EB SLEEVE	2	1W FHUB	3	1W FHUB FB
1 1/2	1 1/2W EB FF	19	1 1/2W EB FF FB	1 1/2 EB FS	1	1 1/2W EB SLEEVE	6	1 1/2W FHUB	3	1 1/2W FHUB FB
2	2W EB FF	30	2W EB FF FB	2 EB FS	1	2W EB SLEEVE	8	2W FHUB	7	2W FHUB FB
2 1/2	2 1/2W EB FF	52	2 1/2W EB FF FB	2 1/2 EB FS	2	2 1/2W EB SLEEVE	14	2 1/2W FHUB	12	2 1/2W FHUB FB
3	3W EB FF	76	3W EB FF FB	3 EB FS	3	3W EB SLEEVE	17	3W FHUB	20	3W FHUB FB
3 1/2	3 1/2W EB FF	117	3 1/2W EB FF FB	3 1/2 EB FS	5	3 1/2W EB SLEEVE	28	3 1/2W FHUB	28	3 1/2W FHUB FB
4	4W EB FF	180	4W EB FF FB	4 EB FS	5	4W EB SLEEVE	41	4W FHUB	47	4W FHUB FB
4 1/2	4 1/2W EB FF	244	4 1/2W EB FF FB	4 1/2 EB FS	7	4 1/2W EB SLEEVE	53	4 1/2W FHUB	66	4 1/2W FHUB FB
5	5W EB FF	361	5W EB FF FB	5 EB FS	9	5W EB SLEEVE	80	5W FHUB	96	5W FHUB FB
5 1/2	5 1/2W EB FF	422	5 1/2W EB FF FB	5 1/2 EB FS	14	5 1/2W EB SLEEVE	89	5 1/2W FHUB	115	5 1/2W FHUB FB
6	6W EB FF	494	6W EB FF FB	6 EB FS	14	6W EB SLEEVE	100	6W FHUB	140	6W FHUB FB
7	7W EB FF	822	7W EB FF FB	7 EB FS	22	7W EB SLEEVE	160	7W FHUB	240	7W FHUB FB

① All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances with interference fit bores. Clearance fit bores are available on request and include one setscrew over keyway.

Coupling Type SB (Shrouded Bolts) Part Numbers

Coupling Size	Full Flex Coupling			Fastener Set (Includes Gasket)		Sleeve		Flex Hub		
	No Bore Part No.	Wt.	Finish Bore① Part No.	Part No.	Wt.	Part No.	Wt.	No Bore Part No.	Wt.	Finish Bore① Part No.
1	1W SB FF	10	1W SB FF FB	1 SB FS	1	1W SB SLEEVE	2	1W FHUB	3	1W FHUB FB
1 1/2	1 1/2W SB FF	19	1 1/2W SB FF FB	1 1/2 SB FS	1	1 1/2W SB SLEEVE	6	1 1/2W FHUB	3	1 1/2W FHUB FB
2	2W SB FF	30	2W SB FF FB	2 SB FS	1	2W SB SLEEVE	8	2W FHUB	7	2W FHUB FB
2 1/2	2 1/2W SB FF	52	2 1/2W SB FF FB	2 1/2 SB FS	2	2 1/2W SB SLEEVE	13	2 1/2W FHUB	12	2 1/2W FHUB FB
3	3W SB FF	76	3W SB FF FB	3 SB FS	2	3W SB SLEEVE	15	3W FHUB	20	3W FHUB FB
3 1/2	3 1/2W SB FF	117	3 1/2W SB FF FB	3 1/2 SB FS	4	3 1/2W SB SLEEVE	26	3 1/2W FHUB	28	3 1/2W FHUB FB
4	4W SB FF	180	4W SB FF FB	4 SB FS	4	4W SB SLEEVE	37	4W FHUB	47	4W FHUB FB
4 1/2	4 1/2W SB FF	244	4 1/2W SB FF FB	4 1/2 SB FS	4	4 1/2W SB SLEEVE	50	4 1/2W FHUB	66	4 1/2W FHUB FB
5	5W SB FF	361	5W SB FF FB	5 SB FS	7	5W SB SLEEVE	72	5W FHUB	96	5W FHUB FB

① All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances with interference fit bores. Clearance fit bores are available on request and include one setscrew over keyway.

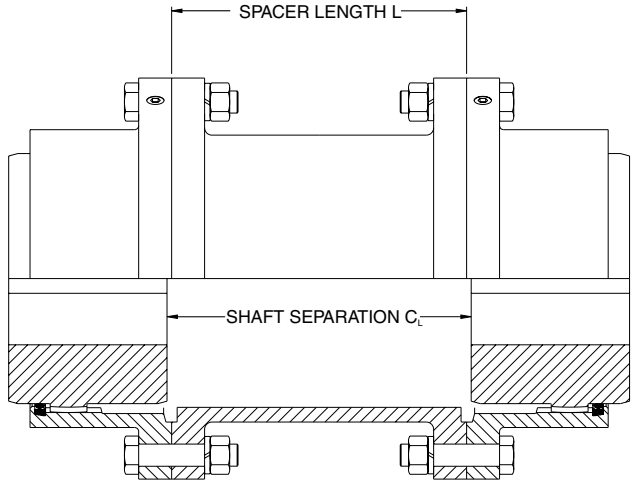
Spacer Coupling Size 1 1/2 - 7

Standard Spacer Couplings
Full-flex spacer couplings are used for 4 bearing installations with extended shaft separations. Tabulated below are spacers for industry standard shaft separations, C_L.

Type EB exposed bolt spacers and Type SB shrouded bolt spacers for standard shaft separations are normally in stock. Other lengths are manufactured to order.

Spacer length, **L**, is calculated by subtracting the standard full-flex, close coupled gap, **C**, from the shaft separation, C_L.

$$L = C_L - C$$ **(full-flex, close coupled)**



Spacer Part Numbers

Stock Spacer Part Numbers
Type SB (Shrouded Bolts)

Coupling Size	Shaft Separation							
	3 1/2"		4 3/8"		5"		7"	
	Part No.	Wt.	Part No.	Wt.	Part No.	Wt.	Part No.	Wt.
1 1/2	1 1/2 SB SPR350	6	1 1/2 SB SPR438	7	1 1/2 SB SPR500	8		
2	2 SB SPR350	8	2 SB SPR438	9	2 SB SPR500	10	2 SB SPR700	12
2 1/2					2 1/2 SB SPR500	14	2 1/2 SB SPR700	17
3					3 SB SPR500	17	3 SB SPR700	20
3 1/2					3 1/2 SB SPR500	27		

Note: Spacer part number references the shaft separation, not the actual length of the spacer.

Stock Spacer Part Numbers
Type EB (Exposed Bolts)

Coupling Size	Shaft Separation			
	5"		7"	
	Part No.	Wt.	Part No.	Wt.
1 1/2	1 1/2 EB SPR500	8		
2	2 EB SPR500	10	2 EB SPR700	12
2 1/2	2 1/2 EB SPR500	14		
3	3 EB SPR500	17		

LEF Spacer Couplings

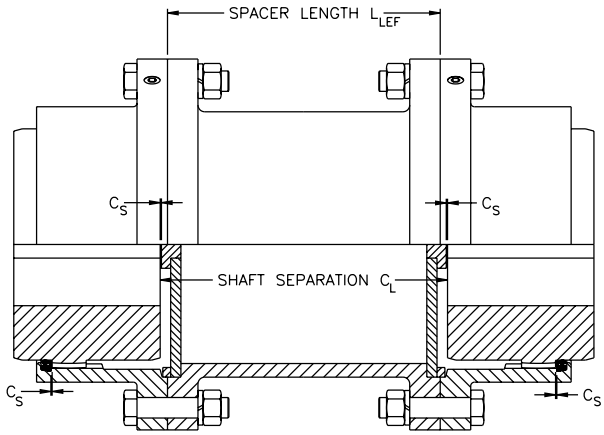
Limited End Float (LEF) spacer couplings are used for sleeve bearing motor applications with extended shaft separations. LEF spacers are supplied with steel LEF plates and pilot rings.

Spacer length, L_{LEF}, is calculated by subtracting the LEF full-flex, close coupled gap, C_{LEF}, from the shaft separation, C_L.

$$L_{LEF} = C_L - C_{LEF}$$ **(full-flex, close coupled)**

LEF spacers are shorter than standard spacers for a given shaft separation, and are manufactured to order.

Note: Spacer part number references the shaft separation, not the actual length of the spacer.

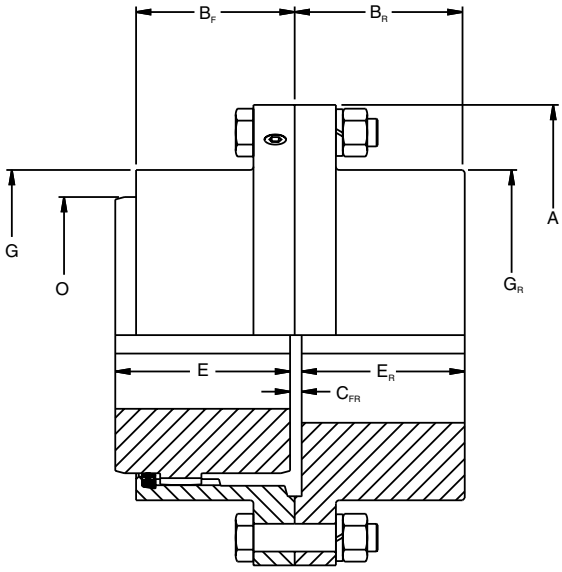


Coupling Greases
KOP-FLEX offers greases specifically designed for use in coupling applications. For proper lubrication and long service life, use KSG Standard Coupling Grease, or KHP High Performance Coupling Grease. See pages 204-206 for detailed specifications.

For More Information
Visit www.kopflex.com

Flex Rigid and Floating Shaft Couplings Size 1- 7

When driving and driven shafts are widely separated, an unsupported or floating shaft is used to span the gap. The two couplings required at each end of that shaft consist of one half of a standard coupling bolted to a Rigid Hub, each unit called a Flex-Rigid Coupling. Usually, the rigid hubs are mounted on the driving and driven shafts so that the flex halves on the floating shaft may be replaced without disturbing the connected equipment.



Coupling Type EB (Exposed Bolts) Part Numbers

Coupling Size	Flex Rigid Coupling			Rigid Hub②		
	No Bore Part No.	Wt.	Finish Bore① Part No.	No Bore Part No.	Wt.	Finish Bore① Part No.
1	1W EB FR	10	1W EB FR FB	1 EB RHUB	5	1 EB RHUB FB
1 1/2	1 1/2W EB FR	19	1 1/2W EB FR FB	1 1/2 EB RHUB	9	1 1/2 EB RHUB FB
2	2W EB FR	31	2W EB FR FB	2 EB RHUB	15	2 EB RHUB FB
2 1/2	2 1/2W EB FR	55	2 1/2W EB FR FB	2 1/2 EB RHUB	27	2 1/2 EB RHUB FB
3	3W EB FR	83	3W EB FR FB	3 EB RHUB	40	3 EB RHUB FB
3 1/2	3 1/2W EB FR	126	3 1/2W EB FR FB	3 1/2 EB RHUB	65	3 1/2 EB RHUB FB
4	4W EB FR	184	4W EB FR FB	4 EB RHUB	90	4 EB RHUB FB
4 1/2	4 1/2W EB FR	252	4 1/2W EB FR FB	4 1/2 EB RHUB	124	4 1/2 EB RHUB FB
5	5W EB FR	371	5W EB FR FB	5 EB RHUB	119	5 EB RHUB FB
5 1/2	5 1/2W EB FR	418	5 1/2W EB FR FB	5 1/2 EB RHUB	200	5 1/2 EB RHUB FB
6	6W EB FR	504	6W EB FR FB	6 EB RHUB	250	6 EB RHUB FB
7	7W EB FR	792	7W EB FR FB	7 EB RHUB	370	7 EB RHUB FB

Coupling Type SB (Shrouded Bolts) Part Numbers

Coupling Size	Flex Rigid Coupling			Rigid Hub②		
	No Bore Part No.	Wt.	Finish Bore① Part No.	No Bore Part No.	Wt.	Finish Bore① Part No.
1	1W SB FR	10	1W SB FR FB	1 SB RHUB	5	1 SB RHUB FB
1 1/2	1 1/2W SB FR	19	1 1/2W SB FR FB	1 1/2 SB RHUB	9	1 1/2 SB RHUB FB
2	2W SB FR	31	2W SB FR FB	2 SB RHUB	15	2 SB RHUB FB
2 1/2	2 1/2W SB FR	55	2 1/2W SB FR FB	2 1/2 SB RHUB	27	2 1/2 SB RHUB FB
3	3W SB FR	83	3W SB FR FB	3 SB RHUB	40	3 SB RHUB FB
3 1/2	3 1/2W SB FR	126	3 1/2W SB FR FB	3 1/2 SB RHUB	65	3 1/2 SB RHUB FB
4	4W SB FR	184	4W SB FR FB	4 SB RHUB	90	4 SB RHUB FB
4 1/2	4 1/2W SB FR	252	4 1/2W SB FR FB	4 1/2 SB RHUB	124	4 1/2 SB RHUB FB
5	5W SB FR	371	5W SB FR FB	5 SB RHUB	119	5 SB RHUB FB

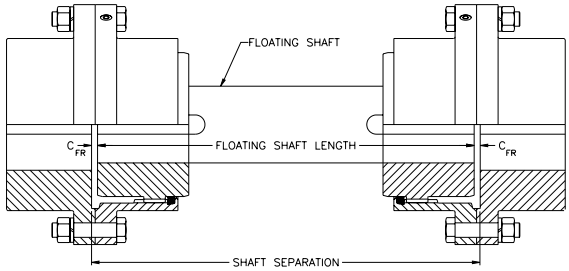
① All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances.
② Rigid hubs are furnished less fasteners.

Flex-Rigid Coupling Data

Coupling Size	Maximum Bore with Standard Keyway		Rating HP / 100 RPM	Torque Rating (lb.-in.)	Peak Torque Rating (lb.-in.)	Maximum Speed (RPM) ②	Dimensions						
	Flex	Rigid					A	B_F	B_R	C_{FR} ①	E	E_R	G_R
1	1 5/8	2 1/4	10	6300	12600	10000	4 9/16	1 19/32	1 21/32	5/32	1 11/16	1 9/16	3
1 1/2	2 3/16	2 11/16	24	15100	30200	7400	6	1 15/16	1 15/16	5/32	2 1/16	1 27/32	3 13/16
2	2 3/4	3 3/8	50	31500	63000	5900	7	4 5/8	2 3/8	5/32	2 7/16	2 9/32	4 13/16
2 1/2	3 1/4	4	90	56700	113400	5000	8 3/8	5 11/16	3	3/16	3 1/32	2 29/32	5 3/4
3	4	4 3/4	150	94500	189000	4300	9 7/16	6 9/16	3 9/16	3/16	3 19/32	3 15/32	6 3/4
3 1/2	4 3/4	5 1/2	230	145000	290000	3900	11	7 5/8	4 1/8	7/32	4 3/16	4 1/32	7 3/4
4	5 3/8	6 3/8	350	221000	442000	3500	12 1/2	8 5/8	4 5/8	5/16	4 3/4	4 7/16	9
4 1/2	6	7 1/4	480	300000	600000	3200	13 5/8	9 5/8	5 1/4	11/32	5 3/8	5 1/16	10 1/8
5	6 3/4	8 1/2	650	410000	820000	2900	15 5/16	10 13/16	5 7/8	11/32	6 1/8	5 11/16	11 3/8
5 1/2*	7 1/2	8	850	536000	1072000	2700	16 3/4	11 5/8	7 5/32	11/32	6 5/8	6 31/32	10 3/4
6*	8 1/4	8 3/4	1100	693000	1386000	2500	18	13 1/4	7 21/32	11/32	7 3/8	7 15/32	11 1/2
7*	9 1/4	10	1600	1010000	2020000	2200	20 3/4	14 3/4	9	7/16	8 11/16	8 3/4	13 3/8

* Sizes 5 1/2, 6 and 7 are only available with exposed bolts. Type EB exposed bolts are standard.
① Floating shaft length is equal to the shaft separation minus 2 times the C_{FR} dimension.
② Max. speed is based on flange stress limits and does not consider lateral critical speed considerations for floating shaft applications.

FLOATING SHAFT ASSEMBLY



Ordering Instructions: **When ordering floating shaft couplings, be sure to include hp and rpm, shaft separation, and equipment shaft sizes. Applications with very large shaft separations and/or high speeds may require tubular floating shafts due to lateral critical speed concerns.**

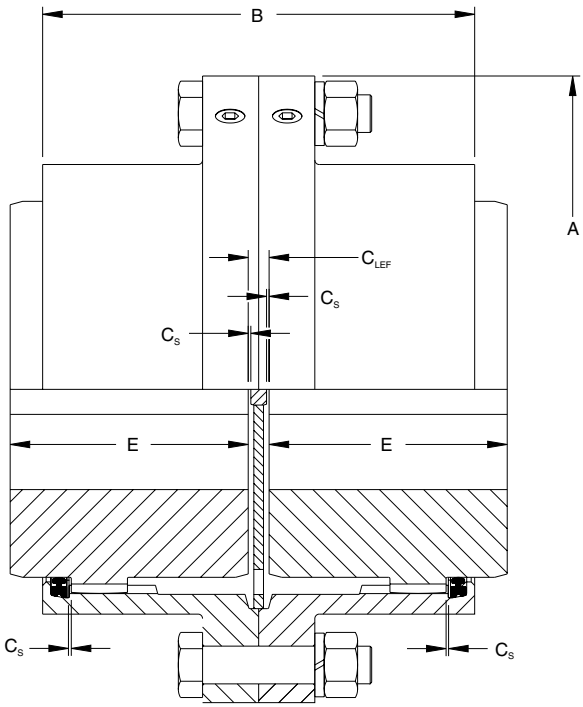
Important: Care must be exercised in proper selection of any shaft coupling. The Users must assure themselves that the design of the shaft to coupling hub connection is adequate for the duty intended.

Limited End Float Coupling Size 1-7

For sleeve bearing motor applications, a WALDRON® standard full flex coupling is supplied with an LEF disc to limit the axial float of the motor rotor, and protect the motor bearings at start-up and shut-down. The hub separation, C_{LEF} is larger than for a standard full flex, and the LEF disc is placed between the hubs at assembly, limiting the float of the motor rotor to the total LEF value shown.

The equipment should be installed with the proper hub separation, C_{LEF}, when the motor rotor is located on magnetic center.

The LEF disc part numbers are listed below. See page 196 for the standard full flex part numbers.



Note: Spacer part number references the shaft separation, not the actual length of the spacer.

Coupling Size	Total LEF (in.)	Dimensions					LEF Disc①	
		A	B	C_S	C_{LEF} (Hub Sep.)	E	Part No.	Wt.
1	1/8	4 9/16	3 3/16	1/32	3/16	1 11/16	1W LEFD	1
1 1/2	1/8	6	3 7/8	1/32	3/16	2 1/16	1 1/2W LEFD	1
2	1/8	7	4 5/8	1/32	3/16	2 7/16	2W LEFD	1
2 1/2	3/16	8 3/8	5 11/16	3/64	9/32	3 1/32	2 1/2W LEFD	1
3	3/16	9 7/16	6 9/16	3/64	9/32	3 19/32	3W LEFD	1
3 1/2	3/16	11	7 5/8	3/64	13/32	4 3/16	3 1/2W LEFD	2
4	3/16	12 1/2	8 5/8	3/64	13/32	4 3/4	4W LEFD	2
4 1/2	3/16	13 5/8	9 5/8	3/64	17/32	5 3/8	4 1/2W LEFD	2
5	3/16	15 5/16	10 13/16	3/64	17/32	6 1/8	5W LEFD	2
5 1/2*	3/16	16 3/4	11 5/8	3/64	17/32	6 5/8	5 1/2W LEFD	2
6*	3/16	18	13 1/4	3/64	19/32	7 3/8	6W LEFD	2
7*	3/16	20 3/4	14 3/4	3/64	25/32	8 11/16	7W LEFD	2

* Sizes 5 1/2, 6 and 7 are only available with exposed bolts. Type EB exposed bolts are standard.

① LEF Discs are used only in close coupled applications. One disc is required per coupling.

Note: For ratings and max. bores refer to page 196.

Coupling Greases

KOP-FLEX offers greases specifically designed for use in coupling applications. For proper lubrication and long service life, use KSG Standard Coupling Grease, or KHP High Performance Coupling Grease. See pages 204-206 for detailed specifications.

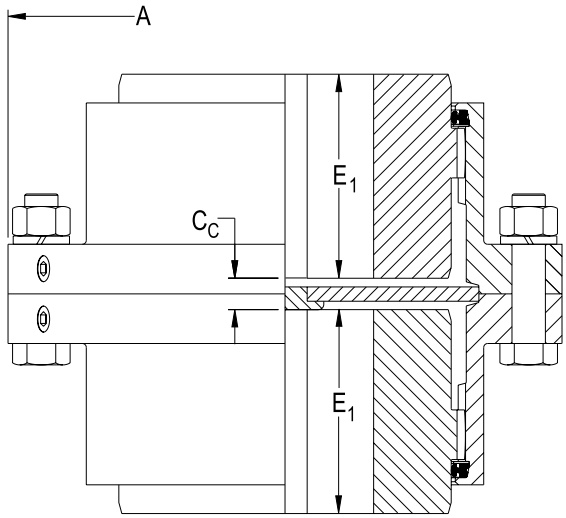
Vertical Coupling Size 1-7

For vertical applications, a standard full flex coupling is supplied with special vertical hubs, a vertical plate, and standard flange fasteners. The vertical plate is installed with button down, and is used to support the assembled sleeves.

*Coupling Size	Dimensions			Vertical Plate		Vertical Hub	
	A	C_C	E_1	Part No.	Wt.	Part No.	Wt.
1	4 9/16	3/8	1 9/16	1W VP	1	1W VHUB	3
1 1/2	6	3/8	1 15/16	1 1/2W VP	1	1 1/2W VHUB	3
2	7	3/8	2 5/16	2W VP	2	2W VHUB	7
2 1/2	8 3/8	3/8	2 15/16	2 1/2W VP	2	2 1/2W VHUB	12
3	9 7/16	3/8	3 1/2	3W VP	3	3W VHUB	20
3 1/2	11	3/8	4 1/8	3 1/2W VP	4	3 1/2W VHUB	28
4	12 1/2	3/4	4 1/2	4W VP	7	4W VHUB	47
4 1/2	13 5/8	3/4	5 5/32	4 1/2W VP	10	4 1/2W VHUB	66
5	15 5/16	3/4	5 29/32	5W VP	12	5W VHUB	96
5 1/2	16 3/4	3/4	6 13/32	5 1/2W VP	15	5 1/2W VHUB	115
6	18	3/4	7 5/32	6W VP	19	6W VHUB	140
7	20 3/4	7/8	8 1/2	7W VP	25	7W VHUB	240

* Exposed bolts are standard for all sizes.
Shrouded bolts are available for sizes 1 through 5.

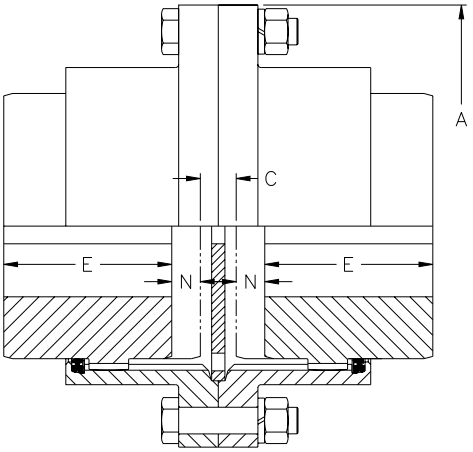
Note: For ratings and max. bores refer to page 196.



Short Slide Coupling Size 1-7

To provide additional axial movement a short slide coupling can be assembled using slide sleeves with standard hubs reversed. A center plate is provided as well. The plate is equipped with lube holes so both halves of the coupling will be adequately lubricated.

The center plate part numbers are listed below. See page 196 for the standard hub and fastener set part numbers.



Coupling Size	Total Slide	Dimensions				Center Plate	
		A	C_{MIN}	N	E	Part No.	Wt.
1	5/16	4 9/16	5/16	5/32	1 11/16	1W SP	1
1 1/2	11/16	6	5/16	11/32	2 1/16	1 1/2W SP	1
2	1 3/16	7	5/16	19/32	2 7/16	2W SP	1
2 1/2	1 1/4	8 3/8	3/8	5/8	3 1/32	2 1/2W SP	1
3	1 1/2	9 7/16	3/8	3/4	3 19/32	3W SP	1
3 1/2	1 15/16	11	7/16	31/32	4 3/16	3 1/2W SP	2
4	2	12 1/2	5/8	1	4 3/4	4W SP	2
4 1/2	2 1/4	13 5/8	11/16	1 1/8	5 3/8	4 1/2W SP	2
5	2 3/8	15 5/16	11/16	1 3/16	6 1/8	5W SP	2
5 1/2	2 3/4	16 3/4	11/16	1 3/8	6 5/8	5 1/2W SP	2
6	3 5/8	18	11/16	1 13/16	7 3/8	6W SP	2
7	3 1/8	20 3/4	7/8	1 9/16	8 11/16	7W SP	2

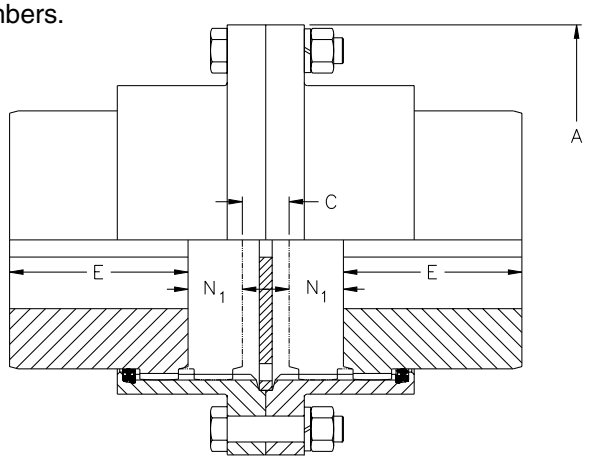
Special Order Only.
Consider the FAST'S® or Series H Slide Couplings for standard applications.

Medium Slide Coupling Size 1-7

For even greater axial movement a medium slide coupling can be assembled using slide sleeves and center plates as above. Medium slide hubs are used to provide a longer slide length.

Coupling Size	Total Slide	Dimensions			
		A	C_{MIN}	N	E
1	1	4 9/16	5/16	1/2	1 19/32
1 1/2	1 7/16	6	5/16	23/32	1 31/32
2	1 15/16	7	5/16	31/32	2 11/32
2 1/2	2 1/2	8 3/8	3/8	1 1/4	2 15/16
3	3	9 7/16	3/8	1 1/2	3 3/8
3 1/2	3 11/16	11	7/16	1 27/32	4
4	4 1/16	12 1/2	5/8	2 1/32	4 7/16
4 1/2	4 11/16	13 5/8	11/16	2 11/32	5
5	5 5/16	15 5/16	11/16	2 21/32	5 5/8
5 1/2	5 7/8	16 3/4	11/16	2 15/16	6
6	6 13/16	18	11/16	3 13/32	6 7/8
7	7 5/8	20 3/4	7/8	3 13/16	7 5/8

The medium slide hub part numbers are listed at the left. See above for slide sleeve and stop plate part numbers and page 196 for standard fastener set part numbers.



Special Order Only.
Consider the FAST'S® or Series H Slide Couplings for standard applications.

Coupling Greases

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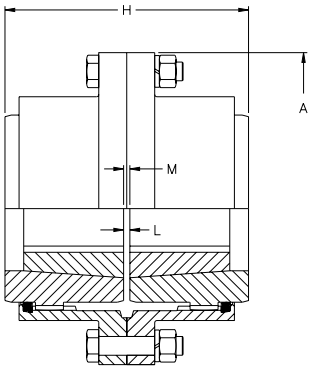
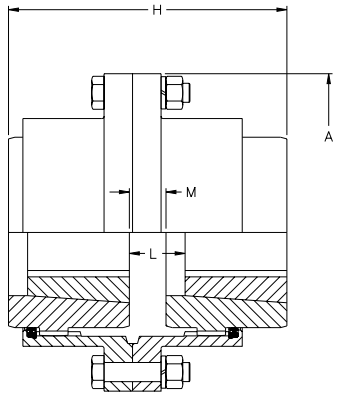
For More Information

Visit www.kopflex.com

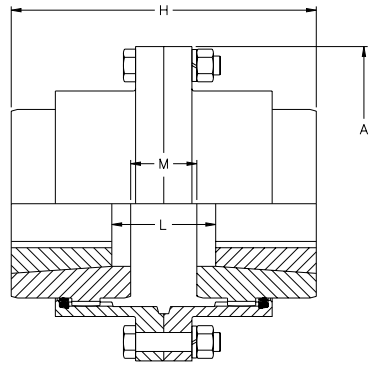
TAPER-LOCK* Full Flex and Flex Rigid Couplings



INBOARD



INBOARD, OUTBOARD



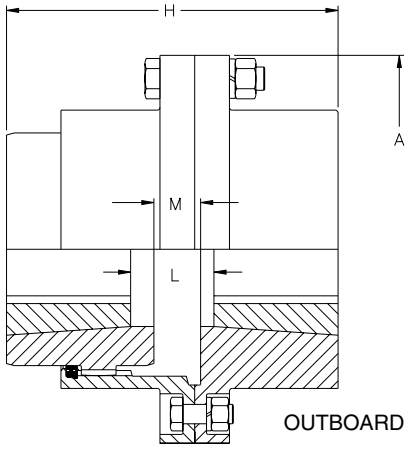
OUTBOARD

Full-Flex Dimensions

Coupling Size	Bushing Bore Range		Rating HP / 100 RPM	Maximum Speed (RPM)	Dimensions								
					A	Inboard			Inboard, Outboard			Outboard		
	Min.	Max.				H	L	M	H	L	M	H	L	M
1	1/2	1 1/4	4	6900	4 9/16	3 1/2	1/8	1/8	3 3/4	9/16	3/8	4	1	5/8
1 1/2	1/2	1 5/8	8	5660	6	4 1/4	1/8	1/8	4 11/16	1 1/8	9/16	5 1/8	2 1/8	1
2	1/2	2	15	4850	7	5	1/8	1/8	5 11/16	2	13/16	6 3/8	3 7/8	1 1/2
2 1/2	3/4	2 1/2	29	4100	8 3/8	6 1/4	3/16	3/16	6 31/32	1 7/16	29/32	7 11/16	2 11/16	1 5/8
3	15/16	3	50	3650	9 7/16	7 3/8	3/16	3/16	8 7/32	1 5/8	1 1/32	9 1/16	3 1/16	1 7/8
3 1/2	1 3/16	3 1/2	80	3180	11	8 5/8	1/4	1/4	9 11/16	2 1/16	1 5/16	10 3/4	3 7/8	2 3/8
4	1 7/16	4	120	2710	12 1/2	9 3/4	1/4	1/4	10 15/16	2 3/16	1 7/16	12 1/8	4 1/8	2 5/8

Flex-Rigid Dimensions

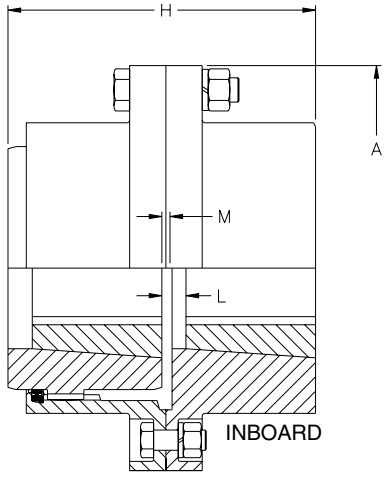
Coupling Size	Dimensions					
	Outboard			Inboard		
	H	L	M	H	L	M
1	3 21/32	21/32	13/32	3 13/32	7/32	5/32
1 1/2	4 1/2	1 1/2	19/32	4 1/16	1/2	5/32
2	5 9/16	3 1/16	27/32	4 7/8	1 3/16	5/32
2 1/2	6 27/32	1 27/32	29/32	6 1/8	19/32	3/16
3	8 3/32	2 3/32	1 1/32	7 1/4	21/32	3/16
3 1/2	9 1/2	2 1/2	1 9/32	8 7/16	3/4	7/32
4	10 11/16	2 11/16	1 1/2	9 1/2	3/4	5/16



OUTBOARD

Part Numbers①

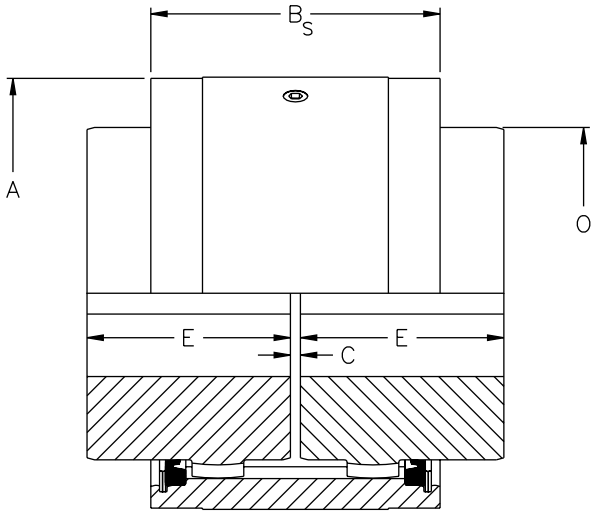
Coupling Size	Flex Hubs		Rigid Hubs②	
	Part No.	Wt.	Part No.	Wt.
1	1W FHUBTLX1215	2	1W SB RHUBTLX1215	3
1 1/2	1 1/2W FHUBTLX1615	2	1 1/2W SB RHUBTLX1615	7
2	2W FHUBTLX2012	6	2W SB RHUBTLX2012	10
2 1/2	2 1/2W FHUBTLX2525	10	2 1/2W SB RHUBTLX2525	20
3	3W FHUBTLX3030	15	3W SB RHUBTLX3030	31
3 1/2	3 1/2W FHUBTLX3535	20	3 1/2W SB RHUBTLX3535	55
4	4W FHUBTLX4040	36	4W SB RHUBTLX4040	78



INBOARD

① See page 196 for part numbers of sleeves and fastener sets.
② Shrouded bolts are standard for Rigid Hubs bored for TAPER-LOCK* bushings.

WALDRON® couplings are available in the POWERLIGN series of flangeless gear couplings. This design transmits the same torque as the standard line, while offering a more compact design which is capable of running at higher speeds. This coupling design is ideal for applications where space is limited.



Coupling Greases

KOP-FLEX offers greases specifically designed for use in coupling applications. For proper lubrication and long service life, use KSG Standard Coupling Grease, or KHP High Performance Coupling Grease. See pages 204-206 for detailed specifications.

Coupling Size *	Maximum Bore with Standard Key (in.)	Rating HP / 100 RPM	Torque Rating (lb.-in.)	Peak Torque Rating (lb.-in.)	Maximum Speed (RPM)	Weight with Solid Hubs (lbs.)	Dimensions				
							A	B_S	C	E	O
1 1/8	1 1/4	4	2520	5040	14000	5.5	2 15/16	2	1/8	1 7/16	1 7/8
1 5/8	1 3/4	12	7560	15120	11000	9.6	3 9/16	2 1/8	1/8	1 3/4	2 1/2
1 1/2	2 3/16	24	15100	30200	9000	19	4 1/8	3 7/64	1/8	2 1/16	3 1/8
2	2 3/4	50	31500	63000	7200	35	5 3/16	3 15/32	1/8	2 7/16	4
2 1/2	3 1/4	90	56700	113400	6000	59	6	4 5/16	3/16	3 1/32	4 23/32
3	4	150	94500	189000	5200	95	7	5	3/16	3 19/32	5 5/8
3 1/2	4 3/4	230	14500	290000	4600	150	8 1/4	5 5/8	1/4	4 3/16	6 5/8
4	5 3/8	350	220000	440000	4200	220	9 1/4	6 21/64	1/4	4 3/4	7 1/2
4 1/2	6	505	318000	636000	3500	330	10 1/2	8 1/16	5/16	5 5/16	8 1/2
5	6 7/8	700	441000	882000	3200	450	11 3/4	8 3/8	5/16	6 1/32	9 1/2
5 1/2	7 3/4	920	580000	1160000	2800	640	13	9 3/4	5/16	6 29/32	10 1/2
6	8 5/8	1205	759000	1518000	2600	820	14 1/4	10 1/4	5/16	7 13/32	11 1/2
7	10 3/8	1840	1160000	2320000	2200	1300	16 3/8	11 1/2	3/8	8 11/16	13 1/2
8	10 3/4	2230	1404000	2808000	2000	1400	18 1/4	9	3/8	9 13/16	14
9	11 3/4	3170	1995000	3990000	1800	1900	20 1/2	9 7/8	1/2	10 7/8	15 1/2
10	13	1350	2744000	5488000	1600	1600	22 1/2	10 3/8	1/2	12	17 1/2
11	15	5780	3645000	7290000	1500	3400	24 5/8	11	1/2	13 1/8	19 1/2
12	16 1/4	7190	4532000	9064000	1400	4300	26 5/8	11 5/8	1/2	13 7/8	21 1/2

* Sizes 2 1/2 through 12 are non-stock. Refer to KOP-FLEX with application information.

Part Numbers

Size	Full Flex Coupling			Sleeve (Full Flex)		Flex Hub	
	No Bore		Finish Bore① Part No.	Part No.	Wt.	No Bore	
	Part No.	Wt.				Part No.	Wt.
1 1/8	1 1/8W PL FF	4	1 1/8W PL FF FB	1 1/8W PL SLEEVE	2	1 1/8W PL FHUB	1
1 5/8	1 5/8W PL FF	7	1 5/8W PL FF FB	1 5/8W PL SLEEVE	2	1 5/8W PL FHUB	1
1 1/2	1 1/2W PL FF	12	1 1/2W PL FF FB	1 1/2W PL SLEEVE	4	1 1/2W FHUB	5
2	2W PL FF	22	2W PL FF FB	2W PL SLEEVE	5	2W FHUB	9
2 1/2	2 1/2W PL FF	39	2 1/2W PL FF FB	2 1/2W PL SLEEVE	10	2 1/2W FHUB	15
3	3W PL FF	64	3W PL FF FB	3W PL SLEEVE	15	3W FHUB	26
3 1/2	3 1/2W PL FF	98	3 1/2W PL FF FB	3 1/2W PL SLEEVE	24	3 1/2W FHUB	40
4	4W PL FF	137	4W PL FF FB	4W PL SLEEVE	31	4W FHUB	57

Size	Flex-Rigid Coupling		
	No Bore		Finish Bore① Part No.
	Part No.	Wt.	
1 1/8	1 1/8W PL FR	5	1 1/8W PL FR FB
1 5/8	1 5/8W PL PR	7	1 5/8W PL FR FB

Size	Rigid Hub Coupling		
	No Bore		Finish Bore① Part No.
	Part No.	Wt.	
1 1/8	1 1/8W PL RHUB	5	1 1/8W PL RHUB FB
1 5/8	1 5/8W PL RHUB	7	1 5/8W PL RHUB FB

Size	Sleeve Flex-Rigid Coupling	
	Part No.	Wt.
1 1/8	1 1/8W PL MSLEEVE	5
1 5/8	1 5/8W PL MSLEEVE	7

① All finish bores and keyways are per AGMA 9002-A86 commercial standard tolerances with interference fit bores. Clearance fit bores are available on request and include one setscrew over keyway.

HIGH PERFORMANCE COUPLINGS

KOP-FLEX®

HIGH PERFORMANCE DISC COUPLINGS...
Available In Four Standard Styles...
Designed And Manufactured To Meet API 671 As Standard

These couplings are engineered to accommodate a broad range of demanding operating conditions: boiler feed pumps, centrifugal and axial compressors, generator sets, test stands, gas and steam turbines, marine drives, etc.

The HP disc coupling is the preferred choice for demanding turbomachinery applications. Superior quality and a wide variety of standard and custom designs backed by unsurpassed engineering expertise make KOP-FLEX the industry leader.

- Inherent fail-safe designs
- KOPLON* coated flexible disc elements for maximum life
- Factory assembled
- Greatest reduced moment available
- Dynamically balanced

Reduced Moment
High Performance Disc Coupling

High Performance Flexible Diaphragm Couplings

The patented Flexible Diaphragm Coupling from KOP-FLEX® brand couplings transmits torque from the driving shaft via a rigid hub, then through a flexible diaphragm to a spacer. The diaphragm deforms while transmitting this torque to accommodate misalignment. The spacer in turn drives matching components attached to the driven equipment. Outstanding design features include:

- Field-replaceable Stockable Diaphragms
- Specially-Contoured One-Piece Diaphragm Design
- Patented Diaphragm Shape
- Piloted Fits
- Diaphragms are 15.5 PH Shot-Peened Stainless Steel
- Inherently Low Windage Design
- Conforms To API 671 Specifications

Size #5.5 MDM-J
diaphragm coupling

High Performance Gear Couplings

- Thousands in Service
- Choose From Straight or Crowned Nitrided Gear Teeth, Depending on your Application
- Precision Lapped Teeth, if Required
- Heat-treated Alloy Components

Size #6 Gear Coupling
G.E. MS5001 Gas Turbine Driven
Compressor Train

Request a copy of Catalog KHP-00 or visit www.kop-flex.com