

COUPLINGS

KOP-FLEX[®] *YOU'LL ALWAYS MAKE THE CORRECT CONNECTION WHEN YOU SPECIFY OPTIMUM-QUALITY EPT COUPLINGS.*

Browning[®]

Morse[®]

*Choose From More Than 25,000 Combinations
Of Types, Sizes And Bores...
Most Available From Stock*

Industry World-Wide Depends On KOP-FLEX[®] Couplings For A Broad Range Of Heavy-Duty Applications...

KOP-FLEX research and development, design engineering and manufacturing technology employs the latest CAD/CAE/CAM technology. The use of space age materials... provide reliable products of the highest quality, **to stringent ISO 9001 Quality Standards**. These rugged couplings are widely utilized in petrochemical, process, pulp and paper and heavy metal producing facilities, and many other services.

KOP-GRID[®] Tapered Grid Couplings... From KOP-FLEX

KOP-GRID flexible shaft couplings provide reliable, long-life transmission of mechanical power through a time and use-proven design of utilizing a tapered, shot peened steel grid to transmit torque from driving to driven equipment shafts; they compensate for misalignment and provide the added benefit of shock absorbing and smoothing machinery vibration. Other benefits include:

- Cost-Saving Interchangeability With Competition.
- Off-The-Shelf Availability.
- Easy Installation And Maintenance.



The Fast's[®] Gear Type Coupling

This unique coupling design dates back to 1918. Because the gear type coupling will reliably transmit more torque-per-pound and per-inch of diameter than any other flexible coupling, it is widely specified and used world-wide in a diversity of medium to heavy-duty industrial drives. Gear couplings provide long and economical operating life, and the patented Fast's design, with its lifetime **All-Metal End Ring** provides up to 300% greater lubricant capacity which means less maintenance.



**KOP-FLEX Flexible Disc Couplings...
A New Generation of High Performance
Designs...**

- Never Need Lubrication.
- Conservatively Rated.
- Proven Disc Design.
- Easy To-Install.
- Accommodate Shaft Misalignments.
- Unitized Pre-Assembled Disc Packs.



**BROWNING & MORSE Light and Medium Duty Couplings... Are Available With Minimum,
Finished And Bushed Bores.**

Kop-Flex Coupling Types		Bore Sizes	Maximum HP @ 100RPM
Gear Fast's®		1" - 36"	80,300
Series H		1" - 43 1/2"	80,300
Waldron®		7/16" - 2 3/4"	1,600
Kop-Grid®		1 1/8" - 7 1/4"	370
Max-C®		3 1/8" - 14 7/8"	45 - 3,490
KD Disc®		1 1/2" - 13 1/2"	6 - 4,131
Elastomeric™		1/2" - 5 3/8"	1/3 - 42
Browning Coupling Types		Bore Sizes	Maximum HP @ 1800 rpm
Pin	Finished Bore-Die Cast	1/4" - 1 5/8"	9.6
	Finished Bore-Steel	3/8" - 1 1/4"	5.5
	Bushing Type-Steel	3/8" - 3 3/4"	68.7
Jaw	Finished Bore	3/8" - 2 3/8"	180.0
	Bushing Type	3/8" - 2 3/8"	144.0
Chain	Finished Bore	1/2" - 2 3/8"	146.0
	Bushing Bore	3/8" - 4 1/4"	588.0
	Minimum Bore	1/2" - 3 1/2"	588.0
Ever-Flex	Finished Bore	3/8" - 1 3/4"	74.6
	Bushing Bore	3/8" - 4 1/4"	476.7
	Minimum Bore	3/8" - 3 1/4"	203.2
Sleeve	Finished Bore	1/4" - 1 3/8"	-
	Bushing Bore	3/8" - 2 11/16"	-
Morse Coupling Types		Bore Sizes	Maximum HP @ 1000 RPM
Morflex®	Finished Bore	9/16" - 3 1/4"	379.80
	Minimum Bore	3/8" - 2"	



COUPLINGS

KOP-FLEX - Gear Type

Fast's®

Size 1 1/2 through 30

Unique All-Metal

End Ring Design

Bore Range 1" to 36"

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Fast's - Model B

Size 1 through 3 1/2

Bore Range 1" to 4 3/4"

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Series "H"

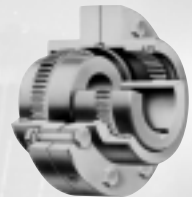
Size 1 through 30

More Economical Design

O-ring Seal

Bore range 1" to 43 1/2"

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Waldron®

Size 1 through 7

High Strength 40° Tooth

High Misalignment Seal

Bore range 7/16" to 2 3/4"

Page M-31 - M-43



Coupling Grease

KHP High Performance

KSG Standard

Operating Range - 40° to +190°

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Kop-Grid®

Size 1020-1140

Interchangeable with other Tapered Grid

Quick, Easy Installation

Low Maintenance

Bore Range 1 1/8" to 7 1/4"

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Elastomeric™

Non-Lubricated Flexible

Bore Range 1/2" to 5 3/8"

Page M-75 - M-83



Max-C® Resilient

High Torque

Maintenance Free

Absorb Shock

Bore Range 3 1/8" to 14 7/8"

Page M-89 - M-94





KD® Disc

Size 103-905
Higher Torque Ratings
Excellent Balance Characteristics
Bore Range 1 1/2" to 13 1/2"

Page M-96 - M-127



BROWNING COUPLINGS

Jaw Type

Economical
Misalignment Capability
Bore Range 3/8" to 3 3/4"

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Flexible Type

All Steel with Neoprene Insert
Oil & Grease Proof
Bore Range 3/8" to 3 3/4"

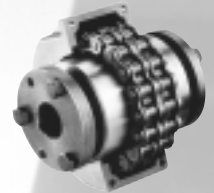
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Chain Type

Solid Steel with Hardened Teeth Sprockets
Bore Range 1/2" to 3 3/4"

Page M-138 - M-140



Ever-flex Type

Permanently Bonded Rubber
Minimum Maintenance
Cushions Shock Loads

Page M-142 - M-144



MORSE COUPLINGS

MorFlex Type

Minimum Maintenance
Compensates for misalignment
0° F to 200° F
Bore Range 9/16" to 3 1/4"

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HIGH PERFORMANCE COUPLINGS

KOP-FLEX®

HIGH PERFORMANCE DISC COUPLINGS...

Available In Four Standard Styles...

Designed And Manufactured To Meet API 671 As A Standard (For more Information, see Bulletin HP103)

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 Kop-Flex HP disc coupling is the preferred choice for demanding turbo machinery applications. Superior quality and a wide variety of standard and custom designs backed by unsurpassed engineering expertise combined to 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



RM Series



MS Series



RZ Series



MP Series



Size #5.5 MDM-J
diaphragm coupling

KOP-FLEX High Performance Flexible Diaphragm Couplings (For more Information, see Bulletin 1300)

The patented Flexible Diaphragm Coupling from KOP-FLEX 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 are:

- 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



KOP-FLEX® Reduced Moment
High Performance Disc Coupling

KOP-FLEX High Performance Gear Couplings (For more Information, Contact KOP-FLEX)

- 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.



Fast's®
Gear Couplings
Size 1 1/2 through 30

Fasts® Model B
Gear Couplings
Size 1 through 3 1/2



**The industry standard
 for over 70 years**

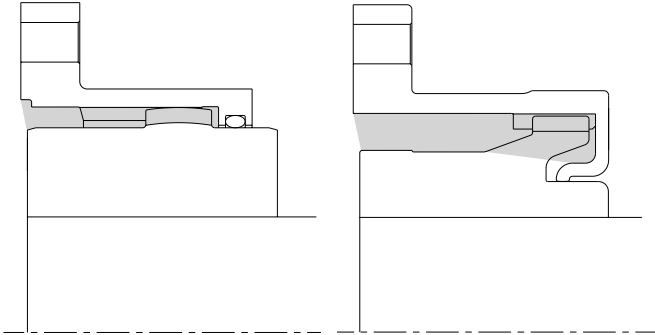
**Unique All-Metal
 End Ring Seal
 designed for
 maximum service life**

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Why Specify Fast's Gear Couplings?

The Fast's design, with its lifetime **All-Metal End Ring**, provides up to **300% greater lubricant capacity**. This means that longer periods between relubrication may be scheduled, and should a periodic relubrication be overlooked, this lubricant reserve usually provides the required margin necessary to assure continued operation.

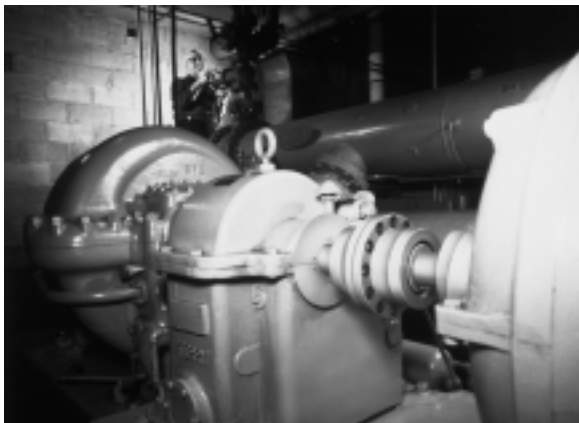
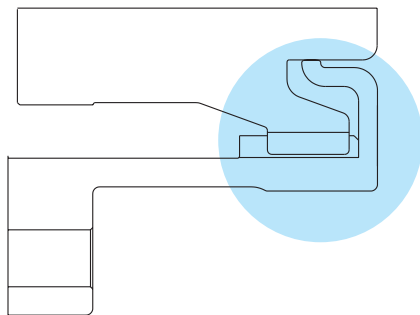


Lubricant Capacity - Fast's vs. O-ring Style

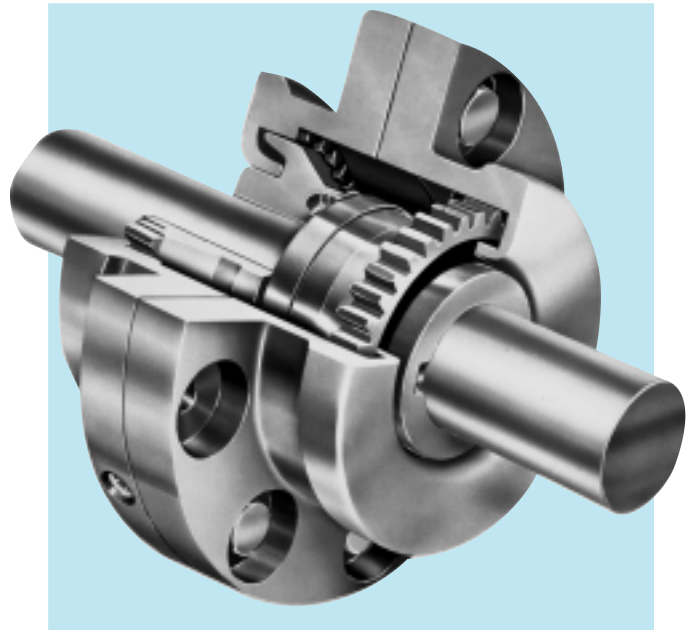
Why Is The Design Unique?

The All-Metal End Ring, used exclusively in Fast's couplings, eliminates the need for any type of perishable lube seal (O-rings, lip seals, cork gaskets, etc.). The end ring not only provides the dam over which lubricant must flow to escape, but it additionally pilots the sleeve with respect to the hub during start-up and shut-down operations. It further eliminates partial tooth disengagement—with resulting tooth overloads—by providing sleeve teeth which are flush against the inside wall of the end ring.

To be sure that your couplings provide Maximum Life, always specify Fast's couplings, with the life-time All-Metal End Ring!



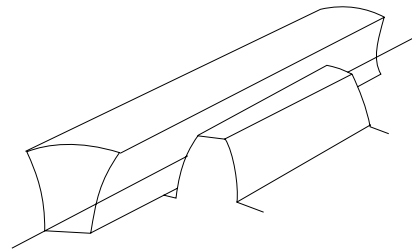
M-8



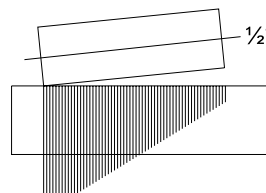
Fast's Gear Coupling Size 1 1/2 - 7

What Tooth Form Is Used?

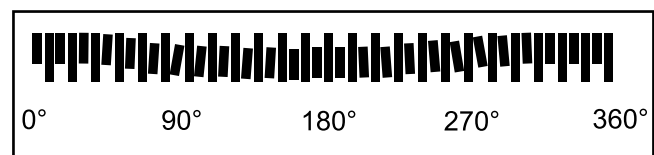
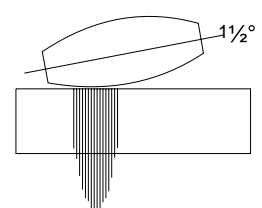
The Straight-Faced involute hub tooth form featured in the Fast's coupling is virtually unique in the industry today. It is this tooth form that distributes tooth contact pressures across the full length of the hub tooth, best developing the needed hydrodynamic lube film, minimizing tooth wear and extending coupling life. It is the only hub tooth form available in the standard Fast's coupling line.



Straight-Face Tooth



1/2° Curved Face Tooth



Tooth Motion Under Misalignment

The Fast's Coupling

The Fast's gear coupling is available in two basic product lines:

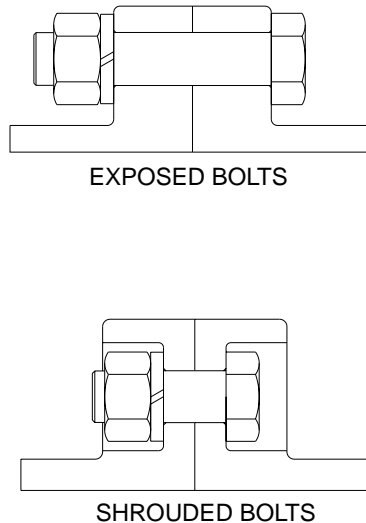
- **Fast's coupling** for medium to heavy-duty applications.
 - Sizes 1 1/2 through 7 with integral end ring.
 - Sizes 8 through 30 with bolt-on end ring.
- **Fast's Model B coupling** for light to medium-duty applications. Model B couplings are not interchangeable with standard Fast's couplings.
 - Sizes 1 1/2 through 3 1/2 with integral end ring.



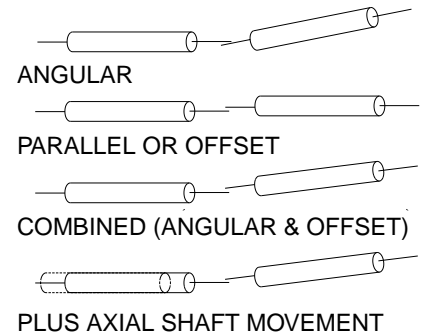
Fast's Gear Coupling Size 8-30

Center Flange Bolting:

All Kop-Flex couplings feature precision-drilled flange bolt holes, and tight tolerance Grade 5 flange bolts to assure a long-lasting flange to flange and fastener fit. Exposed bolt flanges are standard. Shrouded bolt flanges can be supplied through size 5. Size #5 1/2 and larger couplings are only available with exposed bolt flanges.



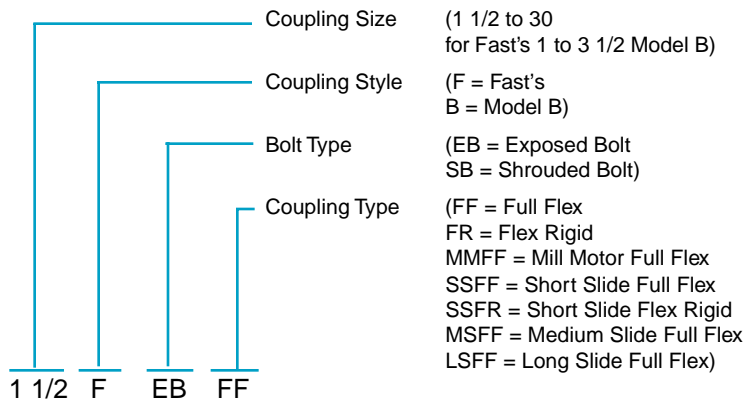
Shaft Misalignment:



Misalignment Capabilities

Fast's couplings are designed for $\pm 1/2^\circ$ static misalignment per half coupling.

PART NUMBER EXPLANATION Complete Rough Bore Coupling



How to Order

Coupling Parts

- Description
- *FHUB = Flex Hub
 - *RHUB = Rigid Hub
 - *MMHUB = Mill Motor Hub
 - *SSHUB = Short Slide Hub (Full Flex)
 - *SRHUB = Short Slide Hub (Flex Rigid)
 - *MSHUB = Medium Slide Hub
 - *LSHUB = Long Slide Hub
 - SLEEVE = Standard Sleeve
 - MSSLEEVE = Medium Slide Sleeve
 - LSSLEEVE = Long Slide Sleeve
 - FS = Fastener Set (w/gasket)
 - VSFS = Vertical/Slide Fastener Set (w/gasket)
 - ERFS = End Ring Fastener Set
 - LEFD = LEF Disk
 - SPRxxx = Spacer for x.xx shaft separation
 - SP = Stop Plate for Slide Couplings
 - ERING = End Ring

* 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 1/2 F FHUB FB

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).

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

Application	Typical Service Factor
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	
Non-Reversing	3.0
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

Application	Typical Service Factor
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.

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 appropriate Service Factor from the Table on page M-10.
 - b. Calculate required HP / 100 RPM:

$$\frac{\text{HP} \times \text{Service Factor} \times 100}{\text{RPM}} = \text{HP} / 100 \text{ RPM}$$
 - c. Verify that the selected coupling has a rating greater than or equal to the required HP / 100 RPM.

3. **Check Balance Requirements.**
Consult Dynamic Balancing Guide 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.

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.

Dynamic Balancing Guide

Balancing requirements for a coupling are dependent on factors determined by the characteristics of the connected equipment. For this reason, the Balancing Charts should be used as a GUIDE ONLY to assist in determining whether or not balancing is required.

The Balancing Charts shown are based on AGMA 9000-C90 suggested balance classes for systems with "Average" sensitivity to unbalance. For systems with higher sensitivity to unbalance, balancing of the coupling may be required at lower speeds. For systems which are less sensitive to unbalance, couplings may be able to operate at higher speeds than those shown at lower balance levels. Therefore, in the absence of either a thorough system analysis or past user experience with a similar installation, these charts should be used as a GUIDE ONLY.

Fast's® and Series H gear couplings may be component balanced, or assembly balanced with fitted components (Type FB and Type HB, respectively).

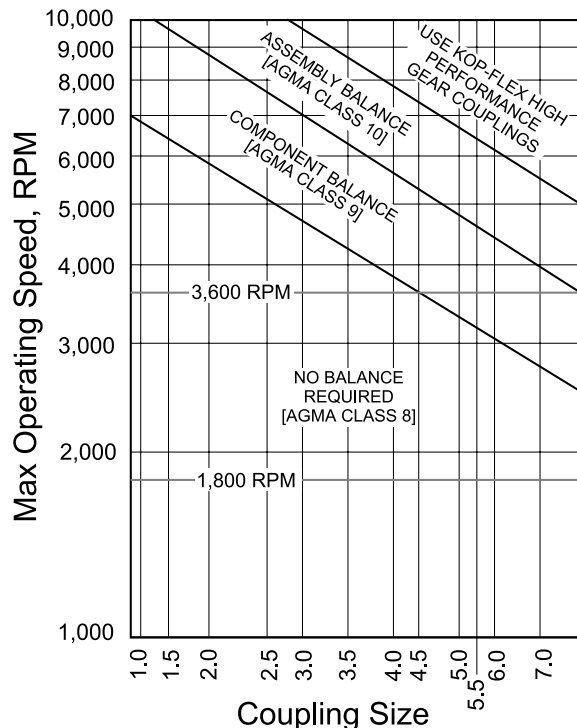
Waldron® gear couplings are available component balanced only.

Model B gear couplings are not designed to be balanced.

These charts apply to sizes 1 through 7 only. Dynamic balance of size 8 through 30 must be considered on a case-by-case basis. Consult Kop-Flex for assistance.

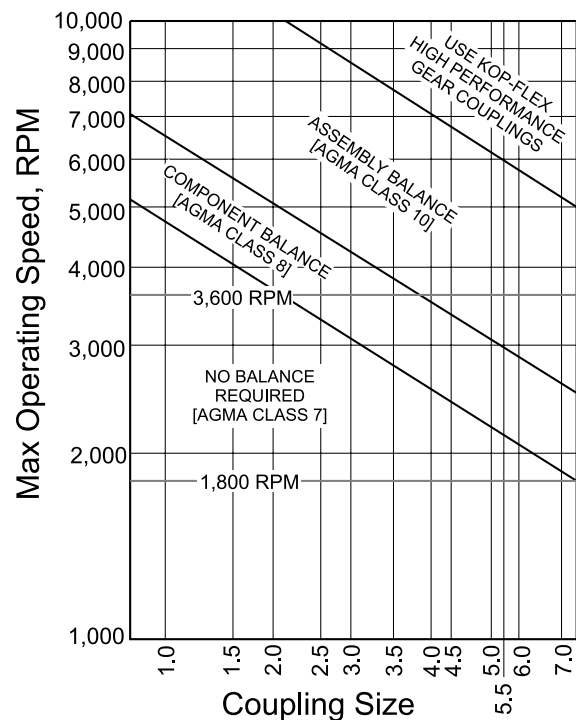
Close Coupled Balancing Chart

Based on AGMA 9000-C90 for Average System Sensitivity



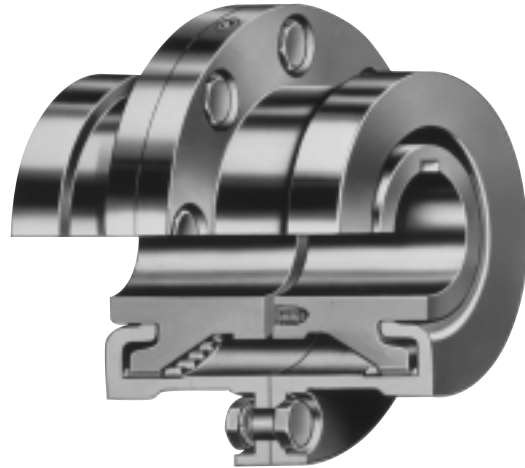
Spacer Coupling Balancing Chart for 12" Shaft Separation

Based on AGMA 9000-C90 for Average System Sensitivity



Full Flex Coupling Size 1 1/2-7

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 M-11.

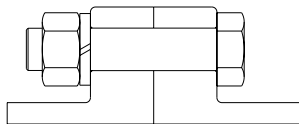


Kop-Flex Coupling Greases

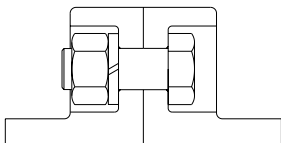
Kop-Flex offers greases specifically designed for use in coupling applications. To ensure proper lubrication and long service life, use Kop-Flex KSG Standard Coupling Grease, or KHP High Performance Coupling Grease. See page M-27 for detailed specifications.

Coupling Size	Maximum Bore with Standard Key	Rating HP / 100 RPM	Torque Rating (lb.-in.)	Peak Torque Rating (lb.-in.)	Maximum Speed (RPM)	Weight with Solid Hubs (lb.)	Dimensions				
							A	B	C	E	O
1 1/2	1 5/8	27	17000	34000	12000	16.5	6	4	1/8	1 15/16	2 3/16
2	2 1/8	50	31500	63000	9300	27.4	7	4 15/16	1/8	2 7/16	2 7/8
2 1/2	2 3/4	90	56700	113400	7900	48.0	8 3/8	6 3/16	3/16	3 1/32	3 5/8
3	3 1/8	160	101000	202000	6800	70.8	9 7/16	7 5/16	3/16	3 19/32	4 1/4
3 1/2	3 3/4	235	148000	296000	6000	113	11	8 1/2	1/4	4 3/16	5
4	4 1/4	375	236000	472000	5260	177	12 1/2	9 3/4	1/4	4 3/4	5 3/4
4 1/2	4 3/4	505	318000	636000	4770	231	13 5/8	10 15/16	5/16	5 5/16	6 1/2
5	5 1/2	700	441000	882000	4300	351	15 5/16	12 1/16	5/16	6 1/32	7 5/16
5 1/2*	5 7/8	920	580000	1160000	3880	435	16 3/4	13 13/16	5/16	6 29/32	8
6*	6 1/2	1205	759000	1518000	3600	538	18	14 13/16	5/16	7 13/32	8 13/16
7*	8	1840	1160000	2320000	3000	860	20 3/4	17 5/16	3/8	8 11/16	10 5/16

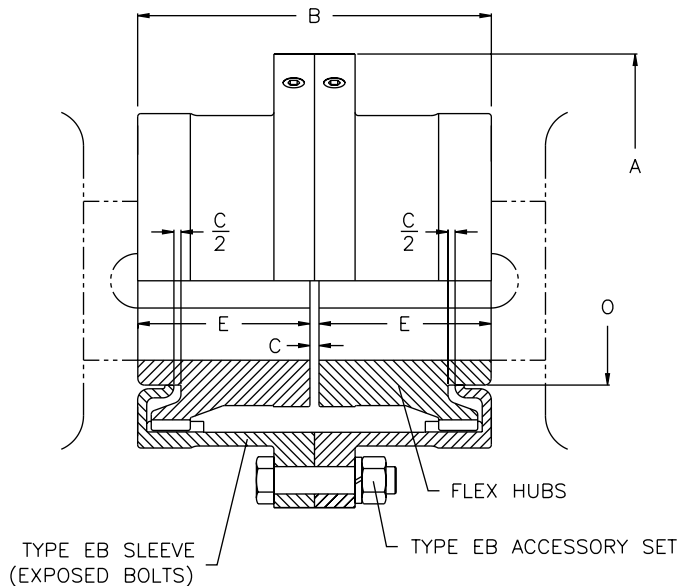
* Sizes 5 1/2, 6 and 7 are only available with exposed bolt sleeves. Type EB exposed bolts are standard.



TYPE EB - EXPOSED BOLTS



TYPE SB - SHROUDED BOLTS



Fastener Data

Coupling Size	Type EB Exposed Bolt			Type SB Shrouded Bolt		
	Qty.	Size & Length	Bolt Circle	Qty.	Size & Length	Bolt Circle
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 1/4	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 4 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.

Fast's coupling sizes 8-30 feature an all-metal end ring which can be easily removed to inspect the hub and sleeve teeth without removing the hub from its shaft. All end rings have gaskets and are bolted to the sleeves. Non-critical surfaces are as-cast, or as-forged. Sleeves have mating male and female rabbets at the center and end flange joints to simplify installation. The sleeves have two lube plugs in the body. Standardized center flanges allow flex-half substitution regardless of design or vintage. All bolts are special with respect to body length, thread length, and bolt body tolerance.

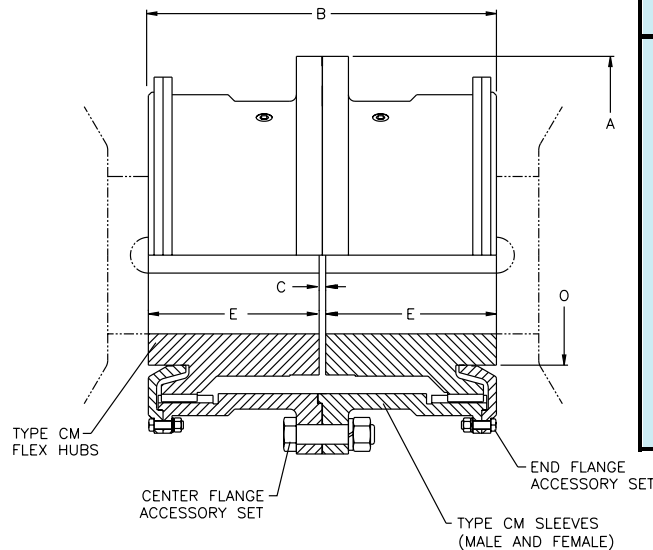
Sizes 8 - 30 are available with exposed bolts only.



Coupling Size	Maximum Bore with Standard Key	Rating HP / 100 RPM	Torque Rating (lb.-in. x 1000)	Peak Torque Rating (lb.-in. x 1000)	Maximum Speed (RPM)	Weight with Solid Hubs (lb.)	Dimensions				
							A	B	C	E	O
8	8 3/4	2230	1404	2808	1750	1408	23 1/4	20	3/8	9 13/16	11 7/8
9	9 3/4	3170	1995	3990	1625	1898	26	22 1/4	1/2	10 7/8	13 3/8
10	11	4350	2744	5488	1500	2548	28	24 1/2	1/2	12	15 1/4
11	12	5780	3645	7290	1375	3342	30 1/2	26 3/4	1/2	13 1/8	16 7/8
12	13	7190	4532	9064	1250	4194	33	28 1/4	1/2	13 7/8	18 1/2
13	14 1/4	9030	5688	11376	1125	5112	35 3/4	30	3/4	14 5/8	20
14	15 1/2	11080	6982	13964	1000	6100	38	31 3/4	3/4	15 1/2	21 3/4
15	17	13470	8488	16976	875	7650	40 1/2	33 3/4	3/4	16 1/2	23 1/2
16	18	16100	10150	20300	750	8965	43	35 3/4	1	17 3/8	25
18	20 1/2	21100	13300	26600	500	11770	47 1/4	37	1	18	28 1/4
20	23	28800	18144	36288	400	16910	53 1/2	43 1/4	1	21 1/8	31 7/8
22	26	38100	24009	48018	300	22370	59	47	1	23	35 1/4
24	28	42400	26699	53398	200	28830	64 1/4	50 1/2	1	24 3/4	38 3/4
26	30	53000	33415	66830	200	35890	68 1/2	54	1	26 1/2	42 1/4
28	33	65900	41564	83128	200	42660	73 3/4	56 1/4	1	27 1/8	45 3/4
30	36	80300	50614	101228	200	49780	78	55 1/4	1	27 5/8	49 1/4

Fastener Data

Coupling Size	Center Flange			End Ring		
	Quantity	Size & Length	Bolt Circle	Quantity (each)	Size & Length	Bolt Circle
8	16	1 1/8 x 4 1/8	20 3/4	10	1/2 x 2	19 3/8
9	18	1 1/4 x 4 1/2	23 1/4	12	5/8 x 2 3/16	21 3/4
10	18	1 3/8 x 5 3/8	25 1/4	12	5/8 x 2 3/16	23 7/8
11	18	1 1/2 x 5 7/8	27 1/2	12	5/8 x 2 3/16	26 1/16
12	18	1 1/2 x 6 1/8	30	12	3/4 x 2 9/16	28 5/16
13	18	1 5/8 x 6 3/8	32 1/4	12	3/4 x 2 9/16	30 1/2
14	18	1 3/4 x 6 5/8	34 1/2	14	3/4 x 2 9/16	32 5/8
15	20	1 3/4 x 6 5/8	36 3/4	14	7/8 x 2 7/8	35
16	20	2 x 7 3/8	39	14	7/8 x 2 7/8	37 1/8
18	22	2 x 7 3/8	43 1/4	14	7/8 x 2 7/8	41 3/8
20	22	2 1/4 x 7 5/8	48 3/4	16	1 x 3 5/8	46 1/4
22	22	2 1/2 x 8 1/8	53 1/2	16	1 x 3 5/8	50 3/4
24	22	2 3/4 x 8 7/8	58 1/4	16	1 1/8 x 4 1/8	55
26	24	2 3/4 x 8 7/8	62 1/2	18	1 1/8 x 4 1/8	59 1/4
28	22	3 x 9 5/8	67 1/4	16	1 1/4 x 4 1/4	63 11/16
30	24	3 x 9 5/8	71 1/2	18	1 1/4 x 4 1/4	68 3/16



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 BoreØ Part No.	Part No.	Wt.	Part No.	Wt.	No Bore Part No.	Wt.	Finish BoreØ Part No.
1 1/2	1 1/2F EB FF	19	1 1/2F EB FF FB	1 1/2 EB FS	1	1 1/2F EB SLEEVE	6	1 1/2F FHUB	3	1 1/2F FHUB FB
2	2F EB FF	30	2F EB FF FB	2 EB FS	1	2F EB SLEEVE	8	2F FHUB	7	2F FHUB FB
2 1/2	2 1/2F EB FF	52	2 1/2F EB FF FB	2 1/2 EB FS	2	2 1/2F EB SLEEVE	14	2 1/2F FHUB	12	2 1/2F FHUB FB
3	3F EB FF	76	3F EB FF FB	3 EB FS	3	3F EB SLEEVE	17	3F FHUB	20	3F FHUB FB
3 1/2	3 1/2F EB FF	117	3 1/2F EB FF FB	3 1/2 EB FS	5	3 1/2F EB SLEEVE	28	3 1/2F FHUB	28	3 1/2F FHUB FB
4	4F EB FF	180	4F EB FF FB	4 EB FS	5	4F EB SLEEVE	41	4F FHUB	47	4F FHUB FB
4 1/2	4 1/2F EB FF	244	4 1/2F EB FF FB	4 1/2 EB FS	7	4 1/2F EB SLEEVE	53	4 1/2F FHUB	66	4 1/2F FHUB FB
5	5F EB FF	361	5F EB FF FB	5 EB FS	9	5F EB SLEEVE	80	5F FHUB	96	5F FHUB FB
5 1/2	5 1/2F EB FF	422	5 1/2F EB FF FB	5 1/2 EB FS	14	5 1/2F EB SLEEVE	89	5 1/2F FHUB	115	5 1/2F FHUB
6	6F EB FF	494	6F EB FF FB	6 EB FS	14	6F EB SLEEVE	100	6F FHUB	140	6F FHUB
7	7F EB FF	822	7F EB FF FB	7 EB FS	22	7F EB SLEEVE	160	7F FHUB	240	7F FHUB

Ⓢ 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 BoreØ Part No.	Part No.	Wt.	Part No.	Wt.	No Bore Part No.	Wt.	Finish BoreØ Part No.
1 1/2	1 1/2F SB FF	19	1 1/2F SB FF FB	1 1/2 SB FS	1	1 1/2F SB SLEEVE	6	1 1/2F FHUB	3	1 1/2F FHUB FB
2	2F SB FF	30	2F SB FF FB	2 SB FS	1	2F SB SLEEVE	8	2F FHUB	7	2F FHUB FB
2 1/2	2 1/2F SB FF	52	2 1/2F SB FF FB	2 1/2 SB FS	2	2 1/2F SB SLEEVE	13	2 1/2F FHUB	12	2 1/2F FHUB FB
3	3F SB FF	76	3F SB FF FB	3 SB FS	2	3F SB SLEEVE	15	3F FHUB	20	3F FHUB FB
3 1/2	3 1/2F SB FF	117	3 1/2F SB FF FB	3 1/2 SB FS	4	3 1/2F SB SLEEVE	26	3 1/2F FHUB	28	3 1/2F FHUB FB
4	4F SB FF	180	4F SB FF FB	4 SB FS	4	4F SB SLEEVE	37	4F FHUB	47	4F FHUB FB
4 1/2	4 1/2F SB FF	244	4 1/2F SB FF FB	4 1/2 SB FS	4	4 1/2F SB SLEEVE	50	4 1/2F FHUB	66	4 1/2F FHUB FB
5	5F SB FF	361	5F SB FF FB	5 SB FS	7	5F SB SLEEVE	72	5F FHUB	96	5F FHUB FB

Ⓢ 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 (Exposed Bolts) Part Numbers

Coupling Size	Full Flex	Male Half w/Access	Female Half w/Access	Hub	Male Sleeve	Female Sleeve	End Ring	Center Flange Fastener Set (includes gasket)	End Ring Fastener Set (includes gasket)
8	8F EB FF	8F EB MH	8F EB FH	8F FHUB	8F EB MSLEEVE	8F EB FSLEEVE	8F ERING	8 EB FS	8 ERFS
9	9F EB FF	9F EB MH	9F EB FH	9F FHUB	9F EB MSLEEVE	9F EB FSLEEVE	9F ERING	9 EB FS	9 ERFS
10	10F EB FF	10F EB MH	10F EB FH	10F FHUB	10F EB MSLEEVE	10F EB FSLEEVE	10F ERING	10 EB FS	10 ERFS
11	11F EB FF	11F EB MH	11F EB FH	11F FHUB	11F EB MSLEEVE	11F EB FSLEEVE	11F ERING	11 EB FS	11 ERFS
12	12F EB FF	12F EB MH	12F EB FH	12F FHUB	12F EB MSLEEVE	12F EB FSLEEVE	12F ERING	12 EB FS	12 ERFS
13	13F EB FF	13F EB MH	13F EB FH	13F FHUB	13F EB MSLEEVE	13F EB FSLEEVE	13F ERING	13 EB FS	13 ERFS
14	14F EB FF	14F EB MH	14F EB FH	14F FHUB	14F EB MSLEEVE	14F EB FSLEEVE	14F ERING	14 EB FS	14 ERFS
15	15F EB FF	15F EB MH	15F EB FH	15F FHUB	15F EB MSLEEVE	15F EB FSLEEVE	15F ERING	15 EB FS	15 ERFS
16	16F EB FF	16F EB MH	16F EB FH	16F FHUB	16F EB MSLEEVE	16F EB FSLEEVE	16F ERING	16 EB FS	16 ERFS
18	18F EB FF	18F EB MH	18F EB FH	18F FHUB	18F EB MSLEEVE	18F EB FSLEEVE	18F ERING	18 EB FS	18 ERFS
20	20F EB FF	20F EB MH	20F EB FH	20F FHUB	20F EB MSLEEVE	20F EB FSLEEVE	20F ERING	20 EB FS	20 ERFS
22	22F EB FF	22F EB MH	22F EB FH	22F FHUB	22F EB MSLEEVE	22F EB FSLEEVE	22F ERING	22 EB FS	22 ERFS
24	24F EB FF	24F EB MH	24F EB FH	24F FHUB	24F EB MSLEEVE	24F EB FSLEEVE	24F ERING	24 EB FS	24 ERFS
26	26F EB FF	26F EB MH	26F EB FH	26F FHUB	26F EB MSLEEVE	26F EB FSLEEVE	26F ERING	26 EB FS	26 ERFS
28	28F EB FF	28F EB MH	28F EB FH	28F FHUB	28F EB MSLEEVE	28F EB FSLEEVE	28F ERING	28 EB FS	28 ERFS
30	30F EB FF	30F EB MH	30F EB FH	30F FHUB	30F EB MSLEEVE	30F EB FSLEEVE	30F ERING	30 EB FS	30 ERFS

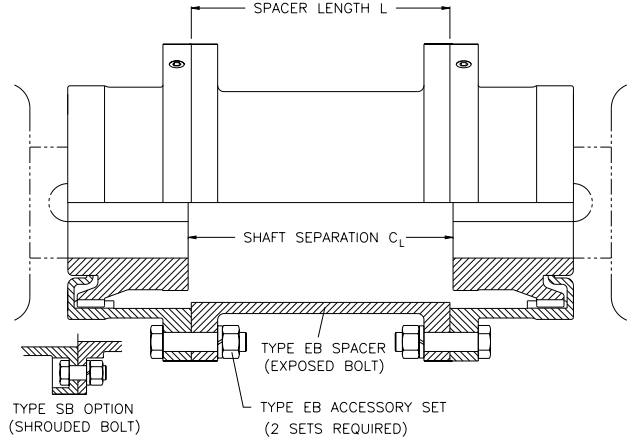
Standard Spacer Couplings

Full-flex spacer couplings are used for 4 bearing installations with extended shaft separations. Tabulated here 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 .

$$L = C_L - C \quad (\text{full-flex, close coupled})$$



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 SB SPR700	12
2	2 SB SPR350	8	2 SB SPR438	9	2 SB SPR500	10	2 1/2 SB SPR700	17
2 1/2					2 1/2 SB SPR500	14	3 SB SPR700	20
3					3 SB SPR500	17		
3 1/2					3 1/2 SB SPR500	27		

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 EB SPR700	12
2	2 EB SPR500	10	2 1/2 EB SPR500	14
2 1/2	2 1/2 EB SPR500	14		
3	3 EB SPR500	17		

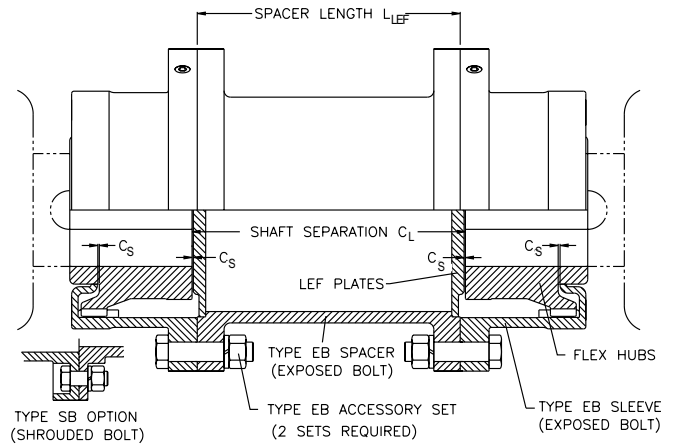
LEF Spacer Couplings

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 installed in each end.

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

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

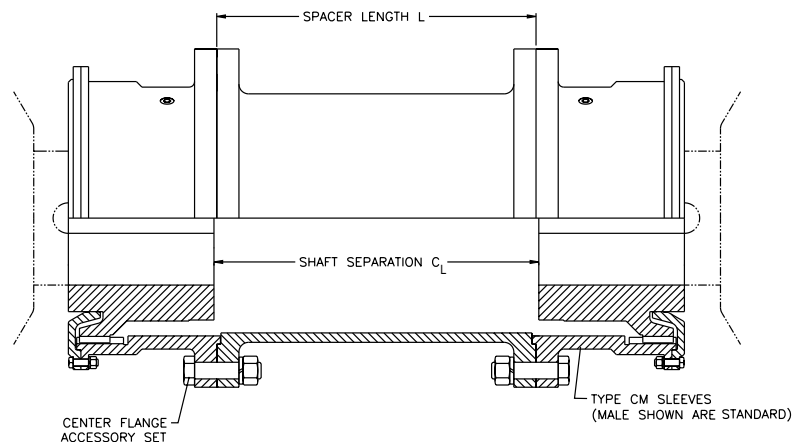
LEF spacers are shorter than standard spacers for a given shaft separation, and are manufactured to order.



Couplings sizes 8 - 30 are also available as spacer couplings for extended shaft separations. These sizes are available in exposed bolt only.

Spacers for coupling sizes 4 - 30 are non-stock and are manufactured to order. LEF spacer couplings are also manufactured to order.

Spacer Couplings Size 8-30

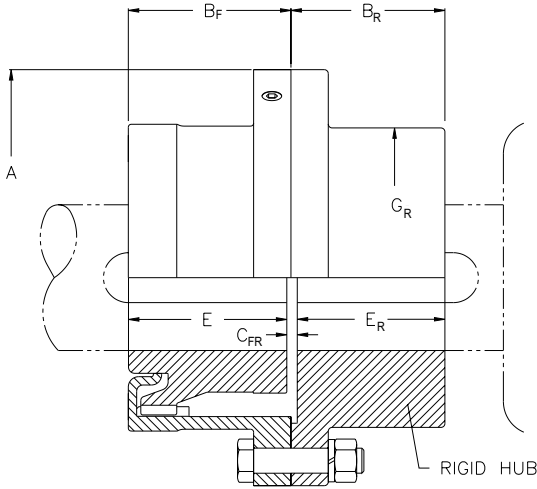


Kop-Flex Coupling Greases

Kop-Flex offers greases specifically designed for use in coupling applications. To ensure proper lubrication and long service life, use Kop-Flex KSG Standard Coupling Grease, or KHP High Performance Coupling Grease. See page M-27 for detailed specifications.

Flex-Rigid and Floating Shaft Couplings Size 1 1/2 - 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 Hub ^②		
	No Bore Part No.	Wt.	Finish Bore ^① Part No.	No Bore Part No.	Wt.	Finish Bore ^① Part No.
1 1/2	1 1/2F EB FR	19	1 1/2F EB FR FB	1 1/2 EB RHUB	9	1 1/2 EB RHUB FB
2	2F EB FR	31	2F EB FR FB	2EB RHUB	15	2EB RHUB FB
2 1/2	2 1/2F EB FR	55	2 1/2F EB FR FB	2 1/2EB RHUB	27	2 1/2EB RHUB FB
3	3F EB FR	83	3F EB FR FB	3SEB RHUB	40	3EB RHUB FB
3 1/2	3 1/2F EB FR	126	3 1/2F EB FR FB	3 1/2EB RHUB	65	3 1/2EB RHUB FB
4	4F EB FR	184	4F EB FR FB	4EB RHUB	90	4EB RHUB FB
4 1/2	4 1/2F EB FR	252	4 1/2F EB FR FB	4 1/2EB RHUB	124	4 1/2EB RHUB FB
5	5F EB FR	371	5F EB FR FB	5EB RHUB	119	5EB RHUB FB
5 1/2	5 1/2F EB FR	418	5 1/2F EB FR FB	5 1/2EB RHUB	200	5 1/2EB RHUB FB
6	6F EB FR	504	6F EB FR FB	6EB RHUB	250	6EB RHUB FB
7	7F EB FR	792	7F EB FR FB	7EB RHUB	370	7EB RHUB FB

Coupling Type SB (Shrouded Bolts) Part Numbers

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

① All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances.

② Rigid hubs are furnished less fasteners.

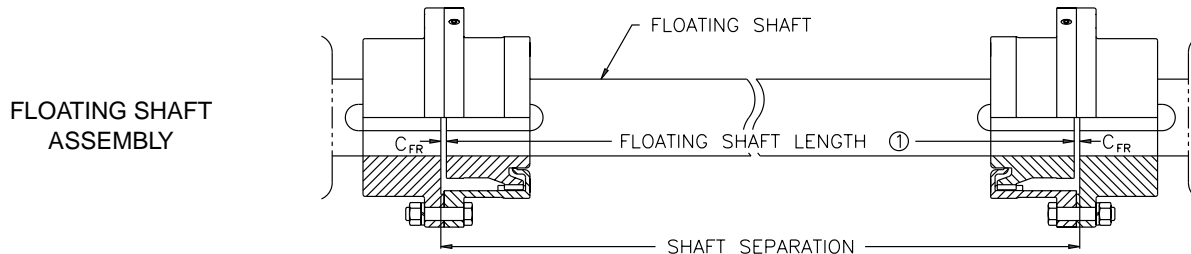
Flex-Rigid Coupling Data

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 1/2	1 5/8	2 11/16	27	17000	34000	12000	6	2	1 15/16	5/32	1 15/16	1 27/32	3 13/16
2	2 1/8	3 3/8	50	31500	63000	9300	7	2 15/32	2 3/8	5/32	2 7/16	2 9/32	4 13/16
2 1/2	2 3/4	4	90	56700	113400	7900	8 3/8	3 9/32	3	3/16	3 1/32	2 29/32	5 3/4
3	3 1/8	4 3/4	160	101000	202000	6800	9 7/16	3 21/32	3 9/16	3/16	3 19/32	3 15/32	6 3/4
3 1/2	3 3/4	5 1/2	235	148000	296000	6000	11	4 1/4	4 1/8	7/32	4 3/16	4 1/32	7 3/4
4	4 1/4	6 3/8	375	236000	472000	5260	12 1/2	4 7/8	4 5/8	5/16	4 3/4	4 7/16	9
4 1/2	4 3/4	7 1/4	505	318000	636000	4770	13 5/8	5 15/32	5 1/4	11/32	5 5/16	5 1/16	10 1/8
5	5 1/2	8 1/2	700	441000	882000	4300	15 5/16	6 1/32	5 7/8	11/32	6 1/32	5 11/16	11 3/8
5 1/2*	5 7/8	8	920	580000	1160000	3880	16 3/4	6 29/32	7 5/32	11/32	6 29/32	6 31/32	10 3/4
6*	6 1/2	8 3/4	1205	759000	1518000	3600	18	7 13/32	7 21/32	11/32	7 13/32	7 15/32	11 1/2
7*	8	10	1840	1160000	2320000	3000	20 3/4	8 21/32	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.

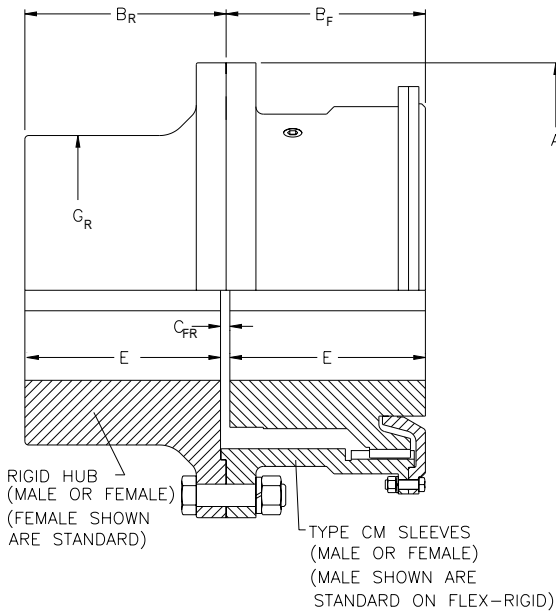
② Max. speed is based on flange stress limits and does not consider lateral critical speed considerations for floating shaft applications.



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.

Flex-Rigid and Floating Shaft Couplings Size 8 - 30



**Coupling Type EB
(Exposed Bolts) Part Numbers**

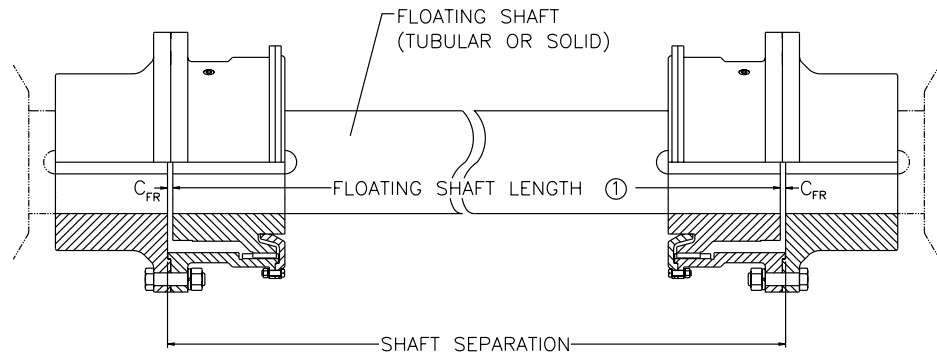
Coupling Size	Flex Rigid w/Access	Male Rigid	Female Rigid
8	8F EB FR	8F EB MRHUB	8F EB FRHUB
9	9F EB FR	9F EB MRHUB	9F EB FRHUB
10	10F EB FR	10F EB MRHUB	10F EB FRHUB
11	11F EB FR	11F EB MRHUB	11F EB FRHUB
12	12F EB FR	12F EB MRHUB	12F EB FRHUB
13	13F EB FR	13F EB MRHUB	13F EB FRHUB
14	14F EB FR	14F EB MRHUB	14F EB FRHUB
15	15F EB FR	15F EB MRHUB	15F EB FRHUB
16	16F EB FR	16F EB MRHUB	16F EB FRHUB
18	18F EB FR	18F EB MRHUB	18F EB FRHUB
20	20F EB FR	20F EB MRHUB	20F EB FRHUB
22	22F EB FR	22F EB MRHUB	22F EB FRHUB
24	24F EB FR	24F EB MRHUB	24F EB FRHUB
26	26F EB FR	26F EB MRHUB	26F EB FRHUB
28	28F EB FR	28F EB MRHUB	28F EB FRHUB
30	30F EB FR	30F EB MRHUB	30F EB FRHUB

Coupling Size	Maximum Bore with Standard Key		Rating HP / 100 RPM	Torque Rating (lb.-in. x 1000)	Peak Torque Rating (lb.-in. x 1000)	Maximum Speed (RPM) ②	Weight with Solid Hubs (lb.)	Dimensions					
	Flex	Rigid						A	B _F	B _R	C _{FR} ①	E	G _R
8	8 3/4	11	2230	1404	2808	1750	1306	23 1/4	10	10 1/8	1/2	9 13/16	15 1/4
9	9 3/4	12 3/4	3170	1995	3990	1625	1795	26	11 1/8	11 3/16	9/16	10 7/8	17 1/4
10	11	13 1/2	4350	2744	5488	1500	2404	28	12 1/4	12 3/8	5/8	12	19
11	12	15	5780	3645	7290	1375	3151	30 1/2	13 3/8	13 1/2	5/8	13 1/8	20 3/4
12	13	16 1/4	7190	4532	9064	1250	3947	33	14 1/8	14 1/4	5/8	13 7/8	22 5/8
13	14 1/4	18	9030	5688	11376	1125	4866	35 3/4	15	15	3/4	14 5/8	24 5/8
14	15 1/2	19	11080	6982	13964	1000	5800	38	15 7/8	15 7/8	3/4	15 1/2	26 1/4
15	17	20 1/2	13470	8488	16976	875	7155	40 1/2	16 7/8	16 7/8	3/4	16 1/2	28
16	18	22	16100	10150	20300	750	8430	43	17 7/8	17 7/8	1	17 3/8	29 3/4
18	20 1/2	25	21100	13300	26600	500	11130	47 1/4	18 1/2	18 1/2	1	18	34
20	23	26	28800	18144	36288	400	15625	53 1/2	21 5/8	21 5/8	1	21 1/8	36
22	26	27	38100	24009	48018	300	20065	59	23 1/2	23 5/8	1 1/8	23	38
24	28	28	42400	26699	53398	200	25450	64 1/4	25 1/4	25 3/8	1 1/8	24 3/4	40
26	30	29	53000	33415	66830	200	31100	68 1/2	27	27 1/8	1 1/8	26 1/2	42
28	33	30	65900	41564	83128	200	36550	73 3/4	27 5/8	27 3/4	1 1/8	27 1/8	44
30	36	36	80300	50614	101228	200	43780	78	28 1/8	28 1/4	1 1/8	27 5/8	50

NOTE: Couplings are only available with exposed bolts.

- 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

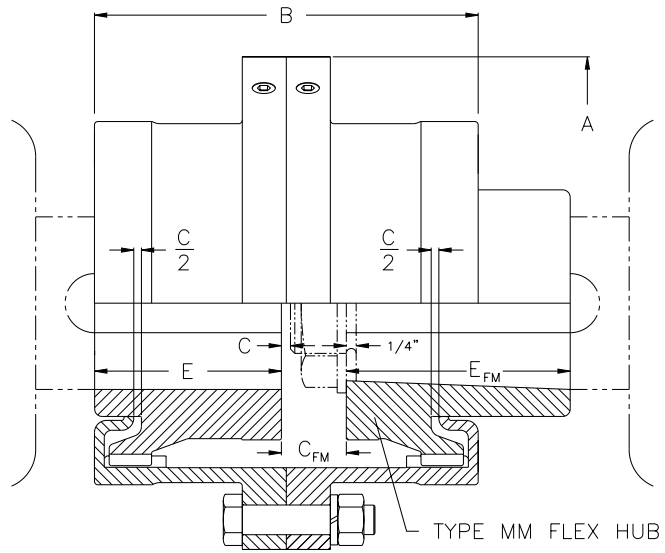


Ordering Instructions: When ordering floating shaft couplings, be sure to include hp and rpm, shaft separation, and equipment shaft sizes. Applications with very large shaft separations and/or high speeds may require tubular floating shafts due to lateral critical speed concerns.

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.

The Fast's Mill Motor Coupling is designed for use on AISE and other mill motors having tapered shafts with locknuts, and are used primarily in the metals industry. This design is also commonly used on other types of equipment which use tapered shafts with locknuts, such as turbines, pumps, and compressors.

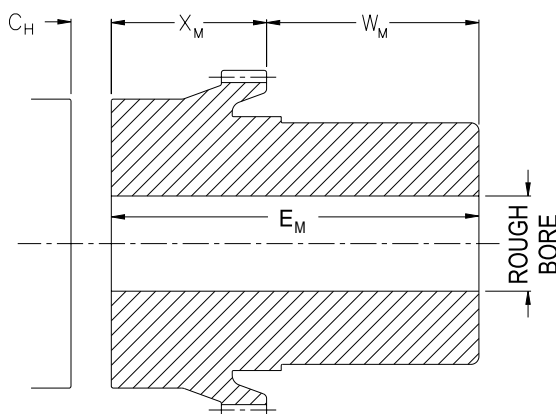
The standard "composite" mill motor hub is a semi-finished hub which can be modified and bored to fit a variety of AISI mill motor frames. Note that one size of coupling will fit several motor frames; conversely, several sizes may fit a single motor frame. See page M-11 for proper coupling selection.



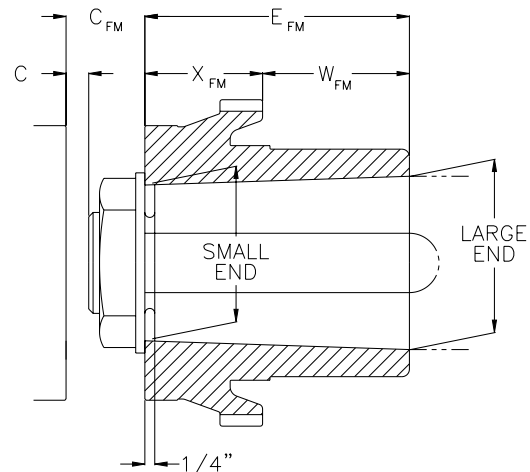
Coupling Size	Maximum Bore with Standard Key	Rating HP / 100 RPM	Torque Rating (lb.-in.)	Peak Torque Rating (lb.-in.)	Maximum Speed (RPM)	Weight with Solid Hubs (lb.)	Dimensions		
							A	B	E
1 1/2	1 5/8	27	17000	34000	12000	18.4	6	4	1 15/16
2	2 1/8	50	31500	63000	9300	30.5	7	4 15/16	2 7/16
2 1/2	2 3/4	90	56700	113400	7900	53.0	8 3/8	6 3/16	3 1/32
3	3 1/8	160	101000	202000	6800	76.8	9 7/16	7 5/16	3 19/32
3 1/2	3 3/4	235	148000	296000	6000	123	11	8 1/2	4 3/16
4	4 1/4	375	236000	472000	5260	184	12 1/2	9 3/4	4 3/4
4 1/2	4 3/4	505	318000	636000	4770	242	13 5/8	10 15/16	5 5/16
5	5 1/2	700	441000	882000	4300	365	15 5/16	12 1/16	6 1/32
5 1/2*	5 7/8	920	580000	1160000	3880	434	16 3/4	13 13/16	6 29/32
6*	6 1/2	1205	759000	1518000	3600	562	18	14 13/16	7 13/32
7*	8	1840	1160000	2320000	3000	862	20 3/4	17 5/16	8 11/16

See next page for additional dimensions.

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



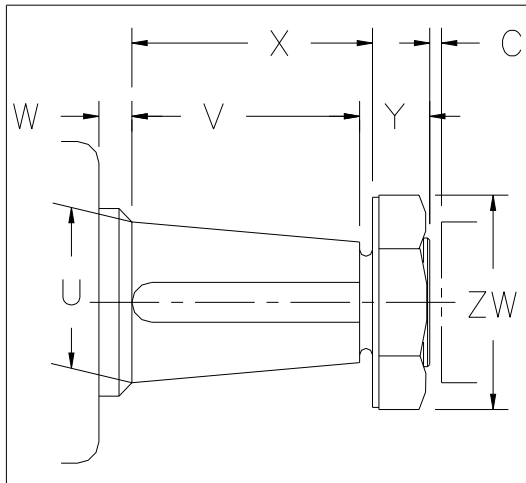
MILL MOTOR COMPOSITE HUB
ROUGH BORED



MILL MOTOR COMPOSITE HUB
FINISH BORED

Type MM Coupling Size	For: AISE Mill Motor Frame Sizes	Rough Bored Composite Hub Dimensions & Part Numbers					Finish Bored Composite Hub For AISE Mill Motors Dimensions & Part Numbers								
		Dimensions				Part Number	Dimensions					Bore Dia.		Keyway	Part Number
		C _H	E _M	X _M	W _M		C	C _{FM}	E _{FM}	X _{FM}	W _{FM}	Large End	Small End		
1 1/2	802	9/16	3 9/16	1 5/16	2 1/4	1 1/2F MMHUB	1/8	1 1/16		13/16	2 3/16			1/2 X 1/8	1 1/2F MMHUB02
2	602	3/4	4 7/16	1 9/16	2 7/8	2F MMHUB	1/8	1 1/16		1 1/4	1 3/4				2F MMHUB02
2 1/2	AC1	13/16	4 9/16	2 3/32	2 15/32	2 1/2F MMHUB	3/16	1 1/8	3	1 25/32	1 7/32	1.749	1.437	1/2 X 1/4	2 1/2F MMHUB02
3	AC4	1 1/16	5 1/8	2 13/32	2 23/32	3F MMHUB	3/16	1 1/8		2 11/32	2 1/32				3F MMHUB02
2	803	3/4	4 7/16	1 9/16	2 7/8	2F MMHUB	1/8	1 1/8		1 3/16	2 5/16				2F MMHUB03
2 1/2	804	13/16	4 9/16	2 3/32	2 15/32	2 1/2F MMHUB	3/16	1 3/16	3 1/2	1 23/32	1 25/32	1.999	1.634	1/2 X 1/4	2 1/2F MMHUB03
3	603	1 1/16	5 1/8	2 13/32	2 23/32	3F MMHUB	3/16	1 3/16		2 9/32	1 7/32				3F MMHUB03
3 1/2	604	1 1/8	5 3/4	2 15/16	2 13/16	3 1/2F MMHUB	1/4	1 1/4		2 13/16	1 1/16				3 1/2F MMHUB03
2 1/2	806	13/16	4 9/16	2 3/32	2 15/32	2 1/2F MMHUB	3/16	1 5/16		1 19/32	2 13/32				2 1/2F MMHUB06
3	606	1 1/16	5 1/8	2 13/32	2 23/32	3F MMHUB	3/16	1 5/16	4	2 5/32	1 27/32	2.499	2.082	1/2 X 1/4	3F MMHUB06
3 1/2	AC8	1 1/8	5 3/4	2 15/16	2 13/16	3 1/2F MMHUB	1/4	1 3/8		2 11/16	1 5/16				3 1/2F MMHUB06
4	AC12	1 1/8	6 3/8	3 1/2	2 7/8	4F MMHUB	1/4	1 3/8		3 1/4	3/4				4F MMHUB06
3	806	1 1/16	5 1/8	2 13/32	2 23/32	3F MMHUB	3/16	1 7/16		2 1/32	2 15/32				3F MMHUB08
3 1/2	608	1 1/8	5 3/4	2 15/16	2 13/16	3 1/2F MMHUB	1/4	1 1/2	4 1/2	2 9/16	1 15/16	2.999	2.530	3/4 X 1/4	3 1/2F MMHUB08
4		1 1/8	6 3/8	3 1/2	2 7/8	4F MMHUB	1/4	1 1/2		3 1/8	1 3/8				4F MMHUB08
3	810	1 1/16	5 1/8	2 13/32	2 23/32	3F MMHUB	3/16	1 9/16		1 29/32	2 19/32				3F MMHUB10
3 1/2	610	1 1/8	5 3/4	2 15/16	2 13/16	3 1/2F MMHUB	1/4	1 5/8	4 1/2	2 7/16	2 1/16	3.249	2.780	3/4 X 1/4	3 1/2F MMHUB10
4	AC18	1 1/8	6 3/8	3 1/2	2 7/8	4F MMHUB	1/4	1 5/8		3	1 1/2				4F MMHUB10
4 1/2		1 5/8	6 7/16	3 19/32	2 27/32	4 1/2F MMHUB	5/16	1 11/16		3 17/32	3 1/32				4 1/2F MMHUB10
3 1/2	812	1 1/8	5 3/4	2 15/16	2 13/16	3 1/2F MMHUB	1/4	1 3/4		2 5/16	2 11/16				3 1/2F MMHUB12
4	612	1 1/8	6 3/8	3 1/2	2 7/8	4F MMHUB	1/4	1 3/4	5	2 7/8	2 1/8	3.623	3.102	3/4 X 1/4	4F MMHUB12
4 1/2	AC25	1 5/8	6 7/16	3 19/32	2 27/32	4 1/2F MMHUB	5/16	1 13/16		3 13/32	1 19/32				4 1/2F MMHUB12
5	AC30	1 5/8	6	4 5/32	1 27/32	5F MMHUB	5/16	1 13/16		3 31/32	1 1/32				5F MMHUB12
4	814	1 1/8	6 3/8	3 1/2	2 7/8	4F MMHUB	1/4	1 7/8		2 3/4	2 1/4				4F MMHUB14
4 1/2	614	1 5/8	6 7/16	3 19/32	2 27/32	4 1/2F MMHUB	5/16	1 15/16	5	3 9/32	1 23/32	4.248	3.727	1 X 3/8	4 1/2F MMHUB14
5	AC40	1 5/8	6	4 5/32	1 27/32	5F MMHUB	5/16	1 15/16		3 27/32	1 5/32				5F MMHUB14
4 1/2	816	1 5/8	6 7/16	3 19/32	2 27/32	4 1/2F MMHUB	5/16	2 1/16		4 5/32	2 11/32				4 1/2F MMHUB16
5	616	1 5/8	6	4 5/32	1 27/32	5F MMHUB	5/16	2 1/16	5 1/2	3 23/32	1 25/32	4.623	4.050	1 1/4 X 3/8	5F MMHUB16
5 1/2		1 5/8	8 5/16	4 23/32	3 19/32	5 1/2F MMHUB	5/16	2 1/16		3 5/8	1 7/32				5 1/2F MMHUB16
4 1/2	818	1 5/8	6 7/16	3 19/32	2 27/32	4 1/2F MMHUB	5/16	1 5/8		3 19/32	2 13/32				4 1/2F MMHUB18
5	618	1 5/8	6	4 5/32	1 27/32	5F MMHUB	5/16	1 5/8	6	4 5/32	1 27/32	4.998	4.373	1 1/4 X 1/2	5F MMHUB18
5 1/2		1 5/8	8 5/16	4 23/32	3 19/32	5 1/2F MMHUB	5/16	1 5/8		4 23/32	1 9/32				5 1/2F MMHUB18
5 1/2	620	1 5/8	8 5/16	4 23/32	3 19/32	5 1/2F MMHUB	5/16	2 1/16	6 3/4	4 9/32	2 15/32	5.873	5.170	1 1/2 X 3/4	5 1/2F MMHUB20
6		2 1/16	9 7/8	4 27/32	5 1/32	6F MMHUB	5/16	2 1/16		4 27/32	1 29/32				6F MMHUB20
6	622	2 1/16	9 7/8	4 27/32	5 1/32	6F MMHUB	5/16	2 11/16		4 7/32	3 1/32	6.247	5.492	1 1/2 X 3/4	6F MMHUB22
7		2 3/4	9 1/4	5 5/16	3 15/16	7F MMHUB	3/8	2 3/4	7 1/4	5 5/16	1 15/16				7F MMHUB22
6	624	2 1/16	9 7/8	4 27/32	5 1/32	6F MMHUB	5/16	2 11/16		4 7/32	5 1/32	6.997	6.034	1 1/2 X 1/2	6F MMHUB24
7		2 3/4	9 1/4	5 5/16	3 15/16	7F MMHUB	3/8	2 3/4	9 1/4	5 5/16	3 15/16				7F MMHUB24

*ALL KEYWAYS SHOWN ARE PARALLEL TO THE TAPER. TAPER IS 1/4 INCH PER FOOT ON DIAMETER.



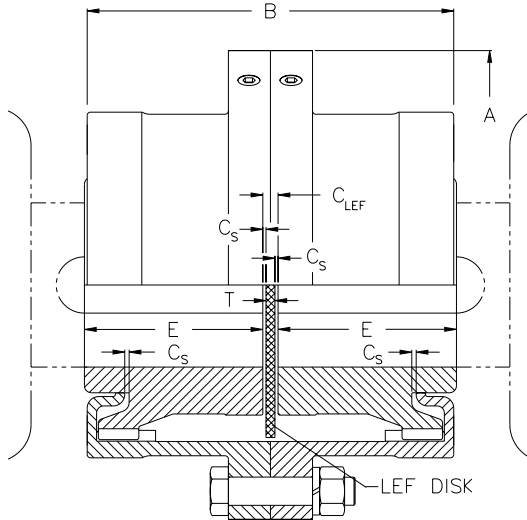
IV. TAPERED BORES For Tapered Shafts, with or without locknut, determine applicable AISE Mill Motor frame or give data below:

1. U Major diameter.
2. V Length of tapered portion of shaft.
3. X Length to face of lockwasher.
4. Y Length of threaded projection.
5. ZW Locknut diameter across corners.
6. W Clearance to bearing housing.
7. Taper (inches on diameter per foot of length).
8. Keyway width and depth.
9. Whether keyway is parallel to shaft or to taper.
10. C Shaft separation if machines are in place.

Limited End Float Coupling Size 1 1/2 - 7

For sleeve bearing motor applications, a Fast's standard full flex coupling is supplied with an LEF disk 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 phenolic LEF disk 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 disk part numbers are listed below. See page M-14 for the standard full flex part numbers.



Coupling Size	Total LEF	Dimensions						LEF Disk [Ⓛ]	
		A	B	C _S	C _{LEF} (Hub Sep.)	E	T (Disk Width)	Part No.	Wt.
1 1/2	1/8	6	4	1/32	3/16	1 15/16	1/8	1 1/2F LEFD	1
2	1/8	7	4 15/16	1/32	3/16	2 7/16	1/8	2F LEFD	1
2 1/2	3/16	8 3/8	6 3/16	3/64	9/32	3 1/32	3/16	2 1/2F LEFD	1
3	3/16	9 7/16	7 5/16	3/64	9/32	3 19/32	3/16	3F LEFD	1
3 1/2	3/16	11	8 1/2	3/64	13/32	4 3/16	5/16	3 1/2F LEFD	1
4	3/16	12 1/2	9 3/4	3/64	13/32	4 3/4	5/16	4F LEFD	2
4 1/2	3/16	13 5/8	10 15/16	3/64	17/32	5 5/16	7/16	4 1/2F LEFD	2
5	3/16	15 5/16	12 1/16	3/64	17/32	6 1/32	7/16	5F LEFD	2
5 1/2*	3/16	16 3/4	13 13/16	3/64	17/32	6 29/32	7/16	5 1/2F LEFD	2
6*	3/16	18	14 13/16	3/64	17/32	7 13/32	7/16	6F LEFD	2
7*	3/16	20 3/4	17 5/16	3/64	21/32	8 11/16	9/16	7F LEFD	2

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

Ⓛ LEF Disks are used only in close coupled applications. One disk is required per coupling. Note: For ratings and max. bores refer to page M-12.

Kop-Flex Coupling Greases

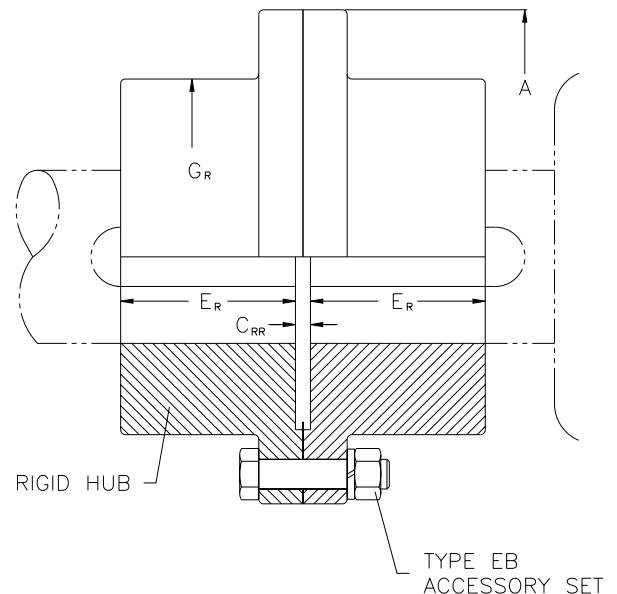
Kop-Flex offers greases specifically designed for use in coupling applications. To ensure proper lubrication and long service life, use Kop-Flex KSG Standard Coupling Grease, or KHP High Performance Coupling Grease. See page M-27 for detailed specifications.

Rigid-Rigid Coupling Size 1-7

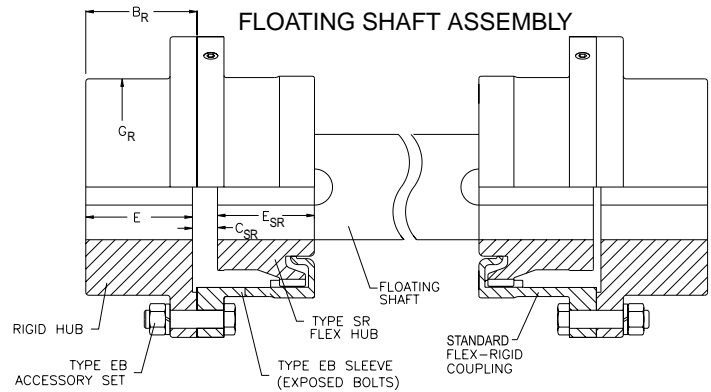
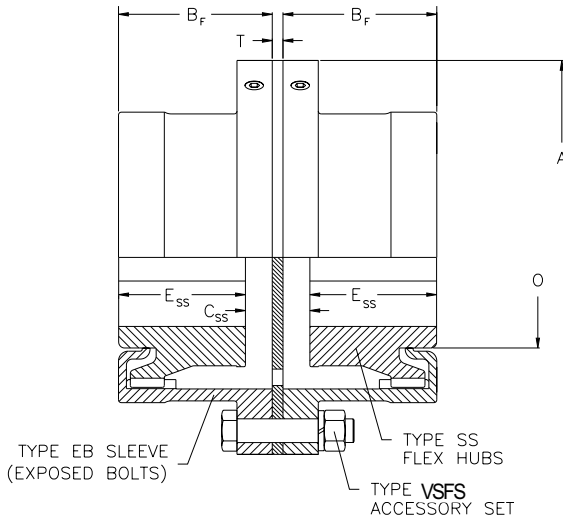
A rigid-rigid coupling is offered for applications where neither angular nor offset misalignment are present. Vertical applications should be referred to Kop-Flex engineering for review.

One complete coupling is comprised of (2) rigid hubs and (1) set of accessories. A gasket is not used between the flanges.

Coupling Size	Maximum Bore with Standard Key	Rating HP / 100 RPM	Torque Rating (lb.-in.)	Peak Torque Rating (lb.-in.)	Dimensions			
					A	C _{RR}	E _R	G _R
1	2 1/4	12	7500	15000	4 9/16	3/16	1 9/16	3
1 1/2	2 11/16	27	17000	34000	6	3/16	1 27/32	3 13/16
2	3 3/8	50	31500	63000	7	3/16	2 9/32	4 13/16
2 1/2	4	90	56700	113400	8 3/8	3/16	2 29/32	5 3/4
3	4 3/4	160	101000	202000	9 7/16	3/16	3 15/32	6 3/4
3 1/2	5 1/2	235	148000	296000	11	3/16	4 1/32	7 3/4
4	6 3/8	375	236000	472000	12 1/2	3/8	4 7/16	9
4 1/2	7 1/4	505	318000	636000	13 5/8	3/8	5 1/16	10 1/8
5	8 1/2	700	441000	882000	15 5/16	3/8	5 11/16	11 3/8
5 1/2	8	920	580000	1160000	16 3/4	3/8	6 31/32	10 3/4
6	8 3/4	1205	759000	1518000	18	3/8	7 15/32	11 1/2
7	10	1840	1160000	2320000	20 3/4	1/2	8 3/4	13 3/8



The Fast's Short Slide coupling is designed for drive systems that require greater end float or slide than a conventional application, providing two to three times the slide of a standard coupling. The coupling uses standard EB sleeves with flex hubs modified for more end float, along with a stop plate designed to maximize the total slide by equalizing the slide in each half. Spacer couplings, floating shaft arrangements, and most coupling types can be supplied with a Short Slide flex half in one or both flex half couplings.



Coupling Size*	Total Slide ^⓪		Dimensions										
	Full-Flex	Flex-Rigid	A	B _F	B _R	C _{SS} ^⓪ Hub & Shaft Separation		C _{SR} ^⓪ Hub & Shaft Separation		E _{SS}	E _{SR}	T	O
						Max.	Min.	Max.	Min.				
1 1/2	7/16	3/16	6	2	1 15/16	19/32	5/32	13/64	1/64	1 13/16	1 15/16	1/8	2 3/16
2	9/16	9/32	7	2 15/32	2 3/8	23/32	5/32	19/64	1/64	2 1/4	2 11/32	1/8	2 7/8
2 1/2	3/4	3/8	8 3/8	3 9/32	3	29/32	5/32	25/64	1/64	2 13/16	2 29/32	1/8	3 5/8
3	7/8	7/16	9 7/16	3 21/32	3 9/16	1 1/32	5/32	29/64	1/64	3 5/16	3 13/32	1/8	4 1/4
3 1/2	1	1/2	11	4 1/4	4 1/8	1 1/4	1/4	17/32	1/32	3 7/8	3 31/32	3/16	5
4	1 1/8	9/16	12 1/2	4 7/8	4 5/8	1 3/8	1/4	19/32	1/32	4 3/8	4 9/16	3/16	5 3/4
4 1/2	1 5/16	21/32	13 5/8	5 15/32	5 1/4	1 9/16	1/4	11/16	1/32	4 29/32	5 3/32	3/16	6 1/2
5	1 7/16	23/32	15 5/16	6 1/32	5 7/8	1 11/16	1/4	3/4	1/32	5 9/16	5 3/4	3/16	7 5/16
5 1/2	1 7/16	23/32	16 3/4	6 29/32	7 5/32	1 3/4	5/16	3/4	1/32	6 7/16	6 11/16	1/4	8
6	1 3/8	11/16	18	7 13/32	7 21/32	1 23/32	11/32	47/64	3/64	6 15/16	7 3/16	1/4	8 13/16
7	2 9/16	1 9/32	20 3/4	8 21/32	9	2 31/32	13/32	1 21/64	3/64	7 11/16	8	5/16	10 5/16

* Exposed bolts are standard for all sizes.

⓪ Values are based on using Type SS flex hubs in a full-flex coupling and Type SR flex hub in a flex-rigid assembly. For each Type SR flex hub substituted in a full-flex unit, total slide and C maximum are reduced by the amount of (E_{SR} - E_{SS}). Substitution of a Type SS flex hub in a flex-rigid coupling increases C_{FR} maximum and C_{FR} minimum by the amount of (E_{SR} - E_{SS}), but total slide cannot be increased without derating the coupling.

Note: For ratings, max. bores and additional dimensions, see page M-16.

Coupling Size	Full Flex Coupling			Stop Plate		Fastener Set (Includes Gasket)		Short Slide Flex Hub (Full Flex)		Short Slide Flex Hub (Flex Rigid)	
	No Bore Part No.	Wt.	Finish Bore ^⓪ Part No.	Part No.	Wt.	Part No.	Wt.	No Bore Part No.	Wt.	No Bore Part No.	Wt.
1 1/2	1 1/2F EB SSFF	18	1 1/2F EB SSFF FB	1 1/2 EB SP	1	1 1/2 EB VSFS	1	1 1/2F SSHUB	3	1 1/2F SRHUB	3
2	2F EB SSFF	28	2F EB SSFF FB	2 EB SP	2	2 EB VSFS	2	2F SSHUB	6	2F SRHUB	6
2 1/2	2 1/2F EB SSFF	50	2 1/2F EB SSFF FB	2 1/2 EB SP	2	2 1/2 EB VSFS	2	2 1/2F SSHUB	11	2 1/2F SRHUB	11
3	3F EB SSFF	74	3F EB SSFF FB	3 EB SP	3	3 EB VSFS	3	3F SSHUB	18	3F SRHUB	18
3 1/2	3 1/2F EB SSFF	110	3 1/2F EB SSFF FB	3 1/2 EB SP	4	3 1/2 EB VSFS	5	3 1/2F SSHUB	26	3 1/2F SRHUB	26
4	4F EB SSFF	170	4F EB SSFF FB	4 EB SP	7	4 EB VSFS	5	4F SSHUB	44	4F SRHUB	44
4 1/2	4 1/2F EB SSFF	230	4 1/2F EB SSFF FB	4 1/2 EB SP	10	4 1/2 EB VSFS	7	4 1/2F SSHUB	62	4 1/2F SRHUB	62
5	5F EB SSFF	350	5F EB SSFF FB	5 EB SP	12	5 EB VSFS	9	5F SSHUB	90	5F SRHUB	90
5 1/2	5 1/2F EB SSFF	400	5 1/2F EB SSFF FB	5 1/2 EB SP	15	5 1/2 EB VSFS	14	5 1/2F SSHUB	105	5 1/2F SRHUB	105
6	6F EB SSFF	470	6F EB SSFF FB	6 EB SP	19	6 EB VSFS	14	6F SSHUB	130	6F SRHUB	130
7	7F EB SSFF	790	7F EB SSFF FB	7 EB SP	25	7 EB VSFS	22	7F SSHUB	210	7F SRHUB	210

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

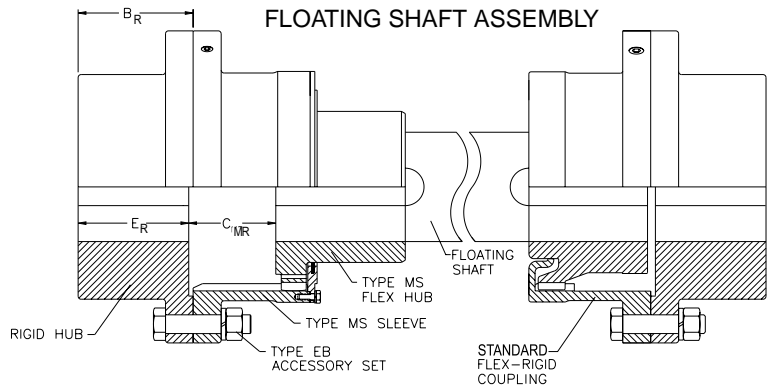
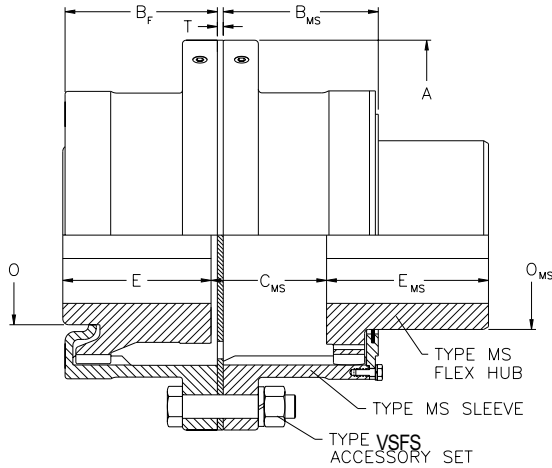
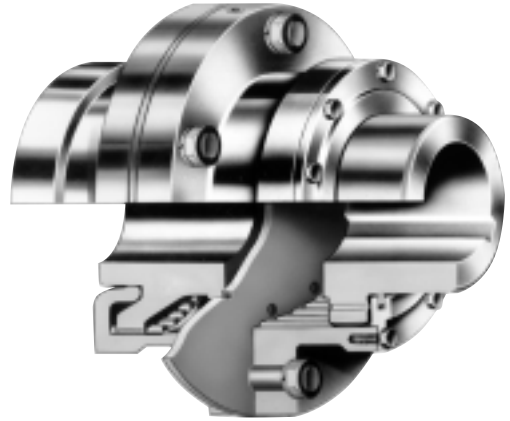
⓪ All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances with interference fit bores. Clearance fit bores are available on request and include one setscrew over keyway.

Note: For finish bored flex hubs, add FB and the bore size.

The Fast's Medium Slide coupling is designed for applications that require a large amount of slide, and is particularly suitable for disc refiners for the paper industry and bridge drives for overhead cranes.

For full-flex couplings, a Medium Slide half is used with either a Fast's or Series H flex half coupling and a stop plate. The Medium Slide flex hub has crowned tooth tips for piloting, and lube passage holes to minimize piston effect.

A Medium slide half can be bolted to a Fast's Short Slide or a Series H Slide coupling half, with a stop plate, for increased slide capacity. Spacer couplings, floating shaft arrangements, and most coupling types can be supplied with one Medium Slide half coupling.



Coupling Size*	Total Slide		Maximum Bore with Standard Key	Dimensions										
	Full-Flex	Flex-Rigid		Type MS Flex Hub	A	B _{MS}	C _{MS}		C _{MR}		E _{MS}	G _{MS}	T	O
			Hub and Shaft Separation				Hub and Shaft Separation	Max.	Min.	Max.				
1 1/2	1 37/64	1 9/16	1 5/8	6	2 11/32	1 47/64	5/32	1 37/64	1/64	2 1/2	4	1/8	2 3/16	2 5/16
2	1 61/64	1 15/16	2 1/8	7	2 27/32	2 7/64	5/32	1 61/64	1/64	3 1/32	5	1/8	2 7/8	3 1/32
2 1/2	2 33/64	2 7/16	2 3/4	8 3/8	3 17/32	2 43/64	5/32	2 29/64	1/64	3 23/32	5 15/16	1/8	3 5/8	3 7/8
3	3 1/64	2 15/16	3 1/4	9 7/16	4 5/32	3 11/64	5/32	2 61/64	1/64	4 5/16	6 15/16	1/8	4 1/4	4 19/32
3 1/2	3 7/32	3 7/64	3 3/4	11	4 15/32	3 15/32	1/4	3 9/64	1/32	4 11/16	7 29/32	3/16	5	5 11/32
4	3 29/64	3 7/16	4 1/4	12 1/2	4 31/32	3 45/64	1/4	3 15/32	1/32	5 3/16	9 1/4	3/16	5 3/4	6 1/16
4 1/2	4 1/64	3 15/16	5	13 5/8	5 19/32	4 17/64	1/4	3 31/32	1/32	5 13/16	10 3/8	3/16	6 1/2	7 5/32
5	4 29/64	4 3/8	5 1/2	15 5/16	6 5/32	4 45/64	1/4	4 13/32	1/32	6 3/8	11 9/16	3/16	7 5/16	7 3/4
5 1/2	4 25/32	4 49/64	6	16 3/4	6 11/16	5 3/32	5/16	4 51/64	1/32	7	12 7/8	1/4	8	8 3/4
6	5 7/64	5 1/8	6 1/2	18	7 3/8	5 29/64	11/32	5 11/64	3/64	7 1/2	13 7/8	1/4	8 13/16	9 5/16
7	6 3/64	6 1/16	8 1/8	20 3/4	8 9/16	6 29/64	13/32	6 7/64	3/64	8 11/16	16 1/4	5/16	10 5/16	11

* Exposed bolts are standard for all sizes.

Note: For ratings, max. bores and additional dimensions, see page M-16.

Coupling Size	Full Flex Coupling			Stop Plate		Medium Slide Sleeve Assembly		Fastener Set (Includes Gasket)		Medium Slide Flex Hub	
	No Bore Part No.	Wt.	Finish Bore Ø Part No.	Part No.	Wt.	Part No.	Wt.	Part No.	Wt.	No Bore Part No.	Wt.
1 1/2	1 1/2F EB MSFF	18	1 1/2F EB MSFF FB	1 1/2 EB SP	1	1 1/2F EB MSSLEEVE	10	1 1/2 EB VSFS	1	1 1/2F MSHUB	4
2	2F EB MSFF	30	2F EB MSFF FB	2 EB SP	2	2F EB MSSLEEVE	12	2 EB VSFS	1	2F MSHUB	8
2 1/2	2 1/2F EB MSFF	53	2 1/2F EB MSFF FB	2 1/2 EB SP	2	2 1/2F EB MSSLEEVE	18	2 1/2 EB VSFS	2	2 1/2F MSHUB	13
3	3F EB MSFF	78	3F EB MSFF FB	3 EB SP	3	3F EB MSSLEEVE	20	3 EB VSFS	3	3F MSHUB	21
3 1/2	3 1/2F EB MSFF	117	3 1/2F EB MSFF FB	3 1/2 EB SP	4	3 1/2F EB MSSLEEVE	33	3 1/2 EB VSFS	5	3 1/2F MSHUB	33
4	4F EB MSFF	170	4F EB MSFF FB	4 EB SP	7	4F EB MSSLEEVE	46	4 EB VSFS	5	4F MSHUB	50
4 1/2	4 1/2F EB MSFF	219	4 1/2F EB MSFF FB	4 1/2 EB SP	10	4 1/2F EB MSSLEEVE	60	4 1/2 EB VSFS	7	4 1/2F MSHUB	70
5	5F EB MSFF	337	5F EB MSFF FB	5 EB SP	12	5F EB MSSLEEVE	90	5 EB VSFS	9	5F MSHUB	100
5 1/2	5 1/2F EB MSFF	422	5 1/2F EB MSFF FB	5 1/2 EB SP	15	5 1/2F EB MSSLEEVE	100	5 1/2 EB VSFS	14	5 1/2F MSHUB	120
6	6F EB MSFF	526	6F EB MSFF FB	6 EB SP	19	6F EB MSSLEEVE	115	6 EB VSFS	14	6F MSHUB	150
7	7F EB MSFF	828	7F EB MSFF FB	7 EB SP	25	7F EB MSSLEEVE	174	7 EB VSFS	22	7F MSHUB	260

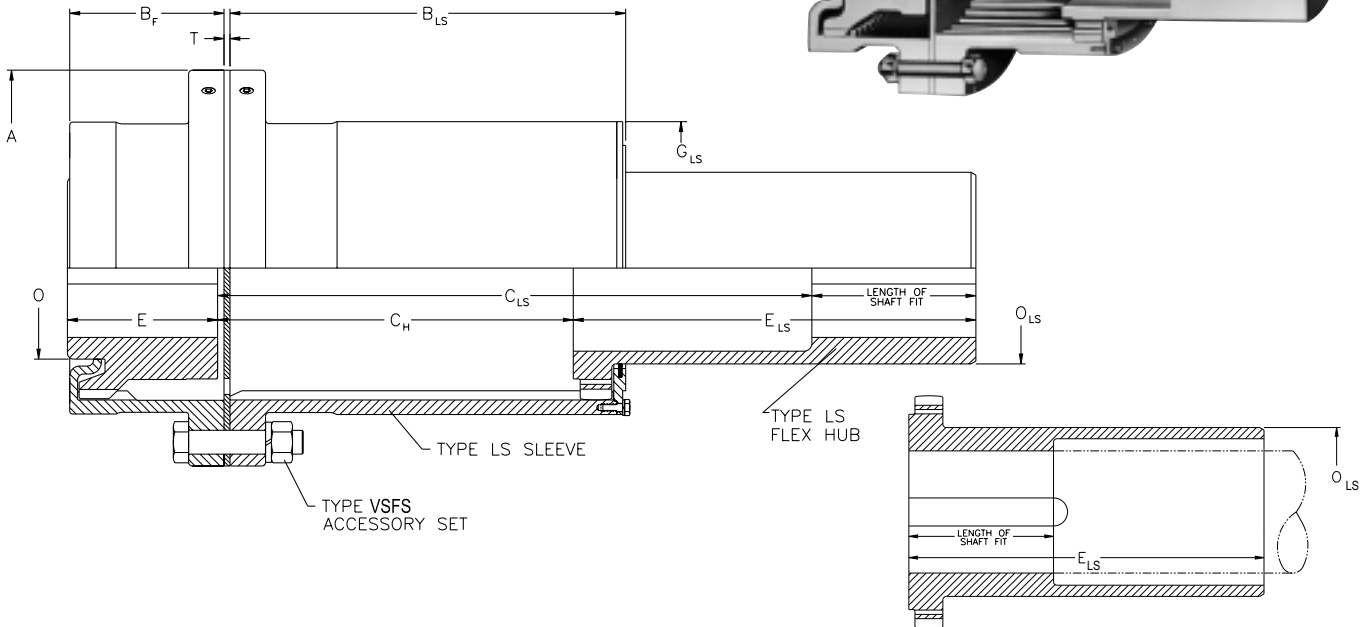
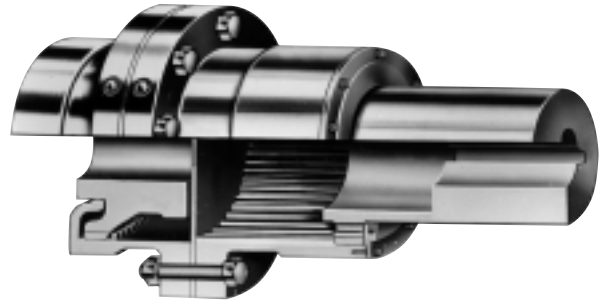
* Exposed bolts are standard for all sizes.

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.

Note: For finish bored flex hubs, add FB and the bore size.

The Fast's Long Slide coupling is designed for applications that require a very large amount of slide, and is used extensively in steel and aluminum rolling mills on coilers and similar applications.

The hub counterbore assures the same normal shaft fit length. For applications requiring minimal shaft separations, the counterbore is reversed to provide an equivalent inner end shaft fit.



Coupling Size*	Total Slide ^①	Maximum Bore with Standard Key	Full-Flex Dimensions ^②											Length of Shaft Fit in Long Slide Hub		
			Full-Flex	Type LS Flex Hub	A	B _{LS}	C _{LS}		C _H		E _{LS}	G _{LS}	T		O	O _{LS}
							Shaft Separation Max.	Shaft Separation Min.	Shaft Separation Max.	Shaft Separation Min.						
1 1/2	5 1/2	1 5/8	6	6 17/64	9 37/64	4 5/64	5 21/32	5/32	6 27/64	4	1/8	2 3/16	2 5/16	2 1/2		
2	5 1/2	2 1/8	7	6 25/64	9 13/64	3 45/64	5 21/32	5/32	6 37/64	5	1/8	2 7/8	3 1/32	3 1/32		
2 1/2	8	2 3/4	8 3/8	9 1/64	13 41/64	5 41/64	8 5/32	5/32	9 13/64	5 15/16	1/8	3 5/8	3 7/8	3 23/32		
3	11	3 1/4	9 7/16	12 9/64	19 9/64	8 9/64	11 5/32	5/32	12 19/64	6 15/16	1/8	4 1/4	4 19/32	4 5/16		
3 1/2	11	3 3/4	11	12 1/4	19 1/32	8 1/32	11 1/4	1/4	12 15/32	7 29/32	3/16	5	5 11/32	4 11/16		
4	11	4 1/4	12 1/2	12 33/64	18 51/64	7 51/64	11 1/4	1/4	12 47/64	9 1/4	3/16	5 3/4	6 1/16	5 3/16		
4 1/2	11	5	13 5/8	12 37/64	18 15/64	7 15/64	11 1/4	1/4	12 51/64	10 3/8	3/16	6 1/2	7 5/32	5 13/16		
5	11	5 1/2	15 5/16	12 45/64	17 51/64	6 51/64	11 1/4	1/4	12 59/64	11 9/16	3/16	7 5/16	7 3/4	6 3/8		
5 1/2	10 1/2	6	16 3/4	12 13/32	16 17/32	6 1/32	10 13/16	5/16	12 23/32	12 7/8	1/4	8	8 3/4	7		
6	10 1/2	6 1/2	18	12 49/64	16 15/64	5 47/64	10 29/32	11/32	12 57/64	13 7/8	1/4	8 13/16	9 5/16	7 1/2		
7	10 1/2	8 1/8	20 3/4	13 1/64	15 23/64	4 55/64	10 29/32	13/32	13 9/64	16 1/4	5/16	10 5/16	11	8 11/16		

* Exposed bolts are standard for all sizes.

① Using correct length of shaft fit in Type LS flex hub, and if the connected machines permit a hub separation range from C_H maximum to C_H minimum.

② For flex-rigid couplings, refer to Kop-Flex.

Note: For ratings, max. bores and additional dimensions, see page M-12.

Coupling Size	Full Flex Coupling			Stop Plate		Long Slide Sleeve Assembly		Fastener Set (Includes Gasket)		Long Slide Flex Hub	
	No Bore Part No.	Wt.	Finish Bore ^① Part No.	Part No.	Wt.	Part No.	Wt.	Part No.	Wt.	No Bore Part No.	Wt.
1 1/2	1 1/2F EB LSFF	24	1 1/2F EB LSFF FB	1 1/2 EB SP	1	1 1/2F EB LSSLEEVE	9	1 1/2 EB VSFS	1	1 1/2F LSHUB	6
2	2F EB LSFF	38	2F EB LSFF FB	2 EB SP	2	2F EB LSSLEEVE	12	2 EB VSFS	1	2F LSHUB	12
2 1/2	2 1/2F EB LSFF	69	2 1/2F EB LSFF FB	2 1/2 EB SP	2	2 1/2F EB LSSLEEVE	24	2 1/2 EB VSFS	2	2 1/2F LSHUB	20
3	3F EB LSFF	109	3F EB LSFF FB	3 EB SP	3	3F EB LSSLEEVE	29	3 EB VSFS	3	3F LSHUB	36
3 1/2	3 1/2F EB LSFF	157	3 1/2F EB LSFF FB	3 1/2 EB SP	4	3 1/2F EB LSSLEEVE	46	3 1/2 EB VSFS	5	3 1/2F LSHUB	40
4	4F EB LSFF	220	4F EB LSFF FB	4 EB SP	7	4F EB LSSLEEVE	62	4 EB VSFS	5	4F LSHUB	82
4 1/2	4 1/2F EB LSFF	278	4 1/2F EB LSFF FB	4 1/2 EB SP	10	4 1/2F EB LSSLEEVE	87	4 1/2 EB VSFS	7	4 1/2F LSHUB	104
5	5F EB LSFF	407	5F EB LSFF FB	5 EB SP	12	5F EB LSSLEEVE	138	5 EB VSFS	9	5F LSHUB	175
5 1/2	5 1/2F EB LSFF	504	5 1/2F EB LSFF FB	5 1/2 EB SP	15	5 1/2F EB LSSLEEVE	158	5 1/2 EB VSFS	14	5 1/2F LSHUB	198
6	6F EB LSFF	611	6F EB LSFF FB	6 EB SP	19	6F EB LSSLEEVE	187	6 EB VSFS	14	6F LSHUB	256
7	7F EB LSFF	913	7F EB LSFF FB	7 EB SP	25	7F EB LSSLEEVE	243	7 EB VSFS	22	7F LSHUB	402

* Exposed bolts are standard for all sizes.

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.

Note: For finish bored flex hubs, add FB and the bore size.

Light-To-Medium Duty Applications are handled readily by the Fast's Model B coupling line, sizes #1 through #3½. All Model B couplings are designed for 1/2° static angular misalignment per flex half.

The Distinguishing Feature of the Fast's Model B coupling is its **All-Metal End Ring** design in a configuration that is smaller in size and lighter in weight than the Fast's Coupling — *while maintaining the same maximum bore capacities.*

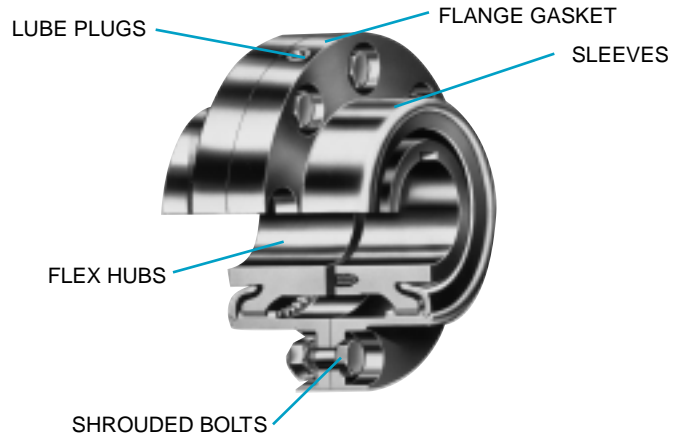
Application

The Fast's Model B coupling can be used to directly connect two shaft ends from 1/2 inch to over 4 inches in diameter on centrifugal pumps, small compressors, blowers, conveyor drives, fan drives, and all other similar medium-duty, moderate-speed applications. Model B couplings are not dynamically balanced.

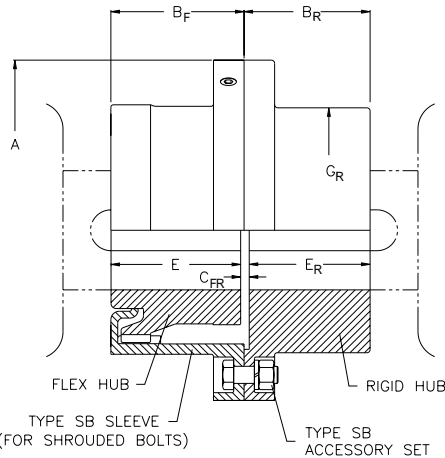
Description

Model B couplings are manufactured from the same materials and to the same quality standards as the larger, heavier Fast's type.

The Model B end ring provides a permanent seal and permits a compact design. Each sleeve has a Type UD lube plug permitting assembly at 180° apart to facilitate lubrication.



When properly installed and lubricated the Model B coupling should require little maintenance. Under most conditions the lubricant reservoir is adequate to allow continuous operation for a year or more. All flange bolt holes are precision drilled to assure flange piloting and interchangeability. Model B bolts are special with respect to body length, thread length, and bolt body tolerance.



Flex-Rigid and Floating Shaft Couplings

Coupling Type SB (Shrouded Bolts) Part Numbers

Coupling Size	Flex Rigid Coupling				Rigid Hub®			
	No Bore		Finish BoreⓄ Part No.	No Bore		Finish BoreⓄ Part No.		
	Part No.	Wt.		Part No.	Wt.			
1	1B SB FR	6	1B SB FR FB	1B SB RHUB	3	1B SB RHUB FB		
1 1/2	1 1/2 SB FR	12	1 1/2 SB FR FB	1 1/2 SB RHUB	6	1 1/2 SB RHUB FB		
2	2B SB FR	20	2B SB FR FB	2B SB RHUB	9	2B SB RHUB FB		
2 1/2	2 1/2 SB FR	32	2 1/2 SB FR FB	2 1/2 SB RHUB	15	2 1/2 SB RHUB FB		
3	3B SB FR	57	3B SB FR FB	3B SB RHUB	28	3B SB RHUB FB		
3 1/2	3 1/2 SB FR	85	3 1/2 SB FR FB	3 1/2 SB RHUB	42	3 1/2 SB RHUB FB		

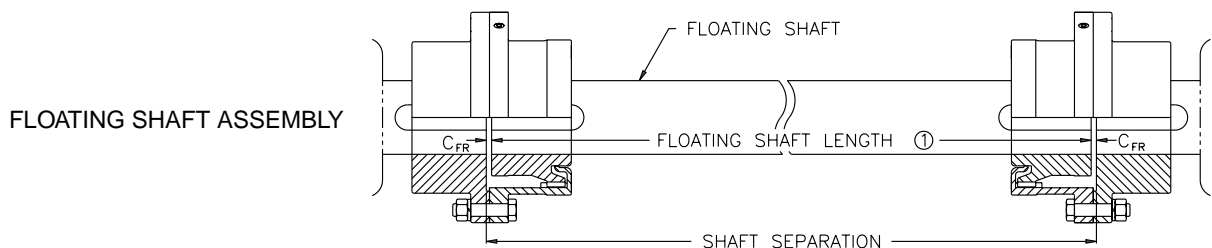
Coupling Type EB (Exposed Bolts) Part Numbers

Coupling Size	Flex Rigid Coupling				Rigid Hub®			
	No Bore		Finish BoreⓄ Part No.	No Bore		Finish BoreⓄ Part No.		
	Part No.	Wt.		Part No.	Wt.			
1	1B EB FR	6	1B EB FR FB	1B EB RHUB	3	1B EB RHUB FB		
1 1/2	1 1/2 EB FR	12	1 1/2 EB FR FB	1 1/2 EB RHUB	6	1 1/2 EB RHUB FB		
2	2B EB FR	20	2B EB FR FB	2B EB RHUB	9	2B EB RHUB FB		
2 1/2	2 1/2 EB FR	32	2 1/2 EB FR FB	2 1/2 EB RHUB	15	2 1/2 EB RHUB FB		
3	3B EB FR	57	3B EB FR FB	3B EB RHUB	28	3B EB RHUB FB		
3 1/2	3 1/2 EB FR	85	3 1/2 EB FR FB	3 1/2 EB RHUB	42	3 1/2 EB RHUB FB		

① All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances.

② Rigid hubs are furnished less fasteners.

Coupling Size	Rigid Hub Maximum Bore with Standard Key	Rating HP / 100 RPM	Torque Rating (lb.-in.)	Peak Torque Rating (lb.-in.)	Maximum Speed (RPM)	Weight with Solid Hubs (lb.)	Dimensions						
							A	B _F	B _R	C _{FR}	E	E _R	G _R
1	2	10.5	6600	13200	14500	6	4	1 5/16	1 5/16	1/8	1 1/4	1 1/4	2 23/32
1 1/2	2 3/8	18.5	11500	23000	12000	12	5	1 3/4	1 3/4	1/8	1 11/16	1 11/16	3 5/16
2	2 5/8	36.5	23000	46000	9300	18	6	2 5/32	1 15/16	5/32	2 3/32	1 27/32	3 3/4
2 1/2	3 1/4	62	39000	78000	7900	30	7	2 5/8	2 3/8	5/32	2 9/16	2 9/32	4 3/4
3	4	110	69300	138600	6800	55	8 3/8	3 1/4	3	3/16	3 5/32	2 29/32	5 3/4
3 1/2	4 3/4	186	117200	234400	6000	84	9 7/16	3 7/8	3 9/16	3/16	3 25/32	3 15/32	6 3/4

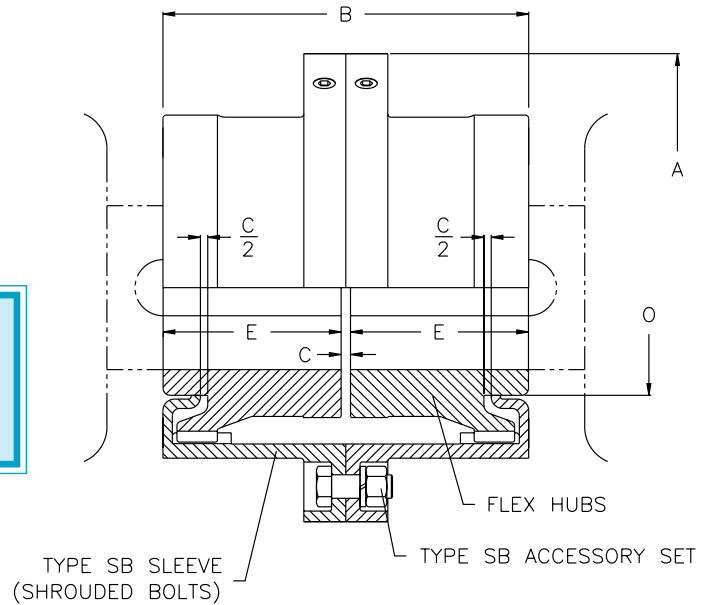


Ordering Instructions: When ordering floating shaft couplings, be sure to include hp and rpm, shaft separation, and equipment shaft sizes. Applications with very large shaft separations and/or high speeds may require tubular floating shafts due to lateral critical speed concerns.

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 M-11.

Kop-Flex Coupling Greases

Kop-Flex offers greases specifically designed for use in coupling applications. To ensure proper lubrication and long service life, use Kop-Flex KSG Standard Coupling Grease, or KHP High Performance Coupling Grease. See page M-27 for detailed specifications.



Coupling Size	Maximum Bore with Standard Key	Rating HP / 100 RPM	Torque Rating (lb.-in.)	Peak Torque Rating (lb.-in.)	Maximum Speed RPM	Weight with Solid Hubs (lb.)	Dimensions					Shrouded Bolt* and Exposed Bolt	
							A	B	C	E	O	Bolt Circle	Number & Size.
1	1 1/8	10.5	6600	13200	14500	5.5	4	2 5/8	1/8	1 1/4	1 9/16	3 5/16	6 — 1/4
1 1/2	1 5/8	18.5	11500	23000	12000	11	5	3 1/2	1/8	1 11/16	2 3/16	4 3/32	6 — 5/16
2	2 1/8	36.5	23000	46000	9300	19	6	4 5/16	1/8	2 3/32	2 7/8	5	6 — 3/8
2 1/2	2 3/4	62	39000	78000	7900	31	7	5 1/4	1/8	2 9/16	3 11/16	6	6 — 3/8
3	3 1/8	110	69300	138600	6800	57	8 3/8	6 1/2	3/16	3 5/32	4 1/4	7 3/16	8 — 1/2
3 1/2	3 3/4	186	117200	234400	6000	81	9 7/16	7 3/4	3/16	3 25/32	5	8 1/4	10 — 1/2

* Shrouded and exposed bolts are identical except for length.

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 Bore Ø Part No.	Part No.	Wt.	Part No.	Wt.	No Bore Part No.	Wt.	Finish Bore Ø Part No.
1	1B SB FF	7	1B SB FF FB	1B SB FS	1	1B SB SLEEVE	2	1B FHUB	1	1B FHUB FB
1 1/2	1 1/2B SB FF	12	1 1/2B SB FF FB	1 1/2B SB FS	1	1 1/2B SB SLEEVE	3	1 1/2B FHUB	3	1 1/2B FHUB FB
2	2B SB FF	21	2B SB FF FB	2B SB FS	1	2B SB SLEEVE	5	2B FHUB	5	2B FHUB FB
2 1/2	2 1/2B SB FF	33	2 1/2B SB FF FB	2 1/2B SB FS	1	2 1/2B SB SLEEVE	7	2 1/2B FHUB	9	2 1/2B FHUB FB
3	3B SB FF	55	3B SB FF FB	3B SB FS	2	3B SB SLEEVE	12	3B FHUB	16	3B FHUB FB
3 1/2	3 1/2B SB FF	84	3 1/2B SB FF FB	3 1/2B SB FS	2	3 1/2B SB SLEEVE	16	3 1/2B FHUB	25	3 1/2B FHUB FB

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 Bore Ø Part No.	Part No.	Wt.	Part No.	Wt.	No Bore Part No.	Wt.	Finish Bore Ø Part No.
1	1B EB FF	7	1B EB FF FB	1B EB FS	1	1B EB SLEEVE	2	1B FHUB	1	1B FHUB FB
1 1/2	1 1/2B EB FF	12	1 1/2B EB FF FB	1 1/2B EB FS	1	1 1/2B EB SLEEVE	3	1 1/2B FHUB	3	1 1/2B FHUB FB
2	2B EB FF	21	2B EB FF FB	2B EB FS	1	2B EB SLEEVE	5	2B FHUB	5	2B FHUB FB
2 1/2	2 1/2B EB FF	33	2 1/2B EB FF FB	2 1/2B EB FS	1	2 1/2B EB SLEEVE	7	2 1/2B FHUB	9	2 1/2B FHUB FB
3	3B EB FF	55	3B EB FF FB	3B EB FS	2	3B EB SLEEVE	12	3B FHUB	16	3B FHUB FB
3 1/2	3 1/2B EB FF	84	3 1/2B EB FF FB	3 1/2B EB FS	2	3 1/2B EB SLEEVE	16	3 1/2B FHUB	25	3 1/2B FHUB FB

① All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances. Each Clearance bore includes one set screw over keyway.

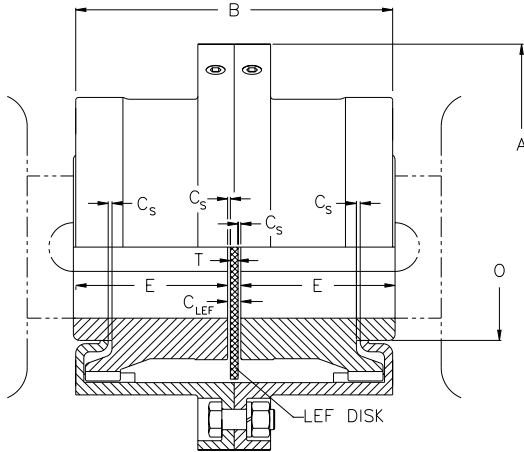
Important: Care must be exercised in proper selection of any shaft coupling. The Users must assure themselves that the design of the shaft to coupling hub connection is adequate for the duty intended.

Limited End Float Coupling

For sleeve bearing motor applications, a Fast's Model B full flex coupling is supplied with an LEF disk 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 phenolic LEF disk 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 disk part numbers are listed below. See page M-25 for the standard full flex part numbers.



Coupling Size	Total LEF	Maximum Bore with Standard Key	Dimensions						LEF Disk ^②	
			A	B	C_S	C_{LEF} (Hub Sep.)	E	T (Disk Width)	Part No.	Wt.
1	1/8	1 1/8	4	2 5/8	1/32	3/16	1 1/4	1/8	1B LEFD	1
1 1/2	1/8	1 5/8	5	3 1/2	1/32	3/16	1 11/16	1/8	1 1/2B LEFD	1
2	1/8	2 1/8	6	4 5/16	1/32	3/16	2 3/32	1/8	2B LEFD	1
2 1/2	1/8	2 3/4	7	5 1/4	1/32	3/16	2 9/16	1/8	2 1/2B LEFD	1
3	3/16	3 1/8	8 3/8	6 1/2	3/64	9/32	3 5/32	3/16	3B LEFD	1
3 1/2	3/16	3 3/4	9 7/16	7 3/4	3/64	9/32	3 25/32	3/16	3 1/2B LEFD	1

- ① All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances. Each Clearance bore includes one setscrew over keyway.
- ② LEF Disks are used only in close coupled applications. One disk is required per coupling.

Spacer Coupling

Standard Spacer Couplings

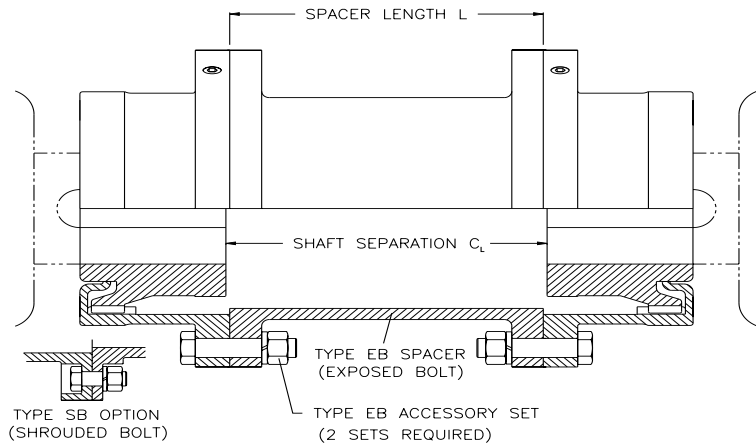
Full-flex spacer couplings are used for 4 bearing installations with extended shaft separations. Tabulated here are spacers for industry standard shaft separations, C_L .

Type SB shrouded bolt spacers for standard shaft separations are normally in stock. Type EB spacers and 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 .

$$L = C_L - C \quad (\text{full-flex, close coupled})$$

LEF spacer couplings are available, but are non-stock.



Stock Spacer Part Numbers Type SB (Shrouded Bolts)

Coupling Size	Shaft Separation									
	3 1/2"		4 3/8"		5"		7"		10"	
	Part No.	Wt.	Part No.	Wt.	Part No.	Wt.	Part No.	Wt.	Part No.	Wt.
1	1B SB SPR350	3	—	—	—	—	—	—	—	—
1 1/2	1 1/2B SB SPR350	4	1 1/2B SB SPR438	4	1 1/2B SB SPR500	5	—	—	—	—
2	2B SB SPR350	6	2B SB SPR438	7	2B SB SPR500	7	2B SB SPR700	9	—	—
2 1/2	2 1/2B SB SPR350	—	—	—	2 1/2B SB SPR500	9	2 1/2B SB SPR700	11	—	—
3	3B SB SPR350	—	—	—	3B SB SPR500	13	3B SB SPR700	16	—	—
3 1/2	3 1/2B SB SPR350	—	—	—	—	—	3 1/2B SB SPR700	19	3 1/2B SB SPR1000	24

Greases Designed Exclusively for Shaft Couplings



All KOP-FLEX® greases are lead free.

Container	Unit Wt	No. of Units	KSG Grease	KHP Grease
			Part No.	Part No.
Grease Gun Cartridge	14 oz.	1	KSG 14OZ	KHP 14OZ
Grease Gun Cart., Case	14 oz.	25	KSG 14OZ CASE	KHP 14OZ CASE
1 lb Can	1 lb.	1	KSG 1LB	KHP 1LB
1 lb Can, Case	1 lb.	24	KSG 1LB CASE	KHP 1LB CASE
5 lb Can	5 lb.	1	KSG 5LB	KHP 5LB
5 lb Can, Case	5 lb.	6	KSG 5LB CASE	KHP 5LB CASE
Pail	35 lb.	1	KSG 35LB	KHP 35LB
Keg	120 lb.	1	KSG 120LB	KHP 120LB
Drum	395 lb.	1	KSG 395LB	KHP 395LB

*Waverly Torque Lube 'A' is available in 40-pound, 120-pound, and 400-pound containers and in bulk tank trailer loads of 12,000-pound minimum. Contact KOP-FLEX to order.

Selection Guide to Kop-Flex® Coupling Greases

- KSG is excellent for standard and routinely serviced couplings operating at normal motor speeds.
- KHP has both exceptional lubricating and high operating temperature properties. As a general rule, if the coupling is balanced or if very long periods of operation are desired, use KHP.
- Waverly Torque Lube 'A' is a special purpose grease for relatively slow speed, highly loaded mill spindle couplings. It is not intended for use in other types of couplings.

Grease Type	Application	Typical Speed	Coupling Type	Operating Range (F°)
KHP High Performance	Petrochemical, process and critical service	Highest coupling RPM, usually over 3600 RPM	High performance gear Critical standard applications	-40° to + 190°
KSG Standard	General purpose industrial	Standard motor speeds	Standard gear, grid and chain	-40° to + 190°
Waverly Torque Lube 'A'	Rolling mill, high torque	Normal rolling mill motor speeds	Gear spindle and slippers	Covers mill temperature range

Notice to Users

All KOP-FLEX greases are manufactured for KOP-FLEX and are for industrial use only. These products should not be ingested and should be properly stored and kept away from children. Pay attention to container labeling and any precautionary statements. Material Safety Data Sheets are available upon request. Use absorbent material to clean up any spill and dispose of the waste in accordance with state and local regulations.

*Waverly Torque Lube 'A', is a registered trademark of Exxon Corporation & Witco Corporation, Bakerstown, PA. KOP-FLEX®, and **KOP-FLEX** are registered trademarks of KOP-FLEX®, INC.

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Kop-Flex®, the world's leading manufacturer of flexible shaft couplings, was one of the first companies to develop greases especially for use as shaft coupling lubricants. We recognized that couplings must use greases with certain special qualities, and as the company most likely to understand these very special needs, we knew that most commercial grease formulations will not insure adequate performance and are not good coupling lubricants.

Coupling grease, unlike bearing or general purpose grease, must withstand the centrifugal forces created by a rotating coupling. Kop-Flex Coupling Greases are specifically formulated to resist the high centrifugal forces associated with all applications, including slow motor speeds. These forces can cause the all-important base oil to separate from the soap thickeners and additives. Unlike greases with lithium-based thickeners, Kop-Flex KHP and KSG greases use polyethylene thickeners, with a density closer to that of oil, and are therefore much less susceptible to separation. Heavier thickeners and additives can separate and migrate into the gear teeth or other working parts, displacing the lubricating oils from where they are most needed.

KOP-FLEX KSG Standard Coupling Grease

KSG is an NLGI Grade #1 coupling grease with E.P. additives for use in any grease-packed coupling, such as gear, grid, and chain-type couplings, in standard industrial service. Superior to the commonly available greases adapted to coupling use, KOP-FLEX KSG was developed specifically as a coupling lubricant.

KOP-FLEX KHP High Performance Coupling Grease

KHP grease is an NLGI #1 grease with E. P. additives which exceeds the design requirements needed for extended operating and relubrication intervals. KHP grease is recommended for high-speed grease lubricated gear couplings in petrochemical, process, and utility industries.

Waverly Torque Lube 'A'® Gear Spindle Grease

Torque Lube 'A' was developed to solve the special lubrication problems of relatively low speed, highly loaded gear spindle couplings used extensively in metal rolling mills. Torque Lube 'A' has consistently provided protection in applications demanding a lubricant with extreme pressure protection, high heat and shock loading, excellent wear protection, and resistance to water washout. This grease is compounded with a concentration of Molybdenum Disulfide and other additives to provide extreme pressure protection. These additives cannot resist the effects of centrifugal forces; therefore, Waverly Torque Lube 'A' should not be used in a standard coupling without consulting KOP-FLEX.

No warranties, expressed or implied, including patent warranties, warranties of merchantability, fitness for use, are made by KOP-FLEX, Inc. with respect to products described on information set forth herein. Nothing contained herein shall constitute a permission or recommendation to practice any invention covered by a patent without a license from the owner of the patent.

HIGH PERFORMANCE COUPLINGS

KOP-FLEX®

HIGH PERFORMANCE DISC COUPLINGS...

Available In Four Standard Styles...

Designed And Manufactured To Meet API 671 As A Standard (For more Information, see Bulletin HP103)

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 Kop-Flex HP disc coupling is the preferred choice for demanding turbo machinery applications. Superior quality and a wide variety of standard and custom designs backed by unsurpassed engineering expertise combined to 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



RM Series



MS Series



RZ Series



MP Series



Size #5.5 MDM-J diaphragm coupling

KOP-FLEX High Performance Flexible Diaphragm Couplings (For more Information, see Bulletin 1300)

The patented Flexible Diaphragm Coupling from KOP-FLEX 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 are:

- 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



KOP-FLEX® Reduced Moment High Performance Disc Coupling

KOP-FLEX High Performance Gear Couplings (For more Information, Contact KOP-FLEX)

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



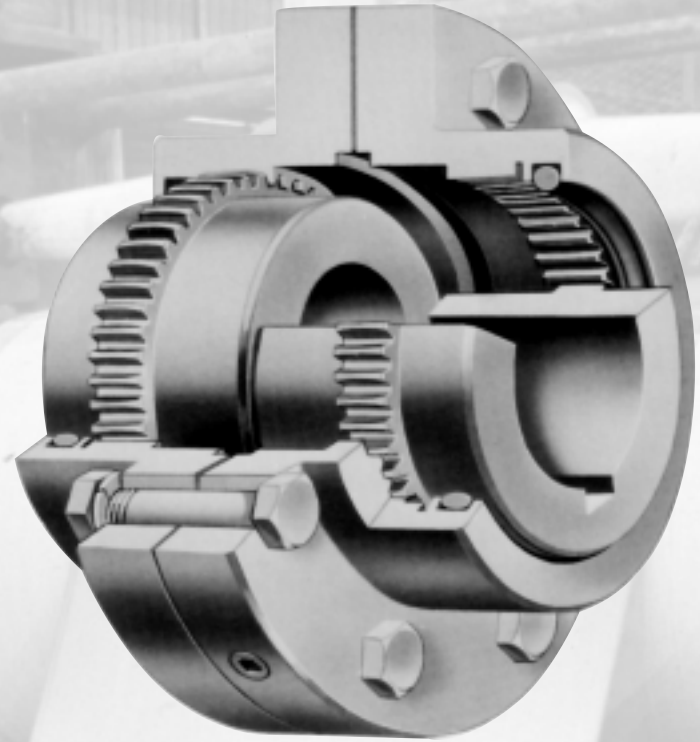
Size #6 Gear Coupling
G.E. MS5001 Gas Turbine Driven Compressor Train.



Series H Gear Couplings Size 1 through 30

**Most Economical
Gear Coupling Design**

**Large Bore Capacity,
with O-ring Seal**



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The Series H Advantages:

Higher Misalignment Capability

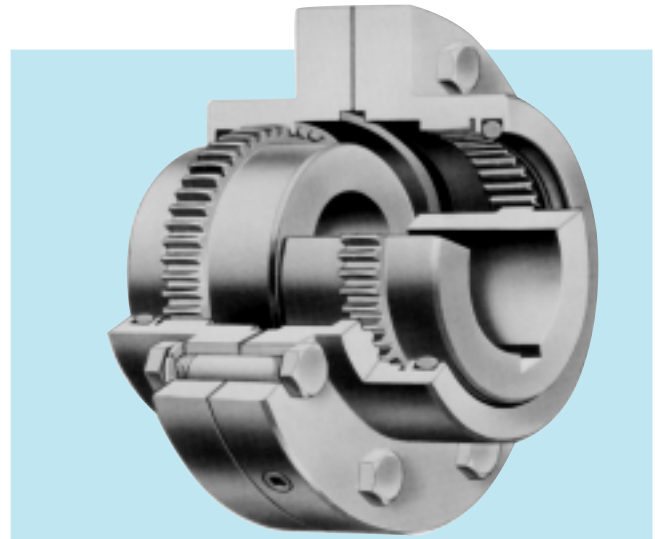
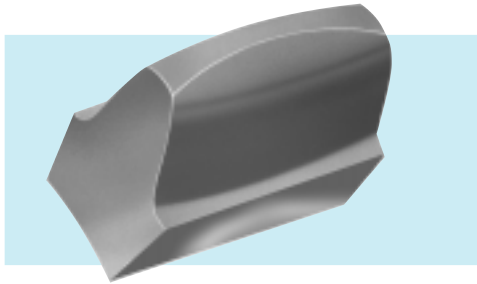
Sizes 1-7 compensate for up to $\pm 1\frac{1}{2}^\circ$ static angular misalignment per gear mesh.

Larger Bore Capabilities allow the most economical size selection for shafts up to $10\frac{5}{8}$ ".

Higher Torque Ratings thanks to larger tooth pitch diameters than other couplings.

Versatility in that Series H's are interchangeable by half coupling with competitive coupling designs.

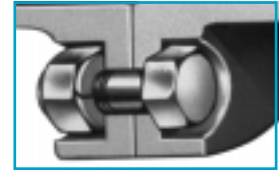
$1\frac{1}{2}^\circ$ Curved-Face Teeth are a prime feature of the Kop-Flex® Series H coupling, sizes 1-7. The crowned hub teeth are a 20° full-depth involute tooth form with flank, tip, and root curvature. When used with the straight faced sleeve teeth, these $1\frac{1}{2}^\circ$ curved face hubs offer increased shaft misalignment capability.



Crowned Tooth Sizes 1 - 7

Center Flange Bolting:

All Kop-Flex couplings feature precision-drilled flange bolt holes, and tight tolerance Grade 5 flange bolts to assure a long-lasting flange to flange and fastener fit. Exposed bolt flanges are standard. Shrouded bolt flanges can be supplied through size 5. Size $\#5\frac{1}{2}$ and larger couplings are only available with exposed bolt flanges.



Kop-Flex Coupling Greases

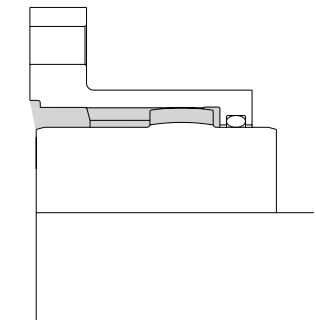
Kop-Flex offers greases specifically designed for use in coupling applications. To ensure proper lubrication and long service life, use Kop-Flex KSG Standard Coupling Grease, or KHP High Performance Coupling Grease. See page M-27 for detailed specifications.

Lubrication:

Each sleeve flange is supplied with two pipe plugs 180° apart. This permits assembly of a full flex coupling with four lube plugs positioned every 90° , facilitating lubrication.

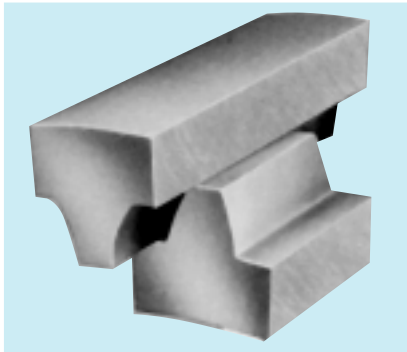


The lube seal is a Buna-N "O" ring to retain grease and exclude contaminants. Kop-Flex KHP or KSG coupling greases are recommended in order to obtain maximum operating life.



Series H couplings of Size #8 to #30 are designed for $\pm 1/2^\circ$ misalignment per flex half coupling, to compensate for misalignment between the shafts in a full-flex coupling.

Series H couplings can be supplied in full-flex, flex-rigid, floating shaft and spacer arrangements as well as custom designs. Only exposed bolt flanges are available.

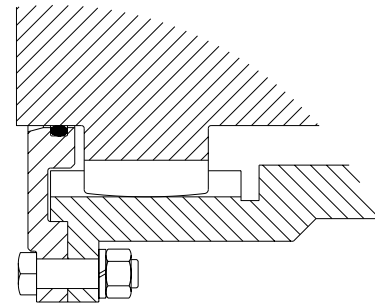


The **straight-faced**, involute stub tooth form is used in the Series H coupling, sizes 8-10. This tooth form distributes contact pressures across the full length of the hub tooth, to best develop the needed lubricating film, minimizing tooth wear and extending coupling service life for years of operation.

The **End Rings** are removable for ease of assembly and to allow inspection of the gear sets. A Buna-N "O" ring seal is incorporated to exclude contaminants and retain the lubricant. Designed for grease lubrication, KOP-FLEX KSG or KHP coupling greases are recommended to obtain maximum operating life.

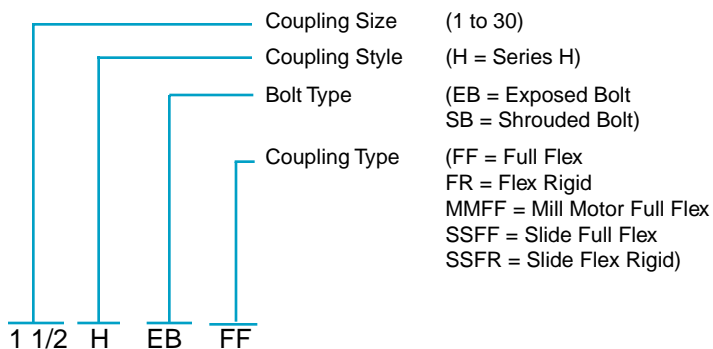


Straight Tooth Sizes 8 - 30



HOW TO ORDER

PART NUMBER EXPLANATION Complete Rough Bore Coupling



Coupling Parts

Description

*FHUB = Flex Hub
 *RHUB = Rigid Hub
 *MMHUB = Mill Motor Hub
 SLEEVE = Standard Sleeve
 SSLEEVE = Slide Sleeve
 FS = Fastener Set (w/gasket)
 ERFS = End Ring Fastener Set
 VSFS = Vertical/Slide 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 1/2H FHUB FB

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).

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
Centriaial	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

Application	Typical Service Factor
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

Application	Typical Service Factor
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.

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 appropriate Service Factor from the Table on page M-32.
 - b. Calculate required HP / 100 RPM:

$$\frac{\text{HP} \times \text{Service Factor} \times 100}{\text{RPM}} = \text{HP} / 100 \text{ RPM}$$
 - c. Verify that the selected coupling has a rating greater than or equal to the required HP / 100 RPM.

3. **Check Balance Requirements.**
Consult Dynamic Balancing Guide 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.

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.

Dynamic Balancing Guide

Balancing requirements for a coupling are dependent on factors determined by the characteristics of the connected equipment. For this reason, the Balancing Charts should be used as a GUIDE ONLY to assist in determining whether or not balancing is required.

The Balancing Charts shown are based on AGMA 9000-C90 suggested balance classes for systems with "Average" sensitivity to unbalance. For systems with higher sensitivity to unbalance, balancing of the coupling may be required at lower speeds. For systems which are less sensitive to unbalance, couplings may be able to operate at higher speeds than those shown at lower balance levels. Therefore, in the absence of either a thorough system analysis or past user experience with a similar installation, these charts should be used as a GUIDE ONLY.

Fast's® and Series H gear couplings may be component balanced, or assembly balanced with fitted components (Type FB and Type HB, respectively).

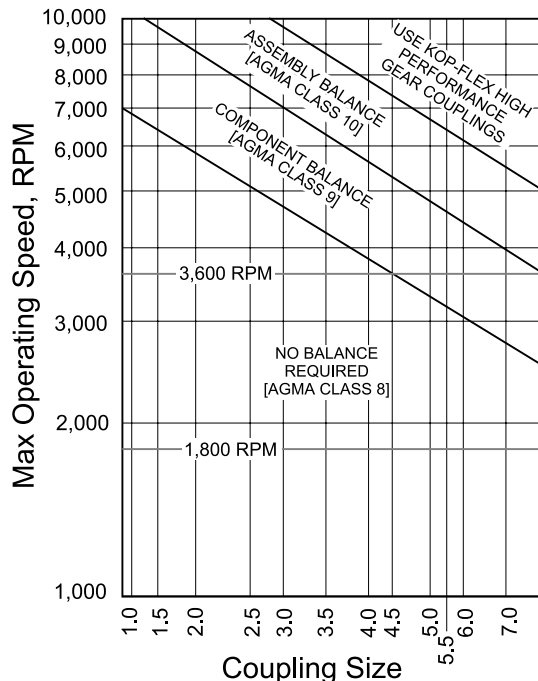
Waldron® gear couplings are available component balanced only.

Model B gear couplings are not designed to be balanced.

These charts apply to sizes 1 through 7 only. Dynamic balance of size 8 through 30 must be considered on a case-by-case basis. Consult Kop-Flex for assistance.

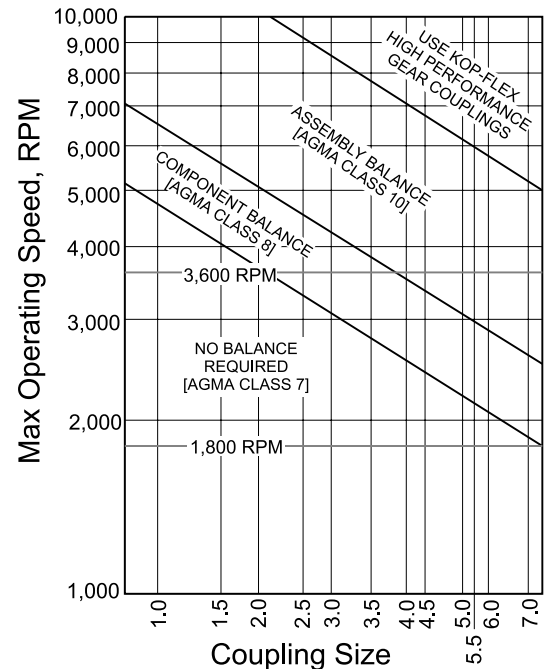
Close Coupled Balancing Chart

Based on AGMA 9000-C90 for Average System Sensitivity



Spacer Coupling Balancing Chart for 12" Shaft Separation

Based on AGMA 9000-C90 for Average System Sensitivity

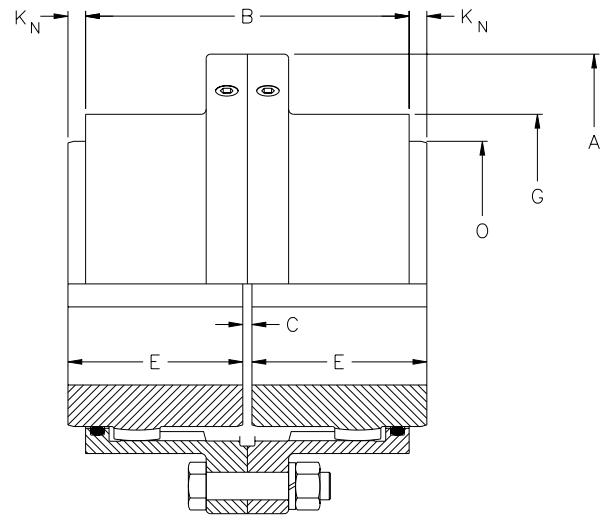


Full Flex Coupling Size 1-7

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 M-33.

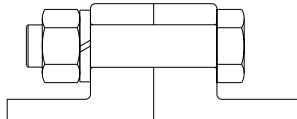
Kop-Flex Coupling Greases

Kop-Flex offers greases specifically designed for use in coupling applications. To ensure proper lubrication and long service life, use Kop-Flex KSG Standard Coupling Grease, or KHP High Performance Coupling Grease. See page M-27 for detailed specifications.

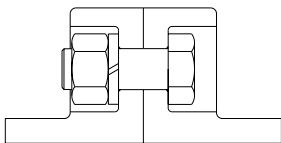


Coupling Size	Maximum Bore with Standard Key	Rating HP / 100 RPM	Torque Rating (lb.-in.)	Peak Torque Rating (lb.-in.)	Maximum Speed (RPM)	Weight with Solid Hubs (lb.)	Dimensions									
							A	B	C	C _I	C _W	E	G	K _N	K _R	O
1	1 5/8	12	7500	15000	14500	10	4 9/16	3 1/16	1/8	3/16	1/4	1 11/16	3 1/16	7/32	9/32	2 3/8
1 1/2	2 1/4	27	17000	34000	12000	18	6	3 9/16	1/8	5/16	1/2	1 15/16	3 15/16	7/32	13/32	3 1/8
2	2 3/4	50	31500	63000	9300	33	7	4 11/16	1/8	9/16	1	2 7/16	4 15/16	5/32	19/32	4
2 1/2	3 1/2	90	56700	113400	7900	57	8 3/8	5 3/8	3/16	15/32	3/4	3 1/32	5 7/8	7/16	23/32	4 7/8
3	4	160	101000	202000	6800	85	9 7/16	6 9/16	3/16	29/32	1 5/8	3 19/32	6 7/8	13/32	1 1/8	5 5/8
3 1/2	4 1/2	235	148000	296000	6000	130	11	7 11/16	1/4	1 1/16	1 7/8	4 3/16	7 29/32	15/32	1 9/32	6 1/2
4	5 1/2	375	236000	472000	5260	192	12 1/2	8 3/4	1/4	1 1/4	2 1/4	4 3/4	9 1/4	1/2	1 1/2	7 3/4
4 1/2	6	505	318000	636000	4770	261	13 5/8	9 11/16	5/16	1 7/16	2 9/16	5 5/16	10 3/8	5/8	1 3/4	8 1/2
5	6 7/8	700	441000	882000	4300	376	15 5/16	11 1/16	5/16	1 31/32	3 5/8	6 1/32	11 9/16	21/32	2 5/16	9 1/2
5 1/2*	7 3/4	920	580000	1160000	3880	474	16 3/4	12 7/16	5/16	2 3/32	3 7/8	6 29/32	12 11/16	27/32	2 5/8	10 1/2
6*	8 5/8	1205	759000	1518000	3600	604	18	13 5/16	5/16	2 11/32	4 3/8	7 13/32	13 7/8	29/32	2 15/16	11 1/2
7*	10 3/8	1840	1160000	2320000	3000	902	20 3/4	15 3/8	3/8	2 13/16	5 1/4	8 11/16	16 1/16	1 3/16	3 5/8	13 1/2

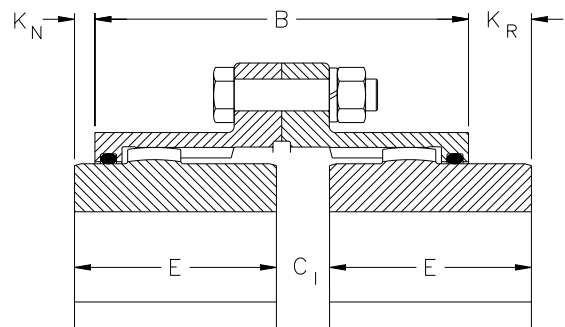
* Sizes 5 1/2, 6 and 7 are only available with exposed bolt sleeves. Type EB exposed bolt sleeves are standard.



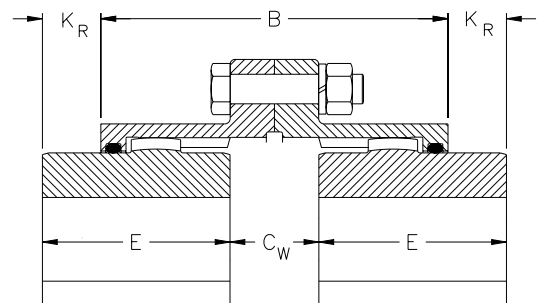
TYPE EB - EXPOSED BOLTS



TYPE SB - SHROUDED BOLTS



ONE HUB REVERSED



TWO HUBS REVERSED

Fastener Data

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 1/4	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 4 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.

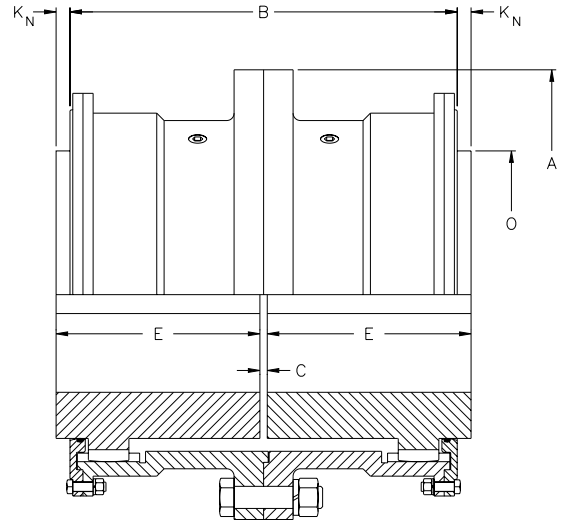
Full Flex Coupling Size 8-30

Series H coupling sizes 8-30 feature an all-metal end ring which can be easily removed to inspect the hub and sleeve teeth without removing the hub from its shaft.

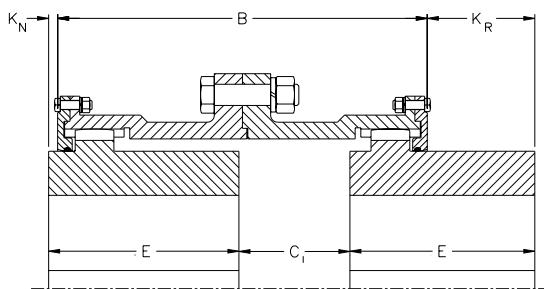
All end rings have gaskets and are bolted to the sleeves. Non-critical surfaces are as-cast, or as-forged. Sleeves have mating male and female rabbets at the center and end flange joints to simplify installation. The sleeves have two lube plugs in the body.

Standardized center flanges allow flex-half substitution regardless of design or vintage. All bolts are special with respect to body length, thread length, and bolt body tolerance.

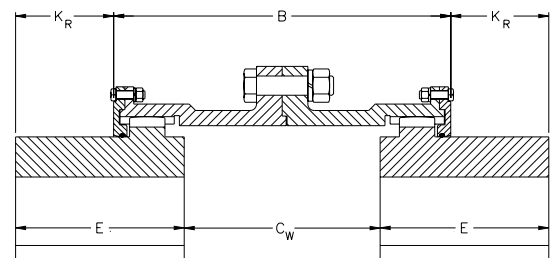
Sizes 8 - 30 are available with exposed bolts only.



Coupling Size	Maximum Bore with Standard Key	Rating HP / 100 RPM	Torque Rating (lb.-in. x 1000)	Peak Torque Rating (lb.-in. x 1000)	Maximum Speed (RPM)	Weight with Solid Hubs (lb.)	Dimensions						
							A	B	C	C ₁	C _W	E	O
8	10 3/4	2230	1404	2808	1750	1430	23 1/4	19 1/2	3/8	5 9/16	10 3/4	9 13/16	14
9	11 3/4	3170	1995	3990	1625	2000	26	21 3/4	1/2	6 1/4	12	10 7/8	15 1/2
10	13	4350	2744	5488	1500	2670	28	24	1/2	7 1/8	13 3/4	12	17 1/2
11	15	5780	3645	7290	1375	3520	30 1/2	26 1/4	1/2	7 7/8	15 1/4	13 1/8	19 1/2
12	16 1/4	7190	4532	9064	1250	4450	33	27 3/4	1/2	8 1/8	15 3/4	13 7/8	21 1/2
13	17 1/2	9030	5688	11376	1125	5410	35 3/4	29 1/2	3/4	8 7/16	16 1/8	14 5/8	23
14	18 3/4	11080	6982	13964	1000	6600	38	31 1/4	3/4	9	17 1/4	15 1/2	25
15	20 3/4	13470	8488	16976	875	8040	40 1/2	33 1/8	3/4	9 7/16	18 1/8	16 1/2	27
16	22	16100	10150	20300	750	9680	43	35	1	9 7/8	18 3/4	17 3/8	29
18	25 1/4	21100	13300	26600	500	12500	47 1/4	36 1/8	1	10 1/4	19 1/2	18	33
20	27 1/4	28800	18144	36288	400	17900	53 1/2	42 3/8	1	12 3/8	23 3/4	21 1/8	36 1/2
22	30	38100	24009	48018	300	23300	59	46	1	13 3/4	26 1/2	23	40
24	33 1/4	42400	26699	53398	200	30300	64 1/4	49 1/2	1	15	29	24 3/4	44 1/2
26	36 3/4	53000	33415	66830	200	37700	68 1/2	53	1	15 5/8	30 1/4	26 1/2	48 1/2
28	40	65900	41564	83128	200	45200	73 3/4	54 1/4	1	15 7/8	30 3/4	27 1/8	52 1/2
30	43 1/2	80300	50614	101228	200	52700	78	55 1/4	1	15 7/8	30 3/4	27 5/8	56 1/2



ONE HUB REVERSED



TWO HUBS REVERSED

Fastener Data

Coupling Size	Center Flange			End Ring		
	Quantity	Size & Length	Bolt Circle	Quantity (each)	Size & Length	Bolt Circle
8	16	1 1/8 x 4 1/8	20 3/4	10	1/2 x 2	19 3/8
9	18	1 1/4 x 4 1/2	23 1/4	12	5/8 x 2 3/16	21 3/4
10	18	1 3/8 x 5 3/8	25 1/4	12	5/8 x 2 3/16	23 7/8
11	18	1 1/2 x 5 7/8	27 1/2	12	5/8 x 2 3/16	26 1/16
12	18	1 1/2 x 6 1/8	30	12	3/4 x 2 9/16	28 5/16
13	18	1 5/8 x 6 3/8	32 1/4	12	3/4 x 2 9/16	30 1/2
14	18	1 3/4 x 6 5/8	34 1/2	14	3/4 x 2 9/16	32 5/8
15	20	1 3/4 x 6 5/8	36 3/4	14	7/8 x 2 7/8	35
16	20	2 x 7 3/8	39	14	7/8 x 2 7/8	37 1/8
18	22	2 x 7 3/8	43 1/4	14	7/8 x 2 7/8	41 3/8
20	22	2 1/4 x 7 5/8	48 3/4	16	1 x 3 5/8	46 1/4
22	22	2 1/2 x 8 1/8	53 1/2	16	1 x 3 5/8	50 3/4
24	22	2 3/4 x 8 7/8	58 1/4	16	1 1/8 x 4 1/8	55
26	24	2 3/4 x 8 7/8	62 1/2	18	1 1/8 x 4 1/8	59 1/4
28	22	3 x 9 5/8	67 1/4	16	1 1/4 x 4 1/4	63 11/16
30	24	3 x 9 5/8	71 1/2	18	1 1/4 x 4 1/4	68 3/16

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 BoreØ Part No.	Part No.	Wt.	Part No.	Wt.	No Bore Part No.	Wt.	Finish BoreØ Part No.
1	1H EB FF	10	1 H EB FF FB	1 EB FS	1	1 H EB SLEEVE	2	1H FHUB	3	1H FHUB
1 1/2	1 1/2H EB FF	19	1 1/2H EB FF FB	1 1/2 EB FS	1	1 1/2H EB SLEEVE	6	1 1/2H FHUB	3	1 1/2H FHUB FB
2	2H EB FF	30	2H EB FF FB	2 EB FS	1	2H EB SLEEVE	8	2H FHUB	7	2H FHUB FB
2 1/2	2 1/2H EB FF	52	2 1/2H EB FF FB	2 1/2 EB FS	2	2 1/2H EB SLEEVE	14	2 1/2H FHUB	12	2 1/2H FHUB FB
3	3H EB FF	76	3H EB FF FB	3 EB FS	3	3H EB SLEEVE	17	3H FHUB	20	3H FHUB FB
3 1/2	3 1/2H EB FF	117	3 1/2H EB FF FB	3 1/2 EB FS	5	3 1/2H EB SLEEVE	28	3 1/2H FHUB	28	3 1/2H FHUB FB
4	4H EB FF	180	4H EB FF FB	4 EB FS	5	4H EB SLEEVE	41	4H FHUB	47	4H FHUB FB
4 1/2	4 1/2H EB FF	244	4 1/2H EB FF FB	4 1/2 EB FS	7	4 1/2H EB SLEEVE	53	4 1/2H FHUB	66	4 1/2H FHUB FB
5	5H EB FF	361	5H EB FF FB	5 EB FS	9	5H EB SLEEVE	80	5H FHUB	96	5H FHUB FB
5 1/2	5 1/2H EB FF	422	5 1/2H EB FF FB	5 1/2 EB FS	14	5 1/2H EB SLEEVE	89	5 1/2H FHUB	115	5 1/2H FHUB
6	6H EB FF	494	6H EB FF FB	6 EB FS	14	6H EB SLEEVE	100	6H FHUB	140	6H FHUB
7	7H EB FF	822	7H EB FF FB	7 EB FS	22	7H EB SLEEVE	160	7H FHUB	240	7H FHUB

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 BoreØ Part No.	Part No.	Wt.	Part No.	Wt.	No Bore Part No.	Wt.	Finish BoreØ Part No.
1	1H SB FF	10	1H SB FF FB	1 SB FS	1	1H SB SLEEVE	2	1H FHUB	3	1H FHUB FB
1 1/2	1 1/2H SB FF	19	1 1/2H SB FF FB	1 1/2 SB FS	1	1 1/2H SB SLEEVE	6	1 1/2H FHUB	3	1 1/2H FHUB FB
2	2H SB FF	30	2H SB FF FB	2 SB FS	1	2H SB SLEEVE	8	2H FHUB	7	2H FHUB FB
2 1/2	2 1/2H SB FF	52	2 1/2H SB FF FB	2 1/2 SB FS	2	2 1/2H SB SLEEVE	13	2 1/2H FHUB	12	2 1/2H FHUB FB
3	3H SB FF	76	3H SB FF FB	3 SB FS	2	3H SB SLEEVE	15	3H FHUB	20	3H FHUB FB
3 1/2	3 1/2H SB FF	117	3 1/2H SB FF FB	3 1/2 SB FS	4	3 1/2H SB SLEEVE	26	3 1/2H FHUB	28	3 1/2H FHUB FB
4	4H SB FF	180	4H SB FF FB	4 SB FS	4	4H SB SLEEVE	37	4H FHUB	47	4H FHUB FB
4 1/2	4 1/2H SB FF	244	4 1/2H SB FF FB	4 1/2 SB FS	4	4 1/2H SB SLEEVE	50	4 1/2H FHUB	66	4 1/2H FHUB FB
5	5H SB FF	361	5H SB FF FB	5 SB FS	7	5H SB SLEEVE	72	5H FHUB	96	5H 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 (Exposed Bolts) Part Numbers

Coupling Size	Full Flex	Male Half w/Access	Female Half w/Access	Hub	Male Sleeve	Female Sleeve	End Ring	Center Flange Fastener Set (includes gasket)	End Ring Fastener Set (includes gasket)
8	8H EB FF	8H EB MH	8H EB FH	8H FHUB	8H EB MSLEEVE	8H EB FSLEEVE	8H ERING	8 EB FS	8 ERFS
9	9H EB FF	9H EB MH	9H EB FH	9H FHUB	9H EB MSLEEVE	9H EB FSLEEVE	9H ERING	9 EB FS	9 ERFS
10	10H EB FF	10H EB MH	10H EB FH	10H FHUB	10H EB MSLEEVE	10H EB FSLEEVE	10H ERING	10 EB FS	10 ERFS
11	11H EB FF	11H EB MH	11H EB FH	11H FHUB	11H EB MSLEEVE	11H EB FSLEEVE	11H ERING	11 EB FS	11 ERFS
12	12H EB FF	12H EB MH	12H EB FH	12H FHUB	12H EB MSLEEVE	12H EB FSLEEVE	12H ERING	12 EB FS	12 ERFS
13	13H EB FF	13H EB MH	13H EB FH	13H FHUB	13H EB MSLEEVE	13H EB FSLEEVE	13H ERING	13 EB FS	13 ERFS
14	14H EB FF	14H EB MH	14H EB FH	14H FHUB	14H EB MSLEEVE	14H EB FSLEEVE	14H ERING	14 EB FS	14 ERFS
15	15H EB FF	15H EB MH	15H EB FH	15H FHUB	15H EB MSLEEVE	15H EB FSLEEVE	15H ERING	15 EB FS	15 ERFS
16	16H EB FF	16H EB MH	16H EB FH	16H FHUB	16H EB MSLEEVE	16H EB FSLEEVE	16H ERING	16 EB FS	16 ERFS
18	18H EB FF	18H EB MH	18H EB FH	18H FHUB	18H EB MSLEEVE	18H EB FSLEEVE	18H ERING	18 EB FS	18 ERFS
20	20H EB FF	20H EB MH	20H EB FH	20H FHUB	20H EB MSLEEVE	20H EB FSLEEVE	20H ERING	20 EB FS	20 ERFS
22	22H EB FF	22H EB MH	22H EB FH	22H FHUB	22H EB MSLEEVE	22H EB FSLEEVE	22H ERING	22 EB FS	22 ERFS
24	24H EB FF	24H EB MH	24H EB FH	24H FHUB	24H EB MSLEEVE	24H EB FSLEEVE	24H ERING	24 EB FS	24 ERFS
26	26H EB FF	26H EB MH	26H EB FH	26H FHUB	26H EB MSLEEVE	26H EB FSLEEVE	26H ERING	26 EB FS	26 ERFS
28	28H EB FF	28H EB MH	28H EB FH	28H FHUB	28H EB MSLEEVE	28H EB FSLEEVE	28H ERING	28 EB FS	28 ERFS
30	30H EB FF	30H EB MH	30H EB FH	30H FHUB	30H EB MSLEEVE	30H EB FSLEEVE	30H ERING	30 EB FS	30 ERFS

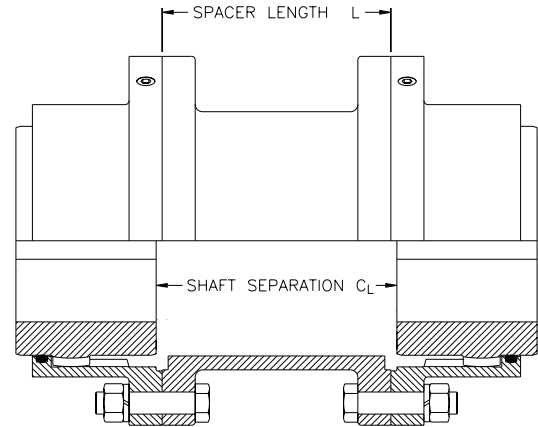
Standard Spacer Couplings

Full-flex spacer couplings are used for 4 bearing installations with extended shaft separations. Tabulated here 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 .

$$L = C_L - C \quad (\text{full-flex, close coupled})$$



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		

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		

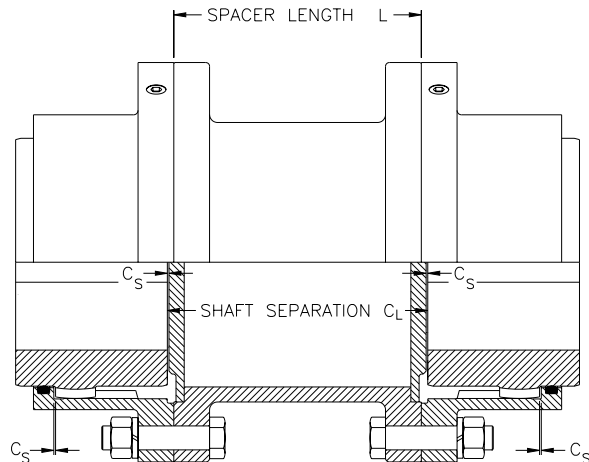
LEF Spacer Couplings

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 installed in each end.

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

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

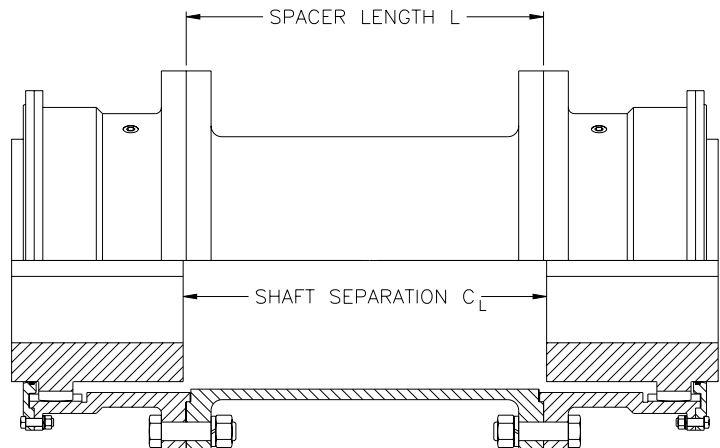
LEF spacers are shorter than standard spacers for a given shaft separation, and are manufactured to order.



Couplings sizes 8 - 30 are also available as spacer couplings for extended shaft separations. These sizes are available in exposed bolt only.

Spacers for coupling sizes 4 - 30 are non-stock and are manufactured to order. LEF spacer couplings are also manufactured to order.

Spacer Couplings Size 8-30

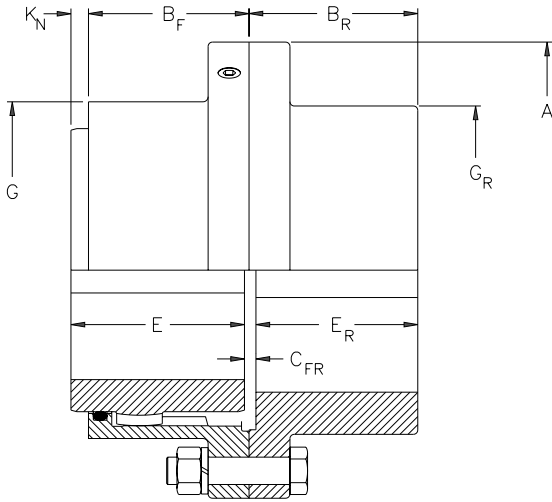


Kop-Flex Coupling Greases

Kop-Flex offers greases specifically designed for use in coupling applications. To ensure proper lubrication and long service life, use Kop-Flex KSG Standard Coupling Grease, or KHP High Performance Coupling Grease. See page M-27 for detailed specifications.

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 Hub [Ⓜ]		
	No Bore Part No.	Wt.	Finish Bore [Ⓞ] Part No.	No Bore Part No.	Wt.	Finish Bore [Ⓞ] Part No.
1	1H EB FR	10	1H EB FR FB	1 EB RHUB	5	1 EB RHUB FB
1 1/2	1 1/2H EB FR	19	1 1/2H EB FR FB	1 1/2 EB RHUB	9	1 1/2 EB RHUB FB
2	2H EB FR	31	2H EB FR FB	2 EB RHUB	15	2 EB RHUB FB
2 1/2	2 1/2H EB FR	55	2 1/2H EB FR FB	2 1/2 EB RHUB	27	2 1/2 EB RHUB FB
3	3H EB FR	83	3H EB FR FB	3 EB RHUB	40	3 EB RHUB FB
3 1/2	3 1/2H EB FR	126	3 1/2H EB FR FB	3 1/2 EB RHUB	65	3 1/2 EB RHUB FB
4	4H EB FR	184	4H EB FR FB	4 EB RHUB	90	4 EB RHUB FB
4 1/2	4 1/2H EB FR	252	4 1/2H EB FR FB	4 1/2 EB RHUB	124	4 1/2 EB RHUB FB
5	5H EB FR	371	5H EB FR FB	5 EB RHUB	119	5 EB RHUB FB
5 1/2	5 1/2H EB FR	418	5 1/2H EB FR FB	5 1/2 EB RHUB	200	5 1/2 EB RHUB FB
6	6H EB FR	504	6H EB FR FB	6 EB RHUB	250	6 EB RHUB FB
7	7H EB FR	792	7H EB FR FB	7 EB RHUB	370	7 EB RHUB FB

Coupling Type SB (Shrouded Bolts) Part Numbers

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

Ⓞ All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances.

Ⓜ Rigid hubs are furnished less fasteners.

Flex-Rigid Coupling Data

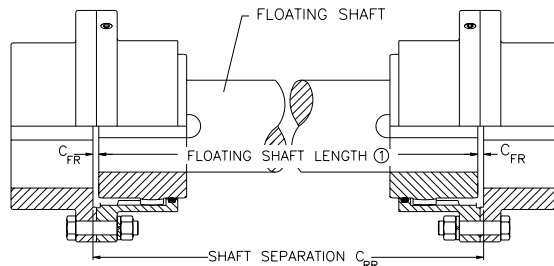
Coupling Size	Maximum Bore with Standard Keyway		Rating HP / 100 RPM	Torque Rating (lb.-in.)	Peak Torque Rating (lb.-in.)	Maximum Speed (RPM) [Ⓜ]	Dimensions						
	Flex	Rigid					A	B _F	B _R	C _{FR} [Ⓞ]	E	E _R	G _R
1	1 5/8	2 1/4	12	7500	15000	14500	4 9/16	1 17/32	1 21/32	3 9/16	1 11/16	1 9/16	3
1 1/2	2 1/4	2 11/16	27	17000	34000	12000	6	1 25/32	1 15/16	4 1/8	1 15/16	1 27/32	3 13/16
2	2 3/4	3 3/8	50	31500	63000	9300	7	2 11/32	2 3/8	5	2 7/16	2 9/32	4 13/16
2 1/2	3 1/2	4	90	56700	113400	7900	8 3/8	2 11/16	3	6 5/16	3 1/32	2 29/32	5 3/4
3	4	4 3/4	160	101000	202000	6800	9 7/16	3 9/32	3 9/16	7 7/16	3 19/32	3 15/32	6 3/4
3 1/2	4 1/2	5 1/2	235	148000	296000	6000	11	3 27/32	4 1/8	8 5/8	4 3/16	4 1/32	7 3/4
4	5 1/2	6 3/8	375	236000	472000	5260	12 1/2	4 3/8	4 5/8	9 5/8	4 3/4	4 7/16	9
4 1/2	6	7 1/4	505	318000	636000	4770	13 5/8	4 27/32	5 1/4	10 15/16	5 5/16	5 1/16	10 1/8
5	6 7/8	8 1/2	700	441000	882000	4300	15 5/16	5 17/32	5 7/8	12 3/16	6 1/32	5 11/16	11 3/8
5 1/2*	7 3/4	8	920	580000	1160000	3880	16 3/4	6 7/32	7 5/32	14 3/4	6 29/32	6 31/32	10 3/4
6*	8 5/8	8 3/4	1205	759000	1518000	3600	18	6 21/32	7 21/32	15 3/4	7 13/32	7 15/32	11 1/2
7*	10 3/8	10	1840	1160000	2320000	3000	20 3/4	7 11/16	9	18 1/2	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.

Ⓞ Floating shaft length is equal to the shaft separation minus 2 times the C_{FR} dimension.

Ⓜ Max. speed is based on flange stress limits and does not consider lateral critical speed considerations for floating shaft applications.

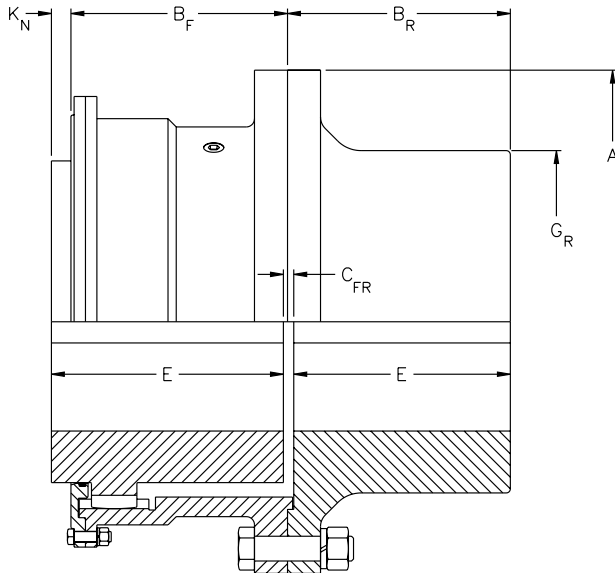
FLOATING SHAFT ASSEMBLY



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.

Flex-Rigid and Floating Shaft Couplings Size 8 - 30



Coupling Type EB
(Exposed Bolts) Part Numbers

Coupling Size	Flex Rigid w/Access	Male Rigid	Female Rigid
8	8H EB FR	8H EB MRHUB	8H EB FRHUB
9	9H EB FR	9H EB MRHUB	9H EB FRHUB
10	10H EB FR	10H EB MRHUB	10H EB FRHUB
11	11H EB FR	11H EB MRHUB	11H EB FRHUB
12	12H EB FR	12H EB MRHUB	12H EB FRHUB
13	13H EB FR	13H EB MRHUB	13H EB FRHUB
14	14H EB FR	14H EB MRHUB	14H EB FRHUB
15	15H EB FR	15H EB MRHUB	15H EB FRHUB
16	16H EB FR	16H EB MRHUB	16H EB FRHUB
18	18H EB FR	18H EB MRHUB	18H EB FRHUB
20	20H EB FR	20H EB MRHUB	20H EB FRHUB
22	22H EB FR	22H EB MRHUB	22H EB FRHUB
24	24H EB FR	24H EB MRHUB	24H EB FRHUB
26	26H EB FR	26H EB MRHUB	26H EB FRHUB
28	28H EB FR	28H EB MRHUB	28H EB FRHUB
30	30H EB FR	30H EB MRHUB	30H EB FRHUB

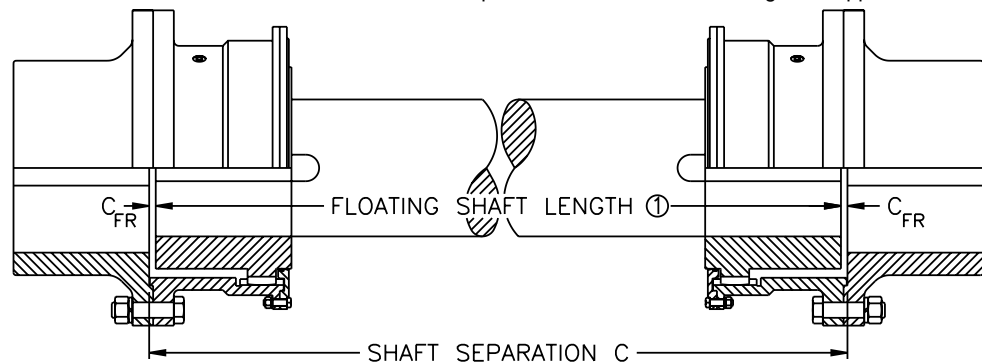
Coupling Size	Maximum Bore with Standard Key		Rating HP / 100 RPM	Torque Rating (lb.-in. x 1000)	Peak Torque Rating (lb.-in. x 1000)	Maximum Speed (RPM) ②	Weight with Solid Hubs (lb.)	Dimensions					
	Flex	Rigid						A	B _F	B _R	C _{FR} ①	E	G _R
8	10 3/4	11	2230	1404	2808	1750	1470	23 1/4	9 3/4	10 1/8	1/2	9 13/16	15 1/4
9	11 3/4	12 3/4	3170	1995	3990	1625	1960	26	10 7/8	11 13/16	9/16	10 7/8	17 1/4
10	13	13 1/2	4350	2744	5488	1500	2720	28	12	12 3/8	5/8	12	19
11	15	15	5780	3645	7290	1375	3520	30 1/2	13 1/8	13 1/2	5/8	13 1/8	20 3/4
12	16 1/4	16 1/4	7190	4532	9064	1250	4450	33	13 7/8	14 1/4	5/8	13 7/8	22 5/8
13	17 1/2	18	9030	5688	11376	1125	5480	35 3/4	14 3/4	15	3/4	14 5/8	24 5/8
14	18 3/4	19	11080	6982	13964	1000	6560	38	15 5/8	15 7/8	3/4	15 1/2	26 1/4
15	20 3/4	20 1/2	13470	8488	16976	875	7920	40 1/2	16 9/16	16 7/8	3/4	16 1/2	28
16	22	22	16100	10150	20300	750	9560	43	17 1/2	17 7/8	1	17 3/8	29 3/4
18	25 1/4	25	21100	13300	26600	500	12400	47 1/4	18 1/16	18 1/2	1	18	34
20	27 1/4	26	28800	18144	36288	400	16500	53 1/2	21 3/16	21 5/8	1	21 1/8	36
22	30	27	38100	24009	48018	300	21000	59	23	23 5/8	1 1/8	23	38
24	33 1/4	28	42400	26699	53398	200	26300	64 1/4	24 3/4	25 3/8	1 1/8	24 3/4	40
26	36 3/4	29	53000	33415	66830	200	32000	68 1/2	26 1/2	27 1/8	1 1/8	26 1/2	42
28	40	30	65900	41564	83128	200	37700	73 3/4	27 1/8	27 3/4	1 1/8	27 1/8	44
30	43 1/2	36	80300	50614	101228	200	43400	78	27 5/8	28 1/4	1 1/8	27 5/8	50

NOTE: Couplings are only available with exposed bolts.

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

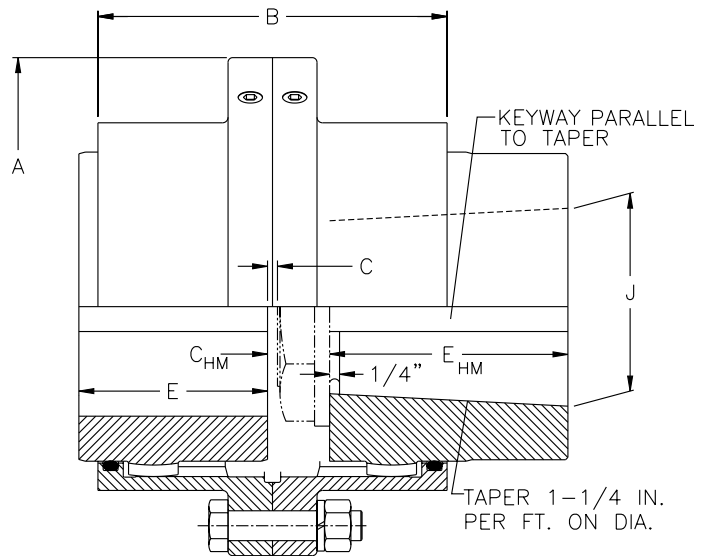


Ordering Instructions: When ordering floating shaft couplings, be sure to include hp and rpm, shaft separation, and equipment shaft sizes. Applications with very large shaft separations and/or high speeds may require tubular floating shafts due to lateral critical speed concerns.

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.

The Series H Mill Motor Coupling is designed for use on AISE and other mill motors having tapered shafts with locknuts, and are used primarily in the metals industry. This design is also commonly used on other types of equipment which use tapered shafts with locknuts, such as turbines, pumps, and compressors.

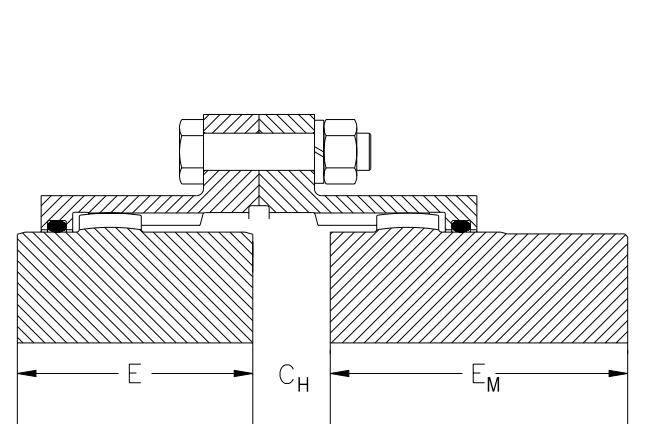
The standard "composite" mill motor hub is a semi-finished hub which can be modified and bored to fit a variety of AISI mill motor frames. Note that one size of coupling will fit several motor frames; conversely, several sizes may fit a single motor frame. See page M-33 for proper coupling selection.



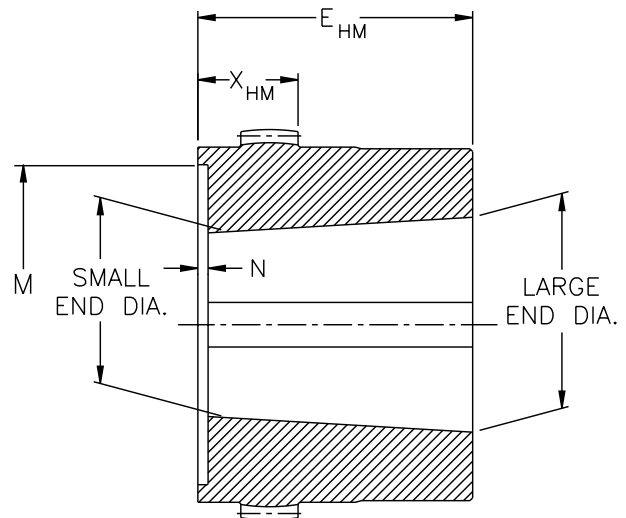
Coupling Size	Maximum Bore with Standard Key	Rating HP / 100 RPM	Torque Rating (lb.-in.)	Peak Torque Rating (lb.-in.)	Maximum Speed (RPM)	Weight with Solid Hubs (lb.)	Dimensions		
							A	B	E
1 1/2	2 1/4	27	17000	34000	12000	22.9	6	3 9/16	1 15/16
2	2 3/4	50	31500	63000	9300	38.9	7	4 11/16	2 7/16
2 1/2	3 1/2	90	56700	113400	7900	70	8 3/8	5 3/8	3 1/32
3	4	160	101000	202000	6800	100	9 7/16	6 9/16	3 19/32
3 1/2	4 1/2	235	148000	296000	6000	155	11	7 11/16	4 3/16
4	5 1/2	375	236000	472000	5260	219	12 1/2	8 3/4	4 3/4
4 1/2	6	505	318000	636000	4770	298	13 5/8	9 11/16	5 5/16
5	6 7/8	700	441000	882000	4300	433	15 5/16	11 1/16	6 1/32
5 1/2*	7 3/4	920	580000	1160000	3880	610	16 3/4	12 7/16	6 29/32
6*	8 5/8	1205	759000	1518000	3600	718	18	13 5/16	7 13/32

See next page for additional dimensions.

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



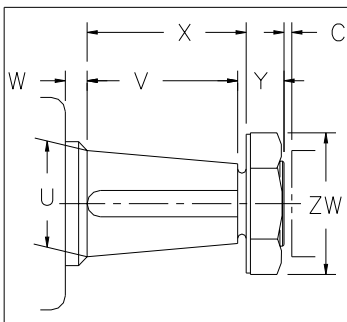
MILL MOTOR COMPOSITE HUB
ROUGH BORED



MILL MOTOR COMPOSITE HUB
FINISH BORED

Type MM Coupling Size	For: AISE Mill Motor Frame Sizes	Rough Bored Composite Hub Dimensions & Part Numbers				Finish Bored Composite Hub For AISE Mill Motors Dimensions & Part Numbers										
		Dimensions			Part Number	Dimensions						Bore Dia.		Keyway	Part Number	
		C _H	E _M	X _M		C	C _{HM}	E _{HM}	X _{HM}	M	N	Large End	Small End			
1 1/2	802	3/4	3 7/8	23/32	1 1/2H MMHUB	1/8	3/4	3 5/16	23/32	2 5/8	5/16					1 1/2H MMHUB02
2	602	1 1/16	4 3/16	27/32	2H MMHUB	1/8	1 1/16	3	27/32	-	-	1.749	1.4365	1/2 x 1/4		2H MMHUB02
2 1/2	AC1	1 1/8	5 9/16	1 1/8	2 1/2H MMHUB	3/16	1 1/8	3	1 1/8	-	-					2 1/2H MMHUB02
1 1/2	803	3/4	3 7/8	23/32	1 1/2H MMHUB	1/8	3/4	3 7/8	23/32	2 5/8	3/8					1 1/2H MMHUB03
2	804	1 1/16	4 3/16	27/32	2H MMHUB	1/8	1 1/16	3 9/16	27/32	2 5/8	1/16	1.999	1.6344	1/2 x 1/4		2H MMHUB03
2 1/2	603	1 1/8	5 9/16	1 1/8	2 1/2H MMHUB	3/16	1 3/16	3 1/2	1 1/16	-	-					2 1/2H MMHUB03
3	604	1 3/16	5 5/8	1 5/8	3H MMHUB	3/16	1 3/16	3 1/2	1 5/8	-	-					3H MMHUB03
2	806	1 1/16	4 3/16	27/32	2H MMHUB	1/8	1 1/16	4 3/16	27/32	3 1/8	3/16					2 H MMHUB06
2 1/2	606	1 1/8	5 9/16	1 1/8	2 1/2H MMHUB	3/16	1 5/16	4	15/16	-	-	2.499	2.0823	1/2 x 1/4		2 1/2H MMHUB06
3	AC8	1 3/16	5 5/8	1 5/8	3H MMHUB	3/16	1 5/16	4	1 1/2	-	-					3H MMHUB06
3 1/2	AC12	1 3/8	6 1/8	1 29/32	3 1/2H MMHUB	1/4	1 3/8	4	1 29/32	-	-					3 1/2H MMHUB06
2 1/2	808	1 1/8	5 9/16	1 1/8	2 1/2H MMHUB	3/16	1 9/32	4 21/32	31/32	3 3/4	5/32					2 1/2H MMHUB08
3	608	1 3/16	5 5/8	1 5/8	3H MMHUB	3/16	1 7/16	4 1/2	1 3/8	-	-	2.9985	2.5298	3/4 x 1/4		3H MMHUB08
3 1/2	608	1 3/8	6 1/8	1 29/32	3 1/2H MMHUB	1/4	1 1/2	4 1/2	1 25/32	-	-					3 1/2H MMHUB08
2 1/2	810	1 1/8	5 9/16	1 1/8	2 1/2H MMHUB	3/16	1 9/32	4 25/32	31/32	4	9/32					2 1/2H MMHUB10
3	610	1 3/16	5 5/8	1 5/8	3H MMHUB	3/16	1 9/16	4 1/2	1 1/4	-	-	3.2485	2.7798	3/4 x 1/4		3H MMHUB10
3 1/2	AC18	1 3/8	6 1/8	1 29/32	3 1/2H MMHUB	1/4	1 5/8	4 1/2	1 21/32	-	-					3 1/2H MMHUB10
4	610	1 9/16	6	2 3/16	4H MMHUB	1/4	1 5/8	4 1/2	2 1/8	-	-					4H MMHUB10
2 1/2	812	1 1/8	5 9/16	1 1/8	2 1/2H MMHUB	3/16	1 9/32	5 13/32	31/32	4 1/4	13/32					2 1/2H MMHUB12
3	612	1 3/16	5 5/8	1 5/8	3H MMHUB	3/16	1 11/16	5	1 1/8	-	-	3.623	3.1022	3/4 x 1/4		3H MMHUB12
3 1/2	AC25	1 3/8	6 1/8	1 29/32	3 1/2H MMHUB	1/4	1 3/4	5	1 17/32	-	-					3 1/2H MMHUB12
4	612	1 9/16	6	2 3/16	4H MMHUB	1/4	1 3/4	5	2	-	-					4H MMHUB12
4 1/2	AC30	1 5/8	7 3/16	2 19/32	4 1/2H MMHUB	5/16	1 13/16	5	2 13/32	-	-					4 1/2H MMHUB12
3	814	1 3/16	5 5/8	3 9/32	3H MMHUB	3/16	1 11/16	5 1/4	1 1/8	5 1/4	1/8					3H MMHUB14
3 1/2	614	1 3/8	6 1/8	1 29/32	3 1/2H MMHUB	1/4	1 7/8	5	1 13/32	-	-	4.248	3.7272	1 x 3/8		3 1/2H MMHUB14
4	AC40	1 9/16	6	2 3/16	4H MMHUB	1/4	1 7/8	5	1 7/8	-	-					4H MMHUB14
4 1/2	614	1 5/8	7 3/16	2 19/32	4 1/2H MMHUB	5/16	1 15/16	5	2 9/32	-	-					4 1/2H MMHUB14
5	AC50	1 5/8	8 5/16	3 9/32	5H MMHUB	5/16	1 15/16	5	2 31/32	-	-					5H MMHUB14
3 1/2	816	1 3/8	6 1/8	1 29/32	3 1/2H MMHUB	1/4	2	5 1/2	1 9/32	-	-					3 1/2H MMHUB16
4	616	1 9/16	6	2 3/16	4H MMHUB	1/4	2	5 1/2	1 3/4	-	-					4H MMHUB16
4 1/2	616	1 5/8	7 3/16	2 19/32	4 1/2H MMHUB	5/16	2 1/16	5 1/2	2 5/32	-	-	4.6225	4.0496	1 1/4 x 3/8		4 1/2H MMHUB16
5	616	1 5/8	8 5/16	3 9/32	5H MMHUB	5/16	2 1/16	5 1/2	2 27/32	-	-					5H MMHUB16
5 1/2	616	1 5/8	10 5/16	3 7/8	5 1/2H MMHUB	5/16	2 1/16	5 1/2	3 7/16	-	-					5 1/2H MMHUB16
6	616	1 5/8	10 5/16	4 5/16	6H MMHUB	5/16	2 1/16	5 1/2	3 7/8	-	-					6H MMHUB16
4	818	1 9/16	6	2 3/16	4H MMHUB	1/4	1 9/16	6	2 3/16	-	-					4H MMHUB18
4 1/2	618	1 5/8	7 3/16	2 19/32	4 1/2H MMHUB	5/16	1 5/8	6	2 19/32	-	-	4.9975	4.3725	1 1/4 x 1/2		4 1/2H MMHUB18
5	618	1 5/8	8 5/16	3 9/32	5H MMHUB	5/16	1 5/8	6	3 9/32	-	-					5H MMHUB18
5 1/2	618	1 5/8	10 5/16	3 7/8	5 1/2H MMHUB	5/16	1 5/8	6	3 7/8	-	-					5 1/2H MMHUB18
6	618	1 5/8	10 5/16	4 5/16	6H MMHUB	5/16	1 5/8	6	4 5/16	-	-					6H MMHUB18
4 1/2	620	1 5/8	7 3/16	2 19/32	4 1/2H MMHUB	5/16	2 1/16	6 3/4	2 5/32	-	-	5.872	5.1689	1 1/2 x 3/4		4 1/2H MMHUB20
5	620	1 5/8	8 5/16	3 9/32	5H MMHUB	5/16	2 1/16	6 3/4	2 27/32	-	-					5H MMHUB20
5 1/2	620	1 5/8	10 5/16	3 7/8	5 1/2H MMHUB	5/16	2 1/16	6 3/4	3 7/16	-	-					5 1/2H MMHUB20
6	620	1 5/8	10 5/16	4 5/16	6H MMHUB	5/16	2 1/16	6 3/4	3 7/8	-	-					6H MMHUB20
5	622	1 5/8	8 5/16	3 9/32	5H MMHUB	5/16	2 11/16	7 1/4	2 7/32	-	-	6.247	5.4918	1 1/2 x 3/4		5H MMHUB22
5 1/2	622	1 5/8	10 5/16	3 7/8	6H MMHUB	5/16	2 11/16	7 1/4	2 13/16	-	-					6H MMHUB22
6	622	1 5/8	10 5/16	4 5/16	7H MMHUB	5/16	2 11/16	7 1/4	3 1/4	-	-					7H MMHUB22
5 1/2	624	1 5/8	10 5/16	3 7/8	5 1/2H MMHUB	5/16	2 11/16	9 1/4	2 13/16	-	-	6.9965	6.0330	1 1/2 X 3/4		6H MMHUB24
6	624	1 5/8	10 5/16	4 5/16	7H MMHUB	5/16	2 11/16	9 1/4	3 1/4	-	-					7H MMHUB24

*ALL KEYWAYS SHOWN ARE PARALLEL TO THE TAPER. TAPER IS 1/4 INCH PER FOOT ON DIAMETER.



TAPERED BORES For Tapered Shafts, with or without locknut, determine applicable AISE Mill Motor frame or give data below:

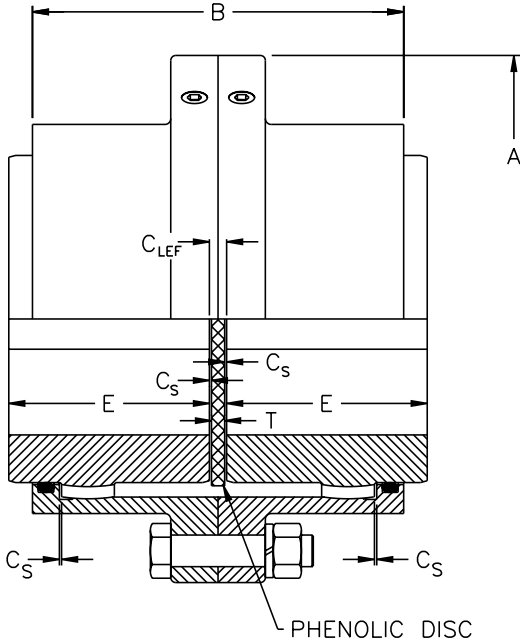
1. U Major diameter.
2. V Length of tapered portion of shaft.
3. X Length to face of lockwasher.
4. Y Length of threaded projection.
5. ZW Locknut diameter across corners.
6. W Clearance to bearing housing.
7. Taper (inches on diameter per foot of length).
8. Keyway width and depth.
9. Whether keyway is parallel to shaft or to taper.
10. C Shaft separation if machines are in place.

Limited End Float Coupling Size 1-7

For sleeve bearing motor applications, a Series H standard full flex coupling is supplied with an LEF disk 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 phenolic LEF disk 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 disk part numbers are listed below. See page M-36 for the standard full flex part numbers.



Coupling Size	Total LEF (in.)	Dimensions						LEF Disk⊙	
		A	B	$C_{S \text{ min.}}$	C_{LEF} (Hub Sep.)	E	T (Disk Width)	Part No.	Wt.
1	1/8	4 9/16	3 1/16	1/32	3/16	1 11/16	1/8	1H LEFD	1
1 1/2	1/8	6	3 9/16	1/32	3/16	1 15/16	1/8	1 1/2H LEFD	1
2	1/8	7	4 11/16	1/32	3/16	2 7/16	1/8	2H LEFD	1
2 1/2	3/16	8 3/8	5 3/8	3/64	9/32	3 1/32	3/16	2 1/2H LEFD	1
3	3/16	9 7/16	6 9/16	3/64	9/32	3 19/32	3/16	3H LEFD	1
3 1/2	3/16	11	7 11/16	3/64	13/32	4 3/16	5/16	3 1/2H LEFD	2
4	3/16	12 1/2	8 3/4	3/64	13/32	4 3/4	5/16	4H LEFD	2
4 1/2	3/16	13 5/8	9 11/16	3/64	17/32	5 5/16	7/16	4 1/2H LEFD	2
5	3/16	15 5/16	11 1/16	3/64	17/32	6 1/32	7/16	5H LEFD	2
5 1/2*	3/16	16 3/4	12 7/16	3/64	19/32	6 29/32	1/2	5 1/2H LEFD	2
6*	3/16	18	13 5/16	3/64	19/32	7 13/32	1/2	6H LEFD	2
7*	3/16	20 3/4	15 3/8	1/16	3/4	8 11/16	5/8	7H LEFD	2

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

⊙ LEF Disks are used only in close coupled applications. One disk is required per coupling.

Note: For ratings and max. bores refer to page M-34.

Kop-Flex Coupling Greases

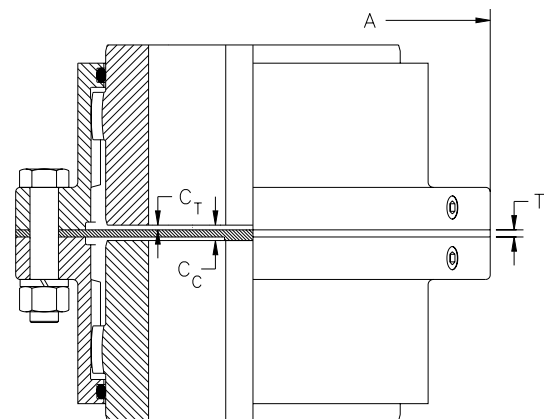
Kop-Flex offers greases specifically designed for use in coupling applications. To ensure proper lubrication and long service life, use Kop-Flex KSG Standard Coupling Grease, or KHP High Performance Coupling Grease. See page M-27 for detailed specifications.

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

Vertical Coupling Size 1-7

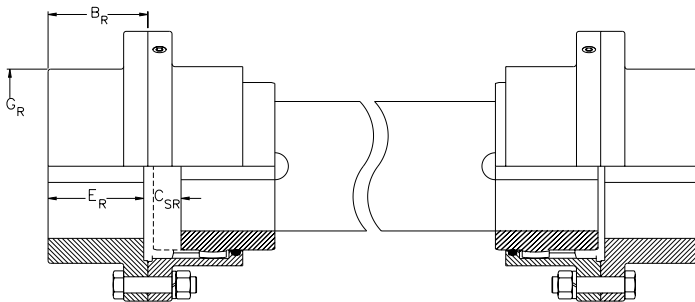
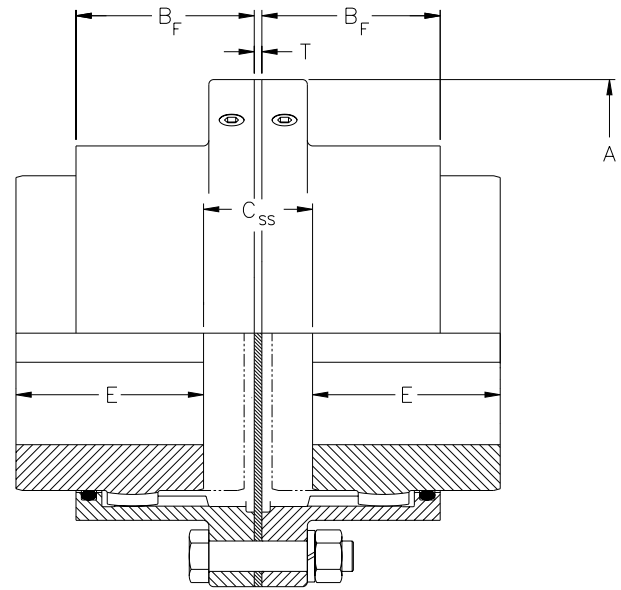
*Coupling Size	Dimensions				Vertical Plate⊙		Fastener Set (includes gasket)	
	A	C_T	C_C	T	Part No.	Wt.	Part No.	Wt.
1	4 9/16	1/16	1/4	1/8	1H EB VP	1	1 EB VSFS	1
1 1/2	6	1/16	1/4	1/8	1 1/2H EB VP	1	1 1/2 EB VSFS	1
2	7	1/16	1/4	1/8	2H EB VP	2	2 EB VSFS	1
2 1/2	8 3/8	3/32	5/16	1/8	2 1/2H EB VP	2	2 1/2 EB VSFS	2
3	9 7/16	3/32	5/16	1/8	3H EB VP	3	3 EB VSFS	3
3 1/2	11	1/8	7/16	3/16	3 1/2H EB VP	4	3 1/2 EB VSFS	5
4	12 1/2	1/8	7/16	3/16	4H EB VP	7	4 EB VSFS	5
4 1/2	13 5/8	5/32	1/2	3/16	4 1/2H EB VP	10	4 1/2 EB VSFS	7
5	15 5/16	5/32	1/2	3/16	5H EB VP	12	5 EB VSFS	9
5 1/2	16 3/4	5/32	9/16	1/4	5 1/2H EB VP	15	5 1/2 EB VSFS	14
6	18	5/32	9/16	1/4	6H EB VP	19	6 EB VSFS	14
7	20 3/4	3/16	11/16	5/16	7H EB VP	25	7 EB VSFS	22

* Exposed bolts are standard for all sizes.



The Series H Slide coupling is designed for drive systems that require greater end float or slide than a conventional application. Spacer couplings, floating shaft arrangements, and most coupling types can be supplied with a Slide flex half in one or both flex half couplings.

For Flex-Rigid arrangements used in floating shaft couplings, no stop plate is required and a standard EB fastener set (FS) is used.



FLOATING SHAFT ASSEMBLY

Coupling Size*	Total Slide ^⓪		Dimensions										
	Full-Flex	Flex-Rigid	A	B_F	B_R	C_{SS} Hub & Shaft Separation		C_{SR} Hub & Shaft Separation		E	E_R	T	O
						Max.	Min.	Max.	Min.				
1	1/8	3/32	4 9/16	1 17/32	1 21/32	1/4	3/8	1/8	7/32	1 11/16	1 9/16	1/8	2 3/8
1 1/2	3/8	7/32	6	1 25/32	1 15/16	1/4	5/8	1/8	11/32	1 15/16	1 27/32	1/8	3 1/8
2	7/8	15/32	7	2 11/32	2 3/8	1/4	1 1/8	1/8	19/32	2 7/16	2 9/32	1/8	4
2 1/2	9/16	5/16	8 3/8	2 11/16	3	5/16	7/8	5/32	15/32	3 1/32	2 29/32	1/8	4 7/8
3	1 7/16	3/4	9 7/16	3 9/32	3 9/16	5/16	1 3/4	5/32	29/32	3 19/32	3 15/32	1/8	5 5/8
3 1/2	1 5/8	7/8	11	3 27/32	4 1/8	7/16	2 1/16	5/32	1 1/32	4 3/16	4 1/32	3/16	6 1/2
4	2	1 1/16	12 1/2	4 3/8	4 5/8	7/16	2 7/16	1/4	1 5/16	4 3/4	4 7/16	3/16	7 3/4
4 1/2	2 1/4	1 7/32	13 5/8	4 27/32	5 1/4	1/2	2 3/4	1/4	1 15/32	5 5/16	5 1/16	3/16	8 1/2
5	3 5/16	1 3/4	15 5/16	5 17/32	5 7/8	1/2	3 13/16	1/4	2	6 1/32	5 11/16	3/16	9 1/2
5 1/2	3 9/16	1 7/8	16 3/4	6 7/32	7 5/32	9/16	4 1/8	5/16	2 3/16	6 29/32	6 31/32	1/4	10 1/2
6	4 1/16	2 1/8	18	6 21/32	7 21/32	9/16	4 5/8	5/16	2 7/16	7 13/32	7 15/32	1/4	11 1/2
7	4 7/8	2 9/16	20 3/4	7 11/16	9	11/16	5 9/16	3/8	2 15/16	8 11/16	8 3/4	5/16	13 1/2

*Exposed bolts are standard for all sizes.

Note: For ratings, max. bores and additional dimensions, see page M-38.

Coupling Size	Full Flex Coupling			Stop Plate		Fastener Set (Includes Gasket)		Slide Sleeve		Flex Hub	
	No Bore Part No.	Wt.	Finish Bore ^⓪ Part No.	Part No.	Wt.	Part No.	Wt.	Part No.	Wt.	No Bore Part No.	Wt.
1	1H EB SSFF	10	1H EB SSFF FB	1EB SP	1	1 EB VSFS	1	1H EB SSLEEVE	2	1H FHUB	3
1 1/2	1 1/2H EB SSFF	18	1 1/2H EB SSFF FB	1 1/2 EB SP	1	1 1/2 EB VSFS	1	1 1/2H EB SSLEEVE	6	1 1/2H FHUB	3
2	2H EB SSFF	28	2H EB SSFF FB	2 EB SP	2	2 EB VSFS	1	2H EB SSLEEVE	8	2H FHUB	6
2 1/2	2 1/2H EB SSFF	50	2 1/2H EB SSFF FB	2 1/2 EB SP	2	2 1/2 EB VSFS	2	2 1/2H EB SSLEEVE	14	2 1/2H FHUB	11
3	3H EB SSFF	74	3H EB SSFF FB	3 EB SP	3	3 EB VSFS	3	3H EB SSLEEVE	17	3H FHUB	18
3 1/2	3 1/2H EB SSFF	110	3 1/2H EB SSFF FB	3 1/2 EB SP	4	3 1/2 EB VSFS	5	3 1/2H EB SSLEEVE	28	3 1/2H FHUB	26
4	4H EB SSFF	170	4H EB SSFF FB	4 EB SP	7	4 EB VSFS	5	4H EB SSLEEVE	41	4H FHUB	44
4 1/2	4 1/2H EB SSFF	230	4 1/2H EB SSFF FB	4 1/2 EB SP	10	4 1/2 EB VSFS	7	4 1/2H EB SSLEEVE	53	4 1/2H FHUB	62
5	5H EB SSFF	350	5H EB SSFF FB	5 EB SP	12	5 EB VSFS	9	5H EB SSLEEVE	80	5H FHUB	90
5 1/2	5 1/2H EB SSFF	400	5 1/2H EB SSFF FB	5 1/2 EB SP	15	5 1/2 EB VSFS	14	5 1/2H EB SSLEEVE	89	5 1/2H FHUB	105
6	6H EB SSFF	470	6H EB SSFF FB	6 EB SP	19	6 EB VSFS	14	6H EB SSLEEVE	100	6H FHUB	130
7	7H EB SSFF	790	7H EB SSFF FB	7 EB SP	25	7 EB VSFS	22	7H EB SSLEEVE	160	7H FHUB	210

* Exposed bolts are standard for all sizes.

⓪ 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.

HIGH PERFORMANCE COUPLINGS

KOP-FLEX®

HIGH PERFORMANCE DISC COUPLINGS...

Available In Four Standard Styles...

Designed And Manufactured To Meet API 671 As A Standard (For more Information, see Bulletin HP103)

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 Kop-Flex HP disc coupling is the preferred choice for demanding turbo machinery applications. Superior quality and a wide variety of standard and custom designs backed by unsurpassed engineering expertise combined to 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



Size #5.5 MDM-J
diaphragm coupling



RM Series



MS Series



RZ Series



MP Series

KOP-FLEX High Performance Flexible Diaphragm Couplings (For more Information, see Bulletin 1300)

The patented Flexible Diaphragm Coupling from KOP-FLEX 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 are:

- 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



KOP-FLEX® Reduced Moment
High Performance Disc Coupling

KOP-FLEX High Performance Gear Couplings (For more Information, Contact KOP-FLEX)

- 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.



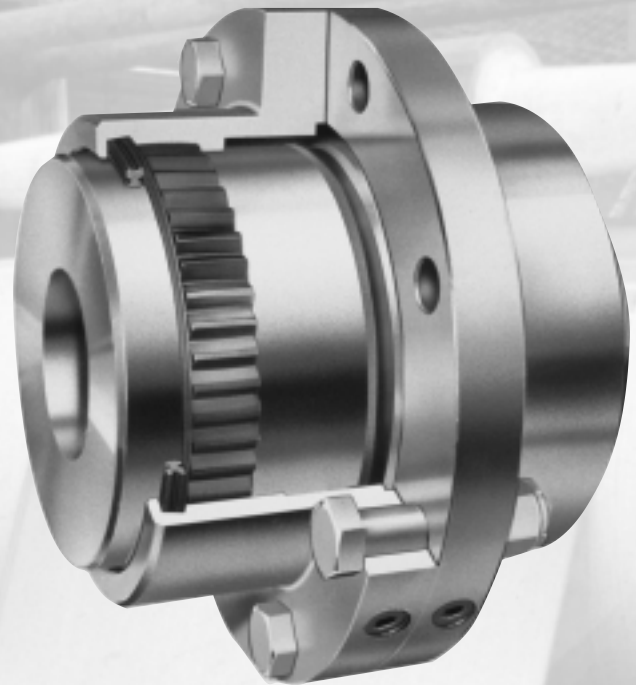
Waldron® Gear Couplings Size 1 through 7

High Strength 40° Tooth

Superior High
Misalignment Seal

Economical
Gear Coupling Design

Powerlign® Flangeless
Couplings for a Rugged,
Compact Design



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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.

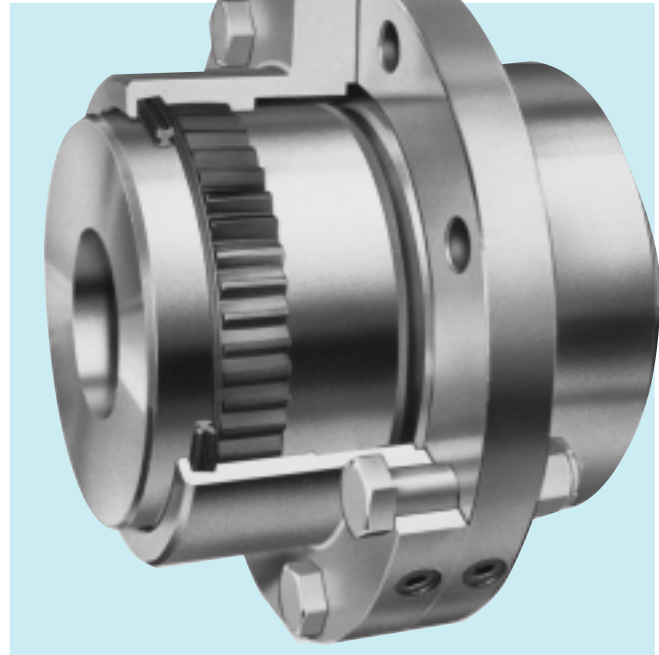
QUALITY EXPOSED FASTENERS consist of SAE Grade 5 bolts with hex nuts and lock washers. Installation is simple, without special tools. Shrouded bolts optional.

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

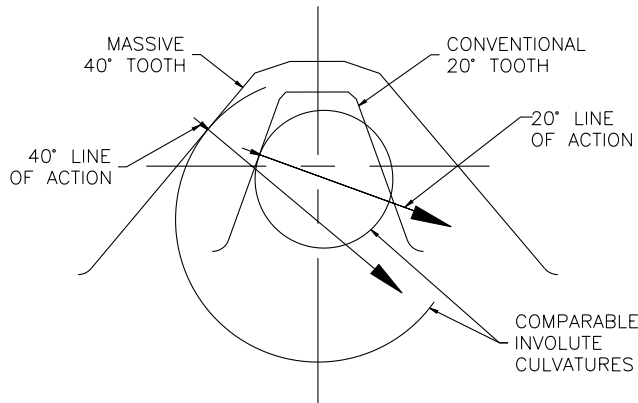
AVAILABLE OFF-THE-SHELF in reborables with large bore capabilities or stock finish bored.

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

INTERCHANGEABLE by half coupling with competitive coupling designs.



Waldron® Size 1-7

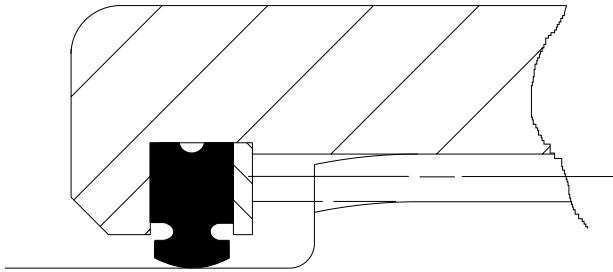


**20° vs. 40° Tooth Comparison
on the same pitch diameter**

Advantages of the 40° Pressure Angle Tooth

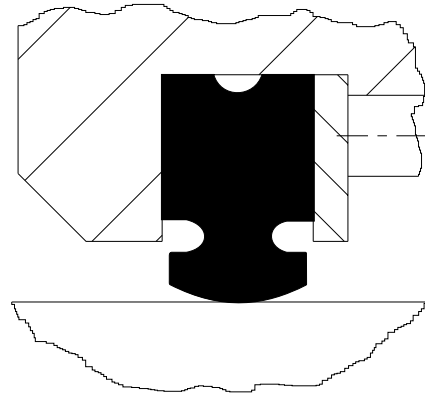
- STRONGER TOOTH**
 The line of action of the force exerted at the pitch line of the new Performance Profile crosses the root circle near the center of the tooth rather than outside the tooth, as in the case of conventional gear teeth. The result is an appreciable reduction in root stress which helps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

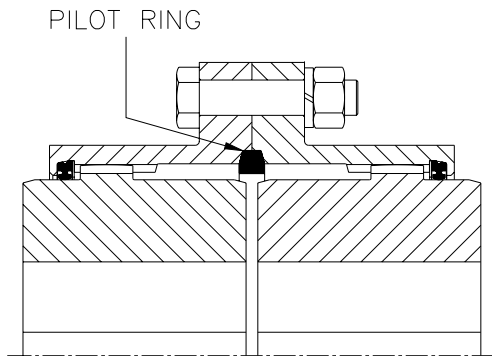
HIGH MISALIGNMENT SEAL



Competitive gear couplings incorporate an "O" ring seal. In order to conform with today's high misalignment capacities, these "O" rings 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

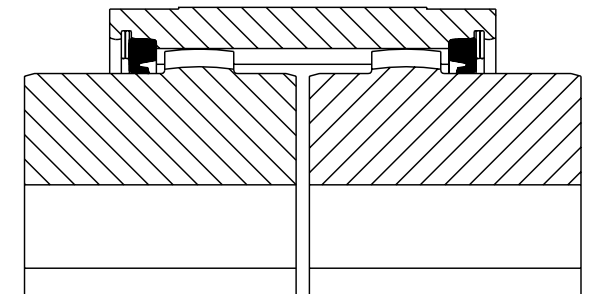
The standard Waldron coupling consists of two identical half couplings. Optional precision steel pilot rings are available when more accurate centering of the two sleeves is required.



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.



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

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).

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

Application	Typical Service Factor
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

Application	Typical Service Factor
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.

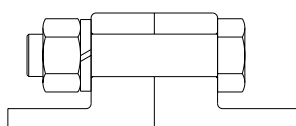
1. **Select Coupling Based on Bore Capacity.**
Select the coupling size that has a maximum bore capacity equal to or larger than the larger of the two shafts. For interference fits larger than AGMA standards, consult Kop-Flex.
2. **Verify Coupling Size Based on Load Rating.**
 - a. Select appropriate Service Factor from the Table on page M-48.
 - b. Calculate required HP / 100 RPM:

$$\frac{\text{HP} \times \text{Service Factor} \times 100}{\text{RPM}} = \text{HP} / 100 \text{ RPM}$$
 - c. Verify that the selected coupling has a rating greater than or equal to the required HP / 100 RPM.

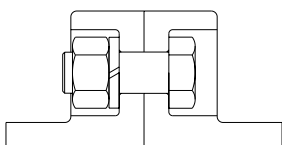
3. **Check Balance Requirements.**
Consult Dynamic Balancing Guide to help determine if balancing is required. Verify that the maximum operating speed does not exceed the maximum speed rating of the coupling. The maximum speed rating does not consider lateral critical speed considerations for floating shaft applications.

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



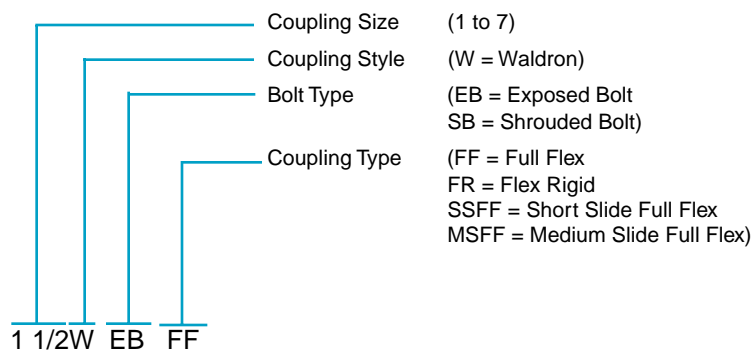
TYPE SB -
SHROUDED BOLTS

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 1/4	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 4 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



Coupling Parts

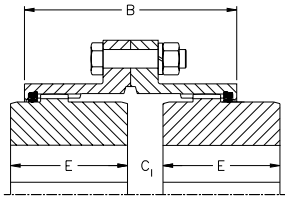
Description

- *FH = Flex Half
- *FHUB = Flex Hub
- *VHUB = Vertical Hub
- *RHUB = Rigid Hub
- *MSHUB = Medium Slide Hub
- SLEEVE = Standard Sleeve
- SSLEEVE = Slide 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

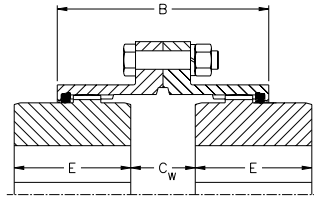
* For finish bored hubs, add FB and bore size. All finish bores and keyways per AGMA 9002-A86 with interference fits. Clearance bores are available on request with one setscrew over keyway.

1 1/2H FHUB FB

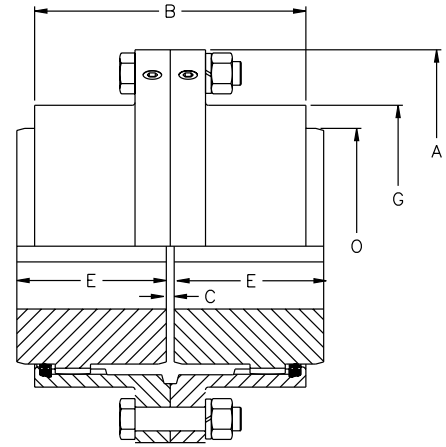
A conventional 4-bearing system has two bearings on the driving shaft and two bearings on the driven shaft. Both angular and offset shaft misalignment will be present to some degree and a full flex coupling is mandatory. The full flex coupling is the standard coupling having two gear ring sets, one set per half coupling. For selection procedure see page M-49.



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 ₁	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 Bore [Ⓞ] Part No.	Part No.	Wt.	Part No.	Wt.	No Bore Part No.	Wt.	Finish Bore [Ⓞ] Part No.
1	1W EB FF	10	1W EB FF FB	1 EB FS	1	1W EB SLEEVE	2	1W FHUB	3	1W FHUB
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
6	6W EB FF	494	6W EB FF FB	6 EB FS	14	6W EB SLEEVE	100	6W FHUB	140	6W FHUB
7	7W EB FF	822	7W EB FF FB	7 EB FS	22	7W EB SLEEVE	160	7W FHUB	240	7W FHUB

Ⓞ 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 Bore [Ⓞ] Part No.	Part No.	Wt.	Part No.	Wt.	No Bore Part No.	Wt.	Finish Bore [Ⓞ] 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

Ⓞ 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.

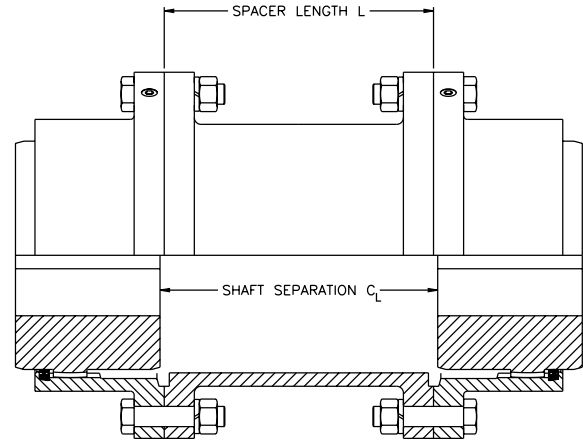
Standard Spacer Couplings

Full-flex spacer couplings are used for 4 bearing installations with extended shaft separations. Tabulated here 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 .

$$L = C_L - C \quad (\text{full-flex, close coupled})$$



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		

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		

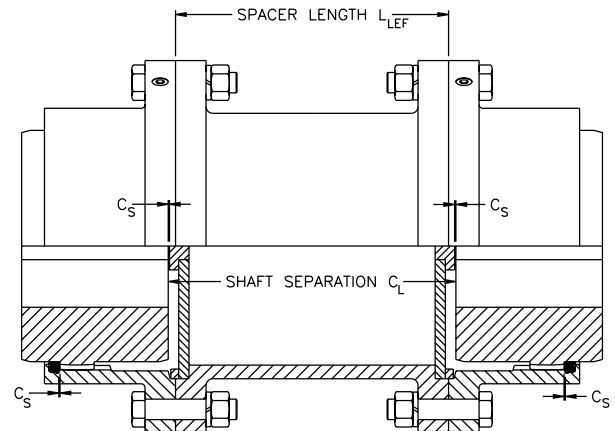
LEF Spacer Couplings

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 installed in each end.

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

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

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



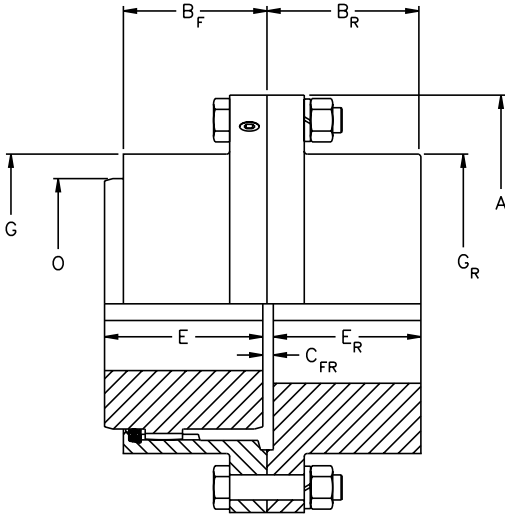
Spacer Couplings

Kop-Flex Coupling Greases

Kop-Flex offers greases specifically designed for use in coupling applications. To ensure proper lubrication and long service life, use Kop-Flex KSG Standard Coupling Grease, or KHP High Performance Coupling Grease. See page M-27 for detailed specifications.

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 Hub [Ⓞ]		
	No Bore Part No.	Wt.	Finish Bore [Ⓞ] Part No.	No Bore Part No.	Wt.	Finish Bore [Ⓞ] 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 Hub [Ⓞ]		
	No Bore Part No.	Wt.	Finish Bore [Ⓞ] Part No.	No Bore Part No.	Wt.	Finish Bore [Ⓞ] 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

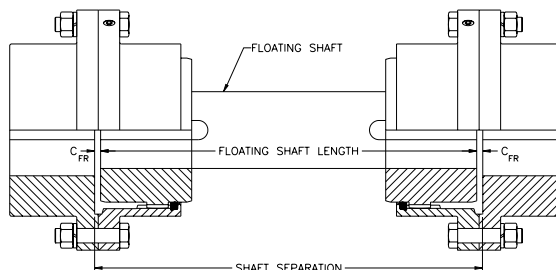
Coupling Size	Maximum Bore with Standard Keyway		Rating HP / 100 RPM	Torque Rating (lb.-in.)	Peak Torque Rating (lb.-in.)	Maximum Speed (RPM) ^②	Dimensions						
	Flex	Rigid					A	B _F	B _R	C _{FR} [Ⓞ]	E	E _R	G _R
1	1 5/8	2 1/4	10	6300	12600	10000	4 9/16	3 3/16	1 21/32	5/32	1 11/16	1 9/16	3
1 1/2	2 3/16	2 11/16	24	15100	30200	7400	6	3 7/8	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.

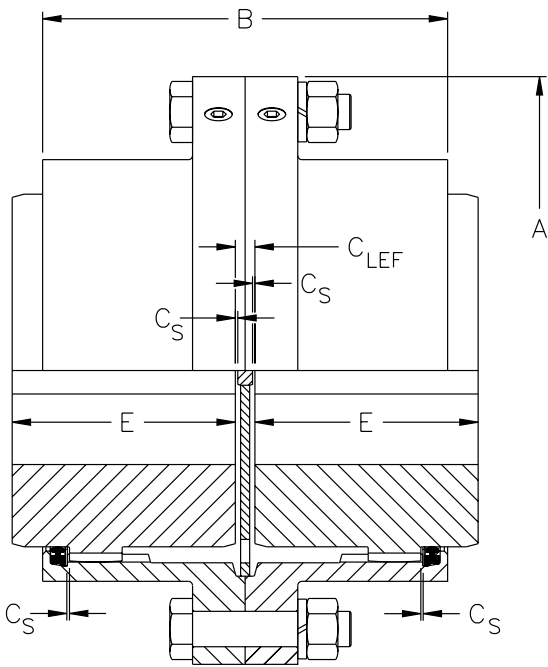
Important: Care must be exercised in proper selection of any shaft coupling. The Users must assure themselves that the design of the shaft to coupling hub connection is adequate for the duty intended.

Limited End Float Coupling Size 1-7

For sleeve bearing motor applications, a Waldron standard full flex coupling is supplied with an LEF disk 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 disk 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 disk part numbers are listed below. See page M-50 for the standard full flex part numbers.



Coupling Size	Total LEF (in.)	Dimensions					LEF Disk [Ⓞ]	
		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	19/32	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	1/16	3/4	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.

Ⓞ LEF Disks are used only in close coupled applications. One disk is required per coupling.

Note: For ratings and max. bores refer to page M-50.

Kop-Flex Coupling Greases

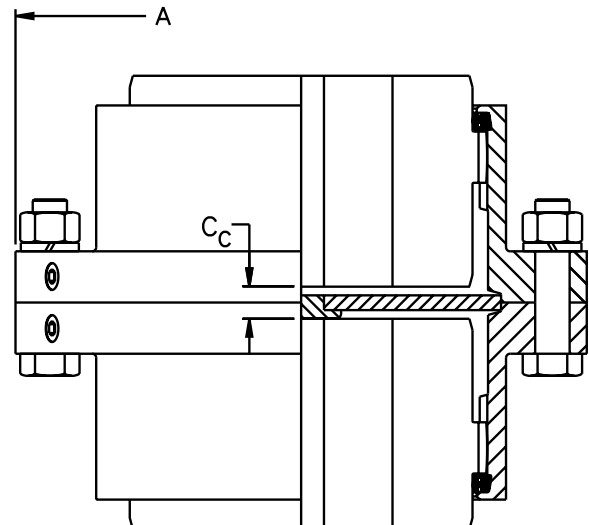
Kop-Flex offers greases specifically designed for use in coupling applications. To ensure proper lubrication and long service life, use Kop-Flex KSG Standard Coupling Grease, or KHP High Performance Coupling Grease. See page M-27 for detailed specifications.

For vertical applications, a standard full flex coupling is supplied with a vertical plate, and standard flange fasteners are used. 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	Part No.	Wt.	Part No.	Wt.
1	4 9/16	3/8	1W VP	1	1W VHUB	3
1 1/2	6	3/8	1 1/2W VP	1	1 1/2W VHUB	3
2	7	3/8	2W VP	2	2W VHUB	7
2 1/2	8 3/8	3/8	2 1/2W VP	2	2 1/2W VHUB	12
3	9 7/16	3/8	3W VP	3	3W VHUB	20
3 1/2	11	3/8	3 1/2W VP	4	3 1/2W VHUB	28
4	12 1/2	3/4	4W VP	7	4W VHUB	47
4 1/2	13 5/8	3/4	4 1/2W VP	10	4 1/2W VHUB	66
5	15 5/16	3/4	5W VP	12	5W VHUB	96
5 1/2	16 3/4	3/4	5 1/2W VP	15	5 1/2W VHUB	115
6	18	3/4	6W VP	19	6W VHUB	140
7	20 3/4	7/8	7W VP	25	7W VHUB	240

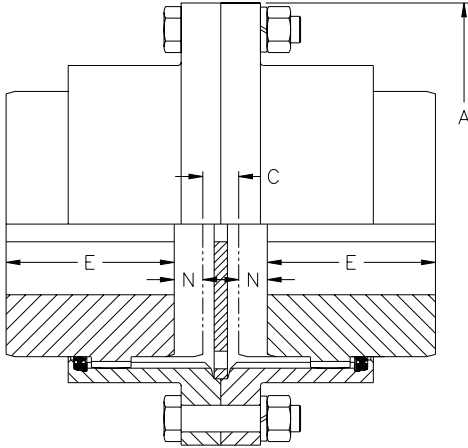
* Exposed bolts are standard for all sizes. Shrouded bolts are available for sizes 1 through 5.

Vertical Coupling Size 1-7



To provide additional axial movement a short slide coupling can be assembled from 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 M-50 for the standard hub and fastener set part numbers.



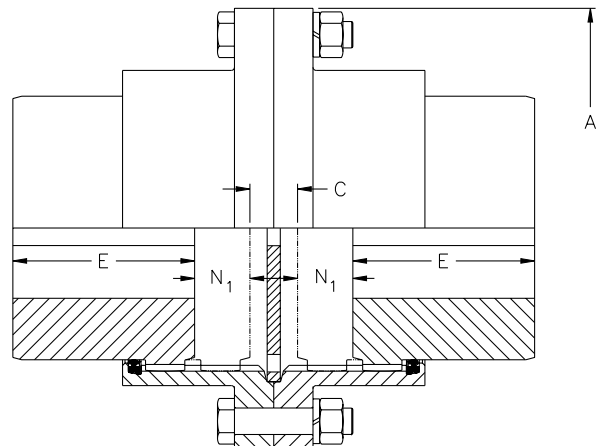
Coupling Size	Total Slide	Dimensions				Slide Sleeve		Center Plate	
		A	C _{MIN}	N	E	Part No.	Wt.	Part No.	Wt.
1	5/16	4 9/16	5/16	5/32	1 11/16	1W SSLEEVE	2	1W SP	1
1 1/2	11/16	6	5/16	11/32	2 1/16	11/2W SSLEEVE	6	1 1/2W SP	1
2	1 3/16	7	5/16	19/32	2 7/16	2W SSLEEVE	8	2W SP	1
2 1/2	1 1/4	8 3/8	3/8	5/8	3 1/32	2 1/2W SSLEEVE	14	2 1/2W SP	1
3	1 1/2	9 7/16	3/8	3/4	3 19/32	3W SSLEEVE	17	3W SP	1
3 1/2	1 15/16	11	7/16	31/32	4 3/16	3 1/2W SSLEEVE	28	3 1/2W SP	2
4	2	12 1/2	5/8	1	4 3/4	4W SSLEEVE	41	4W SP	2
4 1/2	2 1/4	13 5/8	11/16	1 1/8	5 3/8	4 1/2W SSLEEVE	53	4 1/2W SP	2
5	2 3/8	15 5/16	11/16	1 3/16	6 1/8	5W SSLEEVE	80	5W SP	2
5 1/2	2 3/4	16 3/4	11/16	1 3/8	6 5/8	5 1/2W SSLEEVE	89	5 1/2W SP	2
6	3 5/8	18	11/16	1 13/16	7 3/8	6W SSLEEVE	100	6W SP	2
7	3 1/8	20 3/4	7/8	1 9/16	8 11/16	6 1/2W SSLEEVE	160	7W SP	2

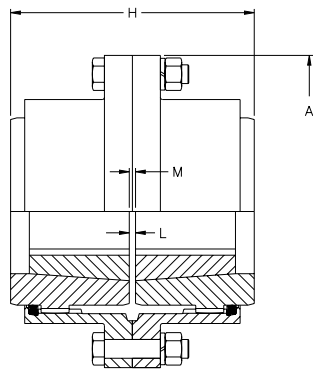
Medium Slide Coupling Size 1-7

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.

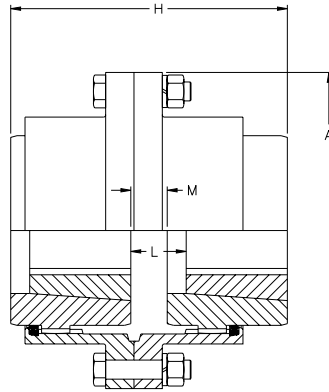
The medium slide hub part numbers are listed below. See above for slide sleeve and stop plate part numbers and page 6 for standard fastener set part numbers.

Coupling Size	Total Slide	Dimensions				Medium Slide Hub	
		A	C _{MIN}	N	E	Part No.	Wt.
1	1	4 9/16	5/16	1/2	1 19/32	1W MSHUB	3
1 1/2	1 7/16	6	5/16	23/32	1 31/32	1 1/2W MSHUB	3
2	1 15/16	7	5/16	31/32	2 11/32	2W MSHUB	7
2 1/2	2 1/2	8 3/8	3/8	1 1/4	2 15/16	2 1/2W MSHUB	12
3	3	9 7/16	3/8	1 1/2	3 3/8	3W MSHUB	20
3 1/2	3 11/16	11	7/16	1 27/32	4	3 1/2W MSHUB	28
4	4 1/16	12 1/2	5/8	2 1/32	4 7/16	4W MSHUB	47
4 1/2	4 11/16	13 5/8	11/16	2 11/32	5	4 1/2W MSHUB	66
5	5 5/16	15 5/16	11/16	2 21/32	5 5/8	5W MSHUB	96
5 1/2	5 7/8	16 3/4	11/16	2 15/16	6	5 1/2W MSHUB	115
6	6 13/16	18	11/16	3 13/32	6 7/8	6W MSHUB	140
7	7 5/8	20 3/4	7/8	3 13/16	7 5/8	7W MSHUB	240

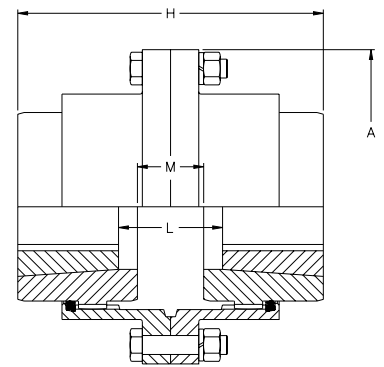




INBOARD



INBOARD, OUTBOARD



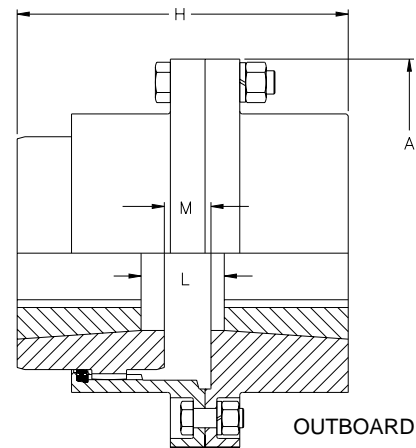
OUTBOARD

Full-Flex Dimensions

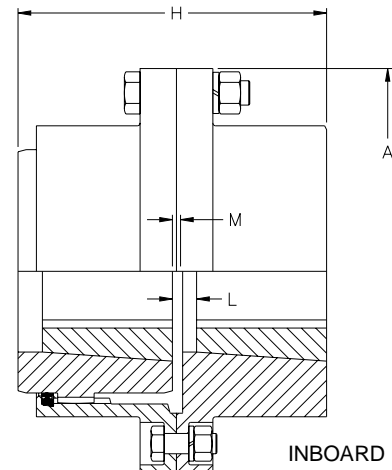
Coupling Size	Bushing Bore Range		Rating HP / 100 RPM	Maximum Speed (RPM)	Dimensions									
	Min.	Max.			A	Inboard			Inboard, Outboard			Outboard		
						H	L	M	H	L	M	H	L	M
1	1/2	1 1/4	4	6900	4 9/16	3 1/2	1/8	3/8	3 3/4	7/16	3/8	4	1	5/8
1 1/2	1/2	1 5/8	8	5660	6	4 1/4	1/8	9/16	4 11/16	29/32	9/16	5 1/8	2 1/8	1
2	1/2	2	15	4850	7	5	1/8	13/16	5 11/16	1 21/32	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	29/32	6 31/32	1 5/64	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	1 1/32	8 7/32	1 13/64	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 5/16	9 11/16	1 15/32	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 7/16	10 15/16	1 19/32	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



INBOARD

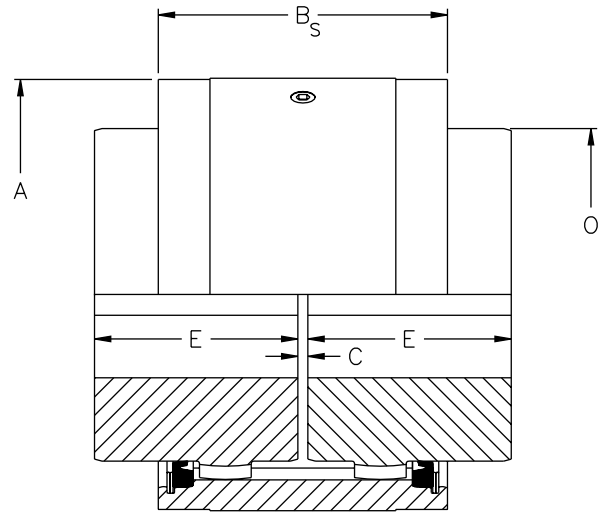
Part Numbers①

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 FHUBTLX1215	2	1 1/2W SB RHUBTLX1215	7
2	2W FHUBTLX1215	6	2W SB RHUBTLX1215	10
2 1/2	2 1/2W FHUBTLX1215	10	2 1/2W SB RHUBTLX1215	20
3	3W FHUBTLX1215	15	3W SB RHUBTLX1215	31
3 1/2	3 1/2W FHUBTLX1215	20	3 1/2W SB RHUBTLX1215	55
4	4W FHUBTLX1215	36	4W SB RHUBTLX1215	78

① See page M-50 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® coupling line 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 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	145000	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	3/8	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 4 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 BoreⓄ Part No.	Part No.	Wt.	No Bore	
	Part No.	Wt.				Part No.	Wt.
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 BoreⓄ	
	Part No.	Wt.	Part No.	Wt.
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 BoreⓄ	
	Part No.	Wt.	Part No.	Wt.
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.
1/8	1 1/8W PL FRSLEEVE	5
1 5/8	1 5/8W PL FRSLEEVE	7

Ⓞ 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.



KOP-GRID[®]

Tapered Grid Couplings

Interchangeable
with other Tapered
Grid Couplings

Tapered,
Shot peened grids
Quick, easy installation
Low Maintenance

For:
Petrochemical
and Refining
Material Handling
Pulp and Paper
Food and Textile
General Purpose



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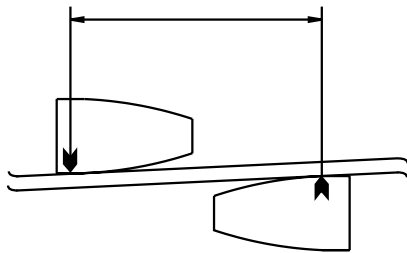


Torsional Damping

The grid design functions as a resilient coupling by damping torsional vibration and cushioning shock loads, resulting in reduced vibration at the output end of the coupling. Peak loading is reduced, for smooth torque transmission, to help protect connected equipment from potentially damaging vibratory loads.

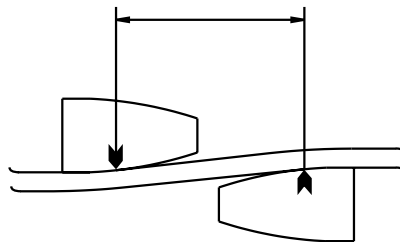
Overload Protection

A second function of the grid design is that it can act much like a protective overload shear device. During an extreme overload, the grid can shear, reducing the possibility of damage to expensive machinery and equipment.



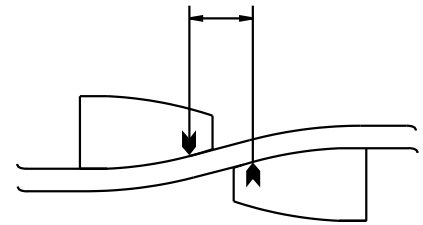
Light Load

The outer edges of the grid contact the hub tapered teeth for light loads, leaving a long span to bear the load variations and still compensate for misalignment.



Normal Load

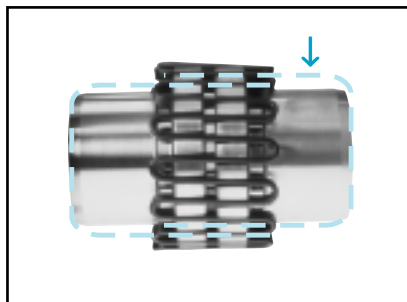
The grid is free to flex and dampen shock loads, even as the load increases. The span between the support ends shortens with increasing load, however the grid is still free to flex, cushioning shock and compensating for misalignment.



Shock Load

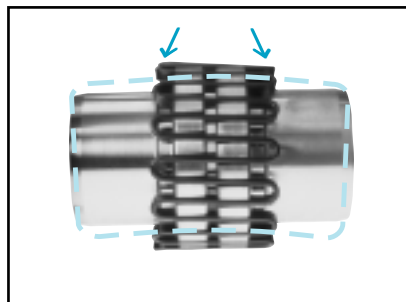
The Kop-Grid coupling when under extreme loads, transmits the full load directly to driven equipment with the entire grid in full contact with the hub tapered teeth. Yet, the coupling is flexible within its rated capacity.

Kop-Grid tapered grid couplings are your best choice to protect your investment in expensive driving and driven equipment from misalignment, shock loads and vibration, while accommodating reasonable shaft end float.



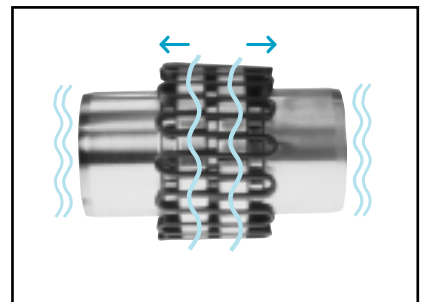
Offset (Parallel)

Movement of the grid in the hub grooves accommodates parallel misalignment while dampening shock and vibration.



Angular

With angular misalignment, the grid/groove design permits a rocking and sliding action of grid and hubs without loss of power through the resilient grid.



End Float (Axial)

End float is permitted for both driving and driven shafts because the grid slides freely in the lubricated grooves.



T10 with Horizontal Split Covers

Ideal for multipurpose industrial applications

- Typical Applications:
 - Pulp Processing Machinery
 - Agitators and Aerators
 - Wood Grinders, Chippers
 - Conveyors and Crushers
 - Steel and Aluminum shaping
 - Textile and Food Machinery
- Interchangeable with other tapered grid couplings
- Horizontally split, aluminum alloy cover
- Easy installation and access to tapered grids
- Easy assembly in confined spaces
- Absorbs moderate shock and vibratory loads. Torsionally flexible
- Suitable for reversing service
- Socket head capscrews and self-locking nuts
- Steel hubs — straight bores or standard bushings



T20 with Vertical Split Covers

Designed for higher speed applications

- Typical Applications:
 - Food and Grain Process Equipment
 - Chemical Process Machinery
 - Screw Compressors and Vacuum Pumps
 - Fans, Blowers and Dryers
 - Gearbox Input Shafts
- Interchangeable with other tapered grid couplings
- Vertically split, corrosion resistant steel covers. Grade 8 hex head fasteners
- Torsionally flexible
- Steel hubs — straight bores or standard bushings



T31 Full Spacer

For general purpose, process pump applications

- Typical Applications:
 - Centrifugal Pumps such as: Stock and Chemical Process
 - Fish and Slurry Pumps
 - Petrochemical Process Lines
 - Municipal and Wastewater Pumps
 - Descaling and Pulp Pumps
- Interchangeable with other tapered grid couplings
- Full spacer version for process pumps
- Drop-out center spacer section for easy pump & equipment maintenance
- Horizontally split, aluminum alloy cover
- Standard shaft separations available from stock. Large bore capacity shaft hubs
- Grade 8 hex head shaft/spacer hub fasteners



T35 Half Spacer

For applications requiring moderate shaft separations

- Typical Applications:
 - Fans, Blowers and Dryers
 - Centrifugal Process Pumps
 - Vacuum Pumps
 - Crushers and Pulverizers
- Interchangeable with other tapered grid couplings
- Half spacer style for shorter shaft separations
- Uses standard, interchangeable components
- Horizontally split, aluminum alloy cover
- Steel hubs — straight bores or standard bushings
- Easily installed and maintained

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).

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

Application	Typical Service Factor
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

Application	Typical Service Factor
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.

1. Coupling Type:

Select the appropriate KOP-GRID coupling type for your application. See page 3 for coupling types.

2. Coupling Size:

Step 1: Determine the proper service factor from page M-60.

Step 2: Calculate the required HP/100 RPM, using the HP rating of the drive and the coupling speed (RPM) as shown below:

$$\frac{\text{HP} \times \text{SERVICE FACTOR} \times 100}{\text{RPM}} = \text{HP/100 RPM}$$

Step 3: Select the coupling size having a rating sufficient to handle the required HP/100 RPM at the appropriate service factor.

Step 4: Verify that the actual coupling speed (RPM) is equal to or less than the maximum allowable speed rating of the coupling.

Step 5: Verify that the maximum bore of the coupling selected is equal to or larger than either of the equipment shafts.

Step 6: Check the overall dimensions to ensure coupling will not interfere with the coupling guard, piping, or the equipment housings and that it will fit the required shaft separation.

Kop-Grid Coupling Interchange Guide

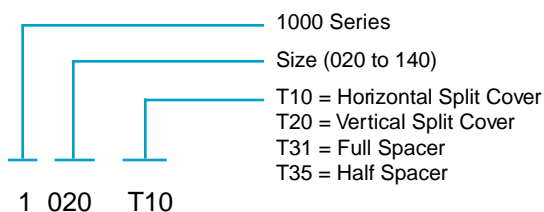
Kop-Grid couplings are interchangeable with other tapered grid couplings, component by component • hubs, grids, seals, and cover assembly

Kop-Grid	* Falk®	* Dodge®	* Lovejoy®
1020T	1020T	1020T	2020
1030T	1030T	1030T	2030
1040T	1040T	1040T	2040
1050T	1050T	1050T	2050
1060T	1060T	1060T	2060
1070T	1070T	1070T	2070
1080T	1080T	1080T	2080
1090T	1090T	1090T	2090
1100T	1100T	1100T	2100
1110T	1110T	1110T	2110
1120T	1120T	1120T	2120
1130T	1130T	1130T	2130
1140T	1140T	1140T	2140

Coupling Types	Kop-Grid	* Lovejoy®	* Dodge®	* Lovejoy®
Horizontally Split Cover	T10	T10	T10	H
Vertically Split Cover	T20	T20	T20	V
Spacer (Full) Coupling	T31	T31	T31	N / A
Half Spacer Coupling	T35	T35	T35	N / A

PART NUMBER EXPLANATION

Complete Rough Bore Coupling



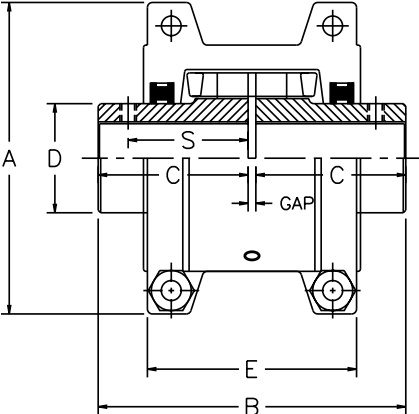
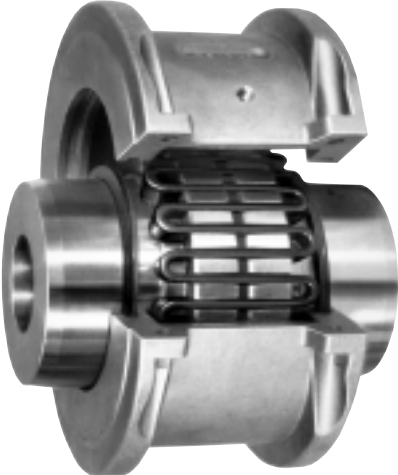
Coupling Parts

- Description
- HUB = Rough Bore Hub
 - HUBxBORE = Finished Bore Hub
 - HUBx(Bushing Size) = Hubs for Split Taper Bushing
 - GRID = Tapered Grid
 - T10 CGA = Cover and Grid Ass'y Horizontal
 - T20 CGA = Cover and Grid Ass'y Vertical
 - T10 Cover = Horizontal Split Cover
 - T20 Cover = Vertical Split Cover
 - T10 AK = Horizontal Cover Accessory Kit
 - T20 AK = Vertical Cover Accessory Kit
 - SHUB = Shaft Hub
 - SHUBx(Bushing Size) = Shaft Hub for Split Taper Bushing
 - SPHxxx = Distance Between Shaft Ends (x.xx)

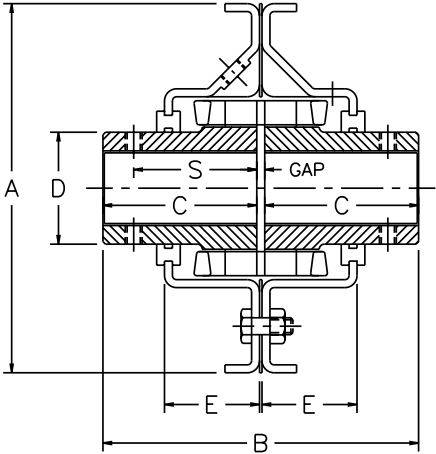
ex. 1020 HUBx5/8

* Manufacturers of comparable tapered grid couplings.

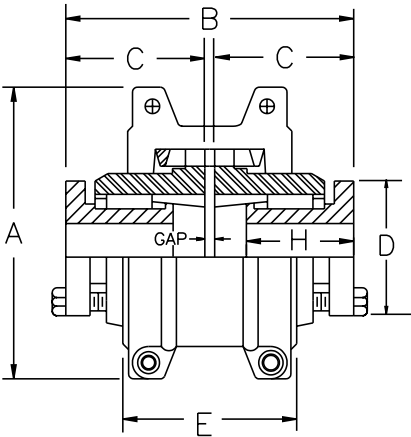
T10 WITH HORIZONTAL SPLIT COVERS



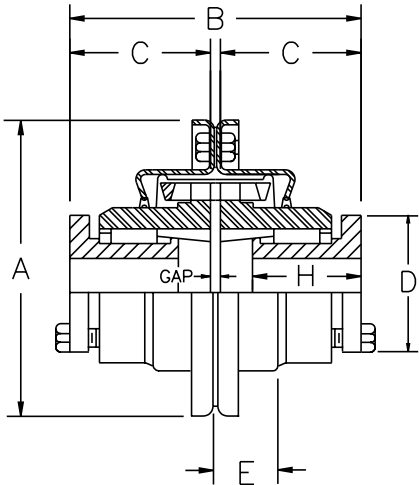
T20 WITH VERTICAL SPLIT COVERS



T10 & T20 WITH BROWNING® SPLIT TAPER BUSHING



T10 W/BUSHINGS



T20 W/BUSHINGS

Table No. 1 Specifications — Kop-Grid T10 with Horizontal Split Covers

Coupling Size	HP per 100 RPM	Torque Rating (lb.-in.)	Maximum Speed RPM	Maximum Bore (Square Key)	Cplg. Wt. With No Bore - lb.	Dimensions - Inches						
						A	B	C	D	E	S	Gap
1020	0.68	422	4500	1.125	4.2	4.00	3.88	1.88	1.56	2.62	1.36	.125
1030	1.93	1200	4500	1.375	5.7	4.38	3.88	1.88	1.94	2.69	1.54	.125
1040	3.22	2000	4500	1.625	7.5	4.62	4.12	2.00	2.25	2.75	1.58	.125
1050	5.63	3500	4500	1.875	12	5.44	4.88	2.38	2.62	3.12	1.75	.125
1060	8.85	5500	4350	2.125	16	5.94	5.12	2.50	3.00	3.62	2.06	.125
1070	13	8000	4125	2.500	22	6.38	6.12	3.00	3.44	3.75	2.12	.125
1080	27	16500	3600	3.000	40	7.64	7.12	3.50	4.12	4.57	2.54	.125
1090	48	30000	3600	3.500	55	8.38	7.88	3.88	4.88	4.81	2.81	.125
1100	81	50500	2440	4.000	93	9.84	9.69	4.75	5.59	6.12	-	.188
1110	121	75000	2250	4.500	119	10.62	10.19	5.00	6.31	6.36	-	.188
1120	177	110000	2025	5.000	179	12.12	12.00	5.88	7.06	7.54	-	.250
1130	257	160000	1800	6.000	267	13.62	13.00	6.38	8.56	7.69	-	.250
1140	370	230000	1650	7.250	393	15.12	14.65	7.19	10.00	7.91	-	.250

Table No. 2 Specifications — Kop-Grid T20 with Vertical Split Covers

Coupling Size	HP per 100 RPM	Torque Rating (lb.-in.)	Maximum Speed RPM	Maximum Bore (Square Key)	Cplg. Wt. With No Bore - lb.	Dimensions - Inches						
						A	B	C	D	E	S	Gap
1020	0.68	422	6000	1.125	4.3	4.38	3.88	1.88	1.56	0.95	1.36	.125
1030	1.93	1200	6000	1.375	5.7	4.75	3.88	1.88	1.94	0.98	1.54	.125
1040	3.22	2000	6000	1.625	7.4	5.06	4.12	2.00	2.25	1.00	1.58	.125
1050	5.63	3500	6000	1.875	12	5.81	4.88	2.38	2.62	1.22	1.75	.125
1060	8.85	5500	6000	2.125	16	6.38	5.12	2.50	3.00	1.28	2.06	.125
1070	13	8000	5500	2.500	23	6.81	6.12	3.00	3.44	1.33	2.12	.125
1080	27	16500	4750	3.000	39	7.88	7.12	3.50	4.12	1.75	2.54	.125
1090	48	30000	4000	3.500	56	9.12	7.88	3.88	4.88	1.88	2.81	.125
1100	81	50500	3250	4.000	93	10.50	9.69	4.75	5.59	2.36	-	.188
1110	121	75000	3000	4.500	120	11.25	10.19	5.00	6.31	2.53	-	.188
1120	177	110000	2700	5.000	180	12.56	12.00	5.88	7.06	2.88	-	.250
1130	257	160000	2400	6.000	270	14.88	13.00	6.38	8.56	2.96	-	.250
1140	370	230000	2200	7.250	397	16.38	14.65	7.19	10.00	3.08	-	.250

Table No. 3 Specifications — Kop-Grid T10 & T20 Couplings for Browning® Split Taper Bushings

Coupling Size	H.P. per 100 RPM	Torque Rating (lb.-in.)	Bushing	Bore Range	Wt. Less Bushing (lb.)	Dimensions - Inches								
						A		B	C	D	E		H	Gap
						T10 Cover	T20 Cover				T10 Cover	T20 Cover		
1040	1.98	1250	G	.375-1.0	6.3	4.62	5.06	4.38	1.94	2.00	2.75	1.00	1.00	.125
1050	4.19	2640	H	.375-1.5	10.0	5.44	5.81	4.88	2.19	2.50	3.12	1.25	1.25	.125
1060	8.71	5500	P1	.5-1.75	13.3	5.94	6.38	5.88	2.63	3.00	3.62	1.25	1.94	.125
1070	13	8000	P1	.5-1.75	18.7	6.38	6.86	5.88	2.63	3.00	3.75	1.38	1.94	.125
1080	26	16500	Q1	.75-2.688	30.6	7.64	7.88	7.19	3.25	4.13	4.56	1.75	2.50	.125
1090	33	20500	Q1	.75-2.688	44.6	8.38	9.12	7.44	3.38	4.13	4.81	1.88	2.50	.125
1100	65	40900	R1	1.125-3.75	70	9.88	10.50	9.00	4.12	5.38	6.12	2.38	2.88	.188
1110	65	40900	R1	1.125-3.75	94	10.62	11.25	9.25	4.25	5.38	6.36	2.50	2.88	.188
1120	127	79800	S1	1.688-4.25	140	12.12	12.56	11.13	5.06	6.38	7.55	3.00	4.38	.250
1130	254	160000	U0	3.25-5.50	199	13.62	14.88	11.56	5.19	8.38	7.69	3.00	4.94	.250
1140	297	187000	U0	3.25-5.50	294	15.12	16.38	11.19	5.31	8.38	7.92	3.12	4.94	.250

Note: See Table 1 and 2 for maximum speeds.

HOW TO ORDER T10 & T20 COUPLINGS

Table No. 4 Kop-Grid Couplings — Hubs, Grid, Cover, Seal and Fastener Kits

Cplg. Size	Complete Rough [®] Bore Couplings		Hubs					T10 Horizontal			T20 Vertical		
	T10 Horizontal Split Cover	T20 Vertical Split Cover	Grid Hub No Bore	Finished Bore and [®] Bored to Size	Grid Hub Bushed	Bush- ing	Tapered Grid Kit	Cover and Grid Assembly	Cover Kit	Accessory Kit	Cover and Grid Assembly	Cover Kit	Accessory Kit
1020	1020T10	1020T20	1020 HUB	1020 HUB x Bore	—	—	1020 GRID	1020T10 CGA	1020T10 COVER	1020T10 AK	1020T20 CGA	1020T20 COVER	1020T20 AK
1030	1030T10	1030T20	1030 HUB	1030 HUB x Bore	—	—	1030 GRID	1030T10 CGA	1030T10 COVER	1030T10 AK	1030T20 CGA	1030T20 COVER	1030T20 AK
1040	1040T10	1040T20	1040 HUB	1040 HUB x Bore	1040 HUBXG	G	1040 GRID	1040T10 CGA	1040T10 COVER	1040T10 AK	1040T20 CGA	1040T20 COVER	1040T20 AK
1050	1050T10	1050T20	1050 HUB	1050 HUB x Bore	1050 HUBXH	H	1050 GRID	1050T10 CGA	1050T10 COVER	1050T10 AK	1050T20 CGA	1050T20 COVER	1050T20 AK
1060	1060T10	1060T20	1060 HUB	1060 HUB x Bore	1060 HUBXP	P1	1060 GRID	1060T10 CGA	1060T10 COVER	1060T10 AK	1060T20 CGA	1060T20 COVER	1060T20 AK
1070	1070T10	1070T20	1070 HUB	1070 HUB x Bore	1070 HUBXP	P1	1070 GRID	1070T10 CGA	1070T10 COVER	1070T10 AK	1070T20 CGA	1070T20 COVER	1070T20 AK
1080	1080T10	1080T20	1080 HUB	1080 HUB x Bore	1080 HUBXQ	Q1	1080 GRID	1080T10 CGA	1080T10 COVER	1080T10 AK	1080T20 CGA	1080T20 COVER	1080T20 AK
1090	1090T10	1090T20	1090 HUB	1090 HUB x Bore	1090 HUBXQ	Q1	1090 GRID	1090T10 CGA	1090T10 COVER	1090T10 AK	1090T20 CGA	1090T20 COVER	1090T20 AK
1100	1100T10	1100T20	1100 HUB	1100 HUB x Bore	1100 HUBXR	R1	1100 GRID	1100T10 CGA	1100T10 COVER	1100T10 AK	1100T20 CGA	1100T20 COVER	1100T20 AK
1110	1110T10	1110T20	1110 HUB	1110 HUB x Bore	1110 HUBXR	R1	1110 GRID	1110T10 CGA	1110T10 COVER	1110T10 AK	1110T20 CGA	1110T20 COVER	1110T20 AK
1120	1120T10	1120T20	1120 HUB	1120 HUB x Bore	1120 HUBXS	S1	1120 GRID	1120T10 CGA	1120T10 COVER	1120T10 AK	1120T20 CGA	1120T20 COVER	1120T20 AK
1130	1130T10	1130T20	1130 HUB	1130 HUB x Bore	1130 HUBXU	U0	1130 GRID	1130T10 CGA	1130T10 COVER	1130T10 AK	1130T20 CGA	1130T20 COVER	1130T20 AK
1140	1140T10	1140T20	1140 HUB	1140 HUB x Bore	1140 HUBXU	U0	1140 GRID	1140T10 CGA	1140T10 COVER	1140T10 AK	1140T20 CGA	1140T20 COVER	1140T20 AK

- ① To order complete Rough Bore Couplings, specify by Part Number only, for example “1020T10”; Rough Bore Hubs, and T10 Cover and Grid Assembly is included.
- ② To order a Coupling with Finished Bore or Bored to Size Hubs, order two hubs, one Cover and Grid Assembly. Specify Hub Part Number x Bore Size, for example “1020HUBx5/8”. If the bore size indicated is shown in Table No. 4, above, then the hub is a Standard Finished Bore Hub; otherwise a Rough Bore Hub must be bored.
- ③ To order a Coupling with Split Taper Bushings, order two Bushed Hubs and two appropriate Bushings, one Cover and Grid Assembly.
- ④ Cover Kits include Seal and Fastener Sets. The Assembly Kits shown are for REPLACEMENT ONLY.

Kop-Flex Coupling Greases
 Kop-Flex offers greases specifically designed for use in coupling applications. To ensure proper lubrication and long service life, use Kop-Flex KSG Standard Coupling Grease. See page M-27 for detailed specifications.

Table No. 5 Standard Clearance Bored Hubs with Set-Screws

Hub Part No.*	Standard Bores (Inches)																					
	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2	2 1/8	2 1/4	2 3/8	2 1/2	2 5/8	2 3/4	2 7/8	3	
1020H	X	X	X	X	X	X	X	X														
1030H		X	X	X	X	X	X	X														
1040H			X	X	X	X	X	X	X	X												
1050H				X	X	X	X	X	X	X	X											
1060H					X	X	X	X	X	X	X	X	X	X								
1070H						X	X	X	X	X	X	X	X	X	X	X	X					
1080H							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Table No. 6 Standard Interference Bored Hubs

Hub Part No.	Standard Bores (Inches)																				
	2 1/2	2 5/8	2 3/4	2 7/8	3	3 1/8	3 1/4	3 3/8	3 1/2	3 5/8	3 3/4	3 7/8	4	4 1/2	5	5 1/2	6	6 1/2	7		
1090H	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1100H	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1110H					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1120H					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1130H						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1140H									X	X	X	X	X	X	X	X	X	X	X	X	X

*Complete Hub Part Number by adding Bore Size. Other bores are available by boring Rough Bore Hubs.
 NOTE — Hub Numbers 1020 HUB through 1190 HUB have clearance fit bores with setscrew over Keyway.
 — Hub Numbers 1100 HUB through 1140 HUB have interference fit bores with no Setscrew.

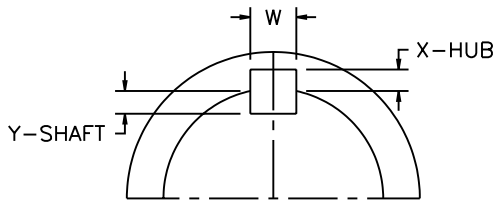
Grid Hub Bore Capacity with Square and Rectangular Keys ① ②

Size	For One Square Key			For One Rectangular Key					
	Max. Bore (in.)	Y = X		Max. Bore (in.)	Y = X		Y = W/2		
		W	X		W	X	W	X	
1020	1.125	.250	.125	1.187	.250	.093	1.250	.250	.062
1030	1.375	.312	.156	1.437	.375	.125	1.562	.375	.062
1040	1.625	.375	.187	1.750	.375	.125	1.750	.375	.062
1050	1.875	.500	.250	2.000	.500	.187	2.125	.500	.125
1060	2.125	.500	.250	2.250	.500	.187	2.375	.625	.125
1070	2.500	.625	.312	2.687	.625	.218	2.875	.750	.125
1080	3.000	.750	.375	3.250	.750	.250	3.375	.875	.187
1090	3.500	.875	.437	3.750	.875	.312	3.875	1.000	.250
1100	4.000	1.000	.500	4.250	1.000	.375	4.500	1.000	.250
1110	4.500	1.000	.500	4.625	1.250	.437	5.000	1.250	.250
1120	5.000	1.250	.625	5.375	1.250	.437	5.750	1.500	.250
1130	6.000	1.500	.750	6.500	1.500	.500	6.500	1.500	.250
1140	7.000	1.750	.875	7.250	1.750	.750	7.750	2.000	.500

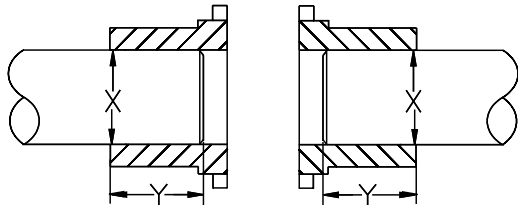
Shaft Hub Bore Capacity with Square and Rectangular Keys ① ②

Size	For One Square Key			For One Rectangular Key					
	Max. Bore (in.)	Y = X		Max. Bore (in.)	Y = X		Y = W/2		
		W	X		W	X	W	X	
1020	1.375	.312	.156	1.437	.375	.125	1.562	.375	.062
1030	1.625	.375	.188	1.750	.375	.125	-	-	-
1040	2.125	.500	.250	2.250	.500	.188	2.375	.625	.125
1050	2.375	.625	.312	2.500	.625	.218	2.625	.625	.125
1060	2.875	.750	.375	3.125	.750	.250	3.250	.750	.125
1070	3.125	.750	.375	3.250	.750	.250	3.375	.875	.188
1080	3.500	.875	.438	3.750	.875	.312	3.875	1.000	.250
1090	4.000	1.000	.500	4.250	1.000	.375	4.500	1.000	.250
1100	4.750	1.250	.625	5.000	1.250	.438	5.250	1.250	.250
1110	5.500	1.250	.625	5.875	1.500	.500	6.250	1.500	.250
1120	6.250	1.500	.750	6.500	1.500	.500	6.750	1.750	.625
1130	6.750	1.750	.875	7.000	1.750	.750	7.250	1.750	.625
1140	7.500	2.000	1.000	8.000	2.000	.750	8.500	2.000	.500

- ① Size 1020 thru 1090 are furnished with Clearance Fit and one set screw over the keyway, unless otherwise specified.
- ② Size 1100 thru 1140 are furnished with Interference Fit and no setscrews, unless otherwise specified.
- ③ Standard keyway and bore tolerances (Reference: AGMA Standard 9002-A86)



Note: Dimension "Y" (Shaft Keyway Depth) equals one-half of square key. Check key stresses.

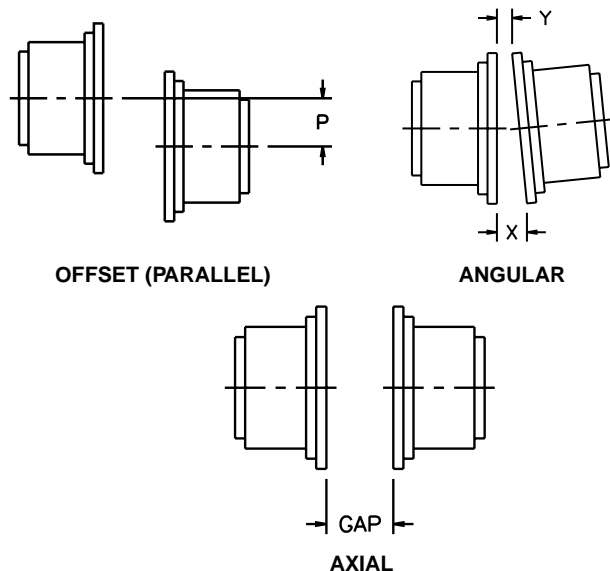


Shaft Engagement

When the distance between the shaft ends is greater than the coupling gap, each shaft must engage the hub by an amount at least equal to the shaft diameter. (Dimension Y must be equal to, or greater than, Dimension x).

Misalignment Capacity

Size	Recommended Installation Maximum		Maximum Operating		Normal Gap ± 10%	
	Offset (Parallel)	Angular X-Y	Offset (Parallel)	Angular X-Y	T10, T20, T31	T35
1020	0.006	0.003	0.012	0.010	0.125	0.188
1030	0.006	0.003	0.012	0.012	0.125	0.188
1040	0.006	0.003	0.012	0.013	0.125	0.188
1050	0.008	0.004	0.016	0.016	0.125	0.188
1060	0.008	0.005	0.016	0.018	0.125	0.188
1070	0.008	0.005	0.016	0.020	0.125	0.188
1080	0.008	0.006	0.016	0.024	0.125	0.188
1090	0.008	0.007	0.016	0.028	0.125	0.188
1100	0.010	0.008	0.020	0.033	0.188	0.250
1110	0.010	0.009	0.020	0.036	0.188	0.250
1120	0.011	0.010	0.022	0.040	0.250	0.375
1130	0.011	0.012	0.022	0.047	0.250	0.375
1140	0.011	0.013	0.022	0.053	0.250	0.375



The Kop-Grid T31 full spacer coupling is designed for medium duty applications requiring greater shaft separations, such as process pumps that are typical of the Pulp & Paper, Petrochemical and Process industries. This full-flex spacer coupling is available in a wide variety of shaft separations by using combinations of standard, interchangeable spacer hubs. The drop-out center section permits easy pump and equipment maintenance. The shaft hubs, normally furnished for a clearance fit to AGMA Standards, accept large equipment shafts for application versatility.

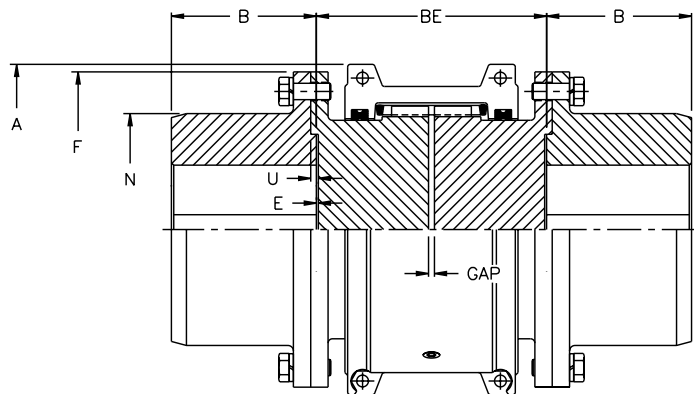
The Kop-Grid T31 coupling is specifically engineered to be interchangeable with other tapered grid spacer couplings, by component — hubs (shaft and spacer), grid, seals — and cover assembly.

Kop-Grid T31 Full Spacer Coupling Specifications

Size	Coupling Rating HP/ 100 RPM	Torque Rating (lb.-in.)	Maximum Speed RPM	Maximum Bore		Cplg. Wt. With No Bore - lb.⊕	Dimensions (Inches)										Flange Fasteners	
				Shaft Hub	Shaft Hub (Bushed)		A	B	"BE"⊕		N	F	E	U	Gap	No. Per Flange & Grade	Dia	
									Min	Max								
1020	0.68	422	3600	1.375	1.000	8.5	4.00	1.38	3.50	8.00	2.04	3.38	.03	.08	.188	4 Gr 8	.250	
1030	1.93	1200	3600	1.625	1.000	12	4.38	1.62	3.50	8.50	2.31	3.69	.03	.08	.188	8 Gr 8	.250	
1040	3.22	2000	3600	2.125	1.750	19	4.62	2.12	3.50	8.50	3.06	4.44	.03	.08	.188	8 Gr 8	.250	
1050	5.63	3500	3600	2.375	1.750	28	5.44	2.36	4.38	8.50	3.44	4.96	.03	.08	.188	8 Gr 8	.312	
1060	8.85	5500	3600	2.875	2.438	43	5.94	2.88	5.00	13.00	4.06	5.71	.06	.11	.188	8 Gr 8	.375	
1070	13	8000	3600	3.125	2.688	54	6.38	3.12	5.00	13.00	4.28	6.02	.06	.11	.188	12 Gr 8	.375	
1080	27	16500	3600	3.500	2.688	87	7.64	3.50	7.25	16.00	4.81	7.00	.06	.11	.188	12 Gr 8	.500	
1090	48	30000	3600	4.000	3.750	133	8.38	4.02	7.25	16.00	5.59	8.69	.06	.11	.188	12 Gr 8	.625	
1100	81	50500	2440	4.750	4.250	218	9.84	3.54	8.00	16.00	6.73	9.88	.06	.12	.250	12 Gr 8	.750	

⊕ Weight is calculated with No Bore and minimum "BE" dimension.

⊕ See page M-65 for standard "BE" dimensions and part numbers.

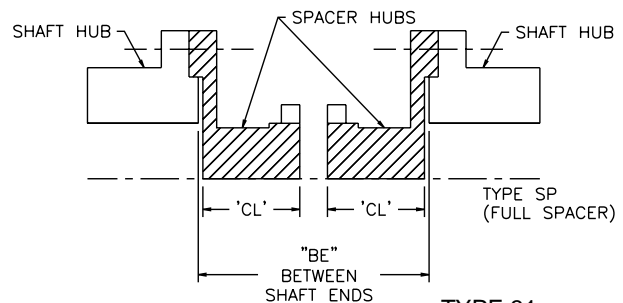


A Kop-Grid T31 Full Spacer consists of the following components:

Shaft Hubs - Two (2) shaft hubs with either a minimum bore or bored to accept a Browning Split Taper bushing. Minimum bore hubs can be supplied bored-to-size at a nominal additional charge. Bushings are available at an additional cost in a variety of bore sizes.

Spacer Hubs - Two (2) Spacer Grid hubs are required. See Table on Page M-65.

T10 Cover and Grid Assembly - One (1) is required.



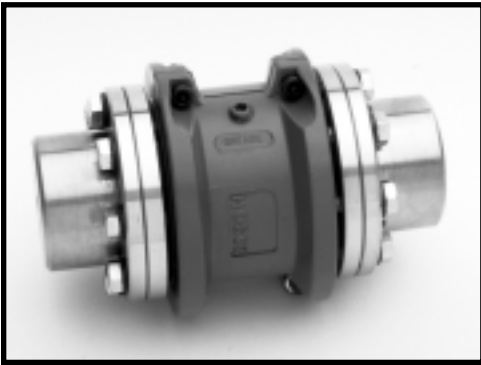
TYPE 31
(FULL SPACER)

Kop-Grid T31 Coupling

Part Numbers (see next page for spacer hubs)

Size	HUBS			T10 Cover and Grid Assembly	Tapered Grid Kit	T10 Cover Kit	T10 Accessory Kit
	Shaft Hub No Bore	Shaft Hub Bushed	Bushing				
1020	1020 SHUB	1020 SHUBXG	G	1020T10 CGA	1020 GRID	1020T10 COVER	1020T10 AK
1030	1030 SHUB	1030 SHUBXG	G	1030T10 CGA	1030 GRID	1030T10 COVER	1030T10 AK
1040	1040 SHUB	1040 SHUBXP	P1	1040T10 CGA	1040 GRID	1040T10 COVER	1040T10 AK
1050	1050 SHUB	1050 SHUBXP	P1	1050T10 CGA	1050 GRID	1050T10 COVER	1050T10 AK
1060	1060 SHUB	1060 SHUBXB	B	1060T10 CGA	1060 GRID	1060T10 COVER	1060T10 AK
1070	1070 SHUB	1070 SHUBXQ	Q1	1070T10 CGA	1070 GRID	1070T10 COVER	1070T10 AK
1080	1080 SHUB	1080 SHUBXQ	Q1	1080T10 CGA	1080 GRID	1080T10 COVER	1080T10 AK
1090	1090 SHUB	1090 SHUBXR	R1	1090T10 CGA	1090 GRID	1090T10 COVER	1090T10 AK
1100	1100 SHUB	1100 SHUBXS	S1	1100T10 CGA	1100 GRID	1100T10 COVER	1100T10 AK

Specifications and selection data are subject to change without notice. Bushings not included.



Spacer Hub Length ("CL") for given shaft separation ("BE") Length and Part Number

"BE" LENGTH INCHES	Size 1020			Size 1030			Size 1040			Size 1050			Size 1060		
	CL	Part #	Qty	CL	Part #	Qty	CL	Part #	Qty	CL	Part #	Qty	CL	Part #	Qty
3.500	1.625	1020 SPH178	(2)	1.625	1030 SPH178	(2)	1.625	1040 SPH178	(2)						
3.938	1.625	1020 SPH178	(1)	1.625	1030 SPH178	(1)	1.625	1040 SPH222	(1)						
	2.062	1020 SPH222	(1)	2.062	1030 SPH222	(1)	2.062	1040 SPH222	(1)						
4.250	1.625	1020 SPH178	(1)	1.625	1030 SPH178	(1)	1.625	1040 SPH178	(1)						
	2.375	1020 SPH253	(1)	2.375	1030 SPH253	(1)	2.375	1040 SPH253	(1)						
4.375	2.062	1020 SPH222	(2)	2.062	1030 SPH222	(2)	2.062	1040 SPH222	(2)	2.062	1050 SPH222	(2)			
4.688	2.062	1020 SPH222	(1)	2.062	1030 SPH222	(1)	2.062	1040 SPH222	(1)	2.062	1050 SPH222	(1)			
	2.375	1020 SPH253	(1)	2.375	1030 SPH253	(1)	2.375	1040 SPH253	(1)	2.375	1050 SPH253	(1)			
5.00	2.375	1020 SPH253	(2)	2.375	1030 SPH253	(2)	2.375	1040 SPH253	(2)	2.375	1050 SPH253	(2)	2.344	1060 SPH253	(2)
5.219							1.625	1040 SPH178	(1)						
							3.344	1040 SPH350	(1)						
5.375				1.625	1030 SPH178	(1)	1.625	1040 SPH178	(1)						
				3.500	1030 SPH366	(1)	3.500	1040 SPH366	(1)						
5.656							2.062	1040 SPH222	(1)	2.062	1050 SPH222	(1)			
							3.344	1040 SPH350	(1)	3.344	1050 SPH350	(1)			
5.813				2.062	1030 SPH222	(1)	2.062	1040 SPH222	(1)	2.062	1050 SPH222	(1)			
				3.500	1030 SPH366	(1)	3.500	1040 SPH366	(1)	3.500	1050 SPH366	(1)			
5.969							2.375	1040 SPH253	(1)	2.375	1050 SPH253	(1)			
							3.344	1040 SPH350	(1)	3.344	1050 SPH350	(1)			
6.125				2.375	1030 SPH253	(1)	2.375	1040 SPH253	(1)	2.375	1050 SPH253	(1)	2.344	1060 SPH253	(1)
				3.500	1030 SPH366	(1)	3.500	1040 SPH366	(1)	3.500	1050 SPH366	(1)	3.469	1060 SPH366	(1)
6.938							3.344	1040 SPH350	(2)	3.344	1050 SPH350	(2)			
7.094							3.344	1040 SPH350	(1)	3.344	1050 SPH350	(1)			
							3.500	1040 SPH366	(1)	3.500	1050 SPH366	(1)			
7.250				3.500	1030 SPH366	(2)	3.500	1040 SPH366	(2)	3.500	1050 SPH366	(2)	3.469	1060 SPH366	(2)
8.625													2.344	1060 SPH253	(1)
													5.969	1060 SPH600	(1)
9.750													3.469	1060 SPH366	(1)
													5.969	1060 SPH600	(1)
12.250													5.969	1060 SPH600	(2)

"BE" LENGTH INCHES	Size 1070			Size 1080			Size 1090			Size 1100			
	CL	Part #	Qty	CL	Part #	Qty	CL	Part #	Qty	CL	Part #	Qty	
5.00	2.344	1070 SPH253	(2)										
6.125	2.344	1070 SPH253	(1)										
	3.469	1070 SPH366	(1)										
7.250	3.469	1070 SPH366	(2)	3.469	1080 SPH366	(2)	3.469	1090 SPH366	(2)				
8.000										3.812	1100 SPH406	(2)	
8.593				3.469	1080 SPH366	(1)							
				4.812	1080 SPH500	(1)							
8.625	2.344	1070 SPH253	(1)										
	5.969	1070 SPH600	(1)										
8.875										3.812	1100 SPH406	(1)	
9.750										4.688	1100 SPH494	(1)	
	3.469	1070 SPH366	(1)	3.469	1080 SPH366	(1)	3.469	1090 SPH366	(1)	4.688	1100 SPH494	(2)	
9.938				5.969	1070 SPH600	(1)	5.969	1080 SPH600	(1)	5.969	1090 SPH600	(1)	
							4.812	1080 SPH500	(2)				
11.093							4.812	1080 SPH500	(1)				
							5.969	1080 SPH600	(1)				
12.250	5.969	1070 SPH600	(2)	5.969	1080 SPH600	(2)							

Similar to the Kop-Grid T31, the T35 coupling is engineered for those applications that have shaft separations greater than a close coupled coupling, but less separation than is required in a full spacer coupling.

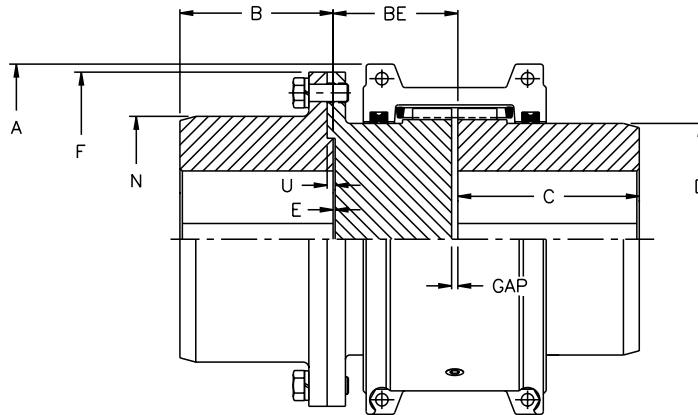
Versatile, the Kop-Grid T35 uses the same horizontally split aluminum alloy cover as the other Kop-Grid types, and has the same interchangeability of components to other tapered grid couplings.

Kop-Grid T35 Half Spacer Coupling Specifications

Size	Coupling Rating HP/ 100 RPM	Torque Rating (lb.-in)	Maximum Speed RPM	Maximum Bore (Square Key)			Cplg. Wt. With No Bore - lb.Ⓣ	Dimensions - Inches													Flange Fasteners	
				Shaft Hub	Shaft Hub (Bushed)	Grid Hub		A	B	"BE"Ⓣ		C	D	N	F	E	U	Gap	No. Per Flange & Grade	Dia		
										Min	Max											
1020	0.68	422	3600	1.375	1.000	1.125	6.4	4.00	1.38	1.78	4.03	1.88	1.56	2.04	3.38	.03	.08	.125	4 Gr 8	.250		
1030	1.93	1200	3600	1.625	1.000	1.375	8.4	4.38	1.62	1.78	4.28	1.88	1.94	2.31	3.69	.03	.08	.125	8 Gr 8	.250		
1040	3.22	2000	3600	2.125	1.750	1.625	13	4.62	2.12	1.78	4.28	2.00	2.25	3.06	4.44	.03	.08	.125	8 Gr 8	.250		
1050	5.63	3500	3600	2.375	1.750	1.875	20	5.44	2.36	2.22	4.28	2.38	2.62	3.44	4.96	.03	.08	.125	8 Gr 8	.312		
1060	8.85	5500	3600	2.875	2.438	2.125	30	5.94	2.88	2.53	6.53	2.50	3.00	4.06	5.71	.06	.11	.125	8 Gr 8	.375		
1070	13	8000	3600	3.125	2.688	2.500	39	6.38	3.12	2.53	6.53	3.00	3.44	4.28	6.02	.06	.11	.125	12 Gr 8	.375		
1080	27	16500	3600	3.500	2.688	3.000	63	7.64	3.50	3.66	8.03	3.50	4.12	4.81	7.00	.06	.11	.125	12 Gr 8	.500		
1090	48	30000	3600	4.000	3.750	3.500	95	8.38	4.02	3.66	8.03	3.88	4.88	5.59	8.69	.06	.11	.125	12 Gr 8	.625		
1100	81	50500	2440	4.750	4.250	4.000	156	9.84	3.54	4.06	8.06	4.75	5.59	6.73	9.88	.06	.12	.188	12 Gr 8	.750		

① Weight is calculated with No Bore and minimum "BE" dimension.

② See page M-63 for standard "BE" dimensions and part numbers.



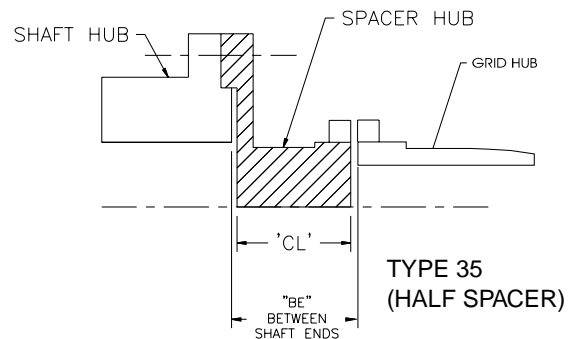
A Kop-Grid T35 Half Spacer consists of the following components:

Shaft Hubs - One (1) shaft hub with either a minimum bore or bored to size to accept a Browning Split Taper bushing. Bushings are available at an additional cost in a variety of bore sizes.

Spacer Hubs - One (1) Spacer Grid hub is required. See Table on Page M-67.

Grid Hub - One (1) Standard Grid Hub is required. Available in either a minimum, finished or bore to accept. See Table on Page M-64 for a list of standard finished bores and dimensions.

T10 Cover and Grid Assembly - One (1) is required.





Kop-Grid Half Spacer Couplings

"BE" LENGTH INCHES	Size 1020			Size 1030			Size 1040		
	CL	Part #	Qty	CL	Part #	Qty	CL	Part #	Qty
1.781	1.625	1020 SPH178	(1)	1.625	1030 SHP178	(1)	1.625	1040 SPH178	(1)
2.219	2.062	1020 SPH222	(1)	2.062	1030 SHP222	(1)	2.062	1040 SPH222	(1)
2.531	2.375	1020 SPH253	(1)	2.375	1030 SHP253	(1)	2.375	1040 SPH253	(1)
3.500							3.344	1040 SPH350	(1)
3.656				3.500	1030 SHP366	(1)	3.500	1040 SPH366	(1)

"BE" LENGTH INCHES	Size 1050			Size 1060			Size 1070		
	CL	Part #	Qty	CL	Part #	Qty	CL	Part #	Qty
2.219	2.062	1050 SPH222	(1)						
2.531	2.375	1050 SPH253	(1)	2.344	1060 SPH253	(1)	2.344	1070 SPH253	(1)
3.500	3.344	1050 SPH350	(1)						
3.656	3.500	1050 SPH366	(1)	3.469	1060 SPH366	(1)	3.469	1070 SPH366	(1)
6.156				5.969	1060 SPH600	(1)	5.969	1070 SPH600	(1)

"BE" LENGTH INCHES	Size 1080			Size 1090			Size 1100		
	CL	Part #	Qty	CL	Part #	Qty	CL	Part #	Qty
2.531									
3.656	3.469	1080 SPH366	(1)	3.469	1090 SPH366	(1)			
4.062							3.812	1100 SPH406	(1)
4.938							4.688	1100 SPH494	(1)
5.000	4.812	1080 SPH500	(1)						
6.156	5.969	1080 SPH600	(1)	5.969	1090 SPH600	(1)			

Kop-Grid T35 Coupling Part Numbers

Size	Grid Hub	Grid Hub Bushed	Bushing	Shaft Hub Bushed	Bushing	T10 Cover and Grid Assembly	Tapered Grid Kit	T10 Cover Kit	T10 Accessory Kit
1020	1020 HUB	—	—	1020 SHUBXG	G	1020T10 CGA	1020 GRID	1020T10 COVER	1020T10 AK
1030	1030 HUB	—	—	1030 SHUBXG	G	1030T10 CGA	1030 GRID	1030T10 COVER	1030T10 AK
1040	1040 HUB	1040 HUBXG	G	1040 SHUBXP	P	1040T10 CGA	1040 GRID	1040T10 COVER	1040T10 AK
1050	1050 HUB	1050 HUBXH	H	1050 SHUBXP	P	1050T10 CGA	1050 GRID	1050T10 COVER	1050T10 AK
1060	1060 HUB	1060 HUBXP	P	1060 SHUBXB	B	1060T10 CGA	1060 GRID	1060T10 COVER	1060T10 AK
1070	1070 HUB	1070 HUBXP	P	1070 SHUBXQ	Q	1070T10 CGA	1070 GRID	1070T10 COVER	1070T10 AK
1080	1080 HUB	1080 HUBXQ	Q	1080 SHUBXQ	Q	1080T10 CGA	1080 GRID	1080T10 COVER	1080T10 AK
1090	1090 HUB	1090 HUBXQ	Q	1090 SHUBXR	R	1090T10 CGA	1090 GRID	1090T10 COVER	1090T10 AK
1100	1100 HUB	1100 HUBXR	R	1100 SHUBXS	S	1100T10 CGA	1100 GRID	1100T10 COVER	1100T10 AK

HIGH PERFORMANCE COUPLINGS

KOP-FLEX®

HIGH PERFORMANCE DISC COUPLINGS...

Available In Four Standard Styles...

Designed And Manufactured To Meet API 671 As A Standard (For more Information, see Bulletin HP103)

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 Kop-Flex HP disc coupling is the preferred choice for demanding turbo machinery applications. Superior quality and a wide variety of standard and custom designs backed by unsurpassed engineering expertise combined to 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



RM Series



MS Series



RZ Series



MP Series



Size #5.5 MDM-J diaphragm coupling

KOP-FLEX High Performance Flexible Diaphragm Couplings (For more Information, see Bulletin 1300)

The patented Flexible Diaphragm Coupling from KOP-FLEX 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 are:

- 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



KOP-FLEX® Reduced Moment High Performance Disc Coupling

KOP-FLEX High Performance Gear Couplings (For more Information, Contact KOP-FLEX)

- 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.



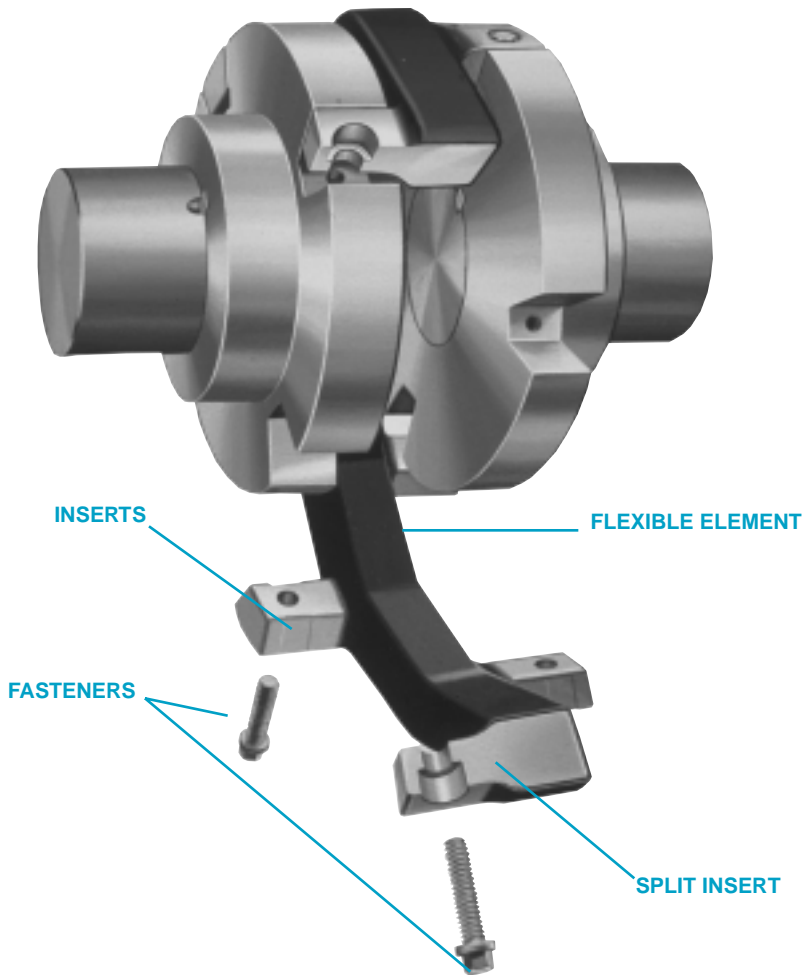
Elastomeric™ Couplings

A Proven
and Unique Concept
in a Non-Lubricated
Flexible Coupling



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LONG LIFE The Elastomeric Coupling provides long service life — for the coupling, the bearings and the seals. The design concept contributes to **better** low-cost power transmission with the added benefits of absorbing shock loads and smoothing-out damaging vibrations.

SIMPLE INSTALLATION Just mount the hubs, align the shafts and install the flexible element — in a few short minutes. Assembly is completely visible — with no hidden or hard to reach components. The flexible element can be replaced without disturbing foundation bolts or shaft alignment.

WRAP-AROUND DESIGN The split insert permits **easy installation** of the flexible element in a simple assembly sequence — with no blind assembly required and shafts may be aligned prior to its installation. With the “split” in the insert and not in the rubber, the joint in the Elastomeric Coupling is firmly contained, eliminating distortions and unbalance due to centrifugal force.

RUBBER IN COMPRESSION This is the most **efficient** way to transfer torque through an elastomeric element; much more efficient than rubber in shear! Rubber in compression, as used in the Elastomeric coupling, can be loaded from 5 to 10 times as high as rubber in tension or shear. And the rubber-to-metal bond is permanent — with a compressive load maintained at all times.

PLUS PRECOMPRESSION It is **precompression** which assures that the unloaded segments of the flexible element remain in compression, protecting both the rubber itself and the rubber-to-metal bond. Application of torque in the Elastomeric Coupling increases the compressive stress on the loaded legs while the alternate legs experience a reduction in compressive stress — but not to the point of complete relaxation.

DYNAMICALLY STABLE Distortion of the element due to centrifugal force is contained by the inserts imbedded and bonded in the element and fastened to the hub flanges. Torsional wind-up effects are avoided by driving through compression. These factors greatly reduce axial movement which can lead to damaged bearings, seals, and shaft-mounted equipment such as gears or armatures.

CUSHIONS SHOCK LOADS Resilience in the flexible element cushions the shock of impact loading, providing smooth and quiet power transmission. This protects both the driving and driven equipment, providing longer machine life.

DAMPENS TORSIONAL VIBRATIONS The flexible element absorbs the unavoidable torsional vibrations typically found in internal combustion engines and other reciprocating equipment. The Kop-Flex® Elastomeric Coupling is available for both flywheel mounting and for assembly on stub shafts.

CORROSION RESISTANT The use of corrosion resistant, non-staining aluminum alloys and cadmium plated steel capscrews eliminate the problems normally associated with coupling usage in normal industrial atmospheres — corroded bores and fasteners, contamination from flaking and poor appearance.

SHAFT MISALIGNMENT The flexing characteristics of the elastomeric member permit generous shaft misalignments — parallel, angular and axial — under continuous operating conditions.

It is this misalignment capability that compensates for foundation settling, thermal growth, bearing wear, mechanical strains and even human error. Since maximum coupling life will be obtained with minimum shaft misalignment, it is recommended that shafts be carefully and accurately aligned at time of installation.

A Proven and Unique Concept in a Non-Lubricated Flexible Coupling

ALLOYED ALUMINUM High-strength aluminum alloys provide strength and ruggedness while also offering light weight — about one-third the weight of competitive couplings. This means easier handling, longer bearing life, quicker accelerations, and even lower shipping costs. Its high ductility and impact resistance eliminate the brittle fracture characteristics of grey iron and semi-steel; its resistance to corrosion and its non-sparking characteristics are well known.

STEEL HUBS are an available option for the Standard Elastomeric Coupling Type EE. Steel hubs provide added strength when the coupling is used in the most rugged applications typical of steel mill service. Type E steel hubs also offer greater resistance to chemical attack from caustics and similar chemicals encountered with the Pulp & Paper processes. Consult Kop-Flex for price and delivery on Type E Steel Hubs.

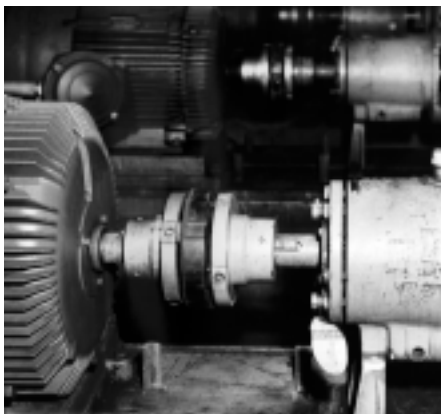
NEMA MOTORS The Elastomeric Coupling, when mounted with either *Taper-Lock® or Q-D® bushings, may be used with any standard T-frame AC motor (including high starting-torque types) on which it can be mounted and will transmit the rated motor torque continuously on applications involving 1.0 service factors. When straight finish bores are used, the larger maximum bore capacity may permit mounting on bigger, more powerful motors, providing coupling load ratings are not exceeded.

DROP-OUT SPACERS primarily engineered for pump applications where easy and fast pump maintenance is a necessity or for any equipment needing a separation between shaft ends. 117 different shaft separation combinations are available using standard components. The configuration permits fast pump maintenance by easily dropping out the lightweight center coupling section. Shaft mounted hubs and coupling alignment are not disturbed.

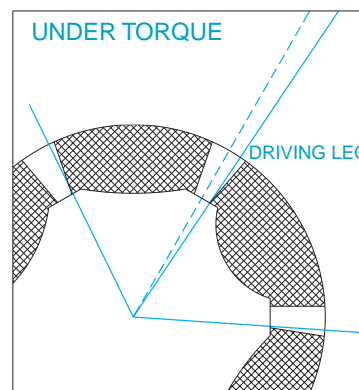
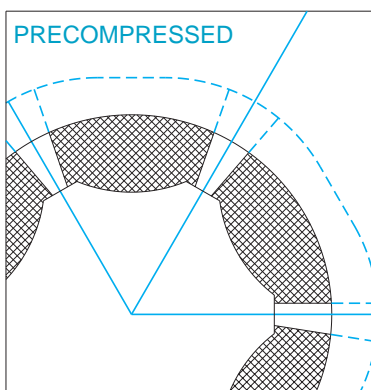
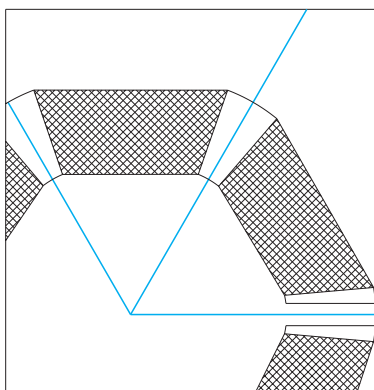
AVS PUMP SPACERS The single-spacer coupling is designed to meet the American Voluntary Standard for chemical pump service, providing 3 1/2" shaft separation. The spacer hub is also designed to drop out through the shaft gap *prior* to dislodging the pump body from the volute, greatly simplifying pump maintenance and providing an easier "swing" as the pump is removed.

WITH THESE BENEFITS:

- ❑ Non-Lubricated
- ❑ Variable Shaft Separations
- ❑ Non-Sparking
- ❑ Indoor or Outdoor Operation
- ❑ -50°F to +175°F Temperature Range
- ❑ Horizontal or Vertical Mounting
- ❑ Dirty or Sanitary Environments
- ❑ Stocked by Power Transmission Distributors



THEORY OF OPERATION



- A. The flexible element in its free state is a polygon.
- B. At assembly, each insert is drawn into its recess in the flange, precompressing each leg, with the element assuming a round shape.
- C. When torque is applied, the driving hub rotates slightly with respect to the driven hub (the torsional load produces a coupling "wind-up"). The driving leg undergoes an increased compression. The trailing leg experiences a reduced compression — but not to the point of going into tension. The flexible element is restrained from radial growth under centrifugal force by the inserts which are bonded within the flexible element and are firmly fastened to each hub.

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).

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

Application	Typical Service Factor
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

Application	Typical Service Factor
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.

1. Coupling Type:

Select the appropriate ELASTOMERIC coupling type for your application.

2. Coupling Size:

Step 1: Determine the proper service factor from page M-74.

Step 2: Calculate the required HP/100 RPM, using the HP rating of the drive and the coupling speed (RPM) as shown below:

$$\frac{\text{HP} \times \text{SERVICE FACTOR} \times 100}{\text{RPM}} = \text{HP}/100 \text{ RPM}$$

Step 3: Using Table 1 select the coupling size having a rating sufficient to handle the required HP/100 RPM at the appropriate service factor.

Step 4: Verify that the actual coupling speed (RPM) is equal to or less than the maximum allowable speed rating of the coupling.

Step 5: Verify that the maximum bore of the coupling selected is equal to or larger than either of the equipment shafts.

Clearance fit bores are acceptable for applications using service factors of 2 or less. For service factors higher than 2, interference fits are recommended.

Step 6: Check the overall dimensions to ensure coupling will not interfere with the coupling guard, piping, or the equipment housings and that it will fit the required shaft separation.

Note: For reciprocating engines and reciprocating compressor service, refer all application data to Kop-Flex for selection.

TABLE 1 — SELECTION DATA — KOP-FLEX ELASTOMERIC COUPLINGS

Coupling Size	COUPLING RATING (1) HP/100 RPM					Torque Rating		Max. RPM (3)	Static Torsional Stiffness (lb.-in./rad.)	Offset Misalignment Capacity (inches)
	SERVICE FACTOR					Continuous Duty (lb.-in.)	Peak Load (lb.-in.) (2)			
	1.0	1.5	2.0	2.5	3.0					
20	.334	.229	.172	.138	.115	217	630	4100	3180	.029
30	.664	.443	.332	.266	.221	418	1245	4100	7460	.032
40	1.15	.767	.575	.460	.383	725	2100	4100	11800	.034
50	2.00	1.33	1.00	.800	.667	1260	3630	4100	21600	.036
60	3.05	2.03	1.53	1.22	1.02	1920	5700	4100	42800	.038
70	7.20	4.80	3.60	2.88	2.40	4540	13350	3600	97000	.042
80	13.0	8.67	6.50	5.20	4.33	8190	24270	2800	186000	.056
90	22.6	15.1	11.3	9.04	7.53	14200	42300	2000	284000	.079
100	42.0	28.0	21.0	16.8	14.0	26500	78600	1800	557000	.086

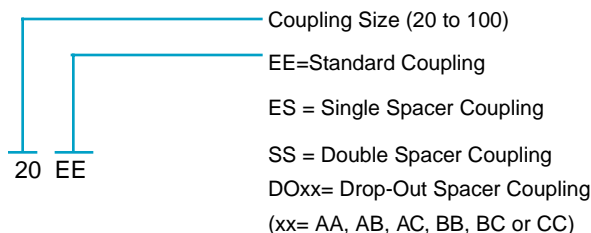
(1) If actual maximum torque loads are known, do not use Service Factors but rather select coupling size under "Torque Rating" in Table I. These figures are those which the coupling is capable of transmitting under continuous operation and normal alignment so as to be consistent with reasonable industrial service life.

(2) For infrequently applied loads not to exceed once per hour.

(3) For higher speeds, refer to Kop-Flex.

PART NUMBER EXPLANATION

Complete Rough Bore Coupling



How to Order

Coupling Parts

Description

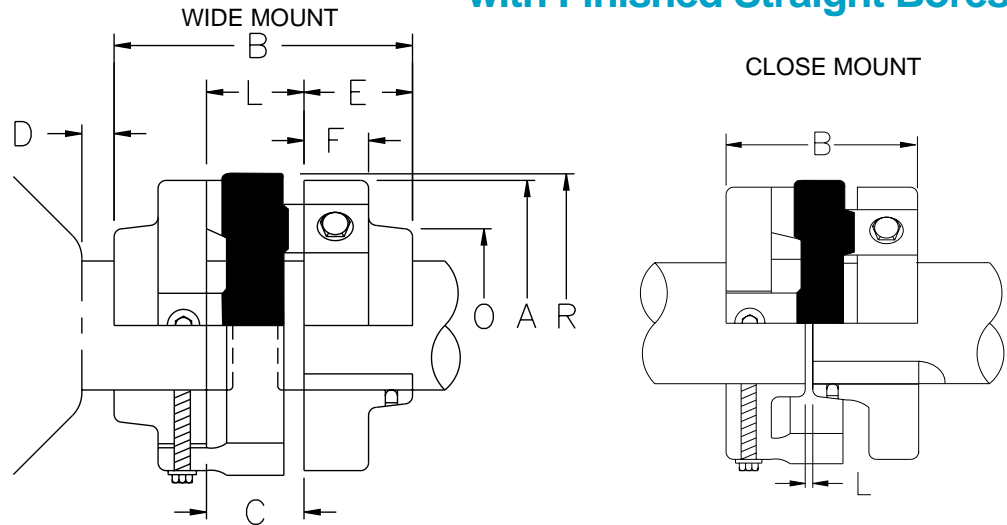
- EHUB = Standard Hub
- EHUBXBORE = Standard Hub Finished Bored
- EHUBTLXBUSH = Standard Hub Bored for Taper-Lock
- EHUBQDXBUSH = Standard Hub Bored for QD
- SHUB = Spacer Hub
- LHUB = Long Hub
- RHUB = Drop-Out Hub
- FS = Fastener Set
- ELEMENT = Element with Fasteners
- AHUB = Spacer Type A Hub with Fasteners
- BHUB = Spacer Type B Hub with Fasteners
- CHUB = Spacer Type C Hub with Fasteners

Note: Standard bores are supplied clearance fit with one set screw over keyway.

ex: 20 EHUBX3/4

Standard Coupling Type EE with Finished Straight Bores

Standard Couplings are generally used on close-connected equipment and may be mounted for either wide or close shaft separations, at the user's option. This permits ready installation on existing shaft separations and eliminates moving the connected equipment to suit the coupling.



Coupling Size	WIDE MOUNT												CLOSE MOUNT			
	Bore with Standard Keyway		Stock Rough Bore	Hub Sep. L	Shaft Separation C		A	B	D	E	F	O	R	Coupling Size	Hub & Shaft Separation L	B
	Max.	Min.			Min.	Max.										
20	1 1/8	1/2	3/8	1	1/8	1	3 11/16	3 1/8	1/8	1 1/16	5/8	1 7/8	4	20	1/8	2 1/4
30	1 1/2	1/2	3/8	1 1/2	1/8	1 1/2	4 3/8	4 1/8	1/8	1 5/16	5/8	2 7/16	4 5/8	30	1/8	2 3/4
40	1 7/8	1/2	3/8	1 5/8	1/8	1 5/8	5 3/8	5 1/8	1/8	1 3/4	1	2 3/4	5 11/16	40	1/8	3 5/8
*50	2 1/8	3/4	5/8	2 1/8	1/8	2 1/8	6 1/16	6 1/8	1/8	2	1	3 1/8	6 3/4	50	1/8	4 1/8
*60	2 7/8	1 1/8	15/16	2 1/8	1/8	2 1/8	7	6 1/8	1/8	2	1	4 7/32	7 5/8	60	1/8	4 1/8
70	3	1 1/4	1 1/16	2 3/8	1/8	2 3/8	8	6 5/8	1/8	2 1/8	1	4 7/16	8 11/16	70	1/8	4 3/8
*80	3 3/4	1 1/2	1 1/4	3	1/8	3	9 7/16	8 3/8	1/8	2 11/16	1 1/4	5 5/16	10 1/2	80	1/8	5 1/2
90	4 3/4	1 3/4	1 1/2	4 1/8	1/8	4 1/8	12 1/8	11 1/8	1/8	3 1/2	1 1/2	6 5/8	13 1/16	90	1/8	7 1/8
100	5 3/8	2 1/4	2	4 1/8	1/8	4 1/8	13 7/8	12 1/8	1/8	4	2	7 3/8	15 1/8	100	1/8	8 1/8

NOTES: Finished Bored E Hubs can be ordered by specific Bore size.
 Complete coupling consists of 2 E Hubs and 1 Replaceable Element.
 * 50, 60 and 80 EE hubs are also stocked in steel. Consult Kop-Flex.

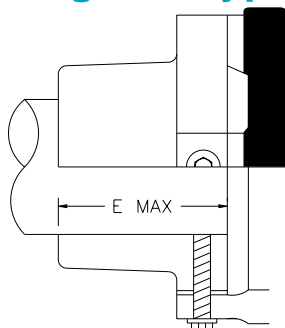
Coupling Size	Complete Coupling No Bore		E Hub No Bore		Element W/ Fastener	
	Part No.	Wt.	Part No.	Wt.	Part No.	Wt.
20	20 EE	2	20 EHUB	1	20 ELEMENT	1
30	30 EE	3	30 EHUB	1	30 ELEMENT	1
40	40 EE	6	40 EHUB	2	40 ELEMENT	1
50	50 EE	9	50 EHUB	3	50 ELEMENT	2
60	60 EE	12	60 EHUB	3	60 ELEMENT	3
70	70 EE	17	70 EHUB	4	70 ELEMENT	5
80	80 EE	31	80 EHUB	8	80 ELEMENT	9
90	90 EE	59	90 EHUB	15	90 ELEMENT	16
100	100 EE	96	100 EHUB	29	100 ELEMENT	18

E Hub Finished Bore

COUPLING SIZE	STOCK FINISHED BORE⊕											
	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 7/8	2	2 1/8
20	X	X	X	X								
30			X	X	X	X	X					
40					X	X	X					
50									X			
60					X	X	X			X		
70								X			X	X
80												
90												
100												

NOTE: ⊕ Finish bores and keyways per AGMA 9002-A86 commercial standard tolerances. Each clearance bore includes one set screw.

Long Hub Type L



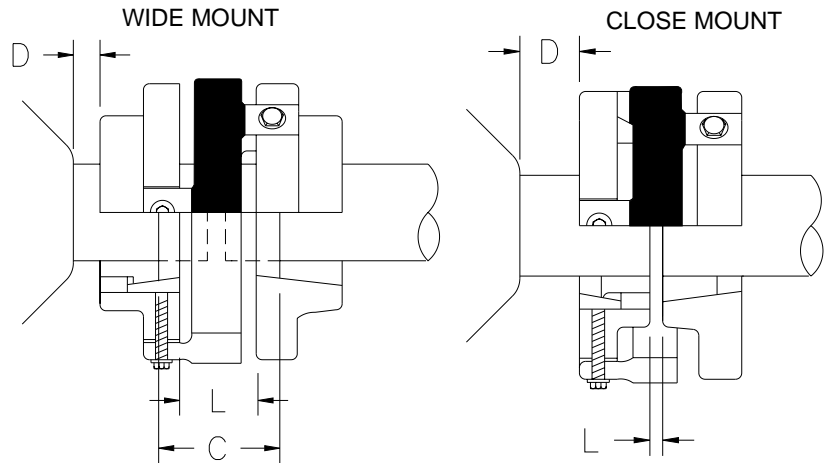
LONG HUB—TYPE L
 Available for Wide Mount only

Elastomeric L Hub Rough Bored

Coupling Size	Part No.	EMAX	Bore with Standard Keyway		Stock Rough Bore
			Min.	Max.	
60	60 LHUB	3 9/16	1 3/8	3	1 1/4
70	70 LHUB	4	1 3/8	3 1/8	1 1/4
80	80 LHUB	4 11/16	1 3/8	4 1/8	1 1/4
90	90 LHUB	4 15/16	1 9/16	4 3/4	1 7/16
100	100 LHUB	5 7/16	2	5 3/8	1 7/8

Standard Coupling for Taper-Lock® Bushings

1. See table opposite for dimensions not listed.
2. Space required to remove bushing using shortened hex key cut to minimum usable length for sizes 30 to 80. Sizes 90 and 100 use open end wrench.
3. Maximum bore is the maximum obtained when the bushing is supplied with a shallow keyway. Flat keys are then supplied with the bushing.
4. Intermediate hub separations (L) are obtained by reversing one hub only from the Wide Mount arrangement, giving intermediate maximum hub and shaft separations.



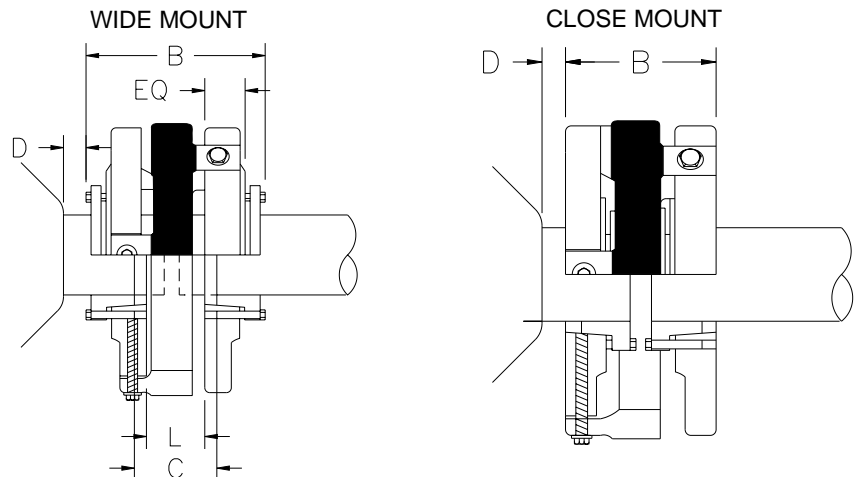
E Hubs Bored for Taper-Lock Bushing

Size	Part No.
30	30 EHUBTLX1108
40	40 EHUBTLX1215
50	50 EHUBTLX1615
60	60 EHUBTLX2012
70	70 EHUBTLX2517
80	80 EHUBTLX3020
90	90 EHUBTLX3535
100	100 EHUBTLX3535

Coupling Size	WIDE MOUNT						CLOSE MOUNT			
	Taper-Lock Bushing			Hub Sep. L	Shaft Separation C		D (2)	Coupling size	Hub and Shaft Separation L	D (2)
	Number	Bore Min.	Bore Max.		Min.	Max.				
30	1108	1/2	1 1/8	1 1/2	1/8	2 3/8	3/4	30	1/8	1/8
40	1215	1/2	1 1/8	1 5/8	1/8	3 1/8	1 1/16	40	1/8	1/8
50	1615	1/2	1 5/8	2 1/8	1/8	3 1/8	1 1/16	50	1/8	1/8
60	2012	1/2	2	2 1/8	1/8	3 5/8	1 3/8	60	1/8	1/8
70	2517	1/2	2 1/2	2 3/8	1/8	3 1/8	1 5/8	70	1/8	1/8
80	3020	15/16	3	3	1/8	4 3/8	2 1/16	80	1/8	1/8
90	3535	1 3/16	3 1/2	4 1/8	1/8	4 1/8	1 3/4	90	1/8	1/8
100	3535	1 3/16	3 1/2	4 1/8	1/8	4 1/8	2	100	1/8	1/8

Standard Coupling for Q-D® Bushings

1. Bushing screws may be inserted from direction opposite to that shown, eliminating need for axial clearance D.



E Hubs Bored for Q-D Bushing

Size	Part No.
30	30 EHUBQDXJA
40	40 EHUBQDXJA
50	50 EHUBQDXSH
60	60 EHUBQDXSDS
70	70 EHUBQDXSK
80	80 EHUBQDXSF
90	90 EHUBQDXE
100	100 EHUBQDXF

NET WT, LBS.—STANDARD COUPLINGS

Coupling Size	With Solid Hubs	With Max. Bore and Standard Keyway	With Taper-Lock Bushing (Max. Bore)	With Q-D Bushing (Max. Bore)
20	1.7	1.6	—	—
30	2.8	2.3	2.7	3.0
40	6.0	5.0	6.2	6.1
50	8.8	7.3	8.4	9.4
60	12.2	9.2	11.8	13.0
70	17.0	13.6	17.1	18.8
80	30.5	23.1	30.8	32.6
90	59.4	45.4	62.0	67.3
100	96.0	76.0	102.0	106

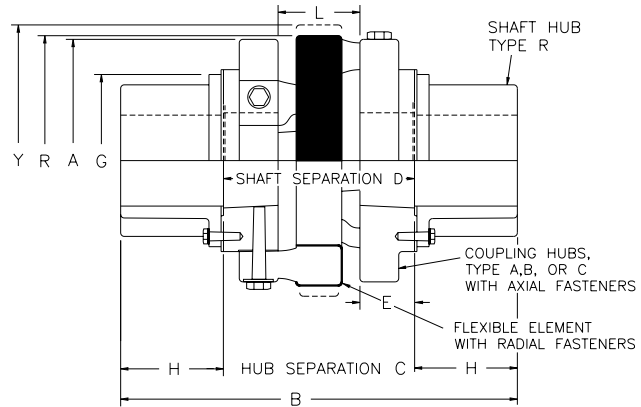
Coupling Size	WIDE MOUNT								CLOSE MOUNT					
	Q-D® Bushing			B	Hub Sep. L	Shaft Sep. C		D	EQ	Coupling Size	Hub Sep. L	Shaft Sep. C	B	D
	Size	Bore Min.	Bore Max.			Min.	Max.							
30	JA	1/2	1 1/4	4 1/4	1 1/2	1/8	1 7/8	1 1/8	3/4	30	1 1/4	3/8	2 3/4	1/8
40	JA	1/2	1 1/4	5 1/8	1 5/8	1/8	2 3/4	1 1/8	1 1/8	40	1 3/8	1/2	3 5/8	1/8
50	SH	1/2	1 5/8	6 3/16	2 1/8	1/8	3 1/8	1 9/16	1 1/4	50	1 5/8	1/2	4 1/8	1/8
60	SDS	1/2	1 15/16	6 1/16	2 1/8	1/8	3	1 9/16	1 3/16	60	1 3/4	5/8	4 1/8	1/8
70	SK	1/2	2 1/2	6 9/16	2 3/8	1/8	2 1/8	2 1/4	1 1/8	70	2 1/8	3/4	4 3/8	1/8
80	SF	1/2	2 15/16	8 1/16	3	1/8	3 1/4	2 3/8	1 7/16	80	2 5/8	1 1/8	5 1/2	1/8
90	E	7/8	3 7/16	10 1/2	4 1/8	1/8	4 1/8	3 1/16	1 3/4	90	3 5/8	1 5/8	7 1/8	1/8
100	F	1	3 15/16	12 3/4	4 1/8	1/8	4 1/4	4 3/16	2 5/8	100	—	—	—	—

Drop-Out Spacer Coupling Type DO

Wherever spacer type couplings are used for motor driven back-pull-out pumps, AVS Pumps, Process Pumps and any application for a Spacer Type coupling. Over 117 shaft separation combinations are available using standard components.

The Elastomeric Drop-out coupling provides for easy removal of the pump's back-pull-out section keeping routine pump maintenance and down-time to a minimum.

Upon removal of a few axial fasteners, the flexible coupling center section is easily inserted, or removed to gain pump access.



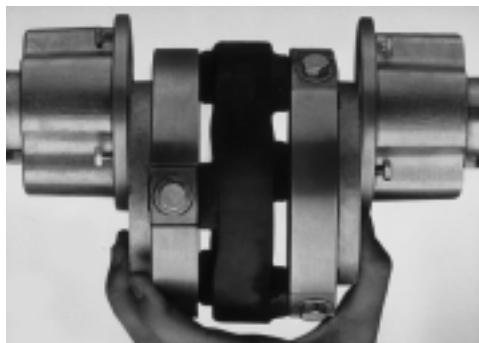
Size	Ratings Centrifugal Pump Service (1)		Max. RPM	Max. Offset	Dimensions						Rough Bore
	HP/100 RPM (2)	Torque Lb.-In.			A	G	H	L	R	Y	
20	.334	217	4100	.029	3 11/16	3 1/8	1 3/8	1	4	4 1/2	5/8
30	.664	418	4100	.032	4 3/8	3 3/8	1 5/8	1 1/2	4 5/8	5 1/2	5/8
40	1.15	725	4100	.034	5 3/8	3 11/16	1 3/4	1 5/8	5 11/16	6 5/8	5/8
50	2.00	1260	4100	.036	6 1/16	4 7/16	2 3/8	2 1/8	6 3/4	7 3/8	5/8
60	3.05	1920	4100	.038	7	4 15/16	2 5/8	2 1/8	7 5/8	8 3/8	1
70	7.20	4540	3600	.042	8	5 11/16	3	2 3/8	8 11/16	9 3/4	1
80	13.0	8190	2800	.056	9 7/16	7	3 7/8	3	10 1/2	11 3/4	1 1/4
90	22.6	14200	2000	.079	12 1/8	8 1/4	4 1/4	4 1/8	13 1/16	14 3/8	1 1/2

(1) Ratings are for motor driven centrifugal pump and blower service (service factor of 1.0). For other applications, refer to Pages M-76 & M-77 for appropriate service factors and coupling size selection data. Couplings will transmit peak loads of 3 times these values if infrequently applied (not to exceed once per hour).

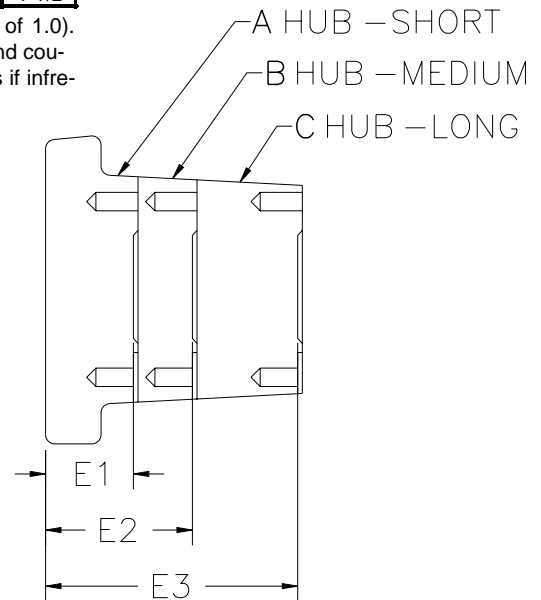
(2) $HP/100rpm = \frac{HP \text{ to be transmitted}}{\text{Coupling rpm}} \times 100$

Coupling Size	R Hub			Element W/ Fastener	
	No Bore		Finish Bore Ø Part No.	Part No.	Wt.
	Part No.	Wt.			
20	20 RHUB	1	20 RHUB FB	20 ELEMENT	1
30	30 RHUB	1	30 RHUB FB	30 ELEMENT	1
40	40 RHUB	1	40 RHUB FB	40 ELEMENT	1
50	50 RHUB	2	50 RHUB FB	50 ELEMENT	2
60	60 RHUB	3	60 RHUB FB	60 ELEMENT	3
70	70 RHUB	5	70 RHUB FB	70 ELEMENT	5
80	80 RHUB	9	80 RHUB FB	80 ELEMENT	9
90	90 RHUB	15	90 RHUB FB	90 ELEMENT	16

NOTE: ① Finish bores and keyways per AGMA 9002-A86 commercial standard tolerances. Each clearance bore includes one set screw over keyway.



The Elastomeric Drop Out Spacer Coupling center section is easily installed as a preassembled unit, or as lightweight component parts. For pump or seal maintenance, the "drop out" center section is easily removed for fast pump access.



Coupling Hubs Type A, B and C

Size	E DIMENSION			AXIAL FASTENERS	
	A Hub	B Hub	C Hub	No. Per Hub	Size
	E1	E2	E3		
20	—	1 1/4	2 3/4	4	1/4-20
30	—	1	2 1/2	4	1/4-20
40	1	1 11/16	3 15/16	4	1/4-20
50	1	1 7/16	3 11/16	4	1/4-20
60	1	1 7/16	3 11/16	4	5/16-18
70	1	1 5/16	3 9/16	4	3/8-16
80	1 7/32	2 1/8	4 5/8	6	1/2-13
90	—	1 9/16	4 1/16	6	5/8-11

Type DO Dimensional and Assembly Data

Coupling Size	No Bore Part Number	Weight (lbs.)	Shaft Hub Type R (1)				Shaft Separation			Quantities Per Assembly						
			Min. Bore	Max. Bore With Std. Kwy	Std. Kwy Size	Dim. B	Min. (2)	Std. (3) Dim. C	Max. (4)	Coupling Hub			Shaft Hub	Flex Elem.		
										Hub A	Hub B	Hub C				
20	20 DOBB	2.0	3/4	1 3/8	5/16 x 5/32	6 1/4	3 7/16	3 1/2	3 3/4		2	1	2	1		
	20 DOBC	2.3				7 3/4	4 15/16	5	5 1/4						2	1
	20 DOCC	2.5				9 1/4	6 7/16	6 1/2	6 3/4						2	1
30	30 DOBB	2.8	3/4	1 5/8	3/8 x 3/16	6 3/4	3 5/16	3 1/2	3 3/4		2	1	2	1		
	30 DOBC	3.2				8 1/4	4 13/16	5	5 1/4						2	1
	30 DOCC	3.4				9 3/4	6 5/16	6 1/2	6 3/4						2	1
40	40 DOAA	5.4	3/4	1 3/4	3/8 x 3/16	7 1/8	3 1/2	3 5/8	3 3/4	2	1	1	2	1		
	40 DOAB	5.6				7 13/16	4 3/16	4 5/16	4 1/2						1	1
	40 DOBB	5.8				8 1/2	4 7/8	5	5 1/4						2	1
	40 DOAC	6.3				10 1/16	6 7/16	6 9/16	6 7/8						1	1
	40 DOBC	6.5				10 3/4	7 1/8	7 1/4	7 1/2						1	1
	40 DOCC	7.1				13	9 3/8	9 1/2	10						2	1
50	50 DOAA	8.2	3/4	2 3/8	5/8 x 5/16	8 7/8	3 7/8	4 1/8	4 3/8	2	1	1	2	1		
	50 DOAB	8.4				9 5/16	4 9/16	4 5/16	4 13/16						1	1
	50 DOBB	8.6				9 3/4	4 3/4	5	5 1/4						2	1
	50 DOAC	9.2				11 9/16	6 9/16	6 13/16	7 1/16						1	1
	50 DOBC	9.4				12	7	7 1/4	7 1/2						1	1
	50 DOCC	10.2				14 1/4	9 1/4	9 1/2	10						2	1
60	60 DOAA	10.0	1 1/8	2 5/8	5/8 x 5/16	9 3/8	3 7/8	4 1/8	4 3/8	2	1	1	2	1		
	60 DOAB	10.2				9 13/16	4 5/16	4 9/16	4 13/16						1	1
	60 DOBB	10.4				10 1/4	4 3/4	5	5 1/4						2	1
	60 DOAC	11.2				12 1/16	6 9/16	6 13/16	7 1/16						1	1
	60 DOBC	11.4				12 1/2	7	7 1/4	7 1/2						1	1
	60 DOCC	12.3				14 3/4	9 1/4	9 1/2	10						2	1
70	70 DOAA	15.2	1 1/8	3	3/4 x 3/8	10 3/8	4 5/16	4 3/8	4 5/8	2	1	1	2	1		
	70 DOAB	15.4				10 11/16	4 5/8	4 11/16	4 15/16						1	1
	70 DOBB	15.6				11	4 15/16	5	5 1/4						2	1
	70 DOAC	16.6				12 15/16	6 7/8	6 15/16	7 3/16						1	1
	70 DOBC	16.8				13 1/4	7 3/16	7 1/4	7 1/2						1	1
	70 DOCC	18.0				15 1/2	9 7/16	9 1/2	10						2	1
80	80 DOAA	26.3	1 3/8	3 3/4	7/8 x 7/16	13 3/16	5 1/4	5 7/16	5 3/4	2	1	1	2	1		
	80 DOAB	26.9				14 3/32	6 5/32	6 21/32	6 13/16						1	1
	80 DOBB	27.6				15	7 1/16	7 1/4	7 1/2						2	1
	80 DOAC	28.9				16 19/32	8 21/32	8 27/32	9 3/32						1	1
	80 DOBC	29.6				17 1/2	9 9/16	9 3/4	10						1	1
	80 DOCC	31.7				20	12 1/16	12 1/4	12 1/2						2	1
90	90 DOBB	51.0	1 5/8	4 1/4	1 x 1/2	16 1/4	6 5/8	7 1/4	7 1/2		2	1	2	1		
	90 DOBC	53.8				18 3/4	9 1/8	9 3/4	10						1	1
	90 DOCC	56.6				21 1/4	11 5/8	12 1/4	12 1/2						2	1

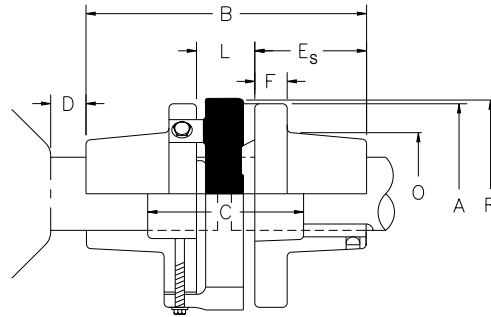
Two shaft hubs (type R) will always be supplied unless ordered "LESS SHAFT HUBS".

- (1) All finish bores will be for clearance fit with set screw over the keyway unless ordered otherwise.
- (2) Minimum shaft separation is obtained by allowing the shafts to protrude slightly beyond the faces of the type R shaft hubs. Hub separation C and dimension L must be maintained as listed.
- (3) Standard shaft separations are obtained when type R shaft hubs are mounted flush with shaft ends. In this case the shaft separation is the same as the hub separation, dimension C.
- (4) Maximum shaft separation is obtained by allowing type R shaft hubs to slightly overhang their shafts. Maximum hub separations tabulated, are based on an overhang of 1/4" or less per hub. Excessive shaft hub overhang increases hub and key stresses.
- (5) Interference fits up to .0005"/in. of shaft diameter are permissible providing maximum bore with interference fit is 1/4" less than maximum clearance fit bore indicated by note (1).
- (6) Weight shown is total coupling weight based on maximum bore.

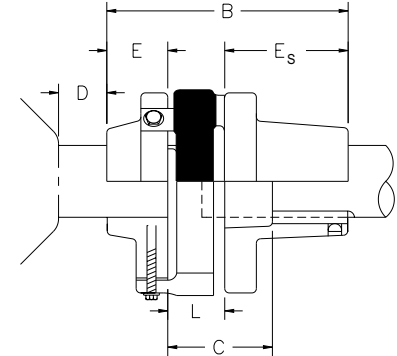
Double Spacer Coupling Type SS Single Spacer Coupling Type ES

Spacer Couplings are commonly used where a larger-than-normal shaft separation is desired. This permits servicing of impellers, packing glands, seals, bearing, etc. without disturbing the connected equipment. The two types of spacer couplings—Double Spacer and Single Spacer—vary only in the number of spacer hubs used and offer the user a wide variety of possible shaft separations.

**TYPE SS
DOUBLE SPACER COUPLING**



**TYPE ES
SINGLE SPACER COUPLING**



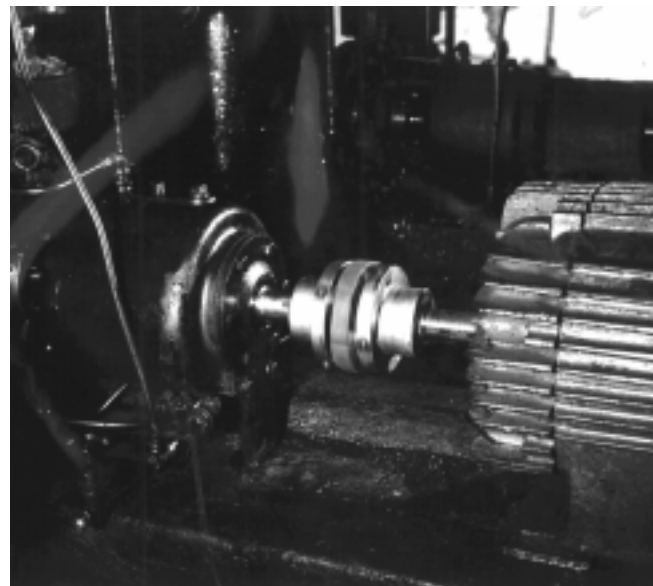
**DOUBLE SPACER COUPLING
With Finished Straight Bores**

Coupling Size	Bore with Standard Keyway		Stock Rough Bore S Hub	Hub Sep. L	Shaft Separation C		A	B	D	E _s	F	O	R
	Min.	Max.			Min.	Max.							
20	3/4	1 1/4	19/32	1	1/8	6	3 11/16	7 7/8	1/8	3 7/16	5/8	2 5/8	4
30	7/8	1 5/8	3/4	1 1/2	1/8	5 1/2	4 3/8	8 3/8	1/8	3 7/16	5/8	2 13/16	4 5/8
40	7/8	2	3/4	1 5/8	1/8	5 3/8	5 3/8	8 1/2	1/8	3 7/16	1	3 3/16	5 11/16
50	7/8	2 1/4	3/4	2 1/8	1/8	5	6 1/16	9	1/8	3 7/16	1	3 3/8	6 3/4
60	1 1/4	3	1 1/8	2 1/8	1/8	5 1/4	7	9 1/4	1/8	3 9/16	1	4 5/16	7 5/8
70	1 5/8	3 1/8	1 1/2	2 3/8	1/8	6 1/8	8	10 3/8	1/8	4	1	4 9/16	8 11/16
80	1 7/8	4 1/8	1 3/4	3	1/8	7	9 7/16	12 3/8	1/8	4 11/16	1 1/4	5 3/4	10 1/2
90	2 5/8	4 3/4	2 1/2	4 1/8	1/8	7	12 1/8	14	1/8	4 15/16	1 1/2	6 3/4	13 1/16
100	2 7/8	5 3/8	2 3/4	4 1/8	1/8	7	13 7/8	15	1/8	5 7/16	2	7 1/2	15 1/8

**SINGLE SPACER COUPLING
With Finished Straight Bores**

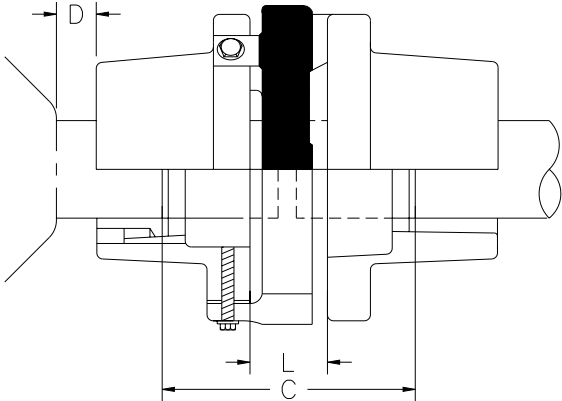
Coupling Size	Hub Sep. L	Shaft Separation C		B	E	D
		Min.	Max.			
20	1	1/8	3 1/2	5 1/2	1 1/16	1/8
30	1 1/2	1/8	3 1/2	6 1/4	1 5/16	1/8
40	1 5/8	1/8	3 1/2	6 13/16	1 3/4	1/8
50	2 1/8	1/8	3 9/16	7 9/16	2	1/8
60	2 1/8	1/8	3 11/16	7 11/16	2	1/8
70	2 3/8	1/8	4 1/4	8 1/2	2 1/8	1/8
80	3	1/8	5	10 3/8	2 11/16	1/8
90	4 1/8	1/8	5 9/16	12 9/16	3 1/2	1/8
100	4 1/8	1/8	5 9/16	13 9/16	4	1/8

Coupling Size	S Hub No Bore		E Hub No Bore		Element W/ Fastener	
	Part No.	Wt.	Part No.	Wt.	Part No.	Wt.
20	20 SHUB	1	20 EHUB	1	20 ELEMENT	1
30	30 SHUB	1	30 EHUB	1	30 ELEMENT	1
40	40 SHUB	2	40 EHUB	2	40 ELEMENT	1
50	50 SHUB	3	50 EHUB	3	50 ELEMENT	2
60	60 SHUB	4	60 EHUB	3	60 ELEMENT	3
70	70 SHUB	6	70 EHUB	4	70 ELEMENT	5
80	80 SHUB	11	80 EHUB	8	80 ELEMENT	9
90	90 SHUB	18	90 EHUB	15	90 ELEMENT	16
100	100 SHUB	34	100 EHUB	29	100 ELEMENT	18



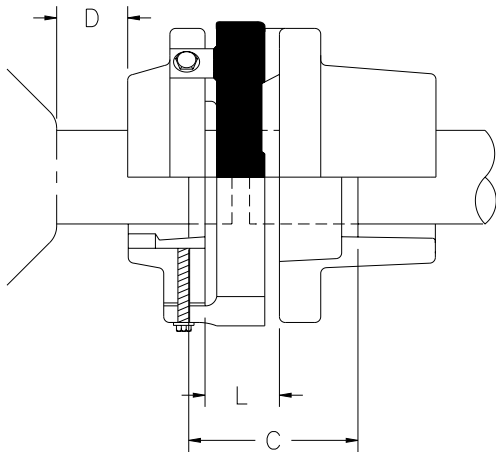
Spacer Coupling for Taper-Lock® Bushing

1. See table on p. M-82 for dimensions not listed.
2. Maximum bore is the maximum obtained when the bushing is supplied with a shallow keyway. Flat keys are then supplied with the bushing.
3. Space required to remove bushing using shortened hex key cut to maximum usable length for sizes 30 to 80. Sizes 90 and 100 use open end wrench.



Double Spacer Coupling for Taper-Lock Bushings

Coupling Size	Taper-Lock Bushing			Hub Sep. L	Shaft Sep. C		D (3)
	Number	Bore Min.	Bore Max.		Min.	Max.	
30	1108	1/2	1 1/8	1 1/2	1/8	6 5/8	3/4
40	1215	1/2	1 1/4	1 5/8	1/8	6 1/2	1 1/16
50	1615	1/2	1 5/8	2 1/8	1/8	6	1 1/16
60	2012	1/2	2	2 1/8	1/8	6 1/2	1 3/8
70	2517	1/2	2 1/2	2 3/8	1/8	6 7/8	1 5/8
80	3020	15/16	3	3	1/8	8 3/8	2 1/16
90	3535	1 3/16	3 1/2	4 1/8	1/8	7	1 3/4
100	3535	1 3/16	3 1/2	4 1/8	1/8	7	2

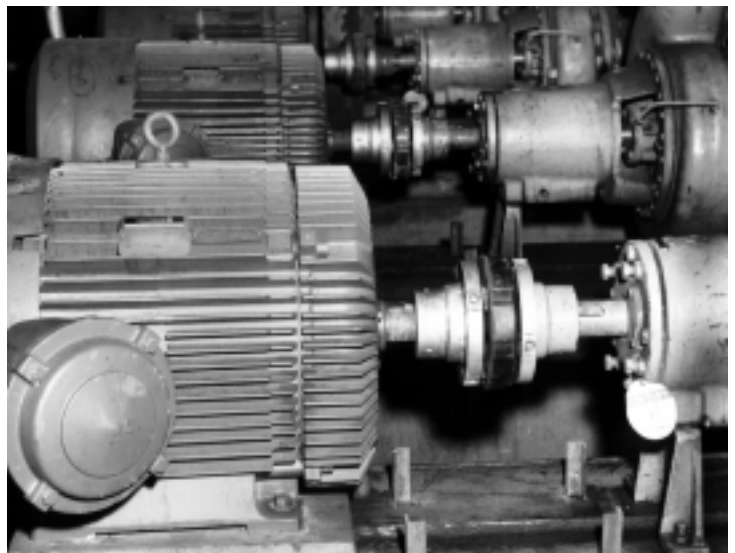


Single Spacer Coupling for Taper-Lock Bushings

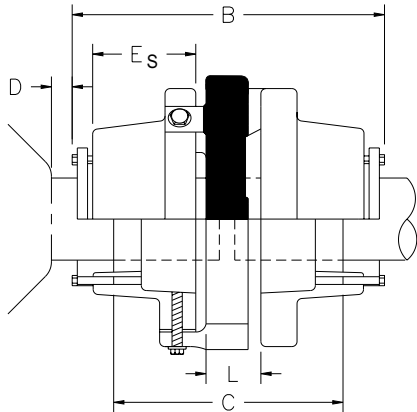
Coupling Size	Shaft Sep. C		D (3)
	Min.	Max.	
30	1/8	4 1/2	3/4
40	1/8	4 13/16	1 1/16
50	1/8	4 9/16	1 1/16
60	1/8	5 1/16	1 3/8
70	1/8	5	1 5/8
80	1/8	6 3/8	2 1/16
90	1/8	5 9/16	1 3/4
100	1/8	5 9/16	2

Hubs Bored for Taper-Lock Bushings

Coupling Size	S Hub Part No.	E Hub Part No.	Element W/ Fasteners	
			Part No.	Wt.
30	30 SHUBTL	30 EHUBTL	30 ELEMENT	1
40	40 SHUBTL	40 EHUBTL	40 ELEMENT	1
50	50 SHUBTL	50 EHUBTL	50 ELEMENT	2
60	60 SHUBTL	60 EHUBTL	60 ELEMENT	3
70	70 SHUBTL	70 EHUBTL	70 ELEMENT	5
80	80 SHUBTL	80 EHUBTL	80 ELEMENT	9
90	90 SHUBTL	90 EHUBTL	90 ELEMENT	16
100	100 SHUBTL	100 EHUBTL	100 ELEMENT	18

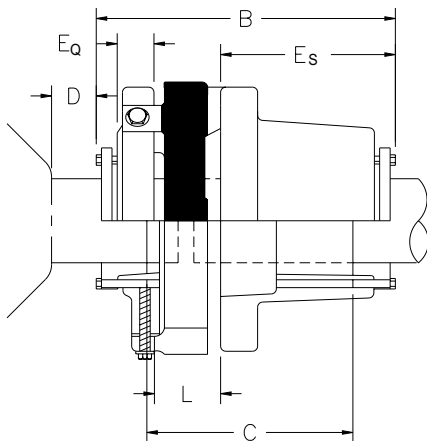


1. See table of Finished Straight Bores on p. M-80 for dimensions not listed.



Double Spacer Coupling for Q-D Bushings

Coupling Size	Q-D® Bushing			Hub Sep. L	Shaft Sep. C		B	D	Es
	Number	Bore Min.	Bore Max.		Min.	Max.			
30	JA	1/2	1 1/4	1 1/2	1/8	7 1/4	9 5/8	1 1/8	3 7/16
40	JA	1/2	1 1/4	1 5/8	1/8	7 3/8	9 3/4	1 1/8	3 7/16
50	SH	1/2	1 5/8	2 1/8	1/8	7 1/2	10 9/16	1 9/16	3 7/16
60	SDS	1/2	1 15/16	2 1/8	1/8	7 3/4	10 13/16	1 9/16	3 9/16
70	SK	1/2	2 1/2	2 3/8	1/8	7 7/8	12 5/16	2 1/4	4
80	SF	1/2	2 15/16	3	1/8	9 3/4	14 9/16	2 3/8	4 11/16
90	E	7/8	3 7/16	4 1/8	1/8	10 1/2	16 7/8	3 1/16	4 15/16
100	F	1	3 15/16	4 1/8	1/8	9 7/8	18 3/8	4 3/16	5 7/16



Single Spacer Coupling for Q-D Bushings Hubs Bored for Q-D Bushings

Coupling Size	Shaft Sep. C		B	D	Es
	Min.	Max.			
30	1/8	4 9/16	6 15/16	1 1/8	3/4
40	1/8	5 1/16	7 7/16	1 1/8	1 1/8
50	1/8	5 5/16	8 3/8	1 9/16	1 1/4
60	1/8	5 3/8	8 7/16	1 9/16	1 3/16
70	1/8	5	9 7/16	2 1/4	1 1/8
80	1/8	6 1/2	11 5/16	2 3/8	1 7/16
90	1/8	7 5/16	13 11/16	3 1/16	1 3/4
100	1/8	7 1/16	15 9/16	4 3/16	2 5/8

Coupling Size	S Hub Part No.	E Hub Part No.	Element W/ Fasteners	
			Part No.	Wt.
30	30 SHUBQD	30 EHUBQD	30 ELEMENT	1
40	40 SHUBQD	40 EHUBQD	40 ELEMENT	1
50	50 SHUBQD	50 EHUBQD	50 ELEMENT	2
60	60 SHUBQD	60 EHUBQD	60 ELEMENT	3
70	70 SHUBQD	70 EHUBQD	70 ELEMENT	5
80	80 SHUBQD	80 EHUBQD	80 ELEMENT	9
90	90 SHUBQD	90 EHUBQD	90 ELEMENT	16
100	100 SHUBQD	100 EHUBQD	100 ELEMENT	18

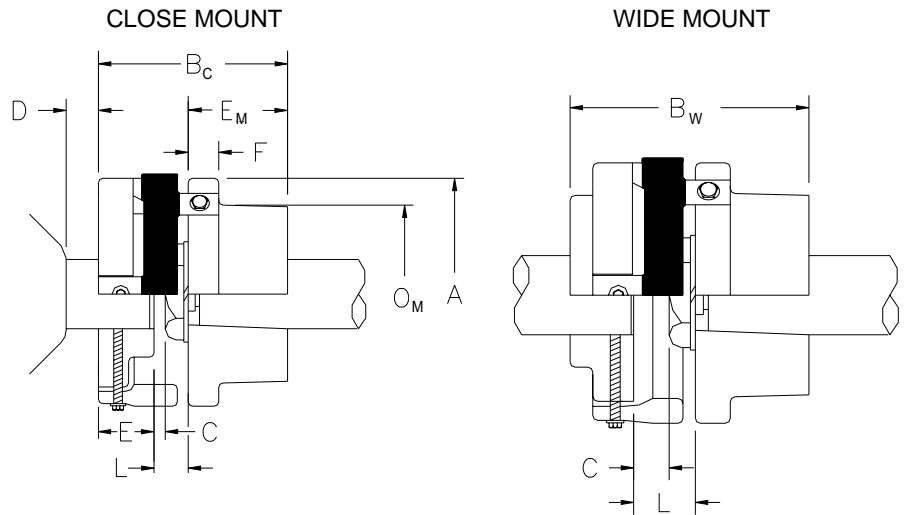
NET WEIGHT, LBS.—SPACER COUPLINGS

		Coupling Size	20	30	40	50	60	70	80	90	100
DOUBLE SPACER	With Solid Hubs		4.0	4.6	7.4	10.1	13.9	22.5	41.1	73.2	116
	With Max. Bore and Standard Keyway		3.7	4.1	6.5	8.7	11.1	19.0	34.0	58.8	96
	With Taper-Lock® Bushing (Max. Bore)		—	4.5	7.0	9.8	13.5	22.5	41.4	76.4	113
	With Q-D® Bushing (Max. Bore)		—	4.6	7.4	10.3	14.1	23.1	41.3	77.1	122
SINGLE SPACER	With Solid Hubs		2.8	3.7	6.7	9.5	13.0	19.8	35.8	66.3	106
	With Max. Bore and Standard Keyway		2.6	3.2	5.7	8.0	10.1	16.3	28.5	52.1	86
	With Taper-Lock® Bushing (Max. Bore)		—	3.6	6.2	9.1	12.7	19.8	36.1	69.2	107
	With Q-D® Bushing (Max. Bore)		—	3.8	6.8	9.9	13.6	21.0	37.0	72.2	114

Mill motor Couplings are for use on AC or DC Mill-Type Motors. Couplings sizes are pre-selected in the table below on the basis of MAXIMUM MOTOR TORQUE. Coupling selections should be made directly from the table. DO NOT USE SERVICE FACTORS.

When selecting coupling size for mill motor frames not listed, follow procedure obtained on page M-77 using MAXIMUM MOTOR TORQUE.

NOTE: Part Numbers for the Elastomeric Mill Motor Couplings have not been established due to the wide variety of mill motor frames.



Coupling Size	AISE Frame Number				Bore with Standard Keyway		Close Mount		Wide Mount			A	Bc	Bw	D	E	Em	F	Om	Q	U	V	Y
	AC Series	400 Series	600 Series	800 Series	Min.	Max.	Hub Sep. L	Shaft Sep. C	Hub Sep. L	Shaft Sep. C													
										Min.	Max.												
60	AC1,AC2	2	2	802A	1 3/8	2 7/8	1 1/8	3/16	2 1/8	1/8	1 3/16	7	6 1/8	7 1/8	1/8	2	3	1	4 5/16	15/16	1 3/4	2 3/4	1 3/16
70	AC4	402	602	802B,C	1 3/8	3	1 1/4	5/16	2 3/8	1/8	1 7/16	8	6 3/8	7 1/2	1/8	2 1/8	3	1	4 9/16	15/16	1 3/4	2 3/4	1 3/16
		403	603		1 3/8	3	1 1/4	1/4	2 3/8	1/8	1 3/8	8	6 7/8	8	1/8	2 1/8	3 1/2	1	4 9/16	1	2	3 1/4	1 1/4
80	AC8	404	604	803,804	1 3/8	3 7/8	1 9/16	9/16	3	1/8	2	9 7/16	7 3/4	9 3/16	1/8	2 11/16	3 1/2	1 1/4	5 3/4	1	2	3 1/4	1 1/4
					1 3/8	3 7/8	1 9/16	7/16	3	1/8	1 7/8	9 7/16	8 1/4	9 3/16	1/8	2 11/16	4	1 1/4	5 3/4	1 1/8	2 1/2	3 3/4	1 3/8
90	AC12	406	606	806	1 9/16	4 3/4	2 1/8	1	4 1/8	1/8	3	12 1/8	9 5/8	11 5/8	1/8	3 1/2	4	1 1/2	6 3/4	1 1/8	2 1/2	3 3/4	1 3/8
					1 9/16	4 3/4	2 1/8	3/4	4 1/8	1/8	2 3/4	12 1/8	10 1/8	12 1/8	1/8	3 1/2	4 1/2	1 1/2	6 3/4	1 3/8	3 1/4	4 1/4	1 5/8
100	AC18	408	608	808	2	5 3/8	2 1/8	7/8	4 1/8	1/8	2 7/8	13 7/8	10 5/8	12 5/8	1/8	4	4 1/2	2	7 1/2	1 1/4	3	4 1/4	1 1/2
					2	5 3/8	2 1/8	3/4	4 1/8	1/8	2 3/4	13 7/8	10 5/8	12 5/8	1/8	4	4 1/2	2	7 1/2	1 3/8	3 1/4	4 1/4	1 5/8
					2	5 3/8	2 1/8	5/8	4 1/8	1/8	2 5/8	13 7/8	11 1/8	13 1/8	1/8	4	5	2	7 1/2	1 1/2	3 5/8	4 1/4	1 3/4

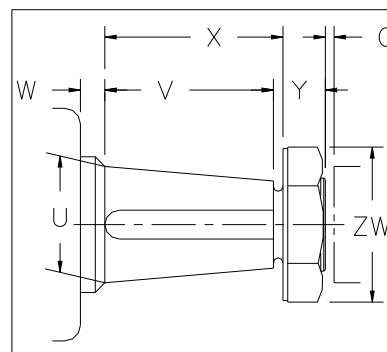
* DO NOT USE SERVICE FACTORS WHEN SELECTING COUPLINGS FROM THIS TABLE

Net Weight, Lbs.

Coupling Size	Mill Motor Hub Bored For AISE Motor Frame	Net Weight, Lbs.	
		With Solid Hubs	With Max. Bore Standard Key
60	2,802A AC1,AC2	13.3	11.1
70	602,802B 802C,AC4	18.6	16.2
70	603	19.4	16.6
70	AC8	20.2	16.6
80	604,803 804	31.4	26.5
80	AC12	32.8	27.1
90	606,806	56.1	47.1
90	AC18	57.7	47.1
100	608,808	83.5	70.3
100	610	83.5	69.9
100	AC25	85.6	71.3

TAPERED BORES For Tapered Shafts, with or without locknut, determine applicable AISE Mill Motor frame or give data below:

1. U Major diameter.
2. V Length of tapered portion of shaft.
3. X Length to face of lockwasher.
4. Y Length of threaded projection.
5. ZW Locknut diameter across corners.
6. W Clearance to bearing housing.
7. Taper (inches on diameter per foot of length).
8. Keyway width and depth.
9. Whether keyway is parallel to shaft or to taper.
10. C Shaft separation if machines are in place.



HIGH PERFORMANCE COUPLINGS

KOP-FLEX®

HIGH PERFORMANCE DISC COUPLINGS...

Available In Four Standard Styles...

Designed And Manufactured To Meet API 671 As A Standard (For more Information, see Bulletin HP103)

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 Kop-Flex HP disc coupling is the preferred choice for demanding turbo machinery applications. Superior quality and a wide variety of standard and custom designs backed by unsurpassed engineering expertise combined to 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



RM Series



MS Series



RZ Series



MP Series

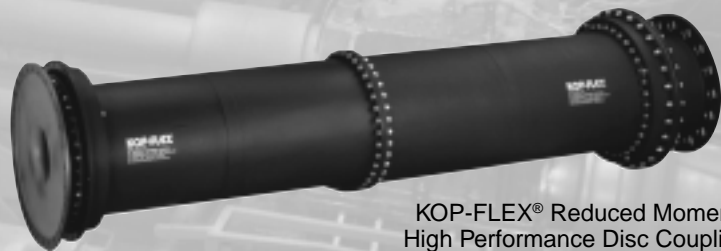


Size #5.5 MDM-J diaphragm coupling

KOP-FLEX High Performance Flexible Diaphragm Couplings (For more Information, see Bulletin 1300)

The patented Flexible Diaphragm Coupling from KOP-FLEX 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 are:

- 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



KOP-FLEX® Reduced Moment High Performance Disc Coupling

KOP-FLEX High Performance Gear Couplings (For more Information, Contact KOP-FLEX)

- 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.



MAX-C[®] Resilient Couplings

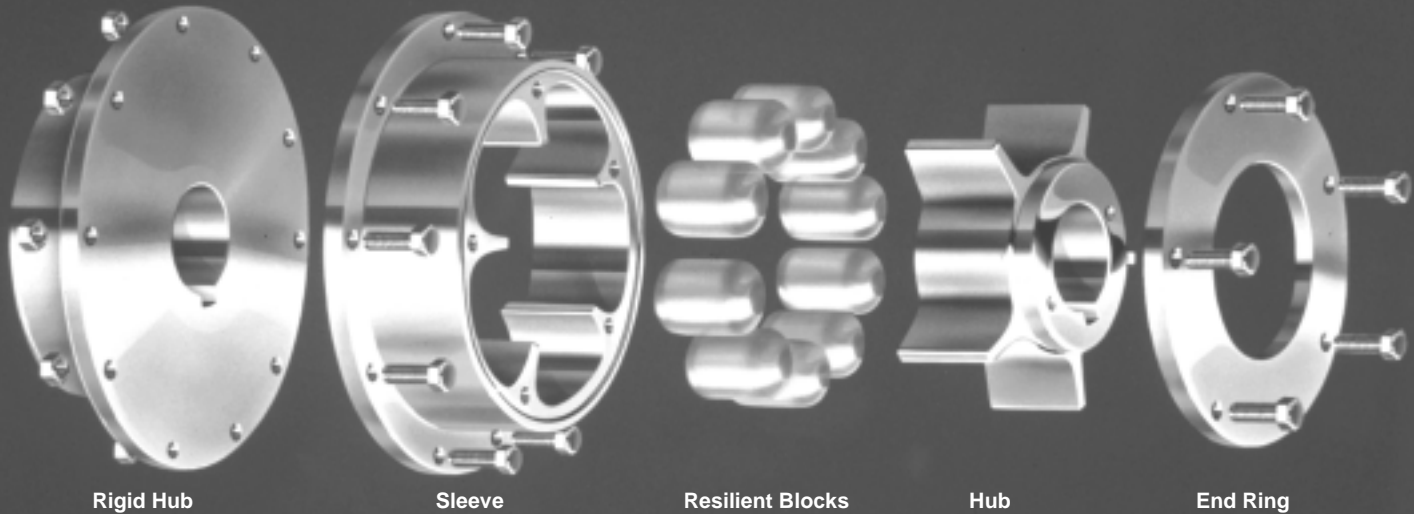
High Torque,
Maintenance-Free
Coupling

Absorb Harmful
Shock Loads



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The Kop-Flex® MAX-C Coupling Advantages:

- Transmits very high torque and cushions system shock.
- Never needs lubrication.
- Easy to assemble and install.
- Operates in wet, gritty, hot and other tough conditions.
- Can increase drive train and gear component life.
- Does not need routine maintenance.

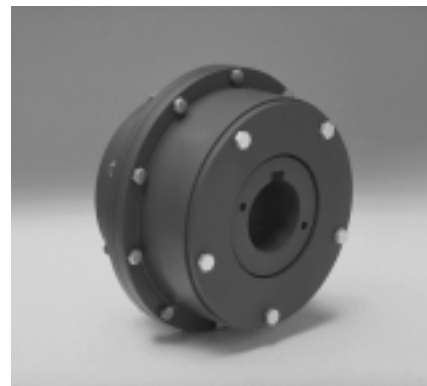
Theory of Operation

A flexible coupling must perform two tasks: transmit torque from driving to driven shaft and accommodate shaft misalignments—angular, offset and axial. However, many applications require a third function. These applications involve severe torque fluctuations, starting and stopping of high inertia machinery, shock and impact loading and certain other types of torsional vibration problems characteristic of reciprocating equipment. This third function is to provide the proper degree of resilience and damping.

Resilience is the capacity of the coupling to assume relatively large torsional deflections under torque. That is what the MAX-C coupling supplies, a means to attenuate and dampen torsional shock loading and vibration while accommodating misalignment.

Coupling Design is the Key

Kop-Flex MAX-C couplings employ three principal components: an outer sleeve, an inner flex hub, both made of metal, and resilient drive blocks. When assembled, the flex hub and sleeve form cavities into which specially designed elastomer blocks are placed. The elastomer blocks are incompressible but the pockets allow block deformation under torque; the cavities are completely filled only under conditions of extreme overload and the coupling thus combines high load carrying capability with resilience. This provides smooth power transmission, day after day, year after year, without the coupling ever needing lubrication.



Superior Service Life

The Kop-Flex® elastomer block materials (several different block compounds are available) are the key to the MAX-C's ability to provide consistent torque transmission with long service life. No other coupling will duplicate its performance and longevity. Block life is long, usually five years or more, but the blocks are easy to replace if useful service life has been reached. Replacing the blocks makes the coupling virtually as good as new.

Block Material

Type K2 and UB blocks are available in a single compound, MC elastomer, which is specially designed for long life and higher strength than rubber blocks. Maximum operating temperature for MC elastomer blocks is 175 °F.

Type WB and CB blocks are supplied in various compounds (natural, nitrile, and SBR high damping rubber) and various hardnesses (40 through 80 Shore 'A' hardness). Since these couplings are designed for engineered applications, the correct block compound and hardness is generally defined by a detailed torsional analysis, or by user experience. Special compounds are also available for specific properties such as high temperature or oil resistant characteristics.

Fail-Safe Design

The inter-locking design of the hub and sleeve blades provide a coupling design that is inherently fail-safe. In the unlikely event that the blocks should suffer a complete failure, the coupling will continue to transmit torque through metal-to-metal contact of the inter-locking blades until the equipment can be shut down and the blocks replaced.



Selection of Coupling Type

The type of Max-C coupling is selected based on the application and any specific requirements (torsional stiffness, damping, etc.) stated by the customer. Each type of coupling has specific torsional properties and should be selected accordingly.



Prime Mover		Max-C Coupling Type		
		Type UB/K2	Type CB	Type WB
Electric Motors	Crane Drives	●		
	Bow Thruster	●	●	
	Pumps	●		
	Reduction Gears	●		●
	Feed Rolls	●		●
	Fans	●		●
	Conveyors	●		
	Manipulators	●		●
Synchronous & Variable Frequency Motors	Centrifugal Compressors		●	●
	Speed Increaseers			●
	Mill Pinions			●
	Kiln Drives			●
	Crushers			●
	ID & FD Fans	●		●
Diesel Engines	Generator Sets		●	
	Fire Pumps		●	
	Torque Convertors		●	
	Marine Gears		●	
	Dynamometers		●	
	Drill Rigs		●	
	Main Propulsion		●	
	Bow or Stern Thruster		●	

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.

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

Application	Typical Service Factor
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

Application	Typical Service Factor
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.

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 appropriate Service Factor from the Table on page M-88.
 - b. Calculate required HP / 100 RPM:

$$\frac{HP \times \text{Service Factor} \times 100}{RPM} = HP / 100 \text{ RPM}$$
 - 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 coupling ratings table 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.

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.

NEW HIGH PERFORMANCE WEDGE BLOCK DESIGN



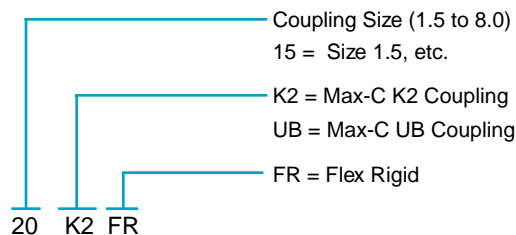
**WEDGE BLOCKS
MAX-C K2**



**CYLINDRICAL
BLOCKS
MAX-C UB**

How To Order

PART NUMBER EXPLANATION Complete Rough Bore Coupling



Coupling Parts

Description

FH = Flex Half
RHUB = Rigid Hub
BS = Block Set
CFFS = Center Flange Fastener Set
EFFS = End Ring Fastener Set
LEFD = LEF Disk

* For finish bored hubs, add FB and bore size. Standard bores are supplied with an interference fit per AGMA 9002-A86.

ex: 20 K2 FH FB

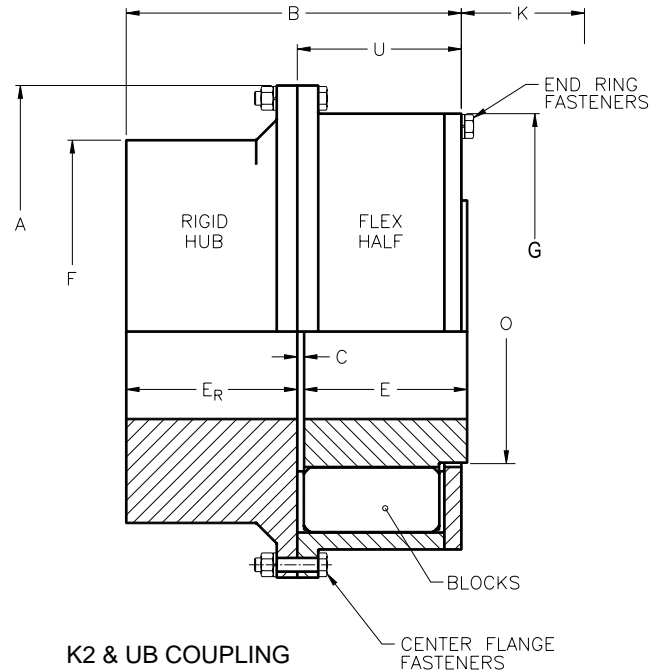


- Higher Torque
- Larger Bore

For high shock and general duty industrial applications where a maintenance-free, non-lubricated coupling is desired. The Max-C K2 resilient coupling has high power ratings and a large bore capacity, allowing it to be used in virtually any difficult installation. Max-C K2 couplings can also be used as a non-lubricated replacement for many gear couplings in heavy-duty service. For smaller sizes or less demanding service, consider a Max-C UB coupling.

The MC elastomer block used in the K2 coupling is specially compounded for high strength, exceeding the capability of normal rubber block couplings. This combination of strength and resilience allows the K2 coupling to be successfully applied to equipment with torque reversals, high momentary torques, start and stop operation and impact and shock loading.

Typical applications include runout tables, conveyors, overhead cranes, fan drives, and any service where shock loading is present. K2 couplings are not meant to be used for reciprocating equipment, synchronous motor or variable frequency motor drives, or where a large amount of torsional displacement is required; for these applications an engineered Max-C CB or WB Type coupling should be considered.



MAX-C K2 COUPLING SPECIFICATIONS

CPLG SIZE	COUPLING CAPACITY HP/100RPM		MAX. SPEED (RPM)		MAX. BORE (IN.)		DIMENSIONS (INCHES)									
	CONTINUOUS	PEAK	BALANCED	NOT BALANCED	RIGID (1)	FLEX HUB	A	B	C	G	E	E _R	F(1)	K (2)	O	U
2.0	45	90	6370	4250	4.50	3.13	9.00	6.03	0.12	7.50	2.94	3.00	6.50	2.00	4.43	3.03
2.5	79	158	5460	3640	5.25	3.75	10.50	7.13	0.12	9.00	3.38	3.62	7.50	2.50	5.29	3.51
3.0	116	232	4770	3180	6.00	4.38	12.00	8.25	0.12	10.50	3.88	4.25	8.50	2.75	6.21	4.00
3.5	200	400	4090	2730	7.25	5.00	14.00	9.88	0.16	12.06	4.88	4.88	10.50	3.50	7.21	5.00
4.0	300	600	3600	2400	9.63	6.00	16.00	11.12	0.19	13.94	5.38	5.62	13.50	4.00	8.36	5.50
4.5	420	840	3180	2120	9.75	6.75	18.00	12.25	0.25	15.94	5.88	6.25	14.00	4.50	9.59	6.00
5.0	574	1148	2860	1910	10.50	7.25	20.00	13.81	0.25	17.50	6.62	7.00	15.00	4.75	10.38	6.81
5.5	670	1340	2560	1710	11.88	8.25	22.63	14.37	0.25	19.88	6.38	8.00	17.00	4.63	12.13	6.37
6.0	1000	2000	2330	1550	13.38	9.25	24.88	16.38	0.25	21.62	7.88	8.50	19.00	6.00	13.13	7.88
7.0	1300	2600	2150	1430	14.13	10.00	26.88	18.12	0.50	23.12	8.88	9.25	20.00	7.13	14.13	8.87
8.0	1745	3490	1970	1310	14.88	11.00	29.38	19.25	0.50	25.62	9.25	10.00	22.50	7.50	16.63	9.25

NOTE 1 - A LARGER RIGID BORE IS AVAILABLE BY INCREASING DIMENSION F - CONSULT KOP-FLEX
 NOTE 2 - SPACE NEEDED FOR BLOCK REMOVAL.

MAX-C K2 COUPLING PART NUMBERS

Coupling Size	Complete Coupling		Flex Half		Rigid		Spare Parts Kits					
	Part No.	Wt. Solid Hubs (lbs.)	Part No.	Wt. Solid Hubs (lbs.)	Part No.	Wt. Solid (lbs.)	Block Set		Center Flange Fasteners		End Ring Fasteners	
							Part No.	Wt. (lbs.)	Part No.	Wt. (lbs.)	Part No.	Wt. (lbs.)
2.0	20 K2 FR	66	20 K2 FH	31	20 K2 RHUB	35	20 K2 BS	1.2	20 K2 CFFS	1.0	20 K2 EFFS	0.5
2.5	25 K2 FR	100	25 K2 FH	44	25 K2 RHUB	56	25 K2 BS	2.1	25 K2 CFFS	1.0	25 K2 EFFS	0.5
3.0	30 K2 FR	160	30 K2 FH	76	30 K2 RHUB	84	30 K2 BS	3.2	30 K2 CFFS	1.5	30 K2 EFFS	0.8
3.5	35 K2 FR	260	35 K2 FH	120	35 K2 RHUB	140	35 K2 BS	5.3	35 K2 CFFS	1.5	35 K2 EFFS	1.2
4.0	40 K2 FR	420	40 K2 FH	180	40 K2 RHUB	240	40 K2 BS	8.0	40 K2 CFFS	1.5	40 K2 EFFS	1.2
4.5	45 K2 FR	550	45 K2 FH	250	45 K2 RHUB	300	45 K2 BS	11	45 K2 CFFS	3.0	45 K2 EFFS	2.0
5.0	50 K2 FR	750	50 K2 FH	350	50 K2 RHUB	400	50 K2 BS	15	50 K2 CFFS	5.0	50 K2 EFFS	2.0
5.5	55 K2 FR	990	55 K2 FH	420	55 K2 RHUB	570	55 K2 BS	18	55 K2 CFFS	5.0	55 K2 EFFS	4.5
6.0	60 K2 FR	1400	60 K2 FH	640	60 K2 RHUB	760	60 K2 BS	26	60 K2 CFFS	7.5	60 K2 EFFS	4.5
7.0	70 K2 FR	1700	70 K2 FH	780	70 K2 RHUB	920	70 K2 BS	36	70 K2 CFFS	9.0	70 K2 EFFS	6.0
8.0	80 K2 FR	2200	80 K2 FH	1000	80 K2 RHUB	1200	80 K2 BS	43	80 K2 CFFS	10.5	80 K2 EFFS	6.0



K2 & UB COUPLING

For general duty industrial applications where a maintenance-free, non-lubricated coupling is desired. The Max-C UB resilient coupling has high power ratings, allowing it to be used in tough applications. Max-C UB couplings are available in smaller size ranges for most general duty service, for larger sizes or higher power capacity, consider a Max-C K2 coupling.

The MC elastomer block used in the UB coupling is specially compounded for high strength, exceeding the capability of normal rubber block couplings. This combination of strength and resilience allows the UB coupling to be successfully applied to equipment with torque reversals, high momentary torques, start and stop operation and impact and shock loading.

Typical applications include runout tables, conveyors, overhead cranes, fan drives, and any service where shock loading is present. UB couplings are not meant to be used for reciprocating equipment, synchronous motor or variable frequency motor drives, or where a large amount of torsional displacement is required; for these applications an engineered Max-C CB or WB Type coupling should be considered.

MAX-C TYPE UB COUPLING SPECIFICATIONS

CPLG SIZE	COUPLING CAPACITY HP/100 RPM		MAX. SPEED (RPM)		MAX. BORE (IN.)		DIMENSIONS (INCHES)									
	CONTINUOUS	PEAK	BALANCED	NOT BALANCED	RIGID (1)	FLEX HUB	A	B	C	G	E	E _R	F(1)	K(2)	O	U
1.5	7	14	6900	4600	2.62	1.75	6.62	4.41	0.09	5.00	2.16	2.16	4.75	2.75	2.62	2.25
2.0	12	24	5900	3930	3.12	2.12	7.75	4.91	0.09	6.12	2.41	2.41	5.75	3.00	3.22	2.50
2.5	22	44	4800	3200	3.88	2.62	9.50	5.38	0.12	7.88	2.62	2.62	6.75	3.25	3.97	2.75
3.0	40	80	4100	2730	4.75	3.19	11.12	6.62	0.12	9.50	3.25	3.25	7.75	4.25	4.88	3.38
3.5	70	140	3600	2400	5.75	3.81	13.25	7.88	0.12	11.25	3.88	3.88	10.12	4.75	5.88	4.00
4.0	120	240	3000	2000	5.00	4.62	15.75	9.25	0.12	13.62	4.56	4.56	8.00	5.75	7.19	4.69
5.0	215	430	2400	1600	6.25	5.62	19.12	11.31	0.12	16.50	5.62	5.56	10.00	7.25	8.78	5.75
6.0	400	800	1950	1300	7.50	6.88	23.50	13.12	0.19	20.25	6.81	6.12	12.00	8.75	10.62	7.00
7.0	600	1,200	1760	1170	8.75	7.81	26.12	15.94	0.19	22.88	7.88	7.88	14.00	10.25	12.12	8.06

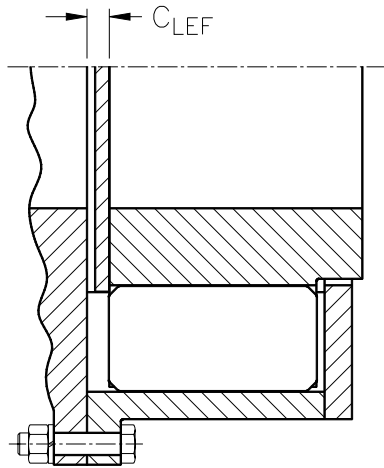
NOTE 1 - A LARGER RIGID BORE IS AVAILABLE BY INCREASING DIMENSION F - CONSULT KOP-FLEX

NOTE 2 - SPACE NEEDED FOR BLOCK REMOVAL.

MAX-C UB COUPLING PART NUMBERS

Coupling Size	Complete Coupling		Flex Half		Rigid		Spare Parts Kits					
	Part No.	Wt. Solid Hubs (lbs.)	Part No.	Wt. Solid Hubs (lbs.)	Part No.	Wt. Solid (lbs.)	Block Set		Center Flange Fasteners		End Ring Fasteners	
							Part No.	Wt. (lbs.)	Part No.	Wt. (lbs.)	Part No.	Wt. (lbs.)
1.5	15 UB FR	25	15 UB FH	11	15 UB RHUB	14	15 UB BS	0.4	15 UB CFFS	0.8	15 UB EFFS	0.4
2.0	20 UB FR	40	20 UB FH	18	20 UB RHUB	22	20 UB BS	0.8	20 UB CFFS	0.8	20 UB EFFS	0.5
2.5	25 UB FR	62	25 UB FH	28	25 UB RHUB	34	25 UB BS	1.5	25 UB CFFS	1.0	25 UB EFFS	0.5
3.0	30 UB FR	104	30 UB FH	50	30 UB RHUB	54	30 UB BS	2.7	30 UB CFFS	1.0	30 UB EFFS	0.5
3.5	35 UB FR	180	35 UB FH	80	35 UB RHUB	100	35 UB BS	4.5	35 UB CFFS	1.5	35 UB EFFS	0.7
4.0	40 UB FR	280	40 UB FH	140	40 UB RHUB	140	40 UB BS	8.1	40 UB CFFS	1.5	40 UB EFFS	1.0
5.0	50 UB FR	420	50 UB FH	220	50 UB RHUB	200	50 UB BS	14	50 UB CFFS	3.0	50 UB EFFS	1.4
6.0	60 UB FR	740	60 UB FH	450	60 UB RHUB	290	60 UB BS	25	60 UB CFFS	5.5	60 UB EFFS	3.0
7.0	70 UB FR	1030	70 UB FH	590	70 UB RHUB	440	70 UB BS	38	70 UB CFFS	6.0	70 UB EFFS	3.0

Type K2 Limited End Float LEF Coupling

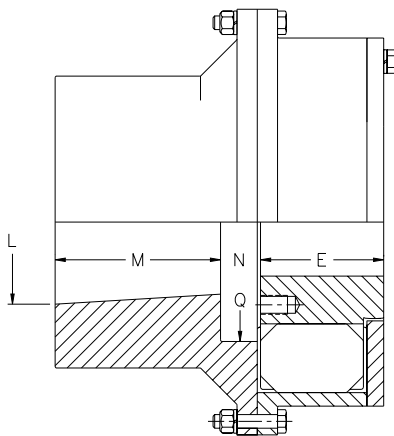


For sleeve bearing motor applications, Max-C couplings are supplied with an LEF disk to limit the float of the motor rotor and protect the motor bearings. The shaft separation, C_{LEF} , is larger than the standard separation in order to accommodate the LEF disk and to limit the float.

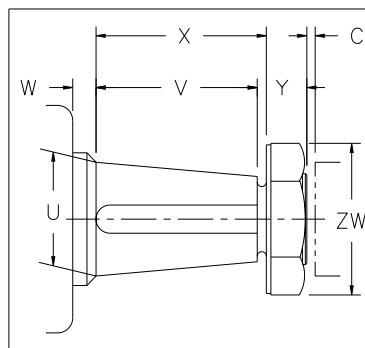
COUPLING SIZE	TOTAL LEF	C_{LEF}	LEF DISK (1)	
			Part No.	Wt. (lbs.)
2.0	.12	.19	20 K2 LEFD	1
2.5	.12	.19	25 K2 LEFD	1
3.0	.12	.20	30 K2 LEFD	1
3.5	.19	.21	35 K2 LEFD	1
4.0	.19	.26	40 K2 LEFD	2
4.5	.19	.35	45 K2 LEFD	2
5.0	.19	.38	50 K2 LEFD	2
5.5	.19	.41	55 K2 LEFD	2
6.0	.19	.40	60 K2 LEFD	2
7.0	.19	.66	70 K2 LEFD	2
8.0	.19	.66	80 K2 LEFD	3

(1) LEF disks are used only in closed coupled applications. One disk required per coupling.

Type K2 & UB Mill Motor Coupling



AISE MILL MOTOR FRAME SIZE	DIMENSIONS (INCHES)				K2 COUPLING			UB COUPLING		
	L	M	N	Q	CPLG. SIZE	WEIGHT (lb.)	WR ² (lb.-in. ²)	CPLG. SIZE	WEIGHT (lb)	WR ² (lb.-in. ²)
802, 602, AC1, AC2, AC4	1.749	3.00	0.94	2.62	2.0	41	302	1.5	7	22
803, 804, 603, 604	1.999	3.50	1.00	3.12	2.0	44	327	2.0	15	68
806, 606, AC8, AC12	2.499	4.00	1.12	3.88	2.0	46	351	2.5	24	165
808, 608	2.999	4.50	1.25	4.75	2.0	46	366	3.0	34	326
810, 610, AC18	3.249	4.50	1.38	5.50	2.5	65	687	3.5	59	837
812, 612, AC25, AC30	3.623	5.00	1.50	5.50	2.5	68	729	3.5	60	862
814, 614, AC40, AC50	4.248	5.00	1.62	6.50	3.0	87	1250	4.0	83	1670
816, 616	4.623	5.50	1.75	8.50	4.0	252	7040	5.0	154	4540
818, 618	4.998	6.00	1.38	8.50	4.0	256	7180	5.0	156	4580
620	5.873	6.75	1.75	8.50	4.0	277	8040	5.0	157	4710
622	6.247	7.25	2.38	10.00	4.5	329	10900	6.0	271	11760
624	6.997	9.25	2.38	10.00	4.5	378	12700	6.0	295	12540



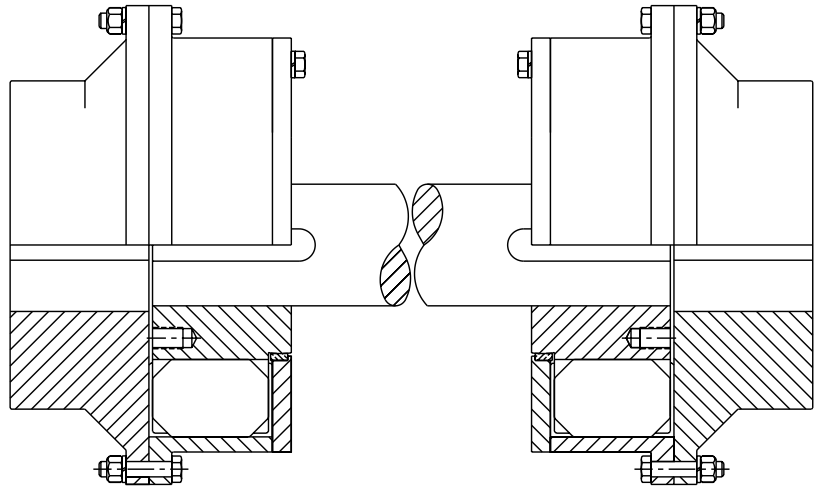
Tapered Bores— For Tapered Shafts, with or without locknut, determine applicable AISE Mill Motor frame or give data:

1. U Major Diameter.
2. V Length of tapered portion of shaft.
3. X Length to face of lockwasher.
4. Y Length of threaded projection.
5. ZW Locknut diameter across corners.
6. W Clearance to bearing housing.
7. Taper (inches on diameter per foot of length).
8. Keyway width and depth.
9. Whether keyway is parallel to shaft or to taper.
10. C Shaft separation if machines are in place.

Type K2 & UB Floating Shaft Coupling

For very long shaft separations, floating shaft couplings are used. With rigids mounted on the equipment shafts, the floating shaft assembly drops out for easy block inspection and replacement. Max-C halves with special end ring and centering bushings are required.

When ordering, 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 considerations.

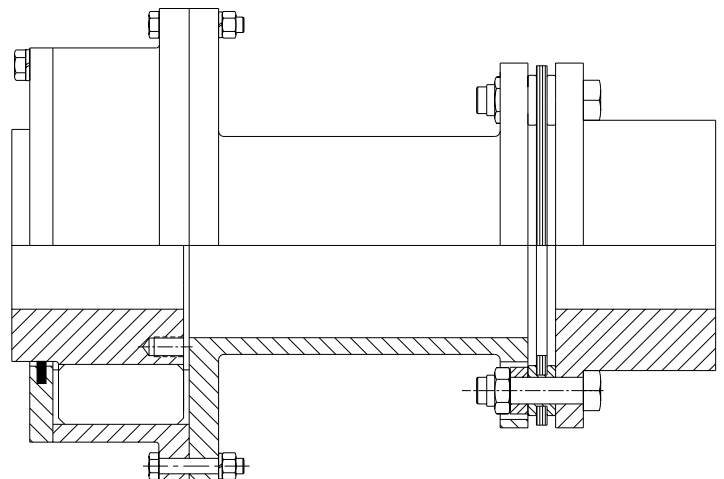
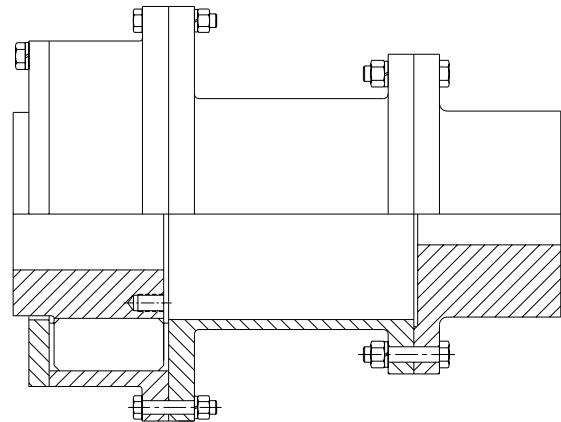


Type K2 & UB Spacer Coupling

Spacer couplings are used on applications with extended shaft separations. Standard flex halves are typically used with a standard gear coupling rigid and a spacer which is made to order.

For longer separations, and for more misalignment capacity, the rigid half is replaced by a flexible disc or gear coupling half, and a modified Max-C half with special end ring and centering bushing are used.

For applications with shaft separations slightly larger than standard, a special long rigid can be supplied, counterbored for the correct shaft separation, eliminating the need for a spacer.



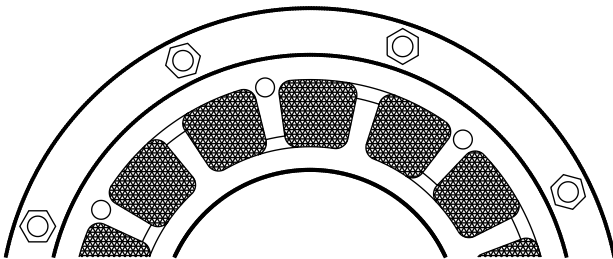
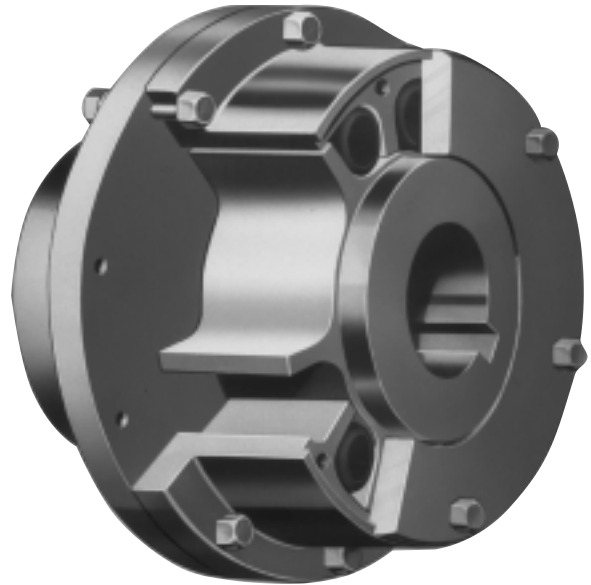
The Kop-Flex Max-C coupling series also includes two specially engineered types, the Max-C CB and WB, designed for the heavy duty service encountered on applications with reciprocating or severe impact loading. Each coupling type, CB and WB, is available with a wide variety of performance features and options so they can be custom engineered for each application to solve special problems and provide outstanding operating service.

Contact Kop-Flex with specific information about your application, and an engineered Max-C CB or WB coupling can be supplied to suit your particular needs.

Design Expertise - from modification of a standard coupling to a completely new design. Couplings can be designed to suit a customer's system - low torsional stiffness, high load capacity, special space envelope, high or low inertia, etc.

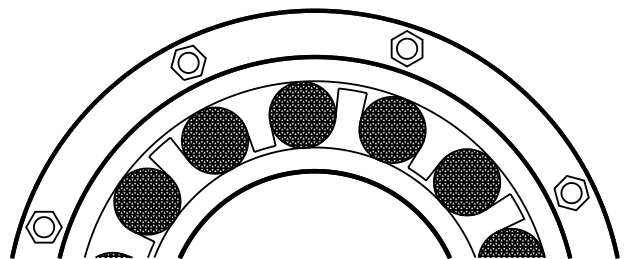
New, or alternate, materials can be specified to meet various requirements. Specific rubber compounds can be developed to suit a specific application - e.g. Viton for high temperature applications or Neoprene for continuous exposure to petroleum products.

Engineering Calculations - from basic mass elastic data to a system torsional analysis. Other calculations routinely performed include hub/shaft torque capacity, frequency (lateral, axial, etc.) calculations and component stress analysis.



TYPE WB

The MAX-C Type WB should be specified for severe impact or reversing conditions where use of a coupling with moderately high degree of torsional stiffness (a lower degree of angular displacement, varying from 1° to 2° or more) to provide high shock absorbing capacity is required. The high torques at the moment of impact, as well as their possible amplifications at other locations in the drive, usually dictate the use of the Wedge Block MAX-C. The block tends to fill the cavity and the larger driving areas of contact between block and blade will support severe overloads.



TYPE CB

The MAX-C Type CB should be used when resonant vibration conditions, inherent in reciprocating drives, dictate the use of a coupling with very low torsional stiffness (or high degree of angular displacement, approaching 6° or 7° at peak torque), permitting a large windup in relation to the vibratory torque. In the Cylindrical Block MAX-C, there is more space in the cavity or pocket into which the block may deflect under load, producing the high resiliency desired. Even greater resiliency or windup, approaching 14°, can often be achieved with the Type CB to meet specific applications merely by assembling two couplings in tandem.



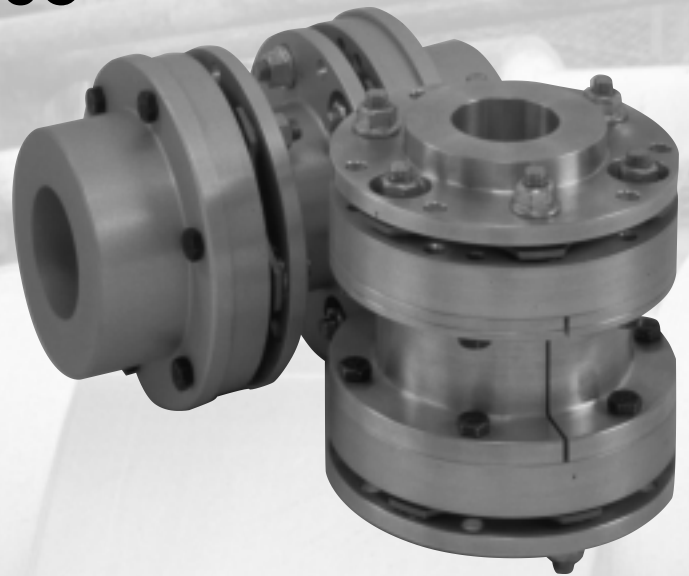
KD[®]

Disc Couplings Size 103 through 905

**Non-Lubricated for
Simplified Maintenance**

**Higher Torque Ratings,
Similar to
Gear Couplings**

**Excellent Balance
Characteristics**



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KD® DISC Couplings

Kop-Flex KD Series of flexible shaft couplings provide reliable transmission of mechanical power from driving to driven machine where a low-maintenance, non-lubricated coupling is required.

KD disc couplings are specifically designed to accommodate general purpose drive system applications such as centrifugal pumps, compressors, generators, cooling towers, machine tools, printing and pulp and paper machines.

KD couplings transmit torque and provide for both angular and axial misalignment between shafts with a coupling comprised of shaft mounted hubs connected through flexible disc packs with spacer or sleeve assemblies.

All KD couplings use stainless steel discs as flexible members, providing high

strength and good corrosion resistance. Each disc pack withstands up to 1/2° continuous angular misalignment and its streamline design insures that the reaction load on equipment bearings is minimized. These disc pack couplings are inherently self-centering; additional provision for limited end float is not required.

Most disc packs are unitized and, along with self-locking nuts, they greatly reduce the number of loose parts, thus simplifying installation and replacement.

Kop-Flex KD disc couplings are now available in an expanded range of sizes and styles suitable for common installations. Or if you need something special, we can design a coupling to meet your specific requirements.



1. Coupling Style:

Select the appropriate KD coupling style for your application from the Product Overview & Index.

2. Coupling Size:

Step 1: Determine the proper service factor from page M-99.

Step 2: Calculate the required HP/100 RPM, using the HP rating of the drive and the coupling speed (RPM) as shown below:

$$\frac{\text{HP} \times \text{SERVICE FACTOR} \times 100}{\text{RPM}} = \text{HP/100 RPM}$$

Step 3: Select the coupling size having a rating sufficient to handle the required HP/100 RPM at the appropriate service factor.

Step 4: Verify that the maximum bore of the coupling selected is equal to or larger than either of the equipment shafts.

Step 5: Check the overall dimensions to ensure coupling will not interfere with the coupling guard, piping, or the equipment housings and that it will fit the required shaft separation.

3. Check Balance Requirements

Consult the Dynamic Balancing Guide on page M-99 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.

4. Specify Shaft Separation

Specify the required shaft separation using standard length, if possible. Verify the actual shaft separation for a replacement application.

Note: 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.



- MT disc pack** [Medium Torque]
unitized, 3 bolt disc with “prestretch” bushings that get pressed into the flanges, uses standard fasteners.
KD1, 2
- CT disc pack** [Cooling Tower]
unitized, 3 bolt disc for cooling tower couplings, stainless steel components with body-fit bolts.
KD33
- HT disc pack** [High Torque]
unitized, 3, 4 or 5 bolt discs, thicker for high torque, body fit bolts.
KD11,20,21,22,4,41,42
- HS disc pack** [High Torque - Semi-unitized]
same as HT but semi-unitized so that the discs can be dropped out between close-coupled hubs.
KD10
- HM disc pack** [High Torque - Marine]
same as HT but with coated discs, for marine applications - DNV approved.
- LT disc pack** [Low Torque - Light Duty]
non-unitized, most economical, body fit bolts.
KD5, 50, 51



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).

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

Application	Typical Service Factor
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

Application	Typical Service Factor
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.

Balancing requirements for a coupling are dependent on factors determined by the characteristics of the connected equipment. For this reason, the Balancing Charts should be used as a GUIDE ONLY to assist in determining whether or not balancing is required.

The Balancing Charts shown are based on AGMA 9000-C90 suggested balance classes for systems with "Average" sensitivity to unbalance. For systems with higher sensitivity to unbalance, balancing of the coupling may be required at lower speeds. For systems which are less sensitive to unbalance, couplings may be able to operate at higher speeds than those shown at lower balance levels. Therefore, in the absence of either a thorough system analysis or past user experience with a similar installation, these charts should be used as a GUIDE ONLY.

KD Couplings are available in several styles to meet the balance requirements of API 610, including the 8th Edition. Consult Kop-Flex for details.

KD1 and KD10 couplings meet AGMA Class 8 balance levels as-manufactured (off-the-shelf) and may be component balanced to run at higher speeds. Refer to the ratings table for the maximum operating speeds for non-balanced and balanced couplings.

KD11 couplings are designed for higher speeds and meet AGMA Class 9 balance as-manufactured. KD11 couplings may be component balanced to meet Class 10 balance, and may be assembly balanced to Class 11.

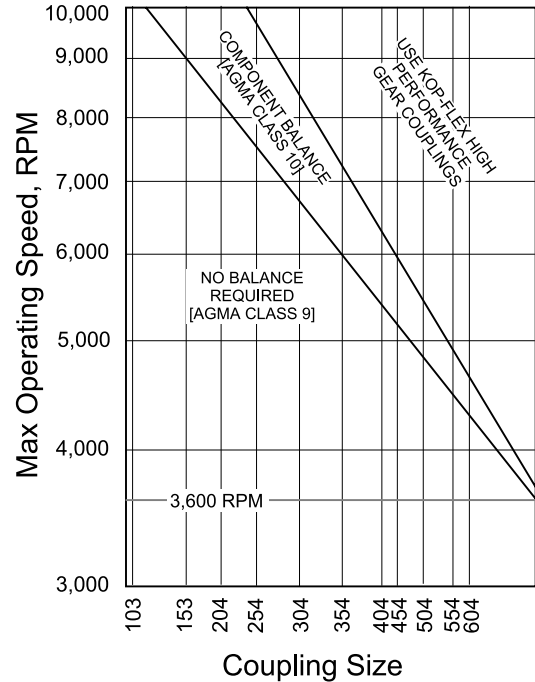
KD2, KD20, and KD21 couplings meet AGMA Class 9 balance levels as-manufactured and may be component balanced to meet Class 10 balance. KD2 and KD20 couplings may be assembly balanced to meet AGMA Class 11 balance. KD21 couplings are not assembly balanced. Refer to the charts on this page for balancing recommendations.

Balancing of sizes larger than 604 must be considered on a case-by-case basis. Consult Kop-Flex for assistance.

For KD4, KD41 and KD42, and KD22 couplings, balance considerations should be reviewed on a case-by-case basis. Consult Kop-Flex Engineering for assistance. KD5, 50 and 51 couplings are not balanced.

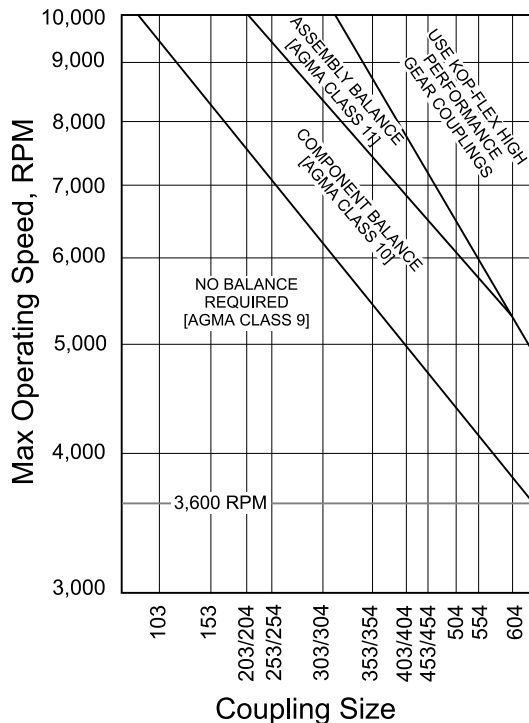
KD11 Balancing Chart

Based on AGMA 9000-C90 for Average System Sensitivity



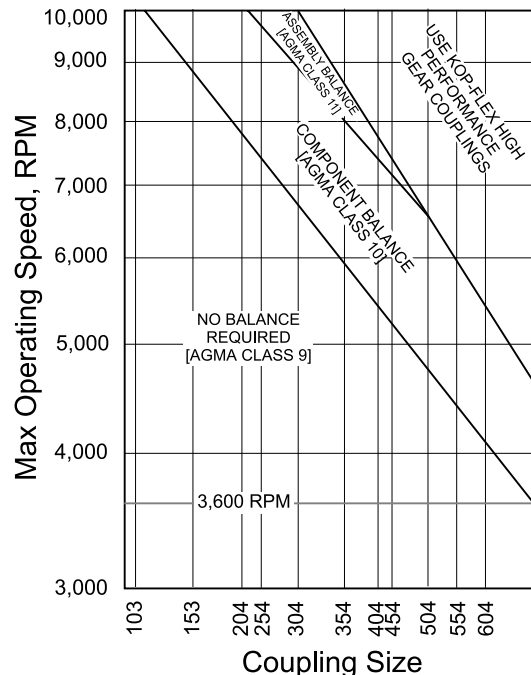
KD2 & KD20 Balancing Chart for up to 18" Shaft Separation

Based on AGMA 9000-C90 for Average System Sensitivity



KD21 Balancing Chart for up to 18" Shaft Separation

Based on AGMA 9000-C90 for Average System Sensitivity

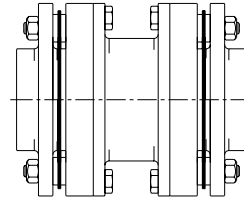


CLOSE COUPLED

KD1 with MT Disc Packs

Size Range 103 to 453
Bore Range .50 - 5.50"
Overview Unitized Disc Pack replaced without moving connected machines
 Medium Duty Applications

Page
M-102, M-103



KD1 & KD10

KD10 with HS Disc Packs

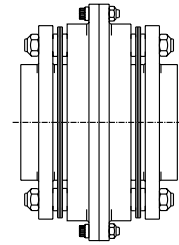
Size Range 103 to 905
Bore Range .50 - 11.50"
Overview Unitized Disc Pack replaced without moving connected machines
 Heavy Duty Applications
 Ratings Similar to Gear Couplings

M-104, M-105

KD11 with HT Disc Packs

Size Range 103 to 905
Bore Range .50 - 11.50"
Overview Unitized Disc Pack
 Heavy Duty Applications
 Ratings Similar to Gear Couplings

M-106, M-107



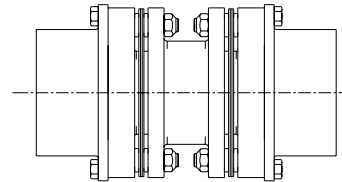
KD11

SPACER STYLES

KD2® with MT Disc Packs

Size Range 053 to 453
Bore Range .50 - 7.25"
Overview "Drop-Out" Spacer Design
 Factory Assembled Center Flex Section
 Medium Duty Applications

M-108, M-109



KD2® & KD20

KD20 with HT Disc Packs

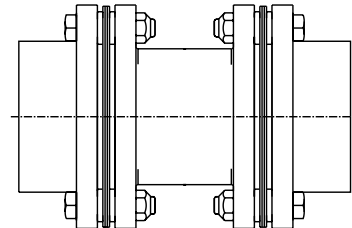
Size Range 204 to 905
Bore Range 1.00 - 13.50"
Overview "Drop-Out" Spacer Design
 Factory Assembled Center Flex Section
 High Torque Applications

M-110, M-111

KD21 with HT Disc Packs

Size Range 103 to 905
Bore Range .50 - 13.50"
Overview Simple 3 Piece Spacer Design
 Unitized "Drop-Out" Disc Pack
 High Torque Applications

M-112, M-113

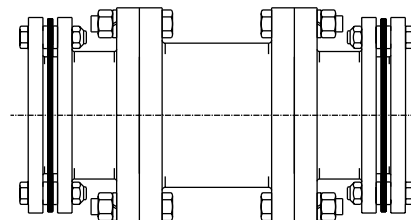


KD21

KD22 with HT Disc Packs

Size Range 103 to 905
Bore Range .50 - 11.50"
Overview Unitized Disc Pack on Shaft Hub
 Heavy Duty Applications
 Ratings Similar to Gear Couplings

M-114, M-115

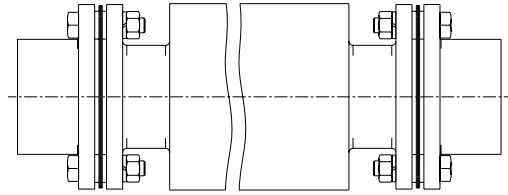


KD22

COOLING TOWER

KD33 with CT Disc Packs

- Size Range** 153 to 303
- Bore Range** .50 - 4.50"
- Overview** Cooling Towers with Very Long Shaft Separation
Stainless Steel/Composite Tubes
Replaces most competitive Cooling Tower
Couplings
Non-lubricated



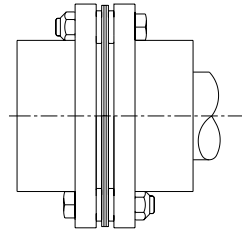
KD33

M-116

SINGLE FLEX & FLOATING SHAFTS

KD4 with HT Disc Packs

- Size Range** 103 to 905
- Bore Range** .50 - 13.50"
- Overview** Single Flex
Unitized "Drop-Out" Disc Pack
Heavy Duty Applications

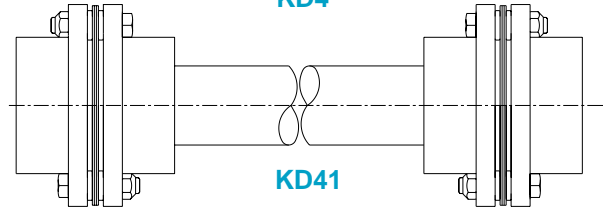


KD4

M-117

KD41 with HT Disc Packs

- Size Range** 103 to 905
- Bore Range** .50 - 13.50"
- Overview** Floating Shaft Design
Unitized "Drop-Out" Disc Pack
Heavy Duty Applications

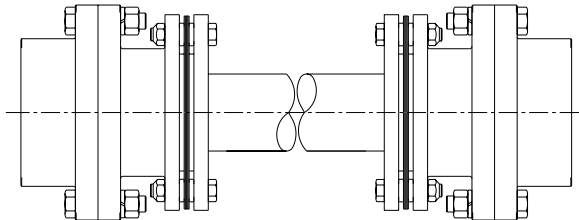


KD41

M-118
M-119

KD42 with HT Disc Packs

- Size Range** 103 to 905
- Bore Range** .50 - 11.50" Flex Half
- Overview** Floating Shaft Design
Bolts Directly to Gear Coupling Rigid
Unitized Disc Pack
Heavy Duty Applications
Ratings Similar to Gear Couplings



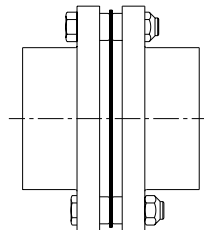
KD42

M-120
M-121

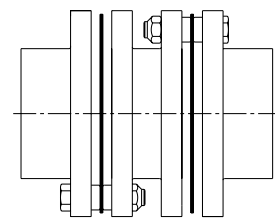
LIGHT DUTY

KD5, KD50, KD51 with LT Disc Packs

- Size Range** 022 to 362
- Bore Range** .25 - 4.75"
- Overview** Lighter Duty Applications

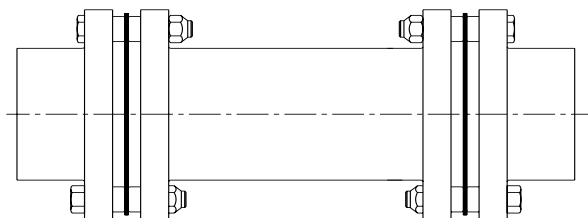


KD5 Single Flex

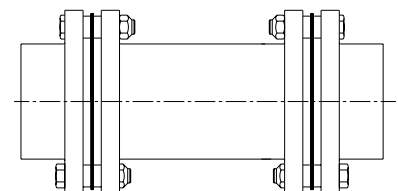


KD50 Spacer Style

M-122
to
M-127



KD51 Floating Shaft



KD51T Tubular Floating Shaft

M-101

The KD1 coupling is designed for close coupled applications with minimal to short distance between shaft ends and light to medium loading. It can directly replace most Rex/Thomas DBZ couplings and the unitized disc pack design makes the installation simpler and easier.

The KD1 is comprised of two hubs, two rings, two disc packs, and a piloted split spacer. The standard coupling hubs may be installed in any of three mounting positions for design and installation flexibility. The split spacer pilot gives the KD1 coupling improved dynamic balance characteristics and contains a design feature to safely hold the split spacer in place while the coupling is rotating.

KD1 disc packs are unitized to greatly reduce the number of loose parts. The split spacer simply drops away from the hubs for faster installation and replacement without moving connected machinery. The standard coupling balance meets AGMA Class 8 as manufactured, dynamic balance to AGMA Class 9 and conformance to API 610 are available options.

For higher power requirements, consider a KD10 disc coupling; or for higher speeds, check out a KD11 disc coupling.

KD1 Couplings use MT (Medium Torque) Disc Packs.



- Medium Duty
- Minimal to Short Shaft Separations
- Split Spacer with Safety Pilot
- Replacement for Rex/Thomas DBZ
- Drop-Out, Unitized Disc Packs

Complete Couplings

Coupling Size	Complete Coupling with 2 Std. Hubs		Complete Coupling with 1 Std. Hub and 1 Long Hub		Complete Coupling with 2 Long Hubs	
	Rough Bore	Finish Bore \varnothing	Rough Bore	Finish Bore \varnothing	Rough Bore	Finish Bore \varnothing
103	103 KD 1 SS	103 KD 1 SS FB	103 KD 1 SL	103 KD 1 SL FB	103 KD 1 LL	103 KD 1 LL FB
153	153 KD 1 SS	153 KD 1 SS FB	153 KD 1 SL	153 KD 1 SL FB	153 KD 1 LL	153 KD 1 LL FB
203	203 KD 1 SS	203 KD 1 SS FB	203 KD 1 SL	203 KD 1 SL FB	203 KD 1 LL	203 KD 1 LL FB
253	253 KD 1 SS	253 KD 1 SS FB	253 KD 1 SL	253 KD 1 SL FB	253 KD 1 LL	253 KD 1 LL FB
303	303 KD 1 SS	303 KD 1 SS FB	303 KD 1 SL	303 KD 1 SL FB	303 KD 1 LL	303 KD 1 LL FB
353	353 KD 1 SS	353 KD 1 SS FB	353 KD 1 SL	353 KD 1 SL FB	353 KD 1 LL	353 KD 1 LL FB
403	403 KD 1 SS	403 KD 1 SS FB	403 KD 1 SL	403 KD 1 SL FB	403 KD 1 LL	403 KD 1 LL FB
453	453 KD 1 SS	453 KD 1 SS FB	453 KD 1 SL	453 KD 1 SL FB	453 KD 1 LL	453 KD 1 LL FB

① All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances.

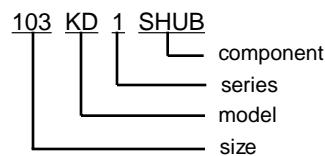
Component Parts

Description	Part Number
Standard Hub	SHUB
Long Hub	LHUB
*Center Assembly	CA
**MT Disc Pack Assembly	MTDP
**MT Disc Pack Fastener Set	MTFS
**Hub Fastener Set	HFS

* Center Assembly includes (2) disc packs, (2) disc pack fastener sets.

** For Disc Pack Components and Hub Fastener Sets, only size and component part number are required to order.

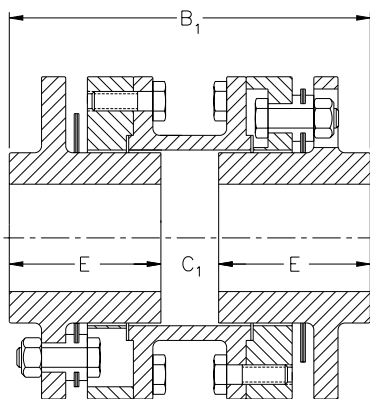
How to Order Components



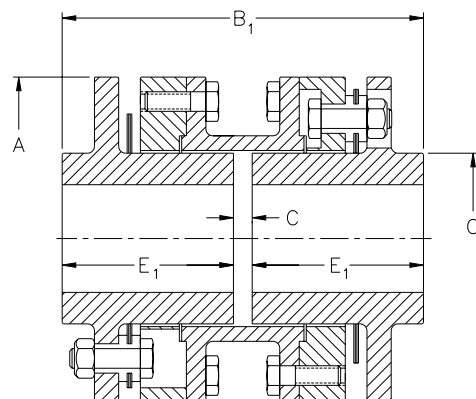
Selection Data

Size	Max. Bore (in)	Coupling Rating (HP/100 RPM)	Torque Rating		Maximum Speed Not Balanced (RPM)	Maximum Speed Balanced (RPM)	Total Φ Weight (lbs)	Total Φ WR^2 (lb-in ²)	Axial Capacity (in)
			Continuous (in-lb)	Peak (in-lb)					
103	1.62	4.3	2710	5420	5400	9700	8.1	18.6	±.060
153	2.25	12.5	7880	15760	4500	7500	19.8	83.9	±.075
203	2.75	22.9	14400	28800	4100	6700	31.9	184	±.090
253	3.25	37.5	23600	47200	3600	5600	51.6	417	±.105
303	3.88	60.0	37800	75600	3200	5100	77.3	856	±.125
353	4.38	100	63000	126000	2900	4400	129	1940	±.150
403	5.00	155	97700	195000	2600	4000	189	3720	±.175
453	5.50	205	129000	258000	2400	3800	223	5170	±.200

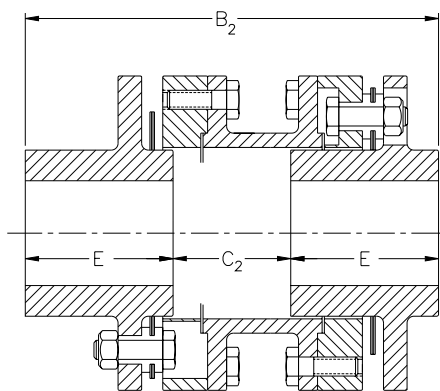
① Data based on maximum bores.



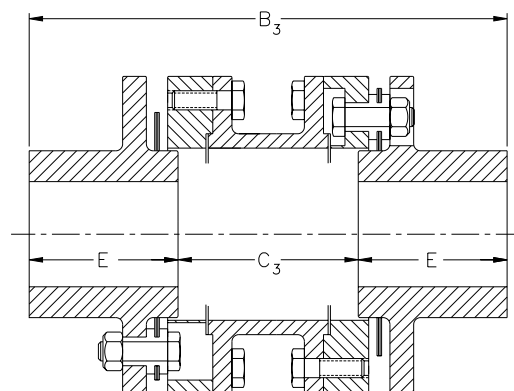
STANDARD HUBS



LONG HUBS



ONE HUB REVERSED



TWO HUBS REVERSED

Dimensional Data

Size	Rough Bore	A (in)	B ₁ (in)	B ₂ (in)	B ₃ (in)	C (in)	C ₁ (in)	C ₂ (in)	C ₃ (in)	E (in)	E ₁ (in)	O (in)
103	.50	4.12	4.94	5.69	6.44	3.65	.94	1.69	2.44	2.00	2.25	2.19
153	.50	5.50	6.44	7.75	9.06	3.88	1.19	2.50	3.81	2.62	2.44	3.00
203	.75	6.50	7.31	8.81	10.31	4.62	1.31	2.81	4.31	3.00	3.03	3.75
253	1.00	7.75	8.38	10.06	11.75	4.88	1.50	3.19	4.88	3.44	3.59	4.50
303	1.00	9.00	9.88	11.94	14.00	5.80	1.75	3.81	5.88	4.06	4.19	5.25
353	1.00	10.50	11.19	13.56	15.94	5.88	1.94	4.31	6.69	4.62	4.75	6.00
403	1.00	12.00	12.62	15.19	17.75	6.88	2.12	4.69	7.25	5.25	5.31	6.75
453	1.50	13.00	13.13	15.69	18.25	7.56	2.12	4.69	7.25	5.50	6.03	7.50

The KD10 coupling is designed to work in place of standard close coupled gear coupling applications with minimal distance between shaft ends. The power capacity of the KD10 coupling is the highest in the industry, allowing the easiest conversion from a lubricated coupling to a low maintenance disc coupling.

The KD10 is comprised of two hubs, two rings, two disc packs, and a piloted split spacer. The standard coupling hubs may be installed in two mounting positions for design and installation flexibility. The split spacer pilot gives the KD10 coupling improved dynamic balance characteristics and contains a design feature to safely hold the split spacer in place while the coupling is rotating.

KD10 disc packs are semi-unitized to greatly reduce the number of loose parts. The split spacer simply drops away from the hubs for faster installation and replacement of the disc packs without moving connected machinery. The standard coupling balance meets AGMA Class 8 as manufactured, dynamic balance to AGMA Class 9 and conformance to API 610 are available options.

For higher speed requirements, consider a KD11 disc coupling.

KD10 couplings use HS (High Torque, Semi-Unitized) Disc Packs.



- Heavy Duty, Highest Power Capacity
- Minimal Shaft Separations
- Split Spacer with Safety Pilot
- Replacement for Standard Gear Couplings
- Drop-Out, Semi-Unitized Disc Packs

Complete Couplings

Coupling Size	Complete Coupling with 2 Std. Hubs	
	Rough Bore	Finish Bore \varnothing
103	103 KD 10 SS	103 KD 10 SS FB
153	153 KD 10 SS	153 KD 10 SS FB
204	204 KD 10 SS	204 KD 10 SS FB
254	254 KD 10 SS	254 KD 10 SS FB
304	304 KD 10 SS	304 KD 10 SS FB
354	354 KD 10 SS	354 KD 10 SS FB
404	404 KD 10 SS	404 KD 10 SS FB
454	454 KD 10 SS	454 KD 10 SS FB
504	504 KD 10 SS	504 KD 10 SS FB
554	554 KD 10 SS	554 KD 10 SS FB
604	604 KD 10 SS	604 KD 10 SS FB
705	705 KD 10 SS	705 KD 10 SS FB
805	805 KD 10 SS	805 KD 10 SS FB
905	905 KD 10 SS	905 KD 10 SS FB

① All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances.

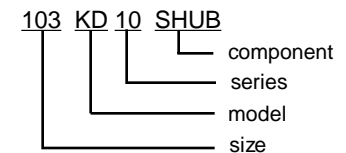
Component Parts

Description	Part Number
Standard Hub	SHUB
Hub Fastener Set	HFS
*Center Assembly	CA
**HS Disc Pack Assembly	HSDP
**HS Disc Pack Fastener Set	HSFS

* Center Assembly includes (2) disc packs, (2) disc pack fastener sets, (2) rings, and split spacer with fasteners.

** For Disc Pack Components and hub fastener sets, only size and component part number are required to order.

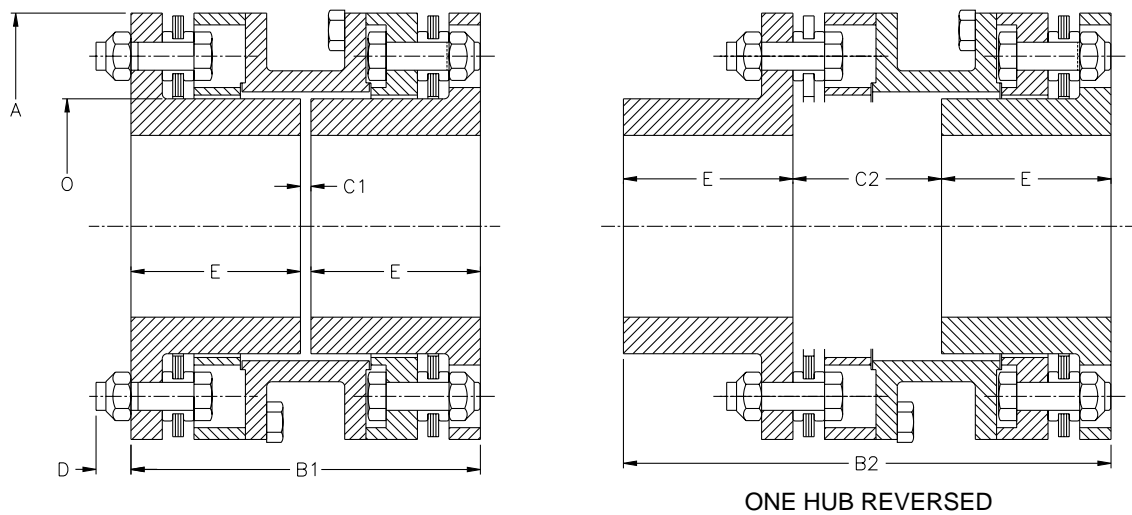
How to Order Components



Selection Data

Size	Max. Bore (in)	Coupling Rating (HP/100 RPM)	Torque Rating		Max. Speed Not Balanced (RPM)	Maximum Speed Balanced (RPM)	Total Φ Weight (lbs)	Total Φ WR ² (lb-in ²)	Axial Capacity (in)
			Continuous (in-lb)	Peak (in-lb)					
103	1.50	6.3	4000	8000	5400	9700	6.9	16	±.080
153	2.13	21.6	13600	27200	4500	7500	17.5	73	±.140
204	2.63	57.1	36000	72000	4100	6700	27.2	148	±.110
254	3.25	82.5	52000	104000	3600	5600	47.2	400	±.140
304	3.75	141	89000	178000	3200	5100	78.0	916	±.170
354	4.25	238	145000	290000	2900	4400	134	2140	±.200
404	4.75	340	215000	430000	2600	4000	193	3850	±.225
454	5.50	405	255000	510000	2400	3800	229	5540	±.250
504	5.75	570	360000	720000	2200	3500	316	8640	±.275
554	6.25	800	505000	1010000	1900	3000	404	13100	±.300
604	6.75	1,050	660000	1320000	1850	2900	559	22200	±.320
705	8.50	2,400	1510000	3020000	1800	2800	925	56400	±.270
805	9.50	3,670	2100000	4200000	1600	2500	1340	102000	±.310
905	11.50	4,130	2300000	4600000	1500	2300	1700	163000	±.400

① Data based on maximum bores.



Dimensional Data

Size	A (in)	B1 (in)	B2 (in)	C1 (in)	C2 (in)	D (in)	E (in)	O (in)
103	3.94	3.50	4.94	.12	1.56	.38	1.69	2.10
153	5.38	4.38	6.15	.12	1.90	.52	2.12	2.96
204	6.38	5.62	7.90	.12	2.40	.60	2.75	3.64
254	7.62	6.25	8.72	.19	2.66	.60	3.03	4.56
304	9.00	7.38	10.30	.19	3.11	.74	3.59	5.25
354	10.50	9.00	12.57	.25	3.82	.87	4.38	5.91
404	11.75	10.62	14.81	.25	4.44	1.00	5.19	6.75
454	12.75	10.94	15.32	.31	4.70	1.00	5.31	7.62
504	13.88	12.38	17.35	.31	5.28	1.14	6.03	8.19
554	15.12	14.12	19.83	.31	6.02	1.29	6.91	8.75
604	16.50	15.12	21.21	.31	6.40	1.38	7.41	9.31
705	20.50	17.75	24.87	.38	7.50	1.65	8.69	11.34
805	23.00	20.00	28.00	.38	8.37	1.94	9.81	12.75
905	25.50	22.25	31.24	.50	9.50	1.94	10.88	15.25

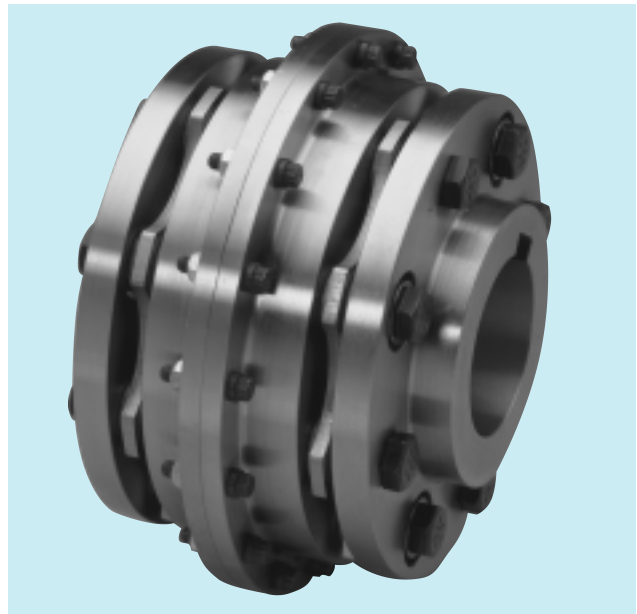
The KD11 coupling is designed to work in place of standard close coupled gear coupling applications with higher speed service. The power capacity of the KD11 coupling is the highest in the industry, allowing the easiest conversion from a lubricated coupling to a low maintenance disc coupling.

The KD11 is comprised of two hubs, two adapters, and two disc packs. The standard coupling hubs may be installed in any of three mounting positions for design and installation flexibility. The bolted adapters give the KD11 coupling the best dynamic balance characteristics and allow the connected equipment to be installed or removed while keeping each assembled half coupling undisturbed.

KD11 disc packs are unitized to greatly reduce the number of loose parts. The standard coupling balance meets AGMA Class 9 as manufactured, dynamic balance to AGMA Class 10 and 11, and conformance to API 610 are available options. The close tolerance bolts and safety overload washers insure superior performance and trouble free operation.

For lower speed requirements, consider a KD10 disc coupling; or for medium duty, check out a KD1 disc coupling.

KD11 couplings use HT (High Torque) Semi-Unitized Disc Packs.



- Heavy Duty, Highest Power Capacity
- Minimal Shaft Separations
- Bolted Adapters for Higher Speeds
- Replacement for Standard Gear Couplings
- Unitized Disc Packs

Complete Couplings

Coupling Size	Complete Coupling with 2 Std. Hubs	
	Rough Bore	Finish Bore \varnothing
103	103 KD 11 SS	103 KD 11 SS FB
153	153 KD 11 SS	153 KD 11 SS FB
204	204 KD 11 SS	204 KD 11 SS FB
254	254 KD 11 SS	254 KD 11 SS FB
304	304 KD 11 SS	304 KD 11 SS FB
354	354 KD 11 SS	354 KD 11 SS FB
404	404 KD 11 SS	404 KD 11 SS FB
454	454 KD 11 SS	454 KD 11 SS FB
504	504 KD 11 SS	504 KD 11 SS FB
554	554 KD 11 SS	554 KD 11 SS FB
604	604 KD 11 SS	604 KD 11 SS FB
705	705 KD 11 SS	705 KD 11 SS FB
805	805 KD 11 SS	805 KD 11 SS FB
905	905 KD 11 SS	905 KD 11 SS FB

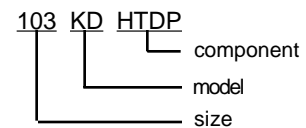
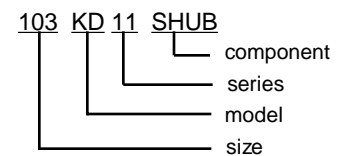
① All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances.

Component Parts

Description	Part Number
Standard Hub	SHUB
Flange Fastener Set	FFS
*HT Disc Pack Assembly	HTDP
*HT Disc Pack Fastener Set	HTFS

* For Disc Pack Components, only size and component part number are required to order.

How to Order Components

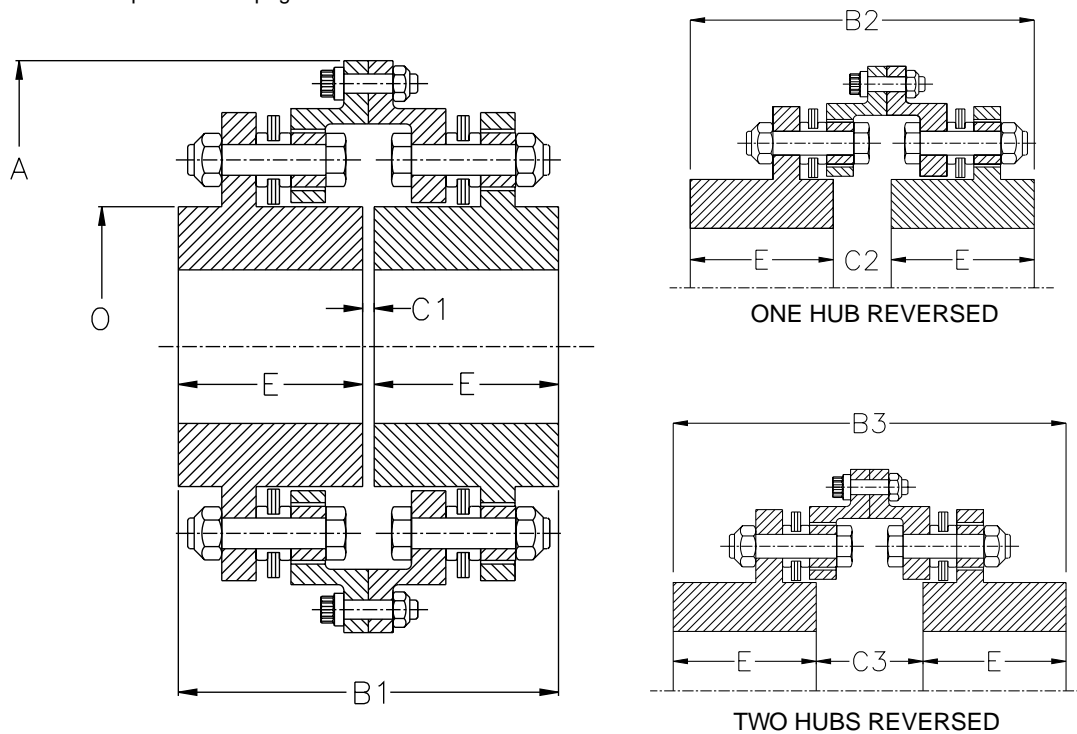


Selection Data

Size	Max. Bore (in)	Coupling Rating (HP/100 RPM)	Torque Rating		Maximum [ⓐ] Speed (RPM)	Total [ⓐ] Weight (lbs)	Total [ⓐ] WR ² (lb-in ²)	Axial Capacity (in)
			Continuous (in-lb)	Peak (in-lb)				
103	1.50	6.3	4000	8000	14200	9.0	27	±.080
153	2.12	21.6	13600	27200	12500	18.6	90	±.140
204	2.62	57.1	36000	72000	11100	29.2	189	±.110
254	3.25	82.5	52000	104000	9900	43.8	400	±.140
304	3.75	141	89000	178000	8700	69.6	839	±.170
354	4.25	238	150000	300000	7500	111	1790	±.200
404	4.75	340	215000	430000	6600	168	3450	±.225
454	5.50	405	255000	510000	6000	204	5220	±.250
504	5.75	570	360000	720000	5600	272	7920	±.275
554	6.25	800	505000	1010000	4800	364	13200	±.300
604	6.75	1050	660000	1320000	4600	458	21100	±.320
705	8.50	2400	1510000	3020000	3860	824	52400	±.270
805	9.50	3670	2310000	4620000	3450	1220	98000	±.310
905	11.50	4130	2600000	5200000	1520	1520	151000	±.400

① Data based on maximum bores.

② See Balance Specifications page M-98.



Dimensional Data

Size	A (in)	B1 (in)	B2 (in)	B3 (in)	C1 (in)	C2 (in)	C3 (in)	E (in)	O (in)
103	5.44	3.38	4.56	5.75	.12	1.31	2.50	1.64	2.10
153	6.81	4.12	5.58	7.03	.12	1.58	3.03	2.00	2.96
204	7.81	5.00	6.50	8.00	.12	1.62	3.12	2.44	3.64
254	9.31	6.19	7.22	8.25	.19	1.22	2.25	3.00	4.56
304	10.62	7.19	8.41	9.62	.19	1.41	2.62	3.50	5.25
354	12.28	8.50	10.00	11.50	.25	1.75	3.25	4.12	5.91
404	13.94	9.50	11.50	13.50	.25	2.25	4.25	4.62	6.75
454	15.56	10.56	12.44	14.31	.31	2.19	4.06	5.12	7.62
504	16.69	11.56	13.45	15.34	.31	2.20	4.09	5.62	8.19
554	18.69	12.31	14.48	16.64	.31	2.48	4.64	6.00	8.75
604	20.00	13.31	15.70	18.09	.31	2.70	5.09	6.50	9.31
705	24.00	16.38	19.00	21.62	.38	3.00	5.62	8.00	11.34
805	26.88	18.38	21.53	24.68	.38	3.53	6.68	9.00	12.75
905	30.00	20.50	23.59	26.68	.50	3.59	6.68	10.00	15.25

The KD2 coupling is designed for medium duty applications requiring moderate shaft separations, and was specifically engineered to meet API 610 specifications for industrial pump couplings. Consisting of three main parts, two hubs and a factory assembled flexible center section which installs or drops out as one unit, the KD2 greatly simplifies installation or maintenance.

The flexible center section is piloted to insure excellent dynamic balance; AGMA Class 9 is standard, as-manufactured. Dynamic balance to AGMA Class 10 or Class 11 are available options. An anti-flail safety feature is also included in the flexible center section assembly.

For higher power requirements, consider a KD20 disc coupling; or for economy duty, check out a KD21 disc coupling. If a flexible hub design is needed, look to the KD22 disc coupling.



- Medium Duty
- Standard Shaft Separations for Industrial Pumps
- Factory Assembled Flexible Center Sections
- Designed Specifically for API 610
- High Flexible, Unitized Disc Packs

KD2 couplings use MT (Medium Torque) Disc Packs.

KD2 Rough Bore Part Numbers

Coupling Size	Between Shaft Ends	Complete Coupling w/2 Std. Hubs Rough Bore	Complete Coupling w/1 Std. & 1 Long Hub Rough Bore	Complete Coupling w/2 Long Hubs Rough Bore	Complete Coupling w/1 Jumbo Hub & 1 Std. Hub	Complete Coupling w/2 Jumbo hubs	Complete Coupling w/1 Long & 1 Jumbo Hub	Center Assembly
053*	5	053 KD2 SS500	NA	NA	NA	NA	NA	NA
103	3 1/2	103 KD 2 SS350	103 KD 2 LS350	103 KD 2 LL350	103 KD 2 JS350	103 KD 2 JJ350	103 KD 2 JL350	103 KD 2 CA350
	4 3/8	103 KD 2 SS438	103 KD 2 LS438	103 KD 2 LL438	103 KD 2 JS438	103 KD 2 JJ438	103 KD 2 JL438	103 KD 2 CA438
	5	103 KD 2 SS500	103 KD 2 LS500	103 KD 2 LL500	103 KD 2 JS500	103 KD 2 JJ500	103 KD 2 JL500	103 KD 2 CA500
	7	103 KD 2 SS700	103 KD 2 LS700	103 KD 2 LL700	103 KD 2 JS700	103 KD 2 JJ700	103 KD 2 JL700	103 KD 2 CA700
153	4 3/8	153 KD 2 SS438	153 KD 2 LS438	153 KD 2 LL438	153 KD 2 JS438	153 KD 2 JJ438	153 KD 2 JL438	153 KD 2 CA438
	5	153 KD 2 SS500	153 KD 2 LS500	153 KD 2 LL500	153 KD 2 JS500	153 KD 2 JJ500	153 KD 2 JL500	153 KD 2 CA500
	7	153 KD 2 SS700	153 KD 2 LS700	153 KD 2 LL700	153 KD 2 JS700	153 KD 2 JJ700	153 KD 2 JL700	153 KD 2 CA700
203	5	203 KD 2 SS500	203 KD 2 LS500	203 KD 2 LL500	203 KD 2 JS500	203 KD 2 JJ500	203 KD 2 JL500	203 KD 2 CA500
	7	203 KD 2 SS700	203 KD 2 LS700	203 KD 2 LL700	203 KD 2 JS700	203 KD 2 JJ700	203 KD 2 JL700	203 KD 2 CA700
253	7	253 KD 2 SS700	253 KD 2 LS700	253 KD 2 LL700	253 KD 2 JS700	253 KD 2 JJ700	253 KD 2 JL700	253 KD 2 CA700
	8	253 KD 2 SS800	253 KD 2 LS800	253 KD 2 LL800	253 KD 2 JS800	253 KD 2 JJ800	253 KD 2 JL800	253 KD 2 CA800
303	7	303 KD 2 SS700	303 KD 2 LS700	303 KD 2 LL700	303 KD 2 JS700	303 KD 2 JJ700	303 KD 2 JL700	303 KD 2 CA700
	8	303 KD 2 SS800	303 KD 2 LS800	303 KD 2 LL800	303 KD 2 JS800	303 KD 2 JJ800	303 KD 2 JL800	303 KD 2 CA800
353	8	353 KD 2 SS800	353 KD 2 LS800	353 KD 2 LL800	353 KD 2 JS800	353 KD 2 JJ800	353 KD 2 JL800	353 KD 2 CA800
	9	353 KD 2 SS900	353 KD 2 LS900	353 KD 2 LL900	353 KD 2 JS900	353 KD 2 JJ900	353 KD 2 JL900	353 KD 2 CA900
403	9	403 KD 2 SS900	403 KD 2 LS900	403 KD 2 LL900	403 KD 2 JS900	403 KD 2 JJ900	403 KD 2 JL900	403 KD 2 CA900
453	9	453 KD 2 SS900	453 KD 2 LS900	453 KD 2 LL900	453 KD 2 JS900	453 KD 2 JJ900	453 KD 2 JL900	453 KD 2 CA900

* The size 053 does not use the piloted and preassembled flexible center section as do larger KD2 couplings. Size 053 components are: standard hubs, unitized disc packs, spacer and accessory fastener sets. The size 053 meets AGMA Class 8 as standard and can be balanced to AGMA Class 9.

① All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances.

Note: For Finish Bore add FB to Part Number and specify bore.

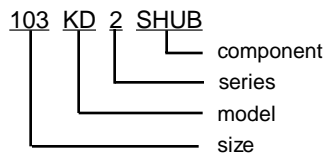
Component Parts

Description	Part Number
Standard Hub	SHUB
Long Hub	LHUB
Jumbo Hub	JHUB
*Center Assembly for x.xx Shaft Separation	CAXXX
**MT Disc Pack	MTDP
**MT Disc Pack Fastener Set	MTFS
**Hub Fastener Set	HFS

* Center Assembly includes (2) disc packs, (2) disc pack fastener sets.

** For disc pack components and hub fastener sets, only size and component part number are required to order.

How to Order Components



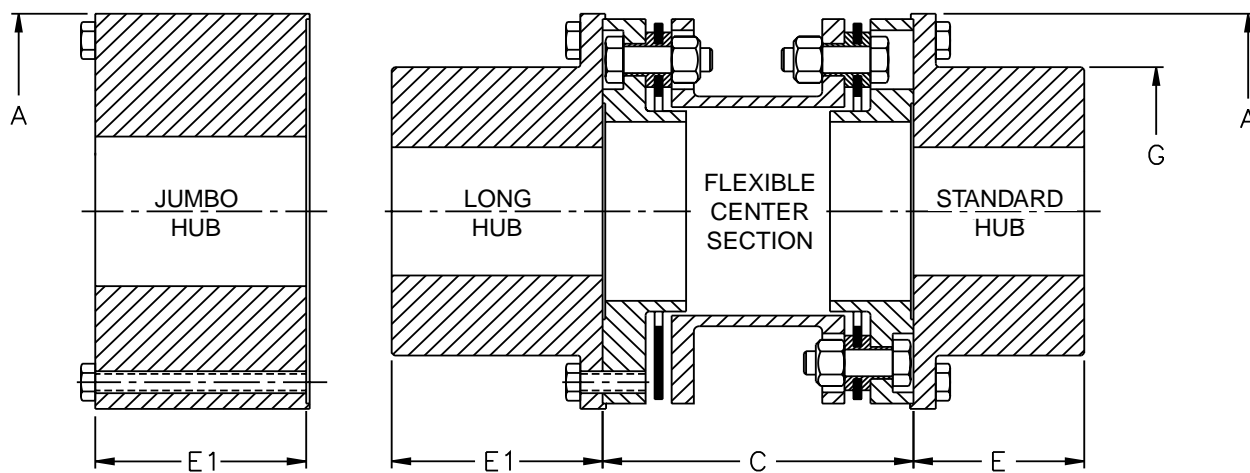
Selection Data

Size	Maximum Bores		Coupling Rating (HP/100 RPM)	Torque Rating		② Maximum Speed RPM	Total⊙ Weight (lbs)	Total⊙ WR ² (lb-in ²)	Spacer Tube Weight per inch		Axial Capacity (in)
	Std. & Long Hub	Jumbo Hub		Continuous (in-lb)	Peak (in-lb)				Weight (lbs)	WR ² (lb-in ²)	
*053	1.75	N/A	3.2	2000	4000	8200	7.7	16.7	0.50	0.42	±.055
103	1.88	2.75	4.3	2710	5420	17000	9.9	22.0	0.44	0.45	±.060
153	2.88	4.00	12.5	7880	15760	14200	23.2	93.1	0.54	1.06	±.075
203	3.25	4.63	22.9	14400	28800	12800	35.5	205	0.56	1.67	±.090
253	4.00	5.63	37.5	23600	47200	11500	58.8	475	0.73	3.59	±.105
303	4.75	6.50	60.0	37800	75600	10000	89.6	989	1.14	7.52	±.125
353	5.50	7.63	100	63000	126000	8500	145	2160	1.57	12.70	±.150
403	6.25	8.75	155	97700	195000	7500	220	4290	1.84	19.80	±.175
453	7.25	9.38	205	129000	258000	7000	261	6180	2.01	27.00	±.200

* The size 053 does not use the piloted and preassembled flexible center section as do larger KD2 couplings. Size 053 components are: standard hubs, unitized disc packs, spacer and accessory fastener sets. The size 053 meets AGMA Class 8 as standard and can be balanced to AGMA Class 9.

① Data based on Min. "C" dimensions, maximum bores and standard hubs.

② See Balance Specifications page M-98.



Dimensional Data

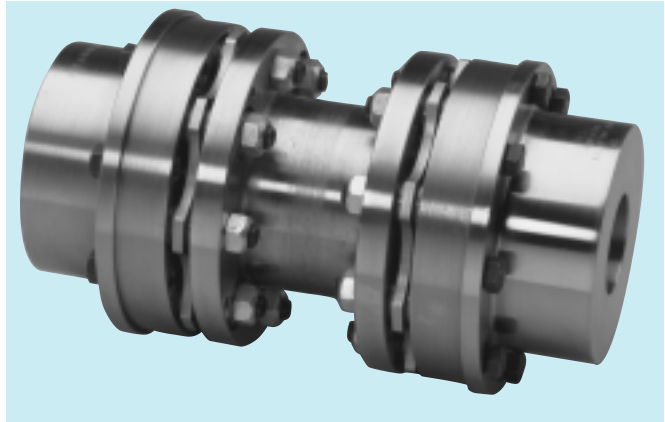
Size	Rough Bore	A (in)	Max C' Bore (in)	C Min. (in)	E (in)	E1 (in)	G (in)	Stock "C" Dimension (in)							
								3 1/2	4 3/8	5	7	8	9		
*053	0.50	3.94	2.00	3.00	1.62	N/A	2.56			X					
103	0.50	4.31	2.38	3.50	1.50	2.50	2.63	X	X	X	X				
153	0.75	5.69	3.88	4.38	2.00	3.12	4.13		X	X	X				
203	1.00	6.75	4.50	4.81	2.25	3.63	4.75			X	X				
253	1.00	8.00	5.50	5.75	2.88	4.25	5.75				X	X			
303	1.50	9.25	6.44	6.50	3.38	4.75	6.75				X	X			
353	2.00	10.75	7.31	7.62	4.00	5.38	7.75					X	X		
403	2.50	12.25	8.50	9.00	4.44	6.12	9.00							X	X
453	3.00	13.25	9.63	9.00	4.81	6.75	10.13								X

* The size 053 does not use the piloted and preassembled flexible center section as do larger KD2 couplings. Size 053 components are: standard hubs, unitized disc packs, spacer and accessory fastener sets. The size 053 meets AGMA Class 8 as standard and can be balanced to AGMA Class 9.

① All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances.

KD20 Spacer Coupling

The KD20 coupling is designed for heavy duty applications requiring moderate shaft separations, and was specifically engineered to meet API 610 specifications for industrial pump couplings. Consisting of three main parts; two hubs and a factory assembled flexible center section which installs or drops out as one unit, the KD20 greatly simplifies installation or maintenance.



The larger size couplings available in the KD20 Series allow application to larger, high power machines. The flexible center section is piloted to insure excellent dynamic balance; AGMA Class 9 is standard, as-manufactured. Dynamic balance to AGMA Class 10 or Class 11 are available options. The close tolerance bolts and safety overload washers insure superior performance and trouble free operation. An anti-flail safety feature is also included in the flexible center section assembly.

- Heavy Duty, Larger Sizes
- Standard Shaft Separations for Industrial Pumps
- Factory Assembled Flexible Center Sections
- Designed Specifically for API 610
- High Power, Unitized Disc Packs

For smaller sizes or lower power requirements, consider a KD2 disc coupling; or for economy duty, check out a KD21 disc coupling. If a flexible hub design is needed, look to the KD22 disc coupling.

KD20 Couplings use HT (High Torque) Disc Packs.

KD20 Rough Bore Part Numbers

Coupling Size	Between Shaft Ends	Complete Coupling w/2 Std. Hubs Rough Bore	Complete Coupling w/1 Std. & 1 Long Hub Rough Bore	Complete Coupling w/2 Long Hubs Rough Bore	Complete Coupling w/1 Jumbo Hub & 1 Std. Hub	Complete Coupling w/2 Jumbo hubs	Complete Coupling w/1 Long & 1 Jumbo Hub	Center Assembly
204	7	204 KD 20 SS700	204 KD 20 LS700	204 KD 20 LL700	204 KD 20 JS700	204 KD 20 JJ700	204 KD 20 JL700	204 KD 20 CA700
	9	204 KD 20 SS900	204 KD 20 LS900	204 KD 20 LL900	204 KD 20 JS900	204 KD 20 JJ900	204 KD 20 JL900	204 KD 20 CA900
	10	204 KD 20 SS1000	204 KD 20 LS1000	204 KD 20 LL1000	204 KD 20 JS1000	204 KD 20 JJ1000	204 KD 20 JL1000	204 KD 20 CA1000
	12	204 KD 20 SS1200	204 KD 20 LS1200	204 KD 20 LL1200	204 KD 20 JS1200	204 KD 20 JJ1200	204 KD 20 JL1200	204 KD 20 CA1200
254	7	254 KD 20 SS700	254 KD 20 LS700	254 KD 20 LL700	254 KD 20 JS700	254 KD 20 JJ700	254 KD 20 JL700	254 KD 20 CA700
	9	254 KD 20 SS900	254 KD 20 LS900	254 KD 20 LL900	254 KD 20 JS900	254 KD 20 JJ900	254 KD 20 JL900	254 KD 20 CA900
	14	254 KD 20 SS1400	254 KD 20 LS1400	254 KD 20 LL1400	254 KD 20 JS1400	254 KD 20 JJ1400	254 KD 20 JL1400	254 KD 20 CA1400
304	7	304 KD 20 SS700	304 KD 20 LS700	304 KD 20 LL700	304 KD 20 JS700	304 KD 20 JJ700	304 KD 20 JL700	304 KD 20 CA700
	8	304 KD 20 SS800	304 KD 20 LS800	304 KD 20 LL800	304 KD 20 JS800	304 KD 20 JJ800	304 KD 20 JL800	304 KD 20 CA800
	9	304 KD 20 SS900	304 KD 20 LS900	304 KD 20 LL900	304 KD 20 JS900	304 KD 20 JJ900	304 KD 20 JL900	304 KD 20 CA900
	14	304 KD 20 SS1400	304 KD 20 LS1400	304 KD 20 LL1400	304 KD 20 JS1400	304 KD 20 JJ1400	304 KD 20 JL1400	304 KD 20 CA1400
354	9	354 KD 20 SS900	354 KD 20 LS900	354 KD 20 LL900	354 KD 20 JS900	354 KD 20 JJ900	354 KD 20 JL900	354 KD 20 CA900
	14	354 KD 20 SS1400	354 KD 20 LS1400	354 KD 20 LL1400	354 KD 20 JS1400	354 KD 20 JJ1400	354 KD 20 JL1400	354 KD 20 CA1400
404	12	404 KD 20 SS1200	404 KD 20 LS1200	404 KD 20 LL1200	404 KD 20 JS1200	404 KD 20 JJ1200	404 KD 20 JL1200	404 KD 20 CA1200
	14	404 KD 20 SS1400	404 KD 20 LS1400	404 KD 20 LL1400	404 KD 20 JS1400	404 KD 20 JJ1400	404 KD 20 JL1400	404 KD 20 CA1400
454	14	454 KD 20 SS1400	454 KD 20 LS1400	454 KD 20 LL1400	454 KD 20 JS1400	454 KD 20 JJ1400	454 KD 20 JL1400	454 KD 20 CA1400

① All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances.

Note: For Finish Bore add FB to Part Number and specify bore.

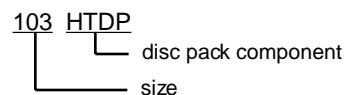
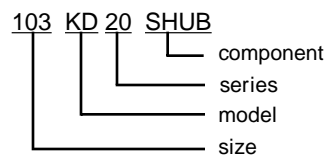
Component Parts

Description	Part Number
Standard Hub	SHUB
Long Hub	LHUB
Jumbo Hub	JHUB
*Center Assembly for x.xx Shaft Separation	CAXXX
**HT Disc Pack	HTDP
**HT Disc Pack Fastener Set	HTFS
**Hub Fastener Set	HFS

* Center Assembly includes (2) disc packs, (2) disc pack fastener sets.

** For disc pack components and hub fastener sets, only size and component part number are required to order.

How to Order Components

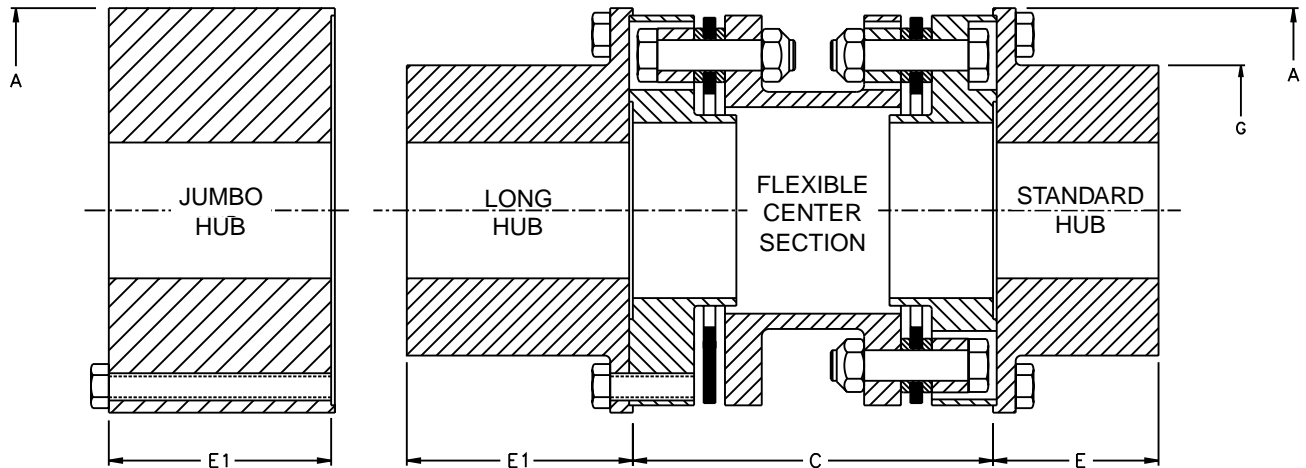


Selection Data

Size	Max. Bore (in)	Coupling Rating (HP/100 RPM)	Torque Rating		⊙ Maximum Speed (RPM)	Total⊙ Weight (lbs)	Total⊙ WR ² (lb-in ²)	Spacer Tube per inch		Axial Capacity (in)
			Continuous (in-lb)	Peak (in-lb)				Weight (lbs)	WR ² (lb-in ²)	
204	3.25	57.1	36000	72000	13000	39.2	230	0.81	2.67	±.110
254	4.00	82.5	52000	104000	11200	61.2	510	0.79	4.36	±.140
304	4.75	141	89000	178000	9900	104	1190	1.17	8.06	±.170
354	5.50	238	150000	300000	8800	172	2630	1.96	17.0	±.200
404	6.25	340	215000	430000	7800	251	4920	2.21	24.3	±.225
454	7.25	405	255000	510000	7200	302	7200	2.54	37.0	±.250
504	7.50	570	360000	720000	6600	427	11600	3.67	62.6	±.275
554	8.25	800	505000	1010000	6100	569	18200	3.89	74.7	±.300
604	9.00	1050	660000	1320000	5600	777	29500	5.21	115	±.320
705	10.88	2400	1510000	3020000	4500	1360	77500	9.40	303	±.270
805	12.25	3670	2310000	4620000	4000	2060	150000	12.6	507	±.310
905	13.50	4130	2600000	5200000	3600	2490	227000	11.7	662	±.400

① Data based on Min. "C" dimensions, maximum bores and standard hubs.

② See Balance Specifications page M-98.



Dimensional Data

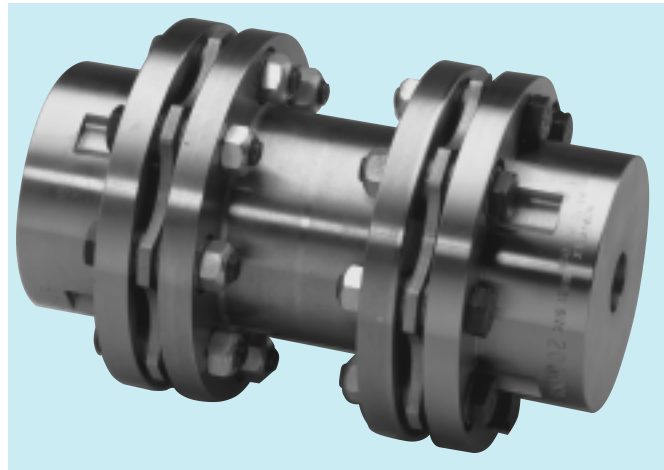
Size	A (in)	Min. C (in)	E (in)	E1 (in)	G (in)	No (in)	Ni (in)	Stock "C" Dimension (in.)						
								7	8	9	10	12	14	
204	6.63	6.00	2.25	3.63	4.75	3.88	3.38	X		X	X	X		
254	7.88	6.00	2.88	4.25	5.75	4.88	4.50	X		X	X	X		X
304	9.25	7.00	3.38	4.75	6.75	5.50	5.00	X	X	X	X	X		X
354	10.75	8.50	4.00	5.38	7.75	6.25	5.50			X	X	X		X
404	12.00	10.00	4.44	6.12	9.00	7.00	6.25					X	X	X
454	13.00	10.00	4.81	6.75	10.12	8.00	7.25							X
504	14.13	11.00	6.88	-	10.50	8.75	7.75							
554	15.38	12.50	7.50	-	11.50	9.25	8.25							
604	16.88	13.25	8.75	-	12.75	10.00	8.75							
705	20.88	16.00	9.75	-	15.25	12.25	10.38							
805	23.38	19.00	10.75	-	17.25	13.75	11.50							
905	25.88	19.00	11.75	-	19.00	15.88	14.12							

* Long hubs are available for sizes 204 to 454 only.

The KD21 coupling is designed for medium and heavy duty applications requiring moderate shaft separations. The minimal number of components yields an economical disc coupling solution to spacer applications. The larger sizes available in the KD21 Series allow application to larger, high power machines.

Consisting of three main parts; two hubs and a center spacer which installs or drops out using unitized disc packs, the KD21 simplifies installation or maintenance. The unitized disc packs and close tolerance bolts insure good dynamic balance; AGMA Class 9 is standard, as-manufactured. Dynamic balance to AGMA Class 10 and conformance to API 610 are available options. The close tolerance bolts and safety overload washers insure superior performance and trouble free operation.

If a coupling with a factory assembled flexible center section is desired, consider a KD20 or KD2 disc coupling; or for lower power requirements, check out a KD50 disc coupling. If a flexible hub design is needed, look to the KD22 disc coupling.



- Heavy Duty, Larger Sizes
- Economical Spacer Series
- Standard Shaft Separations for Industrial Pumps
- Drop-Out, Unitized Disc Packs

KD21 couplings use HT (High Torque) Disc Packs.

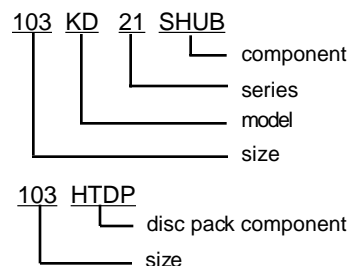
Coupling Size	Between Shaft Ends	Complete Coupling with 2 Std. Hubs		Complete Coupling with 1 Std. Hub and 1 Long Hub	
		Rough Bore	Finish Bore	Rough Bore	Finish Bore
103	3 1/2	103 KD 21 SS350	103 KD 21 SS350 FB	103 KD 21 LS350	103 KD 21 LS350 FB
	4 3/8	103 KD 21 SS475	103 KD 21 SS475 FB	103 KD 21 LS475	103 KD 21 LS475 FB
	5	103 KD 21 SS500	103 KD 21 SS500 FB	103 KD 21 LS500	103 KD 21 LS500 FB
	7	103 KD 21 SS700	103 KD 21 SS700 FB	103 KD 21 LS700	103 KD 21 LS700 FB
153	4 3/8	153 KD 21 SS475	153 KD 21 SS475 FB	153 KD 21 LS475	153 KD 21 LS475 FB
	5	153 KD 21 SS500	153 KD 21 SS500 FB	153 KD 21 LS500	153 KD 21 LS500 FB
	7	153 KD 21 SS700	153 KD 21 SS700 FB	153 KD 21 LS700	153 KD 21 LS700 FB
204	5	204 KD 21 SS500	204 KD 21 SS500 FB	204 KD 21 LS500	204 KD 21 LS500 FB
	7	204 KD 21 SS700	204 KD 21 SS700 FB	204 KD 21 LS700	204 KD 21 LS700 FB
254	7	254 KD 21 SS700	254 KD 21 SS700 FB	254 KD 21 LS700	254 KD 21 LS700 FB
	8	254 KD 21 SS800	254 KD 21 SS800 FB	254 KD 21 LS800	254 KD 21 LS800 FB
304	7	304 KD 21 SS700	304 KD 21 SS700 FB	304 KD 21 LS700	304 KD 21 LS700 FB
	8	304 KD 21 SS800	304 KD 21 SS800 FB	304 KD 21 LS800	304 KD 21 LS800 FB
354	8	354 KD 21 SS800	354 KD 21 SS800 FB	354 KD 21 LS800	354 KD 21 LS800 FB
	9	354 KD 21 SS900	354 KD 21 SS900 FB	354 KD 21 LS900	354 KD 21 LS900 FB
404	9	404 KD 21 SS900	404 KD 21 SS900 FB	404 KD 21 LS900	404 KD 21 LS900 FB
	10	404 KD 21 SS1000	404 KD 21 SS1000 FB	404 KD 21 LS1000	404 KD 21 LS1000 FB
454	9	454 KD 21 SS900	454 KD 21 SS900 FB	454 KD 21 LS900	454 KD 21 LS900 FB
	10	454 KD 21 SS1000	454 KD 21 SS1000 FB	454 KD 21 LS1000	454 KD 21 LS1000 FB

* For disc pack components and hub fastener sets, only size and component part numbers are required to order. For non-standard shaft separations spacers can be manufactured to order.

Component Parts

Description	Part Number
Standard Hub	SHUB
Long Hub	LHUB
*Disc Pack	HTDP
*Disc Pack Fastener Set	HTDPFS
*Hub Fastener Sets	HFS

How to Order Components

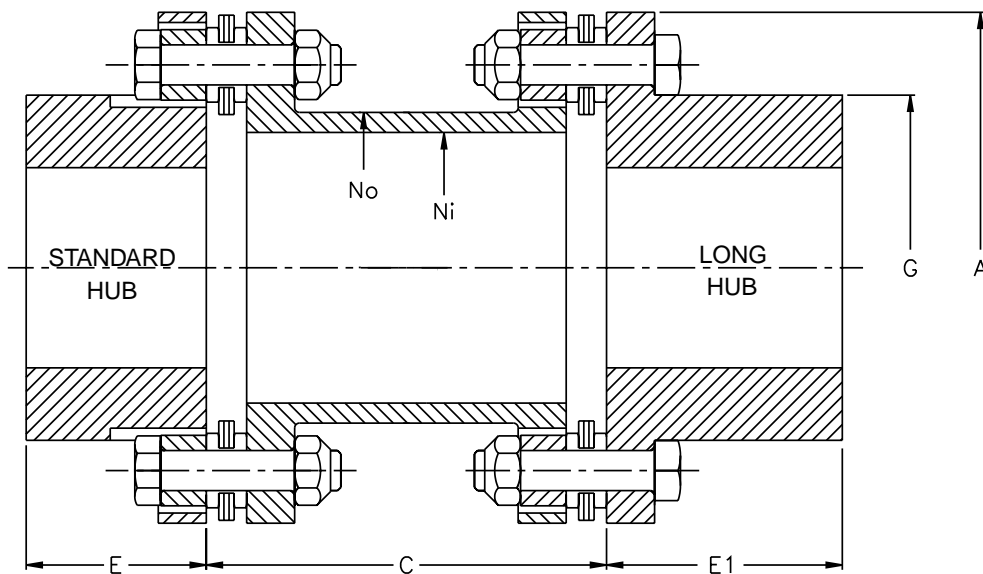


Selection Data

Size	Max. Bore (in)	Coupling Rating (HP/100 RPM)	Torque Rating		Maximum Speed RPM	TotalØ Weight (lbs)	TotalØ WR ² (lb-in ²)	Spacer Tube per inch		Axial Capacity (in)
			Continuous (in-lb)	Peak (in-lb)				Weight (lbs)	WR ² (lb-in ²)	
103	1.75	6.3	4000	8000	18200	7.8	16	0.24	0.27	±.080
153	2.50	21.6	13600	27200	14800	17.7	67	0.39	0.80	±.140
204	3.00	57.1	36000	72000	13000	29.8	160	0.81	2.67	±.110
254	3.75	82.5	52000	104000	11200	44.3	336	0.79	4.36	±.140
304	4.50	141	89000	178000	9900	70.4	745	1.17	8.06	±.170
354	5.00	238	150000	300000	8800	117	1640	1.96	17.0	±.200
404	5.50	340	215000	430000	7800	177	3150	2.21	24.3	±.225
454	6.38	405	255000	510000	7200	205	4360	2.54	37.0	±.250
504	7.00	570	360000	720000	6600	305	7460	3.67	62.6	±.275
554	7.75	800	505000	1010000	6100	402	11800	3.89	74.7	±.300
604	8.50	1050	660000	1320000	5600	512	17800	5.21	115	±.320
705	10.75	2400	1510000	3020000	4500	922	50000	9.40	303	±.270
805	12.00	3670	2310000	4620000	4000	1350	93800	12.6	507	±.310
905	13.50	4130	2600000	5200000	3600	1700	146000	11.8	675	±.400

① Data based on min. "C" dimensions and maximum bores.

② See Balance Specifications page M-98.



Dimensional Data

Size	A (in)	Min. C (in)	E (in)	E1 (in)	G (in)	No (in)	Ni (in)	Stock "C" Dimension (in.)								
								3.5	5	7	8	9	10	12	14	
103	3.94	2.75	1.66	1.94	2.57	2.25	2.00	X	X							
153	5.38	3.38	1.94	2.44	3.54	3.00	2.69		X							
204	6.38	3.88	2.38	3.03	4.32	3.88	3.38		X	X			X		X	
254	7.62	3.88	3.00	3.59	5.34	4.88	4.50		X	X			X		X	
304	9.00	4.75	3.56	4.19	6.16	5.50	5.00			X			X		X	
354	10.50	5.75	4.13	4.75	6.99	6.25	5.50			X			X		X	
404	11.75	6.63	4.63	5.31	7.91	7.00	6.25				X				X	
454	12.75	6.63	5.25	6.03	8.83	8.00	7.25				X					
504	13.88	7.50	5.88	-	9.62	8.75	7.75									
554	15.12	8.63	7.16	-	10.48	9.25	8.25									
604	16.50	9.13	7.66	-	11.33	10.00	8.75									
705	20.50	10.88	9.00	-	14.07	12.25	10.38									
805	23.00	13.00	10.13	-	15.73	13.75	11.50									
905	25.50	13.00	11.81	-	17.88	15.88	14.12									

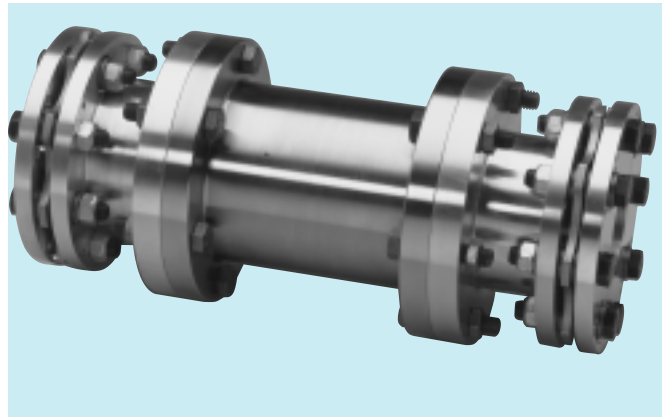
KD22 Spacer Coupling

The KD22 coupling is designed to be the most direct replacement for standard spacer style gear couplings and is meant for heavy duty applications where the flexible section must be located on the equipment shafts. The power capacity of the KD22 coupling is the highest in the industry, allowing the easiest conversion from a lubricated coupling to a low maintenance disc coupling.

Consisting of three main parts; two flexible half couplings and a center spacer which installs or drops out, the KD22 simplifies installation or maintenance and allows the connected equipment to be installed or removed keeping each half coupling completely assembled. The unitized disc packs and close tolerance bolts insure good dynamic balance; AGMA Class 8 is standard, as-manufactured. Dynamic balance to AGMA Class 9 and conformance to API 610 are available options.

The KD22 coupling employs standard gear coupling spacer flanges which can be used to provide standard electrical insulation or shear cartridge features.

For other spacer designs, consider KD20 or KD21 disc couplings; or for lower power requirements, check out a KD2 disc coupling.



- Heavy Duty, Larger Sizes
- Flexible Shaft Hubs
- Reduced Overhung Weight
- High Power, Unitized Disc Packs

KD22 couplings use HT (High Torque) Disc Packs.

Complete Couplings

Coupling Size	Complete Coupling with 2 Std. Hubs		Spacer Fastene ^②	
	Rough Bore	Finish Bore ^①	Part No.	Wt.
103	103 KD 22 SS	103 KD 22 SS FB	1 EB FS	1
153	153 KD 22 SS	153 KD 22 SS FB	1 1/2 EB FS	1
204	204 KD 22 SS	204 KD 22 SS FB	2 EB FS	1
254	254 KD 22 SS	254 KD 22 SS FB	2 1/2 EB FS	2
304	304 KD 22 SS	304 KD 22 SS FB	3 EB FS	3
354	354 KD 22 SS	354 KD 22 SS FB	3 1/2 EB FS	5
404	404 KD 22 SS	404 KD 22 SS FB	4 EB FS	5
454	454 KD 22 SS	454 KD 22 SS FB	4 1/2 EB FS	5
504	504 KD 22 SS	504 KD 22 SS FB	5 EB FS	7
554	554 KD 22 SS	554 KD 22 SS FB	5 1/2 EB FS	9
604	604 KD 22 SS	604 KD 22 SS FB	6 EB FS	14
705	705 KD 22 SS	705 KD 22 SS FB	7 EB FS	14
805	805 KD 22 SS	805 KD 22 SS FB	8 EB FS	28
905	905 KD 22 SS	905 KD 22 SS FB	10 EB FS	38

① All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances.

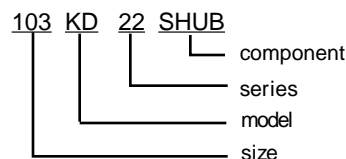
② Complete couplings include (2) fastener sets.

Component Parts

Description	Part Number
Standard Hub	SHUB
Flex Half Assembly	FH
*HT Disc Pack Assembly	HTDP
*HS Disc Pack Fastener Set	HSFS
*Fastener Sets	(see table above)

* For Disc Pack Components and fastener sets, only size and component part number are required to order.

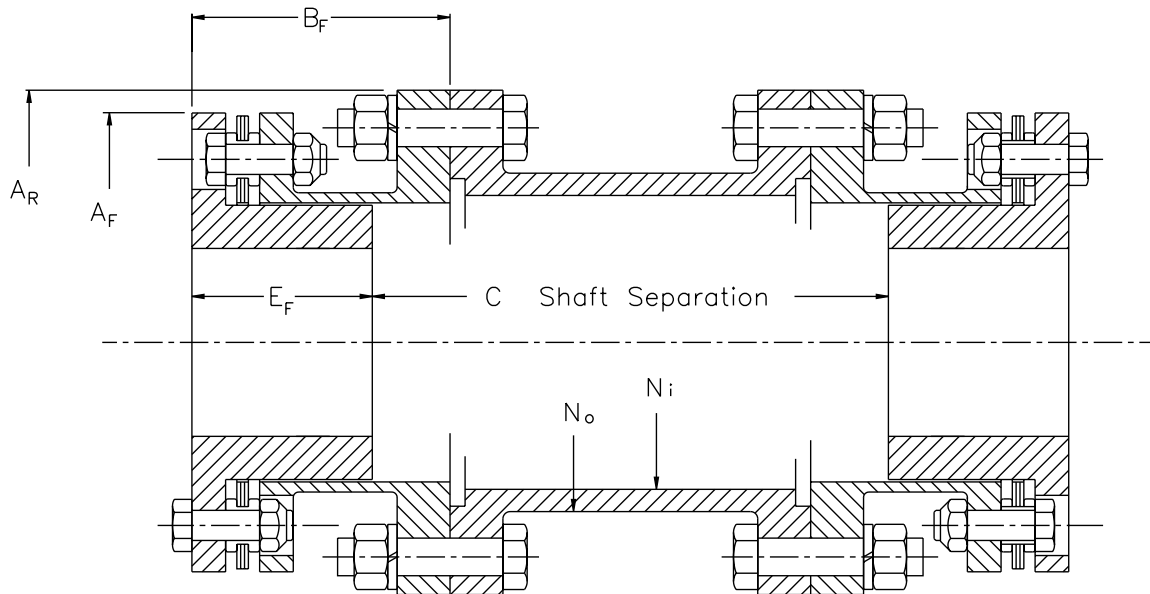
How to Order Components



Selection Data

Size	Max. Bore (in.)	Max. Continuous Rating HP/100 RPM	Torque Rating		Maximum ^① Speed RPM	Total ^① Weight (lbs)	Total ^① WR ² (lb-in ²)	Spacer Tube/in.	
			Continuous (in-lb)	Peak (in-lb)				Weight (lbs)	WR ² (lb-in ²)
103	1.50	6.3	4000	8000	17000	15.5	41	0.45	0.8
153	2.12	21.6	13600	27200	13500	35.4	172	0.78	2.4
204	2.62	57.1	36000	72000	12000	50.0	358	1.24	6.1
254	3.25	82.5	52000	104000	10600	83.1	796	1.73	12.0
304	3.75	141	89000	178000	9800	119	1480	2.24	21.7
354	4.25	238	150000	300000	8400	199	3380	3.04	40.5
404	4.75	340	215000	430000	7400	279	5950	3.46	59.5
454	5.50	405	255000	510000	7400	296	6870	3.46	59.5
504	5.75	570	360000	720000	6750	382	10400	4.11	88.2
554	6.25	800	505000	1010000	6000	554	18800	5.50	149
604	6.75	1050	660000	1320000	5500	603	23600	6.60	213
705	8.50	2400	1510000	3020000	5100	973	53900	7.48	309
805	9.50	3670	2310000	4620000	3950	1620	125000	7.55	513
905	11.50	4130	2600000	5200000	3300	2270	243000	10.0	1060

① Mass elastic data based on coupling with two flex units with maximum bores and spacer for min. C.



Dimensional Data

Size	AF (in)	AR (in)	BF (in)	EF (in)	Min. C (in)	No (in)	Ni (in)	Axial Misalignment Capacities (in)
103	3.94	4.56	2.67	1.69	5.02	2.88	2.50	±.030
153	5.38	6.00	3.41	2.12	6.70	3.75	3.25	±.075
204	6.38	7.00	4.18	2.75	7.63	4.75	4.12	±.040
254	7.62	8.38	4.32	3.03	8.02	5.62	4.88	±.060
304	9.00	9.44	4.85	3.59	7.95	6.62	5.81	±.080
354	10.50	11.00	5.63	4.38	9.18	7.75	6.81	±.105
404	11.75	12.50	6.37	5.19	9.10	8.75	7.81	±.120
454	12.75	12.50	6.52	5.31	9.18	8.75	7.81	±.135
504	13.88	13.62	7.10	6.03	8.88	9.75	8.75	±.155
554	15.12	15.31	8.24	6.91	11.16	11.00	9.81	±.165
604	16.50	16.75	8.16	7.41	7.88	12.00	10.69	±.180
705	20.50	18.00	9.15	8.69	7.42	13.50	12.19	±.105
805	23.00	23.25	10.92	9.81	10.53	17.00	15.97	±.120
905	25.50	28.00	11.60	10.88	12.20	21.06	19.96	±.155

Designed specifically for cooling tower drives and long span applications, the KD33 coupling is easy to handle, install and maintain. The drive shaft is a corrosion resistant lightweight composite tube of either special fiberglass or carbon graphite fibers engineered to provide the optimum combination of strength and bending stiffness required of cooling tower couplings.

The coupling hubs, adapters, disc packs and hardware are all stainless steel for high strength and corrosion resistance. The unitized disc packs are capable of up to 1/2° continuous misalignment, which ensures trouble free operation using close tolerance bolts and standard drive shaft dynamic balance.

The couplings shown below are stocked and available for quick supply; two weeks standard delivery or 24 hour premium delivery is available.

For longer shaft spans or special designs, consult Kop-Flex.

KD33 Couplings use CT (Cooling Tower) Disc Packs.

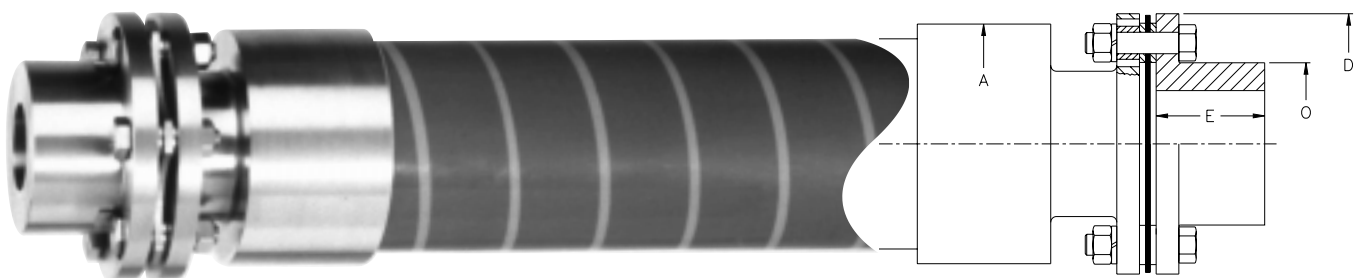
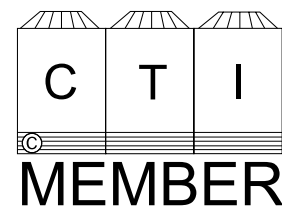


- Composite Tubes for Low Weight and Corrosion Resistance
- Stainless Steel Metal Components
- Quick Delivery
- High Flexible, Unitized Disc Packs

Part Numbers

Complete KD33 Coupling, Class 1 (Stainless Steel & Composite Shaft) Shaft Separation Must Be Specified at Time of Order.

Size	Driveshaft	Maximum DBSE		Complete Coupling Part No.	DiscPack Part No.	Disc Pack Fastener Set Part No.
		@ 1800 RPM	@ 1500 RPM			
153	4" E-Glass	96	105	153 KD 33 EG	153 CTDP	153 CTFS
153	4" Carbon	130	141	153 KD 33 C		
203	6" E-Glass	118	128	203 KD 33 EG	203 CTDP	203 CTFS
203	6" Carbon	160	172	203 KD 33 C		
253	6" E-Glass	116	128	253 KD 33 EG	253 CTDP	253 CTFS
253	6" Carbon	160	172	253 KD 33 C		



Selection and Dimensional Data

Size	Max Bore (inches)	Coupling Rating HP/100 RPM	Torque Rating (in-lb)		Nominal Tube Dia. (in)	Composite Tube Material	Maximum DBSE @ 1800 RPM (in)	Maximum DBSE @ 1500 RPM (in)	Dimensions			
			Continuous	Peak					A (in)	E (in)	O (in)	D (in)
153	2.38	12.5	7880	15760	4	E-GLASS	96	105	4.8	2.25	3.35	5.38
					4	CARBON	130	141				
203	3.00	22.9	14400	28800	6	E-GLASS	118	128	6.9	2.50	4.26	6.38
					6	CARBON	160	172				
253	3.75	37.5	23600	47200	6	E-GLASS	118	128	6.9	3.00	5.26	7.69
					6	CARBON	160	172				

The KD4 coupling is designed for medium and heavy duty applications **requiring only angular misalignment capacity** such as three bearing installations or floating shaft arrangements.

The larger size couplings available in the KD4 Series allow application to larger, high power machines.

Consisting of three main parts; two hubs and a unitized disc pack which installs or drops out, the KD4 simplifies installation or maintenance. The close tolerance bolts and safety overload washers insure superior performance and trouble free operation.

For complete floating shaft assemblies, consider a KD41 or KD42 disc coupling; or for lower power requirements, check out a KD5 disc coupling.

KD4 Couplings use HT (High Torque) Disc Packs.



- Angular Misalignment Capacity
- Heavy Duty, Small to Large Sizes
- Drop-Out, Unitized Disc Packs

Selection Data

Size	Max. Bore (in)	Coupling Rating (HP/100 RPM)	Torque Rating		Maximum Speed RPM	Total ^① Weight (lbs)	Total ^① WR ² (lb-in ²)	Axial Capacity ^② (in)
			Continuous (in-lb)	Peak (in-lb)				
103	1.75	6.3	4000	8000	18200	5.2	9.5	±.015
153	2.50	21.6	13600	27200	14800	11.4	38.5	±.038
204	3.00	57.1	36000	72000	13000	24.1	124	±.020
254	3.75	82.5	52000	104000	11200	32.2	212	±.030
304	4.50	141	89000	178000	9900	50.5	462	±.040
354	5.00	238	150000	300000	8800	78.5	980	±.053
404	5.50	340	215000	430000	7800	118	1880	±.060
454	6.38	405	255000	510000	7200	150	2780	±.068
504	7.00	570	360000	720000	6600	197	4380	±.078
554	7.75	800	505000	1100000	6100	277	7250	±.083
604	8.50	1,050	660000	1,320,000	5600	348	10900	±.090
705	10.75	2,400	1,510,000	3,020,000	4000	625	30500	±.053
805	12.00	3,670	2,310,000	4,620,000	4000	915	57000	±.060
905	13.50	4,130	2,600,000	5,200,000	3600	1,250	95000	±.078

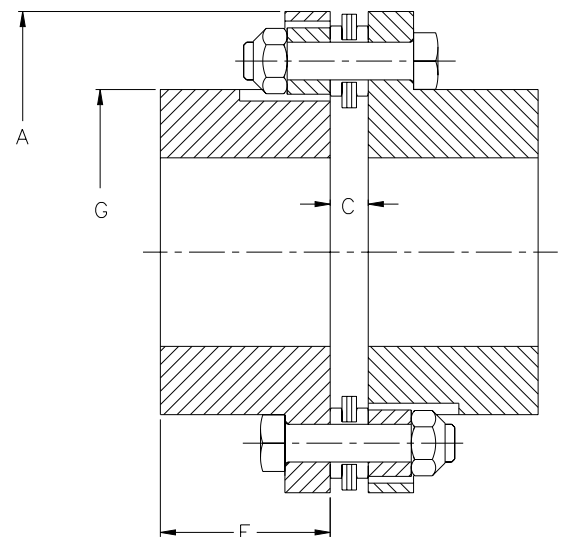
① Data Based on Maximum Bores.

② Axial Capacity for Single Flex Unit.

Dimensional Data

Size	A (in)	C (in)	E (in)	G (in)
103	3.94	.31	1.66	2.57
153	5.38	.39	1.94	3.54
204	6.38	.50	2.38	4.32
254	7.62	.57	3.00	5.34
304	9.00	.65	3.56	6.16
354	10.50	.81	4.13	6.99
404	11.75	.88	4.63	7.91
454	12.75	.94	5.25	8.83
504	13.88	1.09	5.88	9.62
554	15.12	1.22	7.16	10.48
604	16.50	1.32	7.66	11.33
705	20.50	1.56	9.00	14.07
805	23.00	1.84	10.13	15.73
905	25.50	1.76	11.81	17.88

Note: KD4 couplings use standard KD41 hubs. See page M-112 for part numbers.

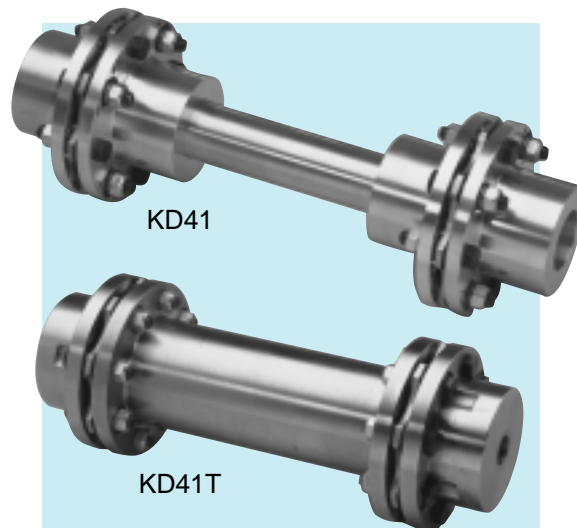


KD41 & KD41T Floating Shafts

The KD41 coupling is designed for medium and heavy duty applications requiring longer shaft separations. The minimal number of components yields an economical disc coupling solution to floating shaft applications. The larger size couplings available in the KD41 Series allow application to larger, high power machines.

The KD41 floating shaft coupling uses two single flex halves in conjunction with a solid center shaft, which installs or drops out simplifying installation or maintenance. The unitized disc packs, close tolerance bolts and safety overload washers insure superior performance and trouble free zero backlash operation.

For lighter weight or higher stiffness, a tubular floating shaft design is available. The KD41T has all of the features of the KD41, but with a tubular shaft. For a direct replacement of a gear coupling floating shaft, consider a KD42 disc coupling; or for a lower power application, check out the KD51 disc coupling.



- Heavy Duty, Larger Sizes
- Economical Solid or Tubular Floating Shafts
- Drop-Out, Unitized Disc Packs

KD41 Couplings use HT (High Torque) Disc Packs.

Complete Couplings

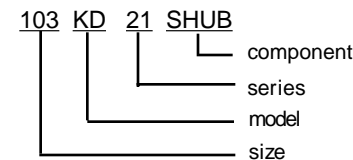
Coupling Size	Complete Coupling with 2 Std. Hubs	
	Rough Bore	Finish Bore ^A
103	103 KD 41 SS	103 KD 41 SS FB
153	153 KD 41 SS	153 KD 41 SS FB
204	204 KD 41 SS	204 KD 41 SS FB
254	254 KD 41 SS	254 KD 41 SS FB
304	304 KD 41 SS	304 KD 41 SS FB
354	354 KD 41 SS	354 KD 41 SS FB
404	404 KD 41 SS	404 KD 41 SS FB
454	454 KD 41 SS	454 KD 41 SS FB
504	504 KD 41 SS	504 KD 41 SS FB
554	554 KD 41 SS	554 KD 41 SS FB
604	604 KD 41 SS	604 KD 41 SS FB
705	705 KD 41 SS	705 KD 41 SS FB
805	805 KD 41 SS	805 KD 41 SS FB
905	905 KD 41 SS	905 KD 41 SS FB

Component Parts

Description	Part Number
Standard Hub	SHUB
*HT Disc Pack	HTDP
*HT Disc Pack Fastener Set	HTFS

* For Disc Pack Components, only size and component part number are required to order.

How to Order Components



Note: KD41 couplings use standard KD21 hubs.



① All finish bores and keyways per AGMA 9002-A86 commercial standard tolerances.

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 considerations.

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

Dimensional Data

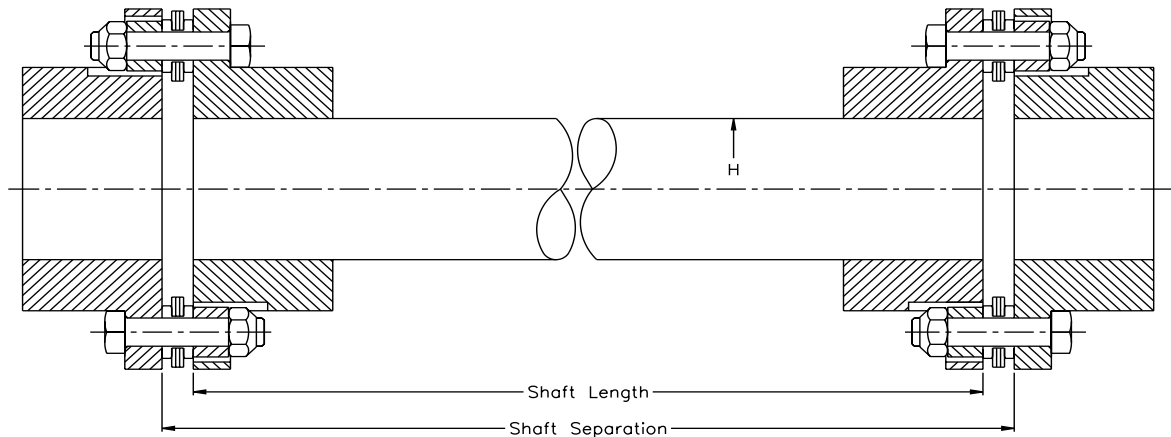
Size	A (in)	C (in)	E (in)	G (in)	Typical	
					H (in)	T (in)
103	3.94	.31	1.66	2.57	1.50	2.25
153	5.38	.39	1.94	3.54	1.88	3.00
204	6.38	.50	2.38	4.32	2.62	3.88
254	7.62	.57	3.00	5.34	3.00	4.88
304	9.00	.65	3.56	6.16	3.50	5.50
354	10.50	.81	4.13	6.99	4.25	6.25
404	11.75	.88	4.63	7.91	4.75	7.00
454	12.75	.94	5.25	8.83	5.25	8.00
504	13.88	1.09	5.88	9.62	5.75	8.75
554	15.12	1.22	7.16	10.48	6.25	9.25
604	16.50	1.32	7.66	11.33	6.75	10.00
705	20.50	1.56	9.00	14.07	8.50	12.25
805	23.00	1.84	10.13	15.73	9.50	13.75
905	25.50	1.76	11.81	17.88	11.00	15.88

Selection Data

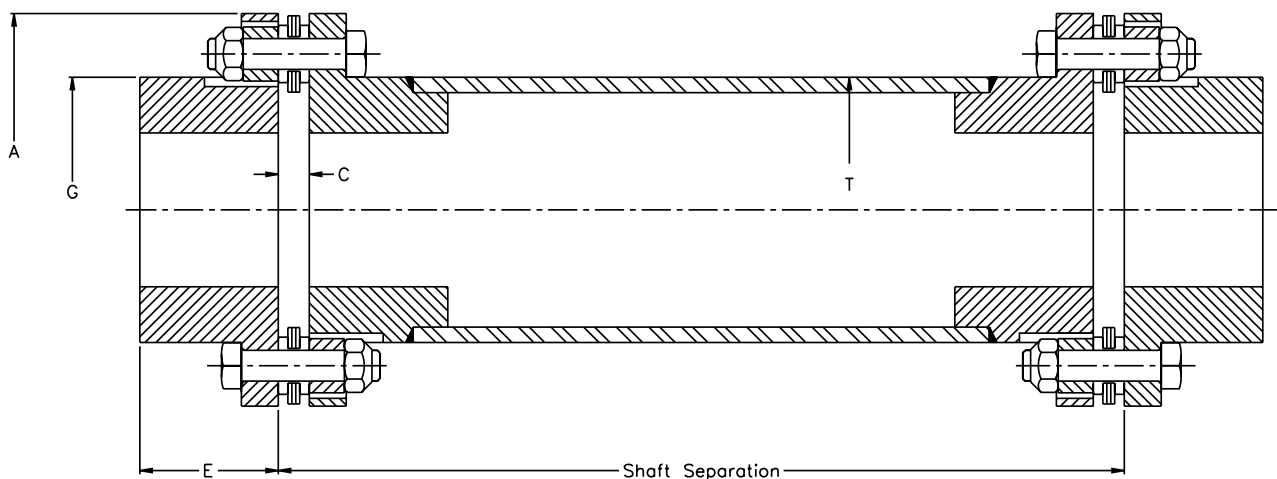
Size	Max. Bore (in)	Coupling Rating (HP/100 RPM)	Torque Rating		Maximum Speed RPM	Total Φ Weight (lbs)	Total Φ WR ² (lb-in ²)	Axial Capacity (in)
			Continuous (in-lb)	Peak (in-lb)				
103	1.75	6.3	4000	8000	18200	10.4	19	±.030
153	2.50	21.6	13600	27200	14800	22.8	77	±.075
204	3.00	57.1	36000	72000	13,00	48.2	247	±.040
254	3.75	82.5	52000	104000	11200	64.5	425	±.060
304	4.50	141	89000	178000	9900	101	925	±.080
354	5.00	238	150000	300000	8800	157	1960	±.105
404	5.50	340	215000	430000	7800	237	3760	±.120
454	6.38	405	255000	510000	7200	299	5550	±.135
504	7.00	570	360000	720000	6600	395	8750	±.155
554	7.75	800	505000	1010000	6100	554	14500	±.165
604	8.50	1050	660000	1320000	5600	697	21700	±.180
705	10.75	2400	1510000	3020000	4500	1250	61000	±.105
805	12.00	3670	2310000	4620000	4000	1830	114000	±.120
905	13.50	4130	2600000	5200000	3600	2510	190000	±.155

① Data for two flex units with maximum bores. Weight and WR² values do not include floating shaft or tube.

KD41



KD41T



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 considerations.

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

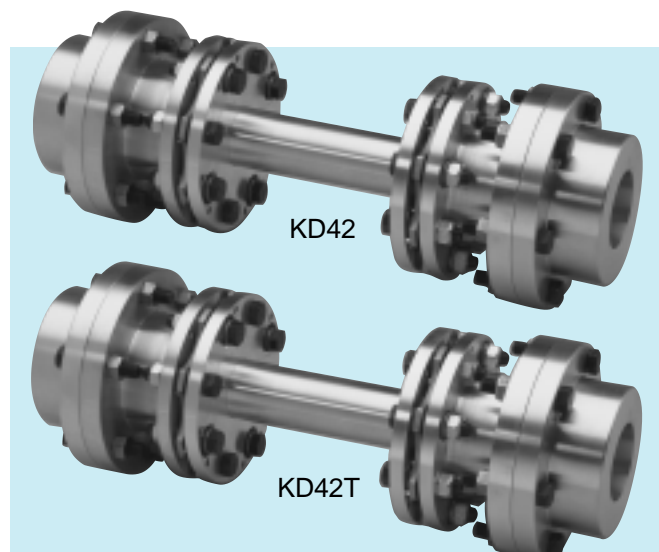
KD42 & KD42T Floating Shafts

The KD42 coupling is designed as a non-lubricated, drop-in replacement to gear coupling floating shafts. The standard bolt flanges of the KD42 allow the center gear coupling section to be dropped out, leaving rigid hubs in place on the equipment shafts to accept the low maintenance disc coupling shaft section.

The power capacity of the KD42 coupling is the highest in the industry, allowing the easiest conversion from a lubricated coupling to a low maintenance disc coupling. Existing solid shafts can be reused by simply machining the shaft ends to retrofit new disc couplings and dropping the new assembly in place on the rigid hubs.

The KD42 floating shaft coupling uses two flexible half couplings mounted on a solid center shaft, simplifying installation or maintenance. The unitized disc packs, close tolerance bolts and safety overload washers insure superior performance and trouble free zero backlash operation.

For lighter weight or higher stiffness, a tubular floating shaft design is available. The KD42T has all of the features of the KD42, but with a tubular shaft. For a more economical floating shaft, consider a KD41 disc coupling; or for a lower power application, check out the KD51 disc coupling.



- Direct Gear Coupling Replacement
- Heavy Duty, Larger Sizes
- Solid or Tubular Floating Shafts
- Drop-Out Shaft Section

KD42 Couplings use HT (High Torque) Disc Packs.

Complete Couplings

Coupling Size	Complete Coupling with 2 Std. Hubs	
	Rough Bore	Finish Bore ^A
103	103 KD 41 SS	103 KD 41 SS FB
153	153 KD 41 SS	153 KD 41 SS FB
204	204 KD 41 SS	204 KD 41 SS FB
254	254 KD 41 SS	254 KD 41 SS FB
304	304 KD 41 SS	304 KD 41 SS FB
354	354 KD 41 SS	354 KD 41 SS FB
404	404 KD 41 SS	404 KD 41 SS FB
454	454 KD 41 SS	454 KD 41 SS FB
504	504 KD 41 SS	504 KD 41 SS FB
554	554 KD 41 SS	554 KD 41 SS FB
604	604 KD 41 SS	604 KD 41 SS FB
705	705 KD 41 SS	705 KD 41 SS FB
805	805 KD 41 SS	805 KD 41 SS FB
905	905 KD 41 SS	905 KD 41 SS FB

Interchange Chart - Gear to Disc Type Floating Shaft Coupling

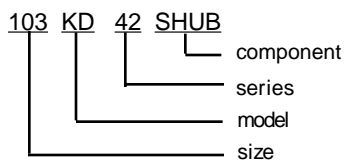
GEAR SIZE	DISC COUPLING SIZE													
	103	153	204	254	304	354	404	454	504	554	604	705	805	905
1														
1 1/2														
2														
2 1/2														
3														
3 1/2														
4														
4 1/2														
5														
5 1/2														
6														
7														
8														
9														
10														

Component Parts

Description	Part Number
Standard Hub	SHUB
Flex Half Assembly	FH
*HT Disc Pack Assembly	HTDP
*HS Disc Pack Fastener Set	HSFS
*Fastener Sets	(see table above)

* For Disc Pack Components, only size and component part number are required to order.

How to Order Components



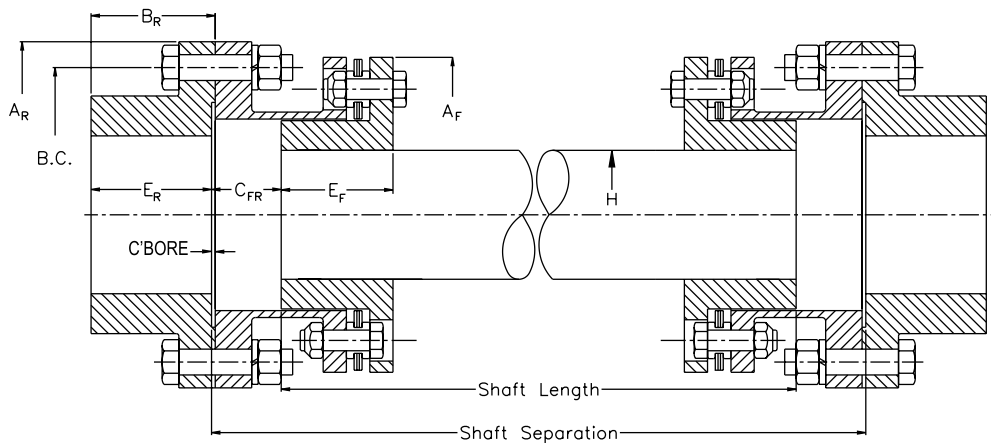
Dimensional Data - Gear Rigid

Gear Rigid Size	Max Bore (in)	A _R (in)	B _R (in)	E _R (in)	BC (in)	C' Bore	Flange Bolts-UNC (in)
1	2.25	4.56	1.66	1.56	3.75	.09	6 x 1/4
1 1/2	2.69	6.00	1.94	1.84	4.81	.09	8 x 3/8
2	3.38	7.00	2.38	2.28	5.88	.09	6 x 1/2
2 1/2	4.00	8.38	3.00	2.91	7.12	.09	6 x 5/8
3	4.75	9.44	3.56	3.47	8.12	.09	8 x 5/8
3 1/2	5.50	11.00	4.12	4.03	9.50	.09	8 x 3/4
4	6.38	12.50	4.62	4.44	11.00	.19	8 x 3/4
4 1/2	7.25	13.62	5.25	5.06	12.00	.19	10 x 3/4
5	8.50	15.31	5.88	5.69	13.50	.19	8 x 7/8
5 1/2	8.00	16.75	7.16	6.97	14.50	.19	14 x 7/8
6	8.75	18.00	7.66	7.47	15.75	.19	14 x 7/8
7	10.00	20.75	9.00	8.75	18.25	.25	16 x 1
8	11.00	23.25	10.12	9.81	20.75	.31	16 x 1 1/8
9	12.75	26.00	11.19	10.88	23.25	.31	18 x 1 1/4
10	13.50	28.00	12.38	12.00	25.25	.38	18 x 1 3/8

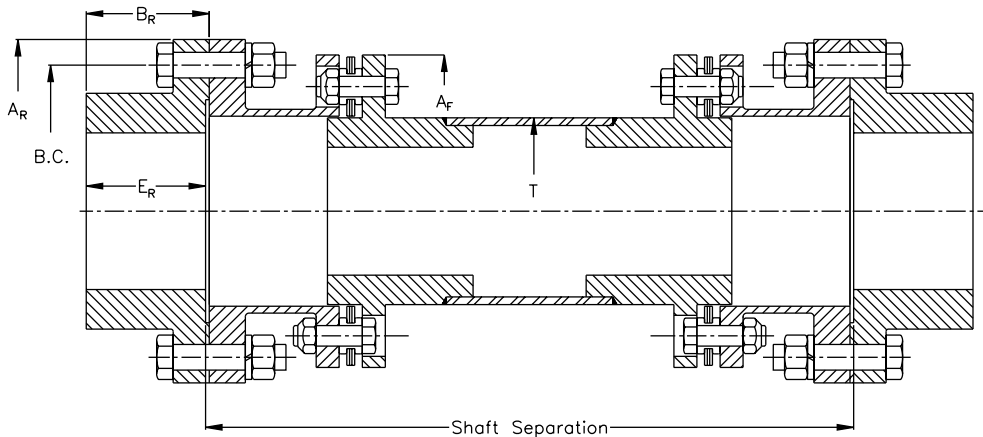
Selection Data

Size	Flex Max Bore (in)	Continuous Rating HP/100 RPM	Torque Rating		Axial Capacity (in)	A _F (in)	C _{FR} (in)	E _F (in)	Typical	
			Continuous (in-lb)	Peak (in-lb)					H ⁽²⁾ (in)	T (in)
103	1.50	6.3	4000	8000	±.030	3.94	1.12	1.64	1.50	2.25
153	2.12	21.6	13600	27200	±.075	5.38	1.50	2.00	1.88	3.00
204	2.62	57.1	36000	72000	±.040	6.38	2.00	2.44	2.62	3.88
254	3.25	82.5	52000	104000	±.060	7.62	2.12	3.00	3.00	4.88
304	3.75	141	89000	178000	±.080	9.00	2.25	3.50	3.50	5.50
354	4.25	238	150000	300000	±.105	10.50	2.50	4.12	4.25	6.25
404	4.75	340	215000	430000	±.120	11.75	2.75	4.62	4.75	7.00
454	5.50	405	255000	510000	±.135	12.75	2.75	5.12	5.25	8.00
504	5.75	570	360000	720000	±.155	13.88	3.00	5.62	5.75	8.75
554	6.25	800	505000	1010000	±.165	15.12	3.75	6.00	6.25	9.25
604	6.75	920	640000	1280000	±.180	16.50	3.25	6.50	6.75	10.00
705	8.50	1,205	1280000	2560000	±.105	20.50	3.25	8.00	8.50	12.25
805	9.50	2,230	1780000	3560000	±.120	23.00	4.25	9.00	9.50	13.75
905	11.50	4,130	2600000	5200000	±.155	25.50	4.50	10.00	11.00	15.88

KD 42



KD42T



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 considerations.

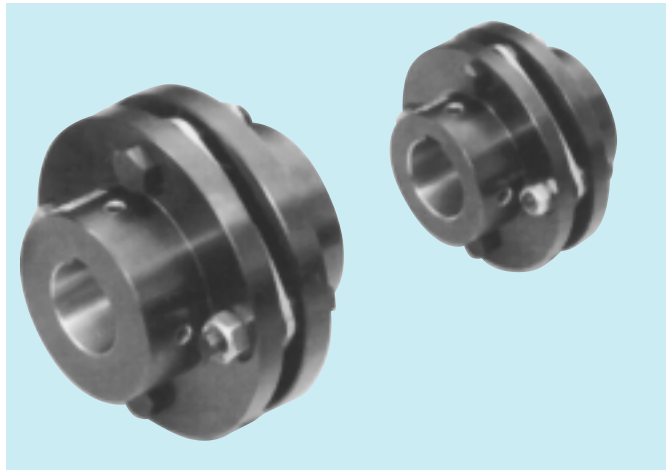
Important: Care must be exercised in proper selection of any shaft coupling. The Users must assure themselves that the design of the hub to shaft connection is adequate for the duty intended.

The KD5 coupling is designed for light to medium duty applications **requiring only angular misalignment capacity** such as three bearing installations or floating shaft arrangements.

Consisting of three main parts; two hubs and a disc pack, the KD5 simplifies installation or maintenance. The close tolerance bolts and overload washers insure superior performance and trouble free operation.

For complete floating shaft assemblies, consider a KD51 disc coupling; or for higher power requirements, check out a KD4 single flex disc coupling.

KD5 Couplings use HT (High Torque) Disc Packs.



- Angular Misalignment Capacity
- Light and Medium Duty
- Most Economical

Coupling Size	Stock Bores																											
	1/2	5/8	3/4	7/8	1	1 1/16	1 3/16	1 1/4	1 3/8	1 7/16	1 1/2	1 5/8	1 3/4	1 7/8	1 15/16	2	2 1/8	2 3/16	2 1/4	2 3/8	2 7/16	2 1/2	2 5/8	2 11/16	2 3/4	2 7/8	2 15/16	
022	X	X	X																									
042	X	X	X	X																								
072		X	X	X	X	X	X	X																				
092				X	X	X	X	X	X																			
102					X	X	X	X	X	X	X																	
132									X	X	X	X	X	X														
162									X	X	X	X	X	X	X	X	X	X	X									
212									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Complete Couplings

Coupling Size	Complete Coupling with 2 Std. Hubs	
	Rough Bore	Finish Bore
022	022 KD 5 SS	022 KD 5 SS FB
042	042 KD 5 SS	042 KD 5 SS FB
072	072 KD 5 SS	072 KD 5 SS FB
092	092 KD 5 SS	092 KD 5 SS FB
102	102 KD 5 SS	102 KD 5 SS FB
132	132 KD 5 SS	132 KD 5 SS FB
162	162 KD 5 SS	162 KD 5 SS FB
212	212 KD 5 SS	212 KD 5 SS FB
252	252 KD 5 SS	252 KD 5 SS FB
292	292 KD 5 SS	292 KD 5 SS FB
322	322 KD 5 SS	322 KD 5 SS FB
362	362 KD 5 SS	362 KD 5 SS FB

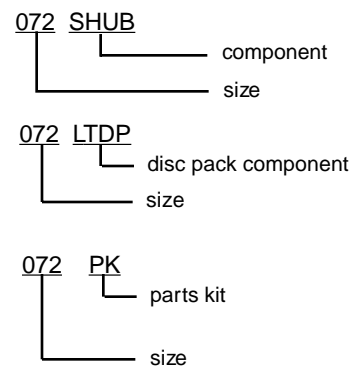
Complete coupling consists of 2 SHUBS and 1 parts kit.

Component Parts

Description	Part Number
Standard Hub	SHUB
Parts Kit	PK
Disk Pack	LTDP
Flange Fasteners Kit	FFK

Parts kit consist of 1 disk pack and 1 fastener kit.
Flange fastener kit consist of 4 fasteners, 8 washers and 4 nuts.

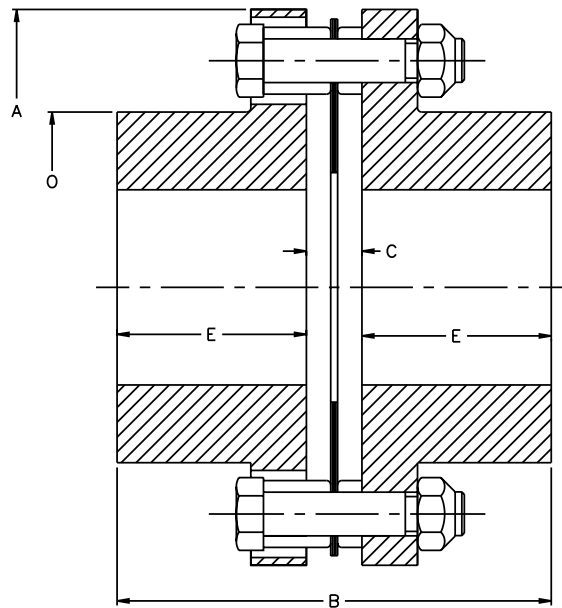
How to Order Components



Selection Data

Size	Max. Bore (in)	Coupling Rating (HP/100 RPM)	Torque Rating		Maximum Speed RPM	Total [®] Weight (lbs)	Total [®] WR ² (lb-in ²)	Axial Capacity (in)
			Continuous (in-lb)	Peak (in-lb)				
022	0.75	0.28	175	350	20000	0.73	0.4	±.030
042	0.94	0.56	350	700	20000	1.32	0.7	±.030
072	1.31	1.4	870	1740	20000	1.87	2.1	±.039
092	1.38	2.5	1570	3140	18000	2.86	4.2	±.047
102	1.69	3.4	2170	4340	15000	4.19	7.3	±.055
132	2.00	6.2	3900	7800	13000	9.48	19	±.062
162	2.31	11.0	6950	13900	12000	15.2	40	±.070
212	2.88	17.9	11300	22600	10000	25.4	90	±.098
252	3.31	28.9	18200	36400	8000	36.2	180	±.105
292	3.75	46.8	29500	59000	7500	61.7	300	±.125
322	4.38	74.6	47000	94000	3400	72.8	600	±.150
362	4.75	96.8	61000	122000	3100	81.6	1100	±.157

① Data based on maximum bores.



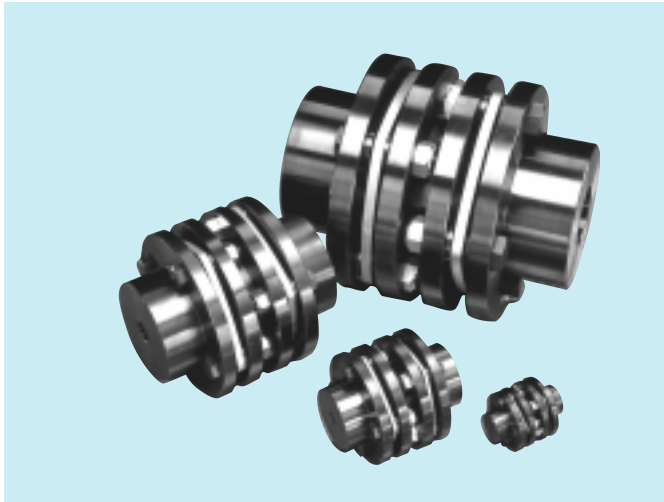
Size	A (in)	B (in)	C (in)	E (in)	O (in)
022	2.24	1.80	0.22	0.79	1.26
042	2.66	2.24	0.24	1.00	1.34
072	3.19	2.26	0.26	1.00	1.85
092	3.66	2.59	0.33	1.13	1.93
102	4.09	3.08	0.44	1.32	2.36
132	4.96	3.70	0.46	1.62	2.80
162	5.63	4.22	0.46	1.88	3.31
212	6.61	5.16	0.66	2.25	4.17
252	7.64	5.67	0.67	2.50	4.65
292	8.43	6.85	0.85	3.00	5.39
322	9.69	7.94	0.94	3.50	6.14
362	10.87	9.07	1.07	4.00	6.65

The KD50 coupling is designed for light and medium duty applications requiring moderate shaft separations. The minimal number of components yields an economical disc coupling solution to spacer applications.

Consisting of two hubs, a center spacer, and two disc packs, the KD50 simplifies installation and maintenance. The disc packs and close tolerance bolts insure good dynamic balance; AGMA Class 8 is standard, as-manufactured. The close tolerance bolts and safety overload washers insure superior performance and trouble free operation.

For higher power requirements, consider a KD21 disc coupling; or for longer spans, check out a KD51 floating shaft coupling.

KD50 Couplings use HT (High Torque) Disc Packs.



- Light to Medium Duty
- Smaller Sizes
- Economical Spacer Series
- Standard Shaft Separations

Coupling Size	Stock Bores																												
	1/2	5/8	3/4	7/8	1	1 1/16	1 3/16	1 1/4	1 3/8	1 7/16	1 1/2	1 5/8	1 3/4	1 7/8	1 15/16	2	2 1/8	2 3/16	2 1/4	2 3/8	2 7/16	2 1/2	2 5/8	2 11/16	2 3/4	2 7/8	2 15/16		
022	X	X	X																										
042	X	X	X	X																									
072		X	X	X	X		X	X																					
092				X	X	X	X	X	X																				
102					X	X	X	X	X	X																			
132									X	X	X	X	X	X															
162									X	X	X	X	X	X	X		X	X	X	X									
212										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Complete Couplings

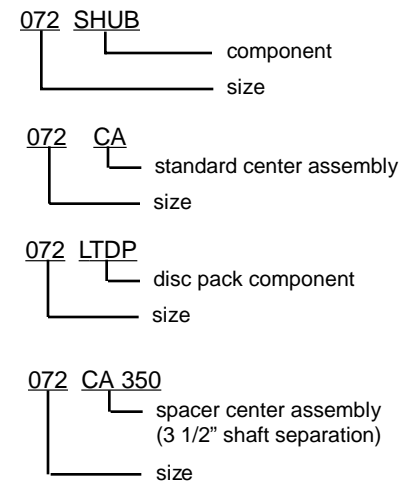
Coupling Size	Complete Coupling with 2 Std. Hubs	
	Rough Bore	Finish Bore
022	022 KD 50 SS	022 KD 50 SS FB
042	042 KD 50 SS	042 KD 50 SS FB
072	072 KD 50 SS	072 KD 50 SS FB
092	092 KD 50 SS	092 KD 50 SS FB
102	102 KD 50 SS	102 KD 50 SS FB
132	132 KD 50 SS	132 KD 50 SS FB
162	162 KD 50 SS	162 KD 50 SS FB
212	212 KD 50 SS	212 KD 50 SS FB
252	252 KD 50 SS	252 KD 50 SS FB
292	292 KD 50 SS	292 KD 50 SS FB
322	322 KD 50 SS	322 KD 50 SS FB
362	362 KD 50 SS	362 KD 50 SS FB

Complete coupling consists of 2 SHUBS and 1 center assembly.

Component Parts

Description	Part Number
Standard Hub	SHUB
Center Assembly (Standard)	CA
Center Assembly (Long - XXX = Length)	CAXXX
Parts Kit	PK
Disc Pack	LTDP
Flange Fasteners Kit	FFK

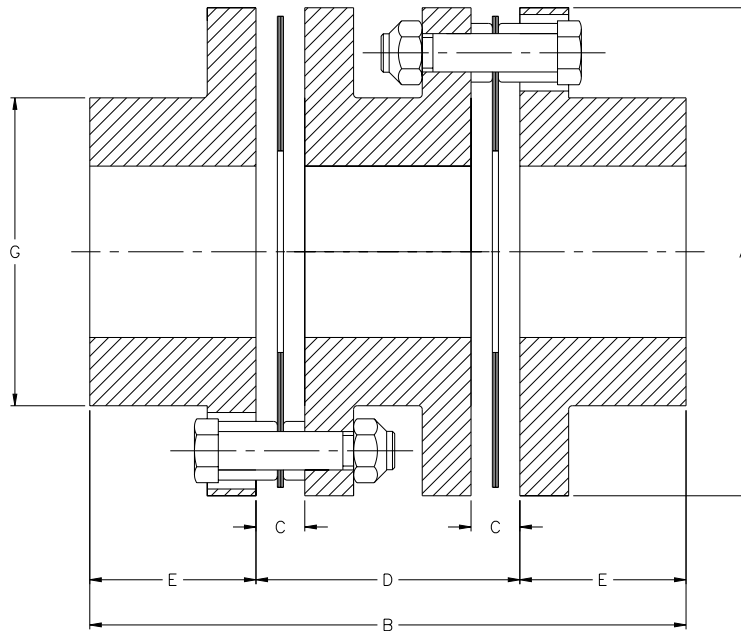
How to Order Components



Selection Data

Size	Max. Bore (in)	Coupling Rating (HP/100 RPM)	Max. Torque Rating		Maximum Speed RPM	Total ^o Weight (lbs)	Total ^o WR ² (lb-in ²)	Axial Capacity (in)
			Continuous (in-lb)	Peak (in-lb)				
022	0.75	0.28	175	350	20000	1.0	0.6	±.063
042	0.94	0.56	350	700	20000	2.4	1.5	±.063
072	1.31	1.4	870	1740	20000	3.1	4.0	±.079
092	1.38	2.5	1570	3140	18000	5.1	8.3	±.094
102	1.69	3.4	2170	4340	15000	6.6	14	±.110
132	2.00	6.2	3900	7800	13000	14.5	32	±.126
162	2.31	11.0	6950	13900	12000	22.7	66	±.142
212	2.88	17.9	11300	22600	10000	35.4	140	±.197
252	3.31	28.9	18200	36400	8000	51.0	280	±.213
292	3.75	46.8	29500	59000	7500	88.4	470	±.260
322	4.38	74.6	47000	94000	3400	121.0	1,000	±.299
362	4.75	96.8	61000	122000	3100	132.0	2,000	±.315

① Data based on maximum bores.



Size	A	B	C	D Standard	E	G	Stock "D" Dimension (in)						
							3 1/2	4 3/8	5	5 1/2	7	8	9
022	2.24	2.54	0.22	0.96	0.79	1.26							
042	2.66	3.42	0.24	1.42	1.00	1.34							
072	3.19	3.54	0.26	1.54	1.00	1.85	X						
092	3.66	4.11	0.33	1.85	1.13	1.93	X	X	X				
102	4.09	4.73	0.44	2.09	1.32	2.36	X	X	X		X		
132	4.96	5.68	0.46	2.44	1.62	2.80	X	X	X		X		
162	5.63	6.48	0.46	2.72	1.88	3.31		X	X	X	X		
212	6.61	7.57	0.66	3.07	2.25	4.17			X	X	X		
252	7.64	8.50	0.67	3.50	2.50	4.65				X	X		
292	8.43	9.82	0.85	3.82	3.00	5.39				X	X		
322	9.69	11.29	0.94	4.29	3.50	6.14						X	
362	10.87	13.28	1.07	5.28	4.00	6.65							X

The KD51 & KD51T couplings are designed for light and medium duty applications requiring longer shaft separations. The minimal number of components yields an economical disc coupling solution to floating shaft applications.

The KD51 floating shaft coupling uses two single flex halves in conjunction with a solid center shaft, which installs or drops out simplifying installation or maintenance; the KD51T uses a tubular floating shaft for lighter weight. The close tolerance bolts and safety overload washers insure superior performance and trouble free zero backlash operation.



For higher power applications, consider a KD41 floating shaft disc coupling.

- Light to Medium Duty
- Smaller Sizes
- Economical Floating Shaft Series

KD51 Couplings use HT (High Torque) Disc Packs.

Coupling Size	Stock Bores																												
	1/2	5/8	3/4	7/8	1	1 1/16	1 3/16	1 1/4	1 3/8	1 7/16	1 1/2	1 5/8	1 3/4	1 7/8	1 15/16	2	2 1/8	2 3/16	2 1/4	2 3/8	2 7/16	2 1/2	2 5/8	2 11/16	2 3/4	2 7/8	2 15/16		
022	X	X	X																										
042	X	X	X	X																									
072		X	X	X	X																								
092				X	X	X	X	X	X																				
102					X	X	X	X	X	X	X																		
132									X	X	X	X	X	X															
162									X	X	X	X	X	X	X	X	X	X	X										
212										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Complete Couplings

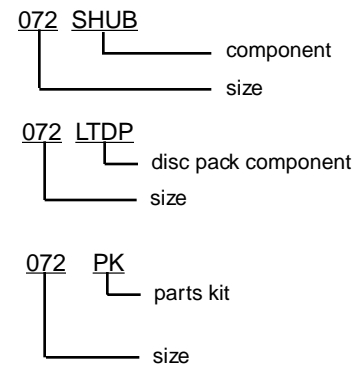
Coupling Size	Complete Coupling with 2 Std. Hubs	
	Rough Bore	Finish Bore
022	022 KD 51 SS	022 KD 51 SS FB
042	042 KD 51 SS	042 KD 51 SS FB
072	072 KD 51 SS	072 KD 51 SS FB
092	092 KD 51 SS	092 KD 51 SS FB
102	102 KD 51 SS	102 KD 51 SS FB
132	132 KD 51 SS	132 KD 51 SS FB
162	162 KD 51 SS	162 KD 51 SS FB
212	212 KD 51 SS	212 KD 51 SS FB
252	252 KD 51 SS	252 KD 51 SS FB
292	292 KD 51 SS	292 KD 51 SS FB
322	322 KD 51 SS	322 KD 51 SS FB
362	362 KD 51 SS	362 KD 51 SS FB

Complete coupling consists of 2 SHUBS and 1 center assembly.

Component Parts

Description	Part Number
Standard Hub	SHUB
Center Shaft	Consult Factory
Disc Pack	LTDP
Parts Kit	PK

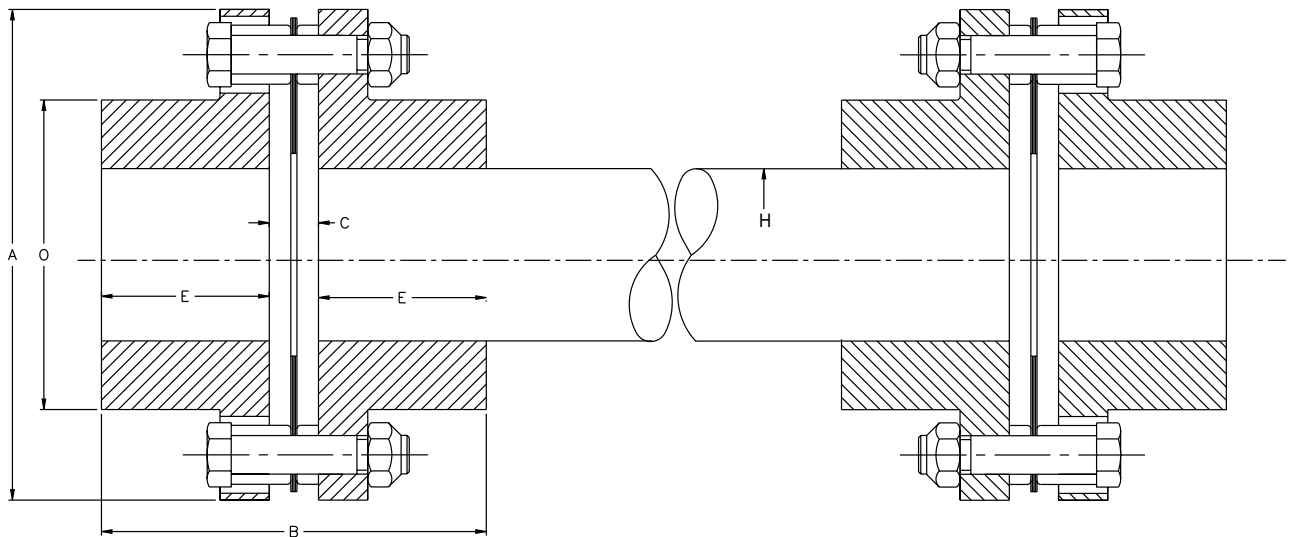
How to Order Components



Selection Data

Size	Max. Bore (in)	Coupling Rating (HP/100 RPM)	Max. Torque Rating		Maximum Speed RPM	Total ¹ Weight (lbs)	Total ¹ WR ² (lb-in ²)	Axial Capacity (in)
			Continuous (in-lb)	Peak (in-lb)				
022	0.75	0.28	1.75	350	20000	1.46	0.8	
042	0.94	0.56	350	700	20000	2.64	1.4	±.030
072	1.31	1.4	870	1740	20000	3.76	4.2	±.039
092	1.38	2.5	1570	3140	18000	5.72	8.4	±.047
102	1.69	3.4	2170	4340	15000	8.38	14.6	±.055
132	2.00	6.2	3900	7800	13000	19.96	38	±.062
162	2.31	11.0	6950	13900	12000	30.4	80	±.070
212	2.88	17.9	11300	22600	10000	50.8	90	±.098
252	3.31	28.9	18200	36400	8000	72.4	360	±.105
292	3.75	46.8	29500	59000	7500	123.4	600	±.125
322	4.38	74.6	47000	94000	3400	145.6	1200	±.150
362	4.75	96.8	61000	122000	3100	163.2	2200	±.157

① Data for two flex units with maximum bores. Weight and WR² values do not include floating shaft or tube.



Size	A (in)	C (in)	E (in)	G (in)	Typical H (in)
022	2.24	0.2	0.79	1.26	
042	2.66	0.24	1.00	1.34	.88
072	3.19	0.26	1.00	1.85	1.25
092	3.66	0.33	1.13	1.93	1.25
102	4.09	0.44	1.32	2.36	1.50
132	4.96	0.46	1.62	2.80	1.88
162	5.63	0.46	1.88	3.31	2.25
212	6.61	0.66	2.25	4.17	2.75
252	7.64	0.67	2.50	4.65	3.25
292	8.43	0.85	3.00	5.39	3.50
322	9.69	0.94	3.50	6.14	4.25
362	10.87	1.07	4.00	6.65	4.50

Data based on maximum bores.