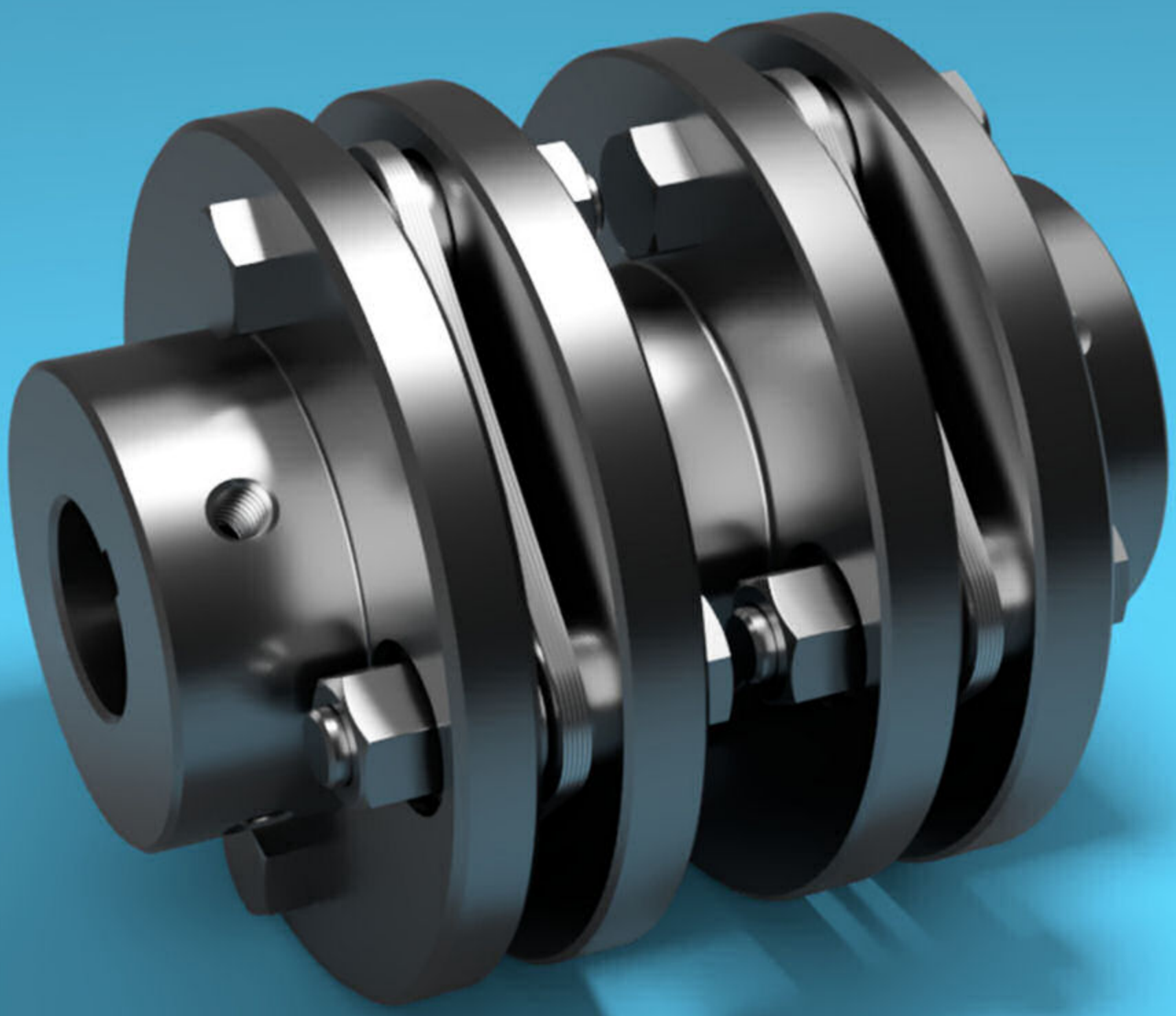
Form Flex Shaft Couplings



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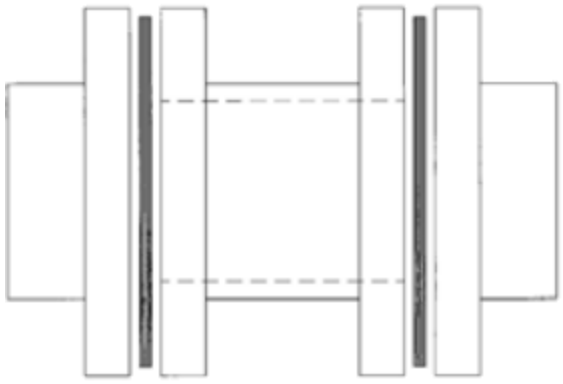
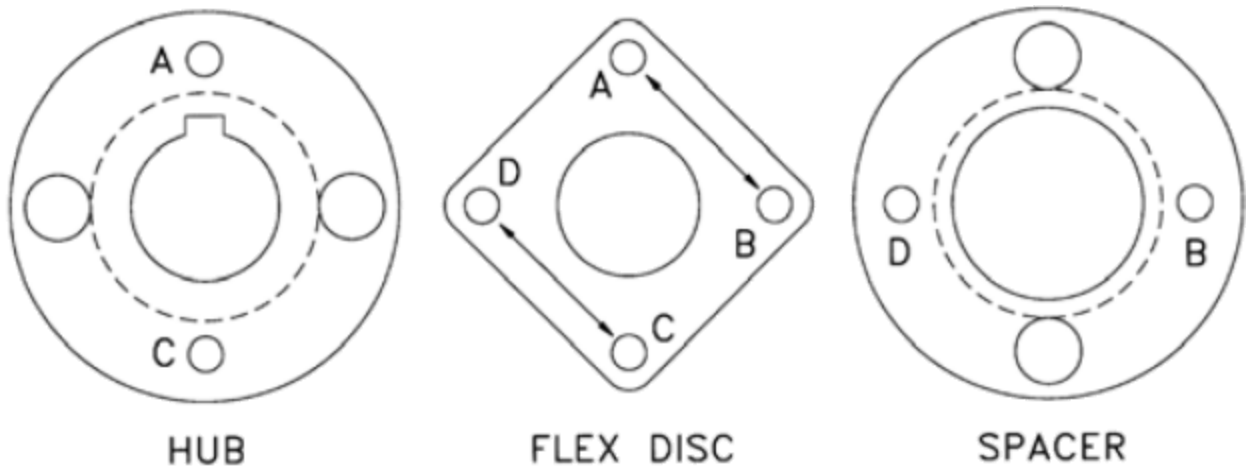
PRECISION MOTION SINCE 1982

FORM-FLEX METAL DISC FLEXIBLE COUPLINGS

Form-Flex couplings transmit torque while compensating for angular, parallel and axial misalignment between two connected shafts. Flexible disc couplings minimize the misalignment forces on the connected equipment.

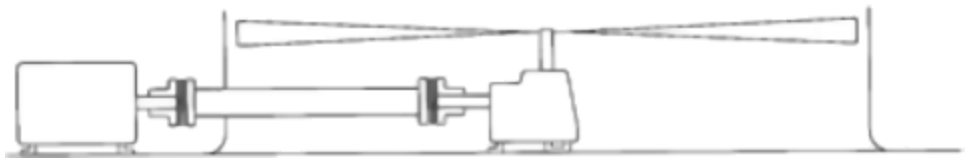
The Basic Flex coupling consists of two hubs, a spacer and two flexible discs. The flex disc is an assembly of thin metal laminations. In figure shown below, flex disc holes A & C are bolted to the hub and holes B & D are bolted to the spacer. Torque is transmitted in direct tensions from A to B and from C to D through the flex disc. Misalignment is taken through bending in the link between the bolt holes.



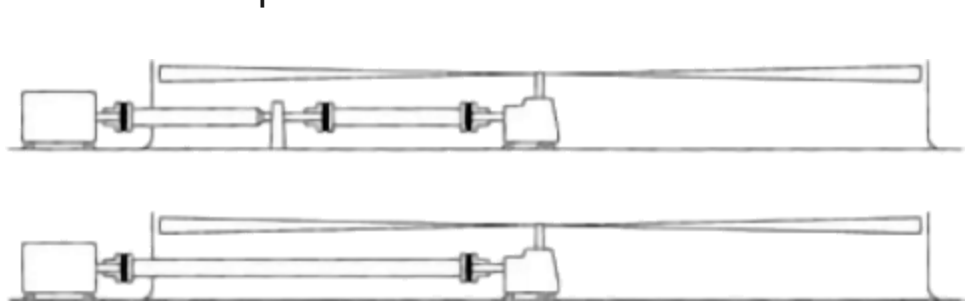


Cooling Tower Drives

Form-Flex metal disc couplings are widely used in cooling fan drive applications. Form-Flex 4 bolt disc couplings offer more misalignment capacity than any competing metal disc design.

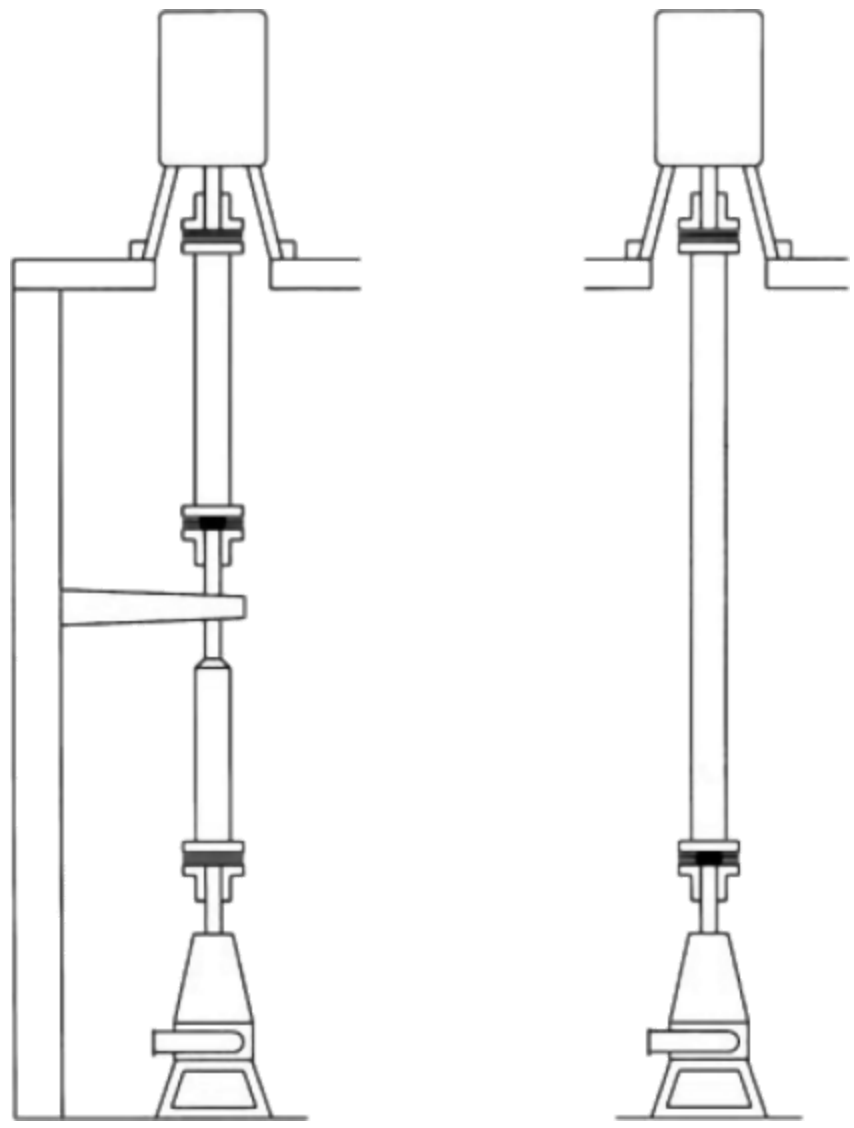


For smaller towers up to about 100 inches DBSE, we offer steel and composite spacer tubing options. TrueTube composite torque tubes are lighter than steel and eliminate thermal growth and vibration problems.



Form-Flex composite floating shaft couplings are recommended as a replacement for older multi-section drivelines. Composite couplings can span up to 240 inches without high maintenance centre support bearings.

Vertical Pump Drives



Form-Flex floating shaft couplings are a costeffective, maintenace free alternative to cardan U-joints for vertical pump drivelines. Form-flex couplings are available with either steel or composite spacer tubing. Composite spacer tubing can reduce total cost by eliminating the need for bearings and support structures.

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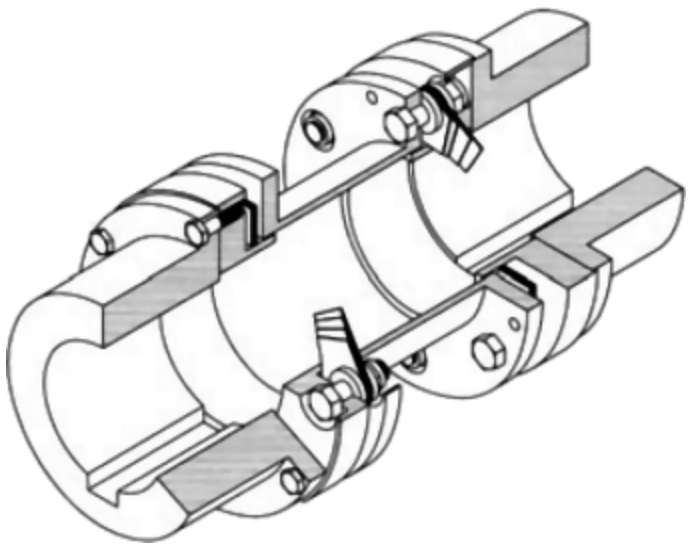
FORM-FLEX METAL DISC FLEXIBLE COUPLINGS

Complete Product Offering

- Torque Capacity to 3175 Hp/100 RPM
- Close Couple, Spacer and Floating Shaft Designs

Over 30 Years Experience in Metal Disc Couplings



High Strength Steel Fasteners

- No Moving Parts
- Zero Backlash

High Strength Stainless Steel Flex Discs

- High Torsional Stiffness
- No Lubrication Required

All Metal Construction

Applications

- Pumps
- Compressors
- Printing
- Fans and Blowers
- Food Processing
- Machine Tools
- Wide Temperature Range
- Available in Carbon or Stainless Steel
- Composite Materials now available

Typical Applications

- **Pumps**
  Form-Flex spacer and close couple designs are ideally suited for all types of pump applications
- **Engine Driven Equipment**
  Form-Flex heavy duty FSH series couplings are commonly used to drive reciprocating compressors and other engine driven equipment
- **Printing**
  Form-Flex couplings' high torsional stiffness allows precise registration for higher quality printing lineshaft applications
- **Positioning Systems**
  Zero backlash and high torsional stiffness make Form-Flex the first choice for servo and stepper drives

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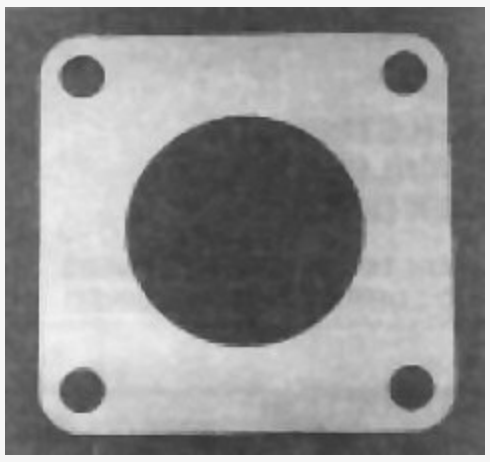
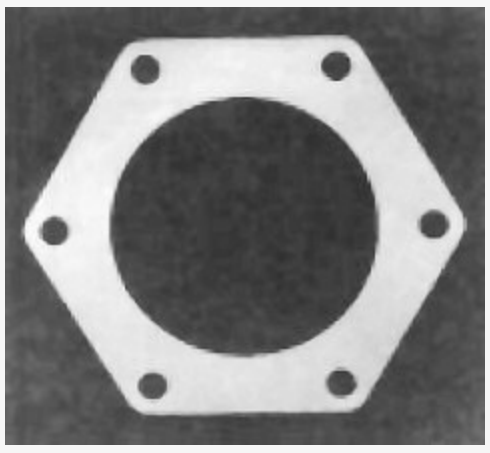
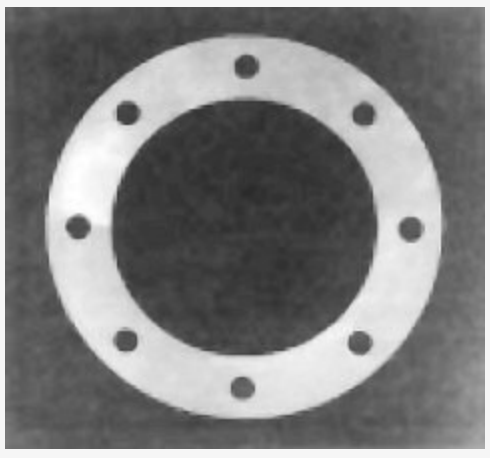
FORM-FLEX FLEX DISC DESIGNS

DISC STYLE	DESIGN FEATURES	WHERE USED
4 bolt (A, M Series) 	Straight sided flex disc. 1 degree angular misalignment. Torque range: 35 lb.in. to 30,240 lb. in. Zero backlash. All machined steel construction. Stainless steel flex discs. Steel or stainless steel materials. Minimum reaction forces.	Ideal for general industrial applications with motor or turbine drivers and smooth to moderate load conditions. Low to moderate speed ranges. Serve or stepper driven positioning systems. Applications where misalignment may be a problem. 4 bold designs offer the highest misalignment capacity of any metal disc design. Not recommended for engine driven applications.
6 bolt (B Series) 	Straight sided disc. 0.7 degree angular misalignment. Torque range: 3050 lb.in. to 233,000 lb.in. Suitable for precision balancing. Zero backlash. All machined steel construction. Stainless steel flex discs. Steel or stainless steel materials.	Ideal for motor or turbine drivers with any load conditions. Use for reversing, reciprocating or other rough load conditions. May be used with industrial engines driving smooth loads. Moderate to high speed ranges and applications where dynamic balancing is required. Consider 6 bolt where 4 bolt size requires increasing coupling size to meet bore size requirements.
8 bolt (D, F, H Series) 	Round disc design. 0.3 degree angular misalignment. Torque range: 9500 lb.in. to 2,000,000 lb.in. Zero backlash. Heavy duty cast construction. Alloy or stainless steel flex discs. Flywheel mount designs.	High torque-low speed applications. Industrial engines driving reciprocating equipment. Heavy-duty reversing applications. Custom designs for high torque applications.

MATERIAL CLASSES - Applies to 4 and 6 Bolt Designs

MATERIAL CLASS BY COMPONENT				DESCRIPTION
COUPLING	HUB	SPACER ASSY	REPAIR KIT	
A	A	A	A	Mild steel hubs and spacer, alloy steel hardware, 300 series SS flex disc
B	B	B	A	Zinc plated steel hubs and spacer, alloy steel hardware, 300 series SS flex disc
C	B	C	E	Zinc plated steel hubs and spacer, 300 series SS flex disc and hardware
E	E	E	E	All 300 series stainless steel construction

PRODUCT FEATURES AND OPTIONS

FEATURE	AR, AK, AP AX, AY	BH, BP, BY, DP*	BF	BA, DA*	A5, A7	B5	HFTH	HH, HSH, FSH
STANDARD BORE FIT	Clearance	Interference			Clearance	Interference		
SET SCREWS	Standard	Optional			Standard	Optional		
PULLER HOLES	Optional	Standard			Optional	Standard	Optional	
STANDARD FLEX DISCS	300 Series Stainless Steel*						Alloy Steel	
BALANCE CLASS	AGMA 7	AGMA 8	AGMA 9	AGMA 7	N/A			N/A
DYNAMIC BALANCE	Optional				Per TBW Commercial Standard			N/A

* Alloy steel flex disc is standared for DA and DP series. Stainless steel is optional.

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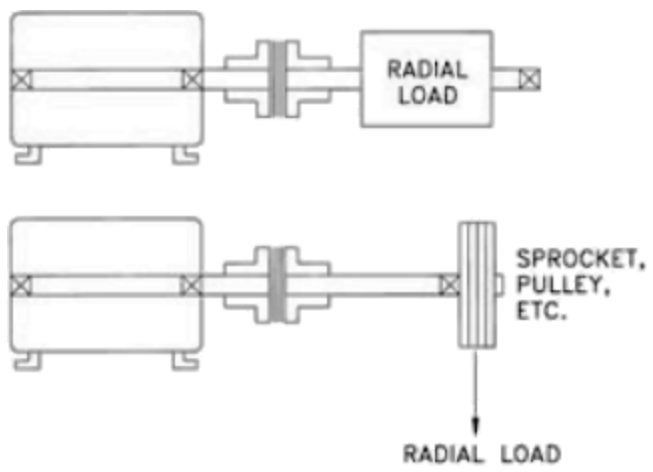
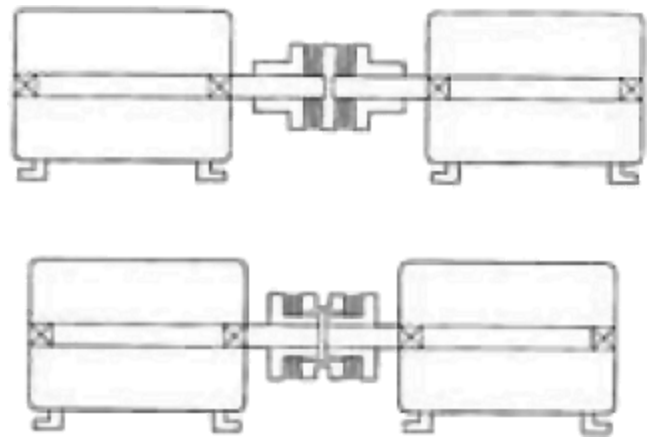
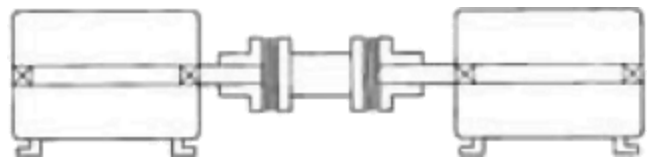
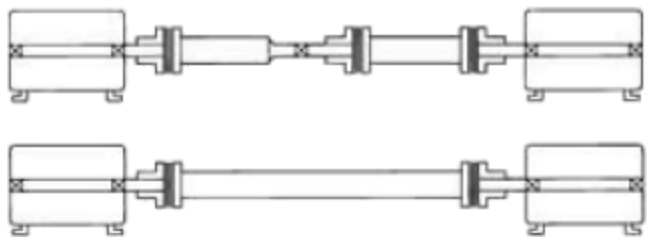
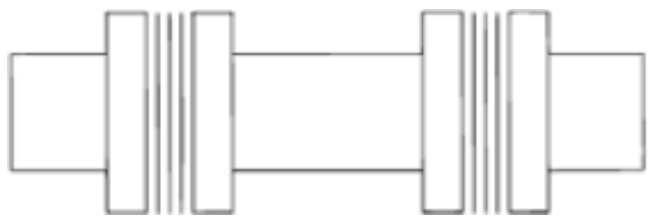
COUPLING/APPLICATION TYPES

COUPLING TYPE	TYPICAL APPLICATIONS		SERIES
SINGLE FLEX	Single flexing couplings compensate for angular and axial misalignment only. Single couplings should only be used in a three bearing system with a self-aligning bearing as shown in the illustration. Single couplings may also be used in pairs to support a clutch, transducer or other system component. These arrangements are double flexing and must be used with two fully supported shafts as described below.		AR BH HH
CLOSE COUPLE DOUBLE FLEX	Close couple designs accommodate angular, parallel and axial misalignment types where two fully supported shafts are located very close together. Close shaft separations are generally in the range of 1/8 to 2 inches.		AX AA AY BY BA DA
SPACER COUPLINGS DOUBLE FLEX	Spacer couplings are used to connect fully supported shafts with wider separations than can be reached with a close couple design. Spacer couplings allow room for installation and maintenance without moving the connected equipment. Shaft separations are generally in the range of 3 to 12 inches. These couplings accommodate angular, parallel and axial misalignment.		AK AP BP BF DP HSH FSH
FLOATING SHAFT COUPLINGS	Floating shaft couplings are spacer style couplings which are designed to connect widely separated shafts.The coupling spacers are fabricated. Both steel and TrueTube composite tubing options are available. Semi-floating shaft couplings are a special single flex version of the floating shaft coupling. These may be used alone for some applications or in combination with floating shaft couplings and pillow block bearings to span long distances. Composite floating shaft couplings should be considered as an alternative to mutiple span applications with centre bearings.	 	A5 A7 B5 HFTH C/S
MICRO COUPLINGS DOUBLE FLEX	Form-Flex Micro Couplings are used for precision low torque applications.They are a smaller version of our 4 bolt line. Micro Couplings are constructed of aluminum for reduced inertia. Close couple and spacer designs are available.		MA MB MC

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SELECTING AND ORDERING FORM-FLEX COUPLINGS

1. Select correct service factor from the chart below.
2. Calculate HP @ 100 or Design Torque (in lbs).

$$\textbf{HP @ 100} = \frac{\textbf{HP x service factor x 100}}{\textbf{coupling RPM}}$$

OR

$$\textbf{Design Torque (in lbs)} = \frac{\textbf{63025 x HP x service factor}}{\textbf{coupling RPM}}$$

OR

Design Torque = Torque (in lbs) x Service Factor

3. Compare this to the HP @ 100 column or the Rated Torque column.
4. Check other limiting factors such as bores and overall dimensions.
5. Standard Four or Six bolt couplings can be ordered as hubs and a centre assembly. All other couplings should be ordered by description.

SERVICE FACTOR TABLE

These service factors assume a smooth motor or turbine type driver. The adders listed for other driver types must be added to the service factor shown for the driven equipment.

ADDERS FOR DRIVER TYPE		DRIVEN EQUIPMENT	S.F.	DRIVEN EQUIPMENT	S.F.	DRIVEN EQUIPMENT	S.F.
DRIVER	**ADD**	**CONVEYORS** - Uniform Load (cont.)		**FANS**		PAPER MILLS - (cont.)	
TURBINE	0	Flight	1.25	Centrifugal	1.00	Couch	1.75
AC MOTORS		Oven	1.50	Cooling Tower	2.00	Cutters, Platers	2.00
With Soft Start	0	Screw	1.25	**FEEDERS**		Cylinders	1.75
NEMA A or B	0	**CONVEYORS** - Non-uniform Load		Aprons	1.25	Dryers	1.75
NEMA C or D	1	Apron	1.50	Belt	1.25	Felt Stretchers	1.25
DC MOTORS		Assembly	1.25	Disc	1.25	Felt Whipper	2.00
Shunt Type	0	Belt	1.25	Reciprocating	2.50	Presses	2.00
Series or Compund	1	Bucket	1.50	Screw	1.25	Reel	1.50
I/C ENGINES		Chain	1.50	**FOOD INDUSTRY**		Stock Chests	1.50
8 or more Cylinders	1	Flight	1.50	Cereal Cookers	1.25	Suction Roll	1.75
4-6 Cylinders	1.5	Oven	1.50	Dough Mixers	1.75	Washers and Thickeners	1.50
1-3 Cylinders	2	Reciprocating	2.50	Meat Grinders	1.75	Winders	1.50
DRIVEN EQUIPMENT	**S.F.**	Screw	1.50	Slicers	1.75	**PRINTING PRESSES**	1.50
		Shaker	2.50	**LUMBER INDUSTRY**		**PUMPS**	
AGITATORS		**CRANES AND HOISTS**		Barkers-Drum Type	2.00	Centrifugal	1.00
Pure Liquids	1.00	Main Cranes	2.00	Edger Feeders	2.00	Reciprocating Double Acting	2.00
Liquids and Solids	1.25	Reversing	2.00	Live Rolls	2.00		
Liquids - Variable Density	1.25	Skip Hoists	1.75	Log Haul	2.00	Single Acting 1-2 Cylinders	2.25
BLOWERS		Trolley Drive	1.75	Off Bearing Rolls	2.00	Single Acting 3+ Cylinders	1.75
Centrifugal	1.00	Bridge Drive	1.75	Planers	1.75	Rotary-Gear, Lobe, Vane	1.50
Lobe	1.50	Slope	1.50	Slab Conveyors	1.50	**TEXTILE INDUSTRY**	
Vane	1.25	**DREDGES**		Sorting Table	1.50	Batchers	1.25
BRIQUETTER MACHINE	1.00	Cable Reels	1.75	Trimmer Feed	1.75	Calendars	1.75
CAN FILLING MACHINE	1.00	Conveyors	1.50	**MACHINE TOOLS**		Card Machines	1.50
COMPRESSORS		Maneuvering Winches	1.75	Bending Roll	2.00	Cloth Finishing Machines	1.50
Centrifugal	1.25	Pumps	1.75	Plate Planer	1.50	Dry Cans	1.75
Lobe	1.50	Screen Drives	1.75	Spindle Drives	1.50	Dryers	1.50
Reciprocating	C/F	Stracers	1.75	Table/Axis Drives	1.25	Dyeing Machinery	1.25
CONVEYORS - Uniform Load		Utility Winches	1.50	Tapping Machines	2.50	Looms	1.50
Apron	1.25	**ELEVATORS**		**PAPER MILLS**		Mangles	1.25
Assembly	1.00	Bucket	1.75	Beater and Pulper	1.75	Nappers	1.25
Belt	1.00	Centrifugal Discharge	1.50	Bleacher	1.00	Soapers	1.25
Bucket	1.25	Freight	2.00	Calendars	2.00	Spinners	1.50
Chain	1.25	Gravity Discharge	1.50	Converting Machines	1.50	**TINTER FRAMES**	1.50

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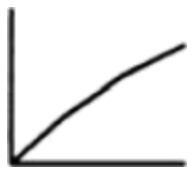
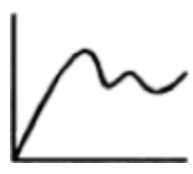
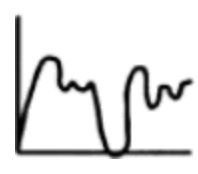
COUPLING SELECTION GUIDE

1. Consult factory for applications in shaded areas.
2. Torque ratings may vary by coupling series.
3. Use the 1.0 service factor column if a service factor was used in the Hp/100 RPM calculation.

TYPICAL APPLICATION CONDITIONS						
Smooth motor or turbine driven	Steady motor or turbine driven	Moderate motor or turbine driven	Medium motor or turbine driven	Heavy-high TQ, motor or engine driven	Extra heavy engine driven	Extremely heavy engine driven
						
Soft start with steady load	Average starting loads and slight torque variations	Above average starting loads and moderate load variations	High starting• torques and medium to heavy load variations	Mild shock loading engines. Driving smooth loads. Extreme reliability	Heavy shock loading or light reversing	Extreme shock loading. Frequent wide torque variations

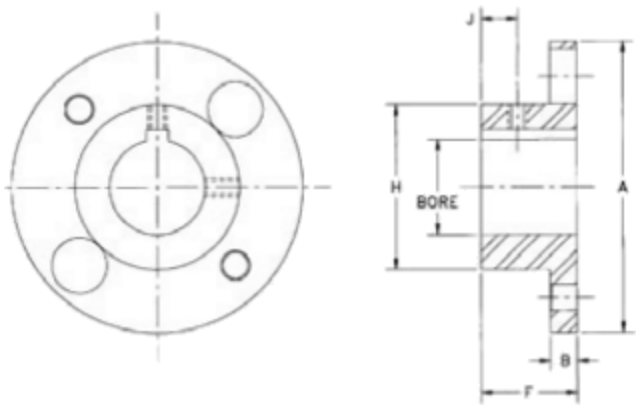
Type/Size		RATED TORQUE LB*IN	MAX RPM	O.D.	MAX BORE	SERVICE FACTOR 1.0	1.5	2.0	2.5	3.0	3.25	4.0
						RATED HP/100RPM AT SERVICE FACTOR SHOWN						
Micro 4 bolt	01	9	20,000	1.02	0.38	0.01	0.01	0.01				
	02	17	20,000	1.26	0.59	0.03	0.02	0.01				
	03	35	20,000	1.65	0.79	0.06	0.04	0.03				
	04	87	20,000	2.24	0.79	0.14	0.09	0.07				
A Series 4 bolt	05	300	8,500	2.65	0.87	0.48	0.32	0.24	0.19	NOT RECOMMENDED FOR THESE APPLICATIONS		
	10	800	7,500	3.19	1.25	1.27	0.85	0.63	0.51			
	15	1.575	6,700	3.65	1.37	2.50	1.67	1.25	1.00			
	20	2,200	6,200	4.08	1.62	3.49	2.33	1.75	1.40			
	25	3,800	5,500	4.95	2.00	6.03	4.02	3.02	2.41			
	30	6,930	5,000	5.63	2.37	11.00	7.33	5.50	4.40			
	35	11,340	4,400	6.63	2.87	18.00	12.00	9.00	7.20			
	40	18,270	4,000	7.64	3.25	29.00	19.33	14.50	11.60			
	45	30,240	3,700	8.43	3.25	48.00	32.00	24.00	19.20			
B Series 6 bolt	33	3,050	17,400	4.69	2.50	4.84	3.23	2.42	1.94	1.61	1.49	
	38	6,860	14,300	5.87	3.25	10.89	7.26	5.44	4.36	3.63	3.35	
	43	13,500	12,700	6.70	3.75	21.43	14.29	10.71	8.57	7.14	6.59	
	48	18,400	11,000	7.50	4.38	29.21	19.47	14.60	11.68	9.74	8.99	
	53	24,000	10,700	7.87	4.50	38.10	25.40	19.05	15.24	12.70	11.72	
	58	41,000	9,475	9.00	5.13	65.08	43.39	32.54	26.03	21.69	20.02	
	63	48,000	8,590	10.00	5.50	76.19	50.79	38.10	30.48	25.40	23.44	
	68	72,000	7,800	10.75	6.00	114.29	76.19	57.14	45.71	38.10	35.16	
	73	125,000	6,740	12.50	6.50	198.41	132.28	99.21	79.37	66.14	61.05	
	78	233,000	5,600	15.05	7.50	369.84	246.56	184.92	147.94	123.28	113.8	
D Series 8 bolt	22	9,500	3,800	6.00	2.25	15.08	10.05	7.54	6.03	5.03	4.64	3.77
	26	16,000	3,300	6.88	2.63	25.40	16.93	12.70	10.16	8.47	7.81	6.35
	31	24,000	2,800	8.13	3.13	38.10	25.40	19.05	15.24	12.70	11.72	9.52
	35	44,000	2,600	9.13	3.63	69.84	46.56	34.92	27.94	23.28	21.49	17.46
	37	60,000	2,500	10.06	3.75	95.24	63.49	47.62	38.10	31.75	29.30	23.81
	42	73,000	2,400	11.00	4.50	115.87	77.25	57.94	46.35	38.62	35.65	28.97
	45	99,000	2,250	11.88	4.75	157.14	104.76	78.57	62.86	52.38	48.35	39.29
	50	128,000	2,000	13.44	5.50	203.17	135.45	101.59	81.27	67.72	62.52	50.79
	55	189,000	1,800	15.00	6.25	300.00	200.00	150.00	120.00	100.00	92.31	75.00
	60	261,000	1,600	16.75	7.12	414.29	276.19	207.14	165.71	138.10	127.47	103.57
	70	415,000	1,400	18.94	7.87	658.73	439.15	329.37	263.49	219.58	202.69	164.68
	75	533,000	1,300	20.63	8.75	846.03	564.02	423.02	338.41	282.01	260.32	211.51
	80	685,000	1,200	22.38	9.12	1,087.30	724.87	543.65	434.92	362.43	334.55	271.83
	85	829,000	1,100	23.75	9.62	1,315.87	877.25	657.94	526.35	438.62	404.88	328.97
	92	1,040,000	1,000	25.75	11.00	1,650.79	1,100.53	825.40	660.32	550.26	507.94	412.70
	105	1,250,000	1,000	29.25	12.00	1,984.13	1,322.75	992.06	793.65	661.38	610.50	496.03
	160	2,000,000	900	33.50	17.00	3,174.60	2,116.40	1,587.30	1,269.84	1,058.20	976.80	793.65

4 BOLT COUPLING HUB OPTIONS

To order a complete coupling, order two hubs of any time and a coupling (spacer) sub assembly for the required coupling type. All dimensions shown in inches.

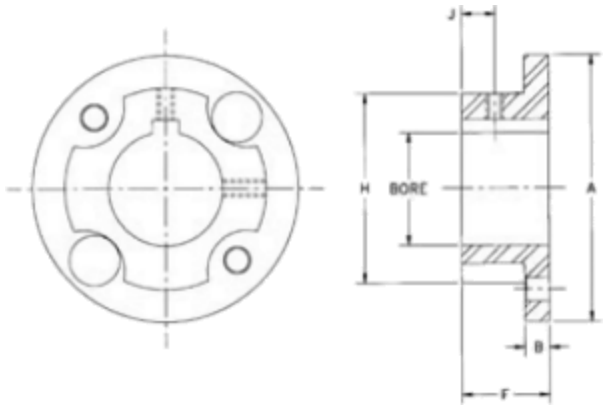
AJ Standard Hubs

Provided with straight bore and keyway solid hubs available from stock



AZ Oversize Bore Hubs

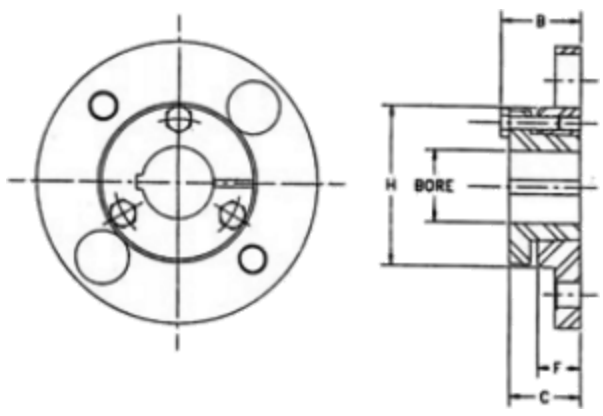
Provided with straight bore and keyway



Size	Max Bore	A	B	F	H	J	STD Set Screw Size	Size	Max Bore	A	B	F	H	J	STD Set Screw Size
05	0.87	2.65	0.25	1.00	1.30	0.38	10-24 UNC	05	1.13	2.65	0.25	1.00	1.88	0.38	10-24 UNC
10	1.25	3.19	0.30	1.00	1.30	0.38	1/4-20 UNC	10	1.63	3.19	0.30	1.00	2.37	0.38	1/4-20 UNC
15	1.37	3.65	0.35	1.13	2.00	0.41	1/4-20 UNC	15	1.88	3.65	0.35	1.13	2.69	0.41	1/4-20 UNC
20	1.62	4.08	0.35	1.32	2.40	0.50	1/4-20 UNC	20	2.13	4.08	0.35	1.32	3.13	0.50	1/4-20 UNC
25	2.00	4.95	0.45	1.62	2.80	0.63	5/16-18 UNC	25	2.38	4.95	0.45	1.62	3.75	0.63	5/16-18 UNC
30	2.38	5.63	0.55	1.88	3.30	0.69	5/16-18 UNC	30	2.88	5.63	0.55	1.88	4.25	0.69	5/16-18 UNC
35	2.88	6.63	0.55	2.25	4.15	0.88	1/2-13 UNC	35	3.75	6.63	0.55	2.25	5.25	0.88	1/2-13 UNC
40	3.25	7.64	0.65	2.50	4.65	0.94	1/2-13 UNC	40	4.00	7.64	0.65	2.50	6.02	0.94	1/2-13 UNC
45	3.75	8.43	0.65	3.00	5.40	1.20	1/2-13 UNC	45	4.63	8.43	0.65	3.00	6.75	1.20	1/2-13 UNC

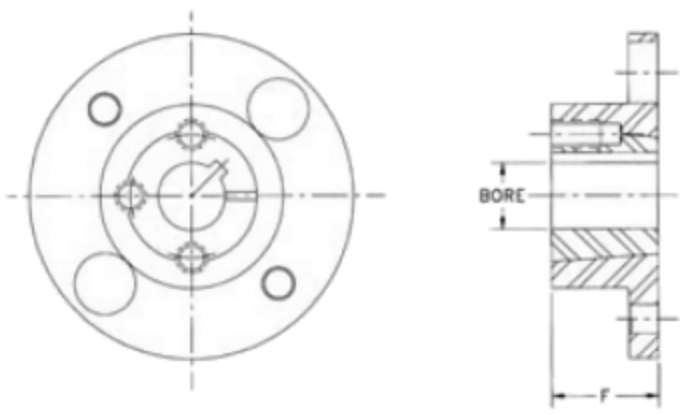
QD Bored Hubs

Material class A or B only - available from stock



Hubs for Taper Lock Bushings

Available MTO only

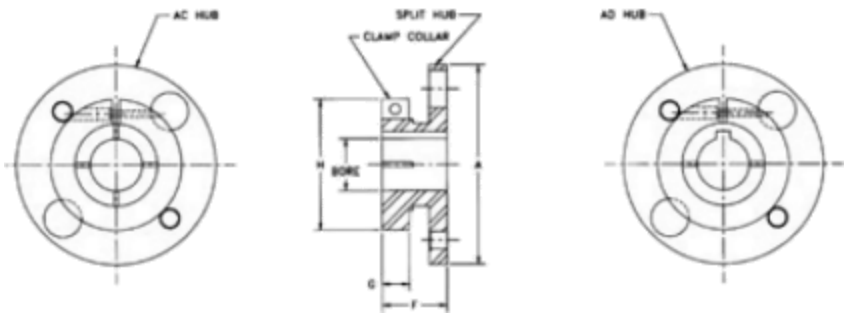


CPLG SIZE	BUSH SIZE	BUSH TQ. LB*IN	MAX BORE	B	C	F	H	BOLT SIZE UNC	CPLG SIZE	REGULAR MOUNT				REVERSE MOUNT			
										BUSH SIZE	BUSH TQ. LB*IN	MAX BORE	F	BUSH SIZE	BUSH TQ. LB*IN	MAX BORE	F
15	JA	1000	1-1/4	1.17	1.00	0.56	2.00	#10	15	N/A	---	---	---	1108	1300	1.12	0.87
20	JA	1000	1-1/4	1.17	1.00	0.56	2.40	#10	20	1108	1300	1.12	0.87	1215	3550	1.25	1.50
25	SH	3500	1-11/16	1.50	1.25	0.75	2.80	1/4	25	1215	3550	1.25	1.50	1310	3850	1.37	1.00
30	SD	5000	2	2.06	1.81	1.25	3.30	1/4	30	1310	3850	1.37	1.00	1615	4300	1.62	1.50
35	SK	7000	2-5/8	2.19	1.87	1.25	4.15	5/16	35	2012	7150	2.00	1.25	2517	11600	2.50	1.75
40	SF	11000	2-15/16	2.38	2.06	1.37	4.65	3/8	40	2525	11300	2.50	2.50	2525	11300	2.50	2.50

4 BOLT COUPLING HUB OPTIONS CONT.

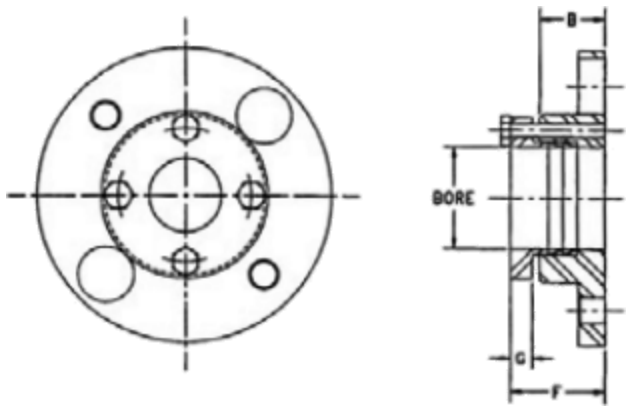
AC/AD Clamping Hubs

AC Hubs provided without keyway
AD Hubs provided with keyway
Material class A or B only



AL Lock Element Hubs

These hubs are ringfeder tapered locking elements
Material class A or B only



Size	Max Bore		A	F	G	H	Screw Size
	AC	AD					
05	1.00	0.87	2.65	1.13	.50	2.06	1/4-20 UNC
10	1.00	0.87	3.19	1.18	.50	2.06	1/4-20 UNC
	1.50	1.25		1.36	.69	2.75	5/16-18 UNC
15	1.00	0.87	3.65	1.27	.50	2.06	1/4-20 UNC
	1.75	1.37		1.46	.69	3.00	5/16-18 UNC
20	1.31	1.00	4.08	1.32	.55	2.38	1/4-20 UNC
	2.12	1.62		1.52	.75	3.50	3/8-16 UNC
25	2.13	1.62	4.95	1.62	.64	3.50	5/16-18 UNC
	2.50	1.87		1.86	.88	4.00	3/8-16 UNC

Size	Hub Type	Max Bore		B	F	G	Screw Size
		Min	Max				
05	AJ	6	13	1.00	1.32	.32	10-32 UNF
	AZ	14	19	1.00	1.42	.42	1/4-28 UNF
10	AJ	12	18	1.00	1.42	.42	1/4-28 UNF
	AZ	19	30	1.00	1.42	.42	1/4-28 UNF
15	AJ	12	22	1.13	1.55	.42	1/4-28 UNF
	AZ	24	35	1.13	1.55	.42	5/16-24 UNF
20	AJ	22	30	1.32	1.78	.42	1/4-28 UNF
	AZ	32	42	1.32	1.83	.51	5/16-24 UNF
25	AJ	22	32	1.63	2.05	.42	1/4-28 UNF
	AZ	35	50	1.63	2.23	.60	3/8-24 UNF

NOTE: AC and AL Hubs do not carry full torque capacity. Please consult engineering.

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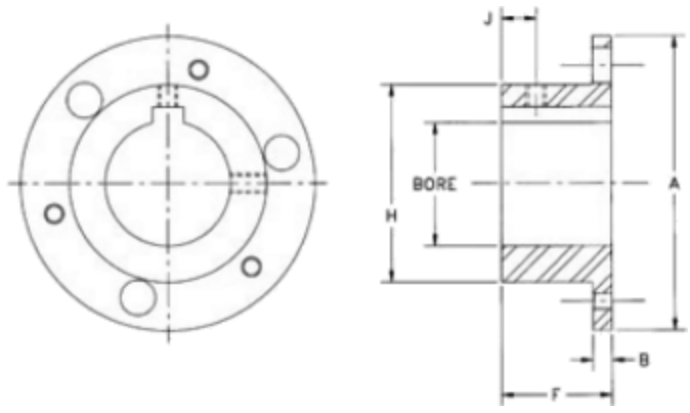
COUPLING HUB OPTIONS

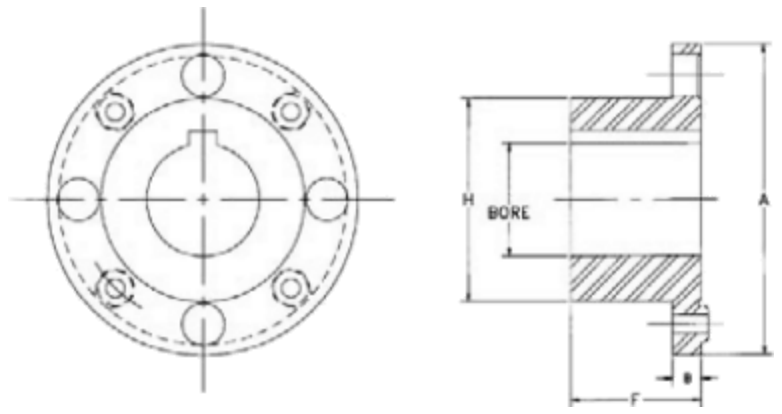
6 Bolt Coupling Hubs

BH series-used on BH, BP, B5, BY series
Provided with straight bore and keyway
Interference fit without setscrews is recommended



8 Bolt Coupling Hubs

Dxx-3 Cast Iron Material, Dxx-3ST Cast Steel Material
Used on HH, HSH, FSH, HFTH series
Interference fit without setscrews is recommended



Size	Max Bore	A	B	F	H	J	Optional Set Screw Size
33	2.25	4.69	0.30	1.75	3.14	0.88	1/4-20 UNC
38	3.00	5.87	0.35	2.25	4.13	1.13	3/8-16 UNC
43	3.25	6.70	0.42	2.50	4.63	1.25	3/8-16 UNC
48	3.75	7.50	0.40	2.75	5.40	1.50	1/2-13 UNC
53	3.88	7.87	0.55	2.88	5.65	1.44	1/2-13 UNC
58	4.25	9.00	0.65	3.25	6.22	1.63	1/2-13 UNC
63	4.88	10.00	0.65	3.38	7.14	1.69	3/4-10 UNC
68	5.00	10.75	0.75	3.75	7.33	1.88	3/4-10 UNC
73	5.25	12.50	1.00	5.13	7.80	2.50	3/4-10 UNC
78	6.50	15.05	1.15	6.38	9.50	3.12	3/4-10 UNC

Size	Max Bore		A	B	F	H
	Iron	Steel				
22	2.25	–	6.00	0.53	2.50	3.88
26	2.62	–	6.87	0.62	2.88	4.50
31	3.12	–	8.12	0.69	3.38	5.50
35	3.62	–	9.12	0.88	3.75	6.12
37	3.75	–	10.06	0.88	4.00	6.50
42	4.25	4.50	11.00	1.00	4.25	7.00
45	4.50	4.75	11.87	1.13	4.50	7.43
50	5.12	5.50	13.43	1.25	5.00	9.50
55	5.62	6.25	15.00	1.25	5.50	9.50
60	6.50	7.12	16.75	1.44	6.25	10.50
70	7.00	7.87	18.93	1.75	7.00	11.75
75	7.75	8.75	20.62	1.75	7.25	13.00
80	8.00	9.12	22.37	2.09	7.75	13.75
85	8.50	9.62	23.75	2.13	8.25	14.50
92	10.00	11.00	25.75	2.62	9.00	15.87

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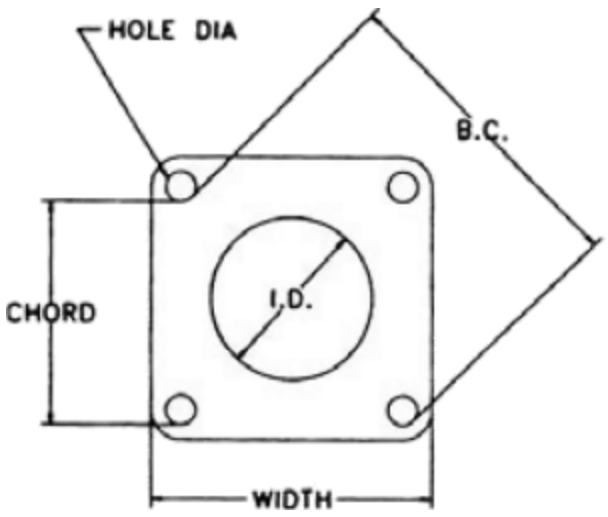
FORM-FLEX DISC IDENTIFICATION CHART

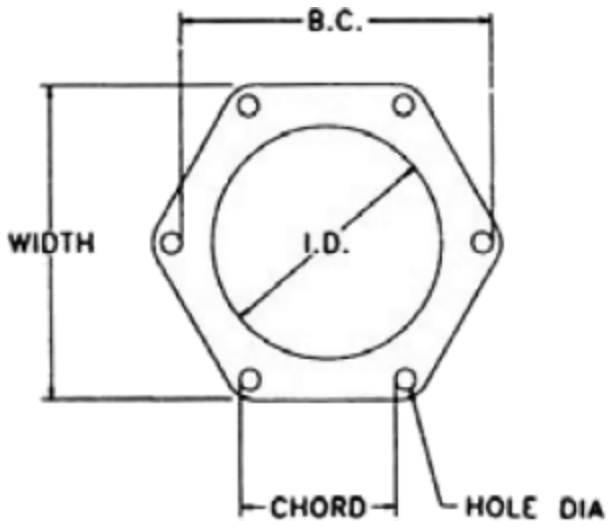
All dimensions are rounded to the nearest fractional size for identification purposes.
No tolerances are specified or implied.
Disc set thickness varies for type BA and DA.

4 BOLT DISCS



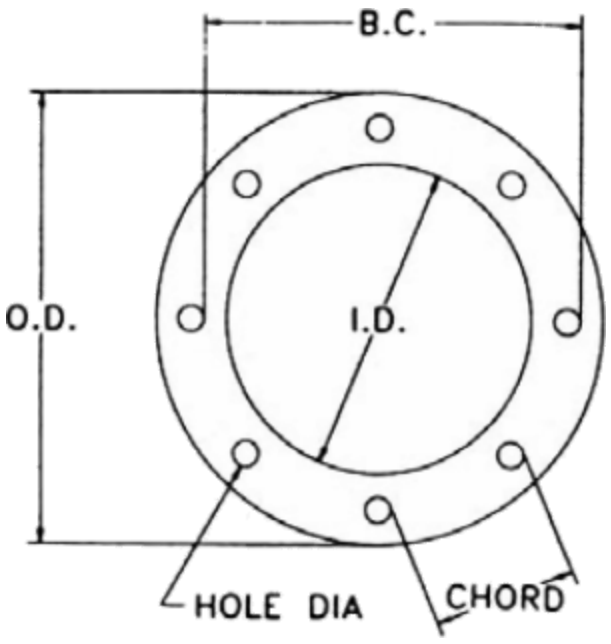
Size	Width	I.D.	Hole Dia	B.C. Dia	Chord	Disc Set Thickness
05	1-13/16	1	1/4	1-7/8	1-5/16	0.06
10	2-3/16	1-3/16	1/4	2-3/8	1-5/8	0.09
15	2-9/16	1-1/4	5/16	2-5/8	1-7/8	0.12
20	2-13/16	1-5/8	5/16	3-1/8	2-3/16	0.14
25	3-9/6	1-3/4	7/16	3-3/4	2-5/8	0.15
30	4	2-1/16	1/2	4-1/4	3	0.18
35	4-3/4	2-3/4	1/2	5-1/4	3-3/4	0.28
40	5-1/2	3	5/8	6	4-1/4	0.30
45	6-1/16	3-1/2	5/8	6-3/4	4-3/4	0.40
50	7	4	3/4	7-3/4	5-1/2	0.43
55	7-3/4	4-1/4	1	8-1/2	6	0.51

6 BOLT DISCS



Size	Width	I.D.	Hole Dia	B.C. Dia	Chord	Disc Set Thickness
33	3-3/4	2-3/4	1/4	3-3/4	1-7/8	0.10
38	4-13/16	3-9/16	5/16	4-7/8	2-7/16	0.13
43	5-11/6	3-15/16	7/16	5-9/16	2-7/8	0.16
48	6-3/8	4-5/8	7/16	6-3/8	3-3/16	0.19
53	6-3/4	4-3/4	1/2	6-5/8	3-5/16	0.24
58	7-3/4	5-1/4	5/8	7-7/16	3-3/4	0.25
63	8-1/2	6	5/8	8-3/8	4-3/16	0.30
68	9-1/4	6-1/4	3/4	9-15/16	5	0.34
73	10-5/8	6-5/8	1	10	5	0.44
78	13-9/16	7-7/8	1-1/4	12	6	0.54

8 BOLT DISCS



Size	Width	I.D.	Hole Dia	B.C. Dia	Chord	Disc Set Thickness
22	5-5/8	3-7/8	5/16	4-3/4	1-13/16	0.17
26	6-9/16	4-7/16	13/32	5-1/2	2-1/8	0.23
31	7-3/4	5-1/4	15/32	6-1/2	2-1/2	0.25
35	8-5/8	5-3/4	17/32	7-1/4	2-3/4	0.29
37	9-5/8	6-5/16	5/8	8	3-1/16	0.31
42	10-1/2	6-3/4	11/16	8-5/8	3-5/16	0.31
45	11-1/4	7-1/4	3/4	9-1/4	3-1/2	0.37
50	12-13/16	8-1/2	7/8	10-1/2	4	0.46
55	14-3/8	9	1	11-3/4	4-1/2	0.54
60	15-15/16	9-15/16	1-1/8	13	5	0.59
70	18-1/8	11-1/8	1-5/16	14-3/4	5-5/8	0.78
75	19-3/4	12	1-7/16	16	6-1/8	0.80
80	21-7/16	13-1/8	1-9/16	17-3/8	6-5/8	0.81
85	22-7/8	14	1-3/4	18-1/2	7-1/8	0.87
92	24-7/8	15	1-7/8	20	7-5/8	1.00

ENGINEERING STANDARDS FORM-FLEX COUPLINGS

Industry Standards Referenced

AGMA 9002--A86-BORES AND KEYWAYS FOR FLEXIBLE COUPLINGS
AGMA 9000-C90-FLEXIBLE COUPLINGS - POTENTIAL UNBALANCED CLASSIFICATION
AGMA514.02-LOAD CLASSIFICATION AND SERVICE FACTORS FOR FLEXIBLE COUPLINGS
AP1610-CENTRIFUGAL PUMPS FOR GENERAL REFINERY SERVICE, 7th Edition-BF and BP series meet the requirements of AP1610, 7th Edition when supplied with interference fit bores. Other coupling series can be altered to comply with AP1610.
NEMA MG1-14.37 AND MG1-21.81-All Form-Flex metal disc couplings meet these standards without limited end float devices.

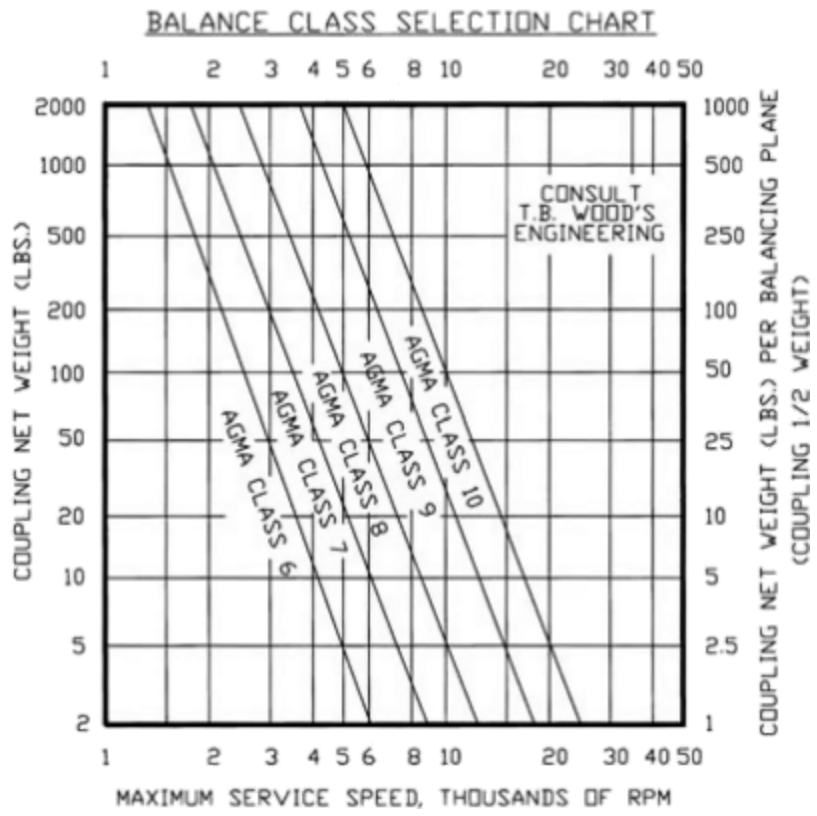
Certain tables and data in this catalogue were extracted from the reference AGMA standards with the permission of the publisher, the American Gear Manufacturers Associations, 1901 North Meyer Drive, Arlington, VA 22209.

Material Classes Applicable to 4 and 6 Bolt Designs

CLASS A	Mild steel hubs and spacer, alloy steel hardware, 300 series stainless steel flex discs
CLASS B	Zinc plated mild steel hubs and spacer, alloy steel hardware, 300 series stainless steelflex discs
CLASS C	Zinc plated mild steel hubs and spacer, 300 series stainless steel hardware and flex discs
CLASS E	All 300 series stainless steel construction

Dynamic Balancing Recommendations

Use this graph to determine the appropriate balance class based on coupling weight and operating speed. The balance classes listed on the graph are for equipment with average sensitivity to coupling unbalance. The user should determine how sensitive the equipment train is to coupling unbalance. Use one balance class higher if your system has higher than average sensitivity to unbalance. Use one balance class lower if your system has lower than average sensitivity to unbalance. Use this guide to check your coupling selection against the recommended balance class for your operating conditions.



The following factors should be considered when determining a machine's sensitivity to coupling unbalance.

1. Shaft End Deflection: Machines having flexible shaft extensions are relatively sensitive to coupling unbalance.

2. Bearing Load Due to Coupling Weight Relative To Total Bearing Load: Machines have lightly loaded bearings, bearings that are primarily loaded by the weight of the coupling or other overhung weight are relatively sensitive to coupling unbalance.

3. Bearing, Bearing Support and Foundation Flexibility: Machines or systems with flexible foundations for supports for the rotating elements are relatively sensitive to coupling unbalance.

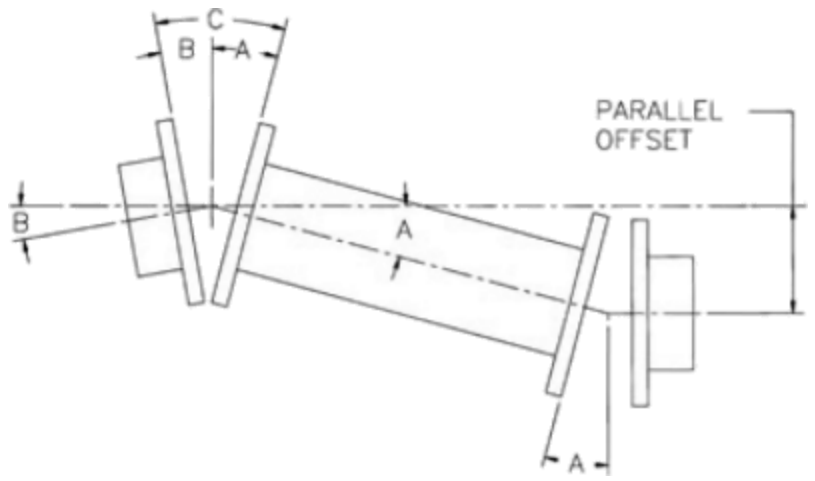
4. System Natural Frequencies: Machines operating at or near natural frequencies are sensitive to coupling unbalance.

5. Machine Separation: Systems having widely separated machines are relatively sensitive to coupling unbalance.

6. Shaft Extension Relative to Bearing Span: Machines having a short bearing span relative to their shaft extensions are sensitive to static unbalance.

ENGINEERING STANDARDS FORM-FLEX COUPLINGS CONT.

How Form-Flex Couplings Accommodate Misalignment



Double flexing metal disc couplings may be used to accommodate angular, parallel and axial misalignment. Single flexing couplings may only be used to accommodate angular and axial misalignment. A metal disc type coupling uses a double hinge effect through two flexible discs and spacer to compensate for parallel offset misalignment between shafts. Parallel misalignment imposes the same angular deflection (A) on each flex disc. Angular misalignment of either connected shaft (B) creates additional angular deflections which are added to the angular offset due to parallel misalignment. The total misalignment angle (C) at the flex disc is equal to the angular offset misalignment (B). The maximum misalignment angle (C) should never exceed the rated misalignment capacity of the coupling type being used. Machinery equipment changes in actual operation and over the life of the equipment. We recommend that the machinery misalignment be set as close to zero as possible when a coupling is installed. We recommend keeping the measured misalignment below 25% of the rated misalignment capacity of the coupling type used when the machinery is installed and aligned. The remaining coupling misalignment capacity will then be available to accommodate additional misalignment caused by foundation shifts, vibrations, thermal growth or other causes.

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ENGINEERING STANDARDS FORM-FLEX COUPLINGS

Product Features and Options

FEATURE	AR, AK, AP, AX, AY	BH, BP, BY, DP*	BF	BA, DA*	A5, A7	B5	HFTH	HH, HSH, FSH
STANDARD BORE FIT	Clearance	Interference			Clearance	Interference		
SET SCREWS	Standard	Optional			Standard	Optional		
PULLER HOLES	Optional	Standard			Optional	Standard	Optional	
STANDARD FLEX DISCS	300 Series Stainless Steel*						Alloy Steel	
BALANCE CLASS	AGMA 7	AGMA 8	AGMA 9	AGMA 7	N/A		N/A	
DYNAMIC BALANCE	Optional				Per TBW Commercial Standard		N/A	

* Alloy steel flex disc is standard for DA and DP series. Stainless steel is optional.

Standard Bore Tolerances (Imperial)

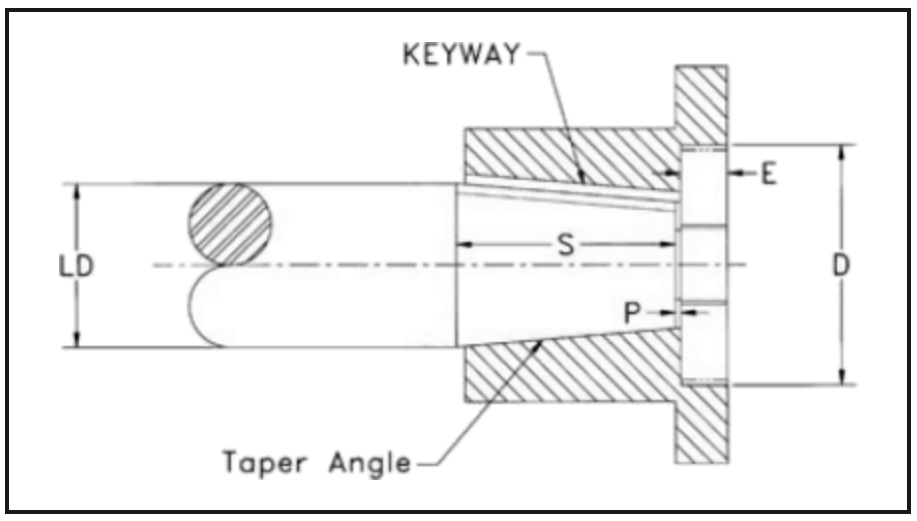
INCH SIZE	SIZE	KEYWAY SIZE	BORE TOLERANCES	
			CLEARANCE FIT	INTERFERENCE FIT
1/2	12	1/8 x 1/16	.500/.501	---
5/8	58	3/16 x 3/32	.625/.626	---
3/4	34	3/16 x 3/32	.750/.751	.7490/.7495
7/8	78	3/16 x 3/32	.875/.876	.8740/.8745
15/16	15/16	1/4 x 1/8	.9375/.9385	.9365/.9370
1	1	1/4 x 1/8	1.000/1.001	.9990/9995
1-1/8	118	1/4 x 1/8	1.125/1.126	1.1240/1.1245
1-3/16	1316	1/4 x 1/8	1.1875/1.1885	1.1865/1.1870
1-1/4	114	1/4 x 1/8	1.250/1.251	1.2490/1.2495
1-3/8	138	5/16 x 5/32	1.375/1.376	1.3740/1.3745
1-7/16	1716	3/8 x 3/16	1.4375/1.4385	1.4365/1.4370
1-1/2	112	3/8 x 3/16	1.500/1.501	1.4990/1.4995
1-5/8	158	3/8 x 3/16	1.625/1.626	1.623/1.624
1-3/4	134	3/8 x 3/16	1.750/1.751	1.748/1.749
1-7/8	178	1/2 x 1/4	1.875/1/876	1.873/1.874
1-15/16	11516	1/2 x 1/4	1.9375/1.9385	1.9355/1.9365
2	2	1/2 x 1/4	2.000/2.001	1.998/1.999
2-1/8	218	1/2 x 1/4	2.1250/2.1265	2.123/2.124
2-1/4	214	1/2 x 1/4	2.2500/2.2515	2.248/2.249
2-3/8	238	5/8 x 5/16	2.3750/2.3765	2.373/2.374
2-7/16	2716	5/8 x 5/16	2.4375/2.4390	2.4355/2.4365
2-1/2	212	5/8 x 5/16	2.500/2.5015	2.498/2.499
2-5/8	258	5/8 x 5/16	2.6250/2.6265	2.623/2.624
2-3/4	234	5/8 x 5/16	2.7500/2.7515	2.748/2.749
2-7/8	278	3/4 x 3/8	2.8750/2.8765	2.873/2.874
2-15/16	21516	3/4 x 3/8	2.9375/2.9390	2.9355/2.9365
3	3	3/4 x 3/8	3.000/3.0015	2,998/2.999
3-1/4	314	3/4 x 3/8	3.2500/3.2515	3.2470/3.2485
3-3/8	338	7/8 x 7/16	3.3750/3.3765	3.3720/3.3735
3-1/2	312	7/8 x 7/16	3.5000/3.5015	3.4970/3.4985
3-5/8	358	7/8 x 7/16	3.6250/3.6265	3.6220/3.6235
3-3/4	334	7/8 x 7/16	3.7500/3.7515	3.7470/3.7485
4	4	1 x 1/2	4.000/4.0015	3.9970/3.9985
4-1/4	414	1 x 1/2	4.2500/4.2515	4.2465/4.2480
4-1/2	412	1 x 1/2	4.5000/4.5015	4.4965/4.4980
4-3/4	434	1-1/4 x 5/8	4.7500/4.7515	4.7465/4.7480
5	5	1-1/4 x 5/8	---	4.9965/4.9980
5-1/4	514	1-1/4 x 5/8	---	5.2460/5.2475
5-1/2	512	1-1/4 x 5/8	---	5.4960/5.4975
5-3/4	534	1-1/2 x 3/4	---	5.7460/5.7475

ENGINEERING STANDARDS FORM-FLEX COUPLINGS CONT.

Standard Bore Tolerances (Metric)

METRIC SIZE	SIZE CODE	KEYWAY SIZE	BORE TOLERANCE CLEARANCE FIT
6	6mm	2 x 1	.236/.237
8	8mm	2 x 1	.315/.316
10	10mm	3 x 1.4	.394/.395
12	12mm	4 x 1.8	.4725/.4735
13	13mm	5 x 2.3	.512/.513
14	14mm	5 x 2.3	.551/.552
15	15mm	5 x 2.3	.591/.592
16	16mm	5 x 2.3	.630/.631
18	18mm	6 x 2.8	.709/.710
20	20mm	6 x 2.8	.7875/.7885
22	22mm	6 x 2.8	.866/.867
24	24mm	8 x 3.3	.945/.946
25	25mm	8 x 3.3	.984/.985
28	28mm	8 x 3.3	1.1025/1.1035
30	30mm	8 x 3.3	1.181/1.182
32	32mm	10 x 3.3	1.260/1.261
35	35mm	10 x 3.3	1.378/1.379
38	38mm	10 x 3.3	1.496/1.497
40	40mm	12 x 3.3	1.575/1.576
45	45mm	14 x 3.8	1.772/1.773
48	48mm	14 x 3.8	1.890/1.891
50	50mm	14 x 3.8	1.969/1.970
55	55mm	16 x 4.3	2.1655/2.1670
60	60mm	18 x 4.4	2.3620/2.3635
65	65mm	18 x 4.4	2.5590/2.5605
70	70mm	20 x 4.9	2.7560/2.7575
75	75mm	20 x 4.9	2.9530/2.9545
80	80mm	22 x 5.4	3.1500/3.1515
85	85mm	22 x 5.4	3.3465/3.3480
90	90mm	25 x 5.4	3.5435/3.5450
95	95mm	25 x 5.4	3.7400/3.9385
100	100mm	28 x 6.4	3.9370/3.9385
110	110mm	28 x 6.4	4.3310/4.3325

KEYWAY TOLERANCES		
WIDTH	English	+ .002”/–0.000”
	Metric	+ .001”/–0.000”
HEIGHT AT SIDE OF KW	Bore < = 3.375”	+ .015”/–0.000”
	Bore > 3.375”	+ .020”/–0.000”



Bore tolerances in inches
Keyway sizes in mm

SPECIFYING TAPERED BORES

Please provide the following information for taper bore hubs:

1. Drawing of HUB showing bore and keyway details

OR

2. Drawing of shaft showing:
(LD) Large diameter, specify with tolerance
(S) Length of taper, measure parallel to shaft centreline
(T) Taper angle. Specify as degrees, taper per foot or a percentage
(P) Desired pull-up of hub on shaft
(D) Counterbore diameter as required
(E) Counterbore depth as required
Keyway or shaft keyseat dimensions. Specify width, depth and keyway taper angle

–AND OPTIONALLY–

3. Drawing or sketch of equipment layout in order to determine correct spacer length.

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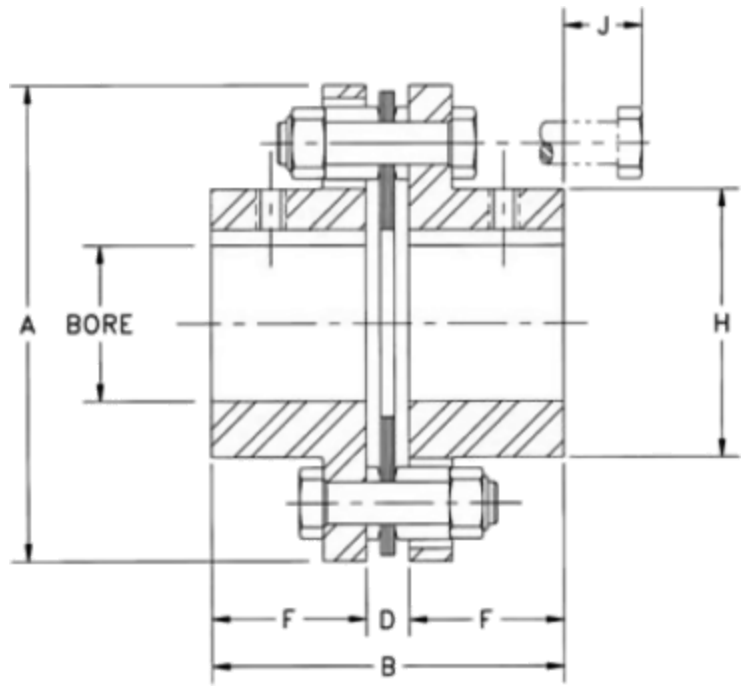
SINGLE FLEX - AR SERIES

4 BOLT SINGLE FLEXING COUPLING (Formerly AJ Series)

The AR series coupling accommodates angular and axial misalignment only. Single couplings may be used in pairs to support a clutch, brake or other power transmission component in a floating shaft arrangement, or to support a component that is supported by a self-aligning bearing. The AR coupling consists of two hubs and one set of standard hardware, including stainless steel flex discs.



Rated Misalignment: 1.0 Deg/Disc

Hub Options	
Hub Type	**Size**
AJ -STANDARD	05-45
AZ OVERSIZE	05-45
QD BUSHING MOUNT	15-40
AC/AD CLAMP	05-25
AL LOCK ELEMENT	05-25

Coupling Consists of:
2-Hubs-Example-AJ35A x 1-3/8
1-Flex Assembly-Example-A35RKA
This coupling is sold as components

Material Classes		Flex Assy Part No.
Class	**Size**	
A	05-45	AxxRKA
B	05-45	AxxRKA
C	15-45	AxxRKE
E	15-45	AxxRKE
		xx = Size

Size	Dimensions in Inches								Free End Float +/- Inch
	Max Bore		A	B	D DBSE	F	H	J	
	AJ	AZ							
05	0.87	1.13	2.65	2.24	0.24	1.00	1.30	0.54	0.015
10	1.25	1.63	3.19	2.27	0.27	1.00	1.80	0.59	0.020
15	1.37	1.88	3.65	2.58	0.32	1.13	2.00	0.88	0.021
20	1.62	2.13	4.08	2.98	0.34	1.32	2.40	0.79	0.027
25	2.00	2.38	4.95	3.69	0.45	1.62	2.80	1.00	0.030
30	2.38	2.88	5.63	4.23	0.47	1.88	3.30	1.14	0.032
35	2.88	3.75	6.63	5.05	0.55	2.25	4.15	0.97	0.042
40	3.25	4.00	7.64	5.60	0.60	2.50	4.65	1.30	0.050
45	3.75	4.63	8.43	6.85	0.85	3.00	5.40	0.77	0.060

* Dimensions shown are for AJ hubs unless otherwise specified

Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Agma 7 Max RPM	Max Radial Load (LBS.)	Weight (LBS.)	WR^2 (LB. $IN.^2$)	TQ/RAD $X10^6$ (LB. IN./RAD)
	1.0 S.F							
05	0.48	300	600	8,500	34	1.24	0.96	0.28
10	1.27	800	1,600	7,500	56	1.96	2.35	0.84
15	2.50	1,575	3,150	6,700	125	2.98	4.62	1.47
20	3.49	2,200	4,400	6,200	183	4.07	7.48	2.11
25	6.03	3,800	7,600	5,500	275	7.01	20.4	3.62
30	11.00	6,930	13,860	5,000	400	10.8	41.5	5.91
35	18.00	11,340	22,680	4,400	600	17.2	88.3	11.0
40	29.00	18,270	36,540	4,000	850	25.6	178	17.0
45	48.00	30,240	60,480	3,700	1000	292	292	25.8

Note: 1) Weight, WR^2 and torsional stiffness values shown are for AJ hubs at maximum bore size.

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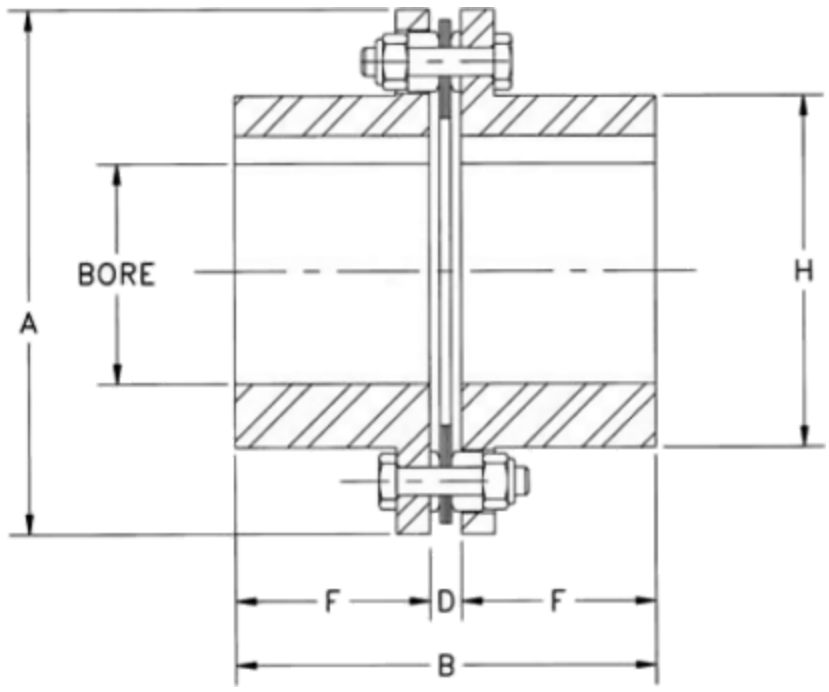
SINGLE FLEX - BH SERIES 6 BOLT SINGLE FLEXING COUPLING

The BH series coupling accommodates angular and axial misalignment only. Single couplings may be used in pairs to support a clutch, brake or other power transmission component in a floating shaft arrangement, or to support a component that is supported by a self-aligning bearing. The BH coupling consists of two hubs and one set of standard hardware, including stainless steel flex discs.



Rated Misalignment: 0.7 Deg/Disc

Hub Types	Sizes
BH	33-78

Coupling Consists of:
2-Hubs-Example-BH48A x 3”
1-Flex Assembly-Example-B048RKA
This coupling is sold as components

Material Classes		Flex Assy Part No.
Class	Size	
A	33-78	BOxxRKA
B	33-78	BOxxRKA
C	38-63	BOxxRKE
E	MTO 38-63	BOxxRKE
		xx = Size

Size	Dimensions in Inches					
	Max Bore	A	B	D DBSE	F	H
33	2.25	4.69	3.79	0.29	1.75	3.14
38	3.00	5.87	4.84	0.34	2.25	4.13
43	3.25	6.70	5.47	0.47	2.50	4.63
48	3.75	7.50	6.00	0.50	2.75	5.40
53	3.88	7.87	6.28	0.52	2.88	5.65
58	4.25	9.00	7.06	0.56	3.25	6.22
63	4.88	10.00	7.36	0.60	3.38	7.14
68	5.00	10.75	8.35	0.85	3.75	7.33
73	5.25	12.50	11.26	1.00	5.13	7.80
78	6.50	15.05	13.70	0.94	6.38	9.50

Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Agma 7 Max RPM	Max Radial Load (LBS.)	Weight (LBS.)	WR^2 (LB. $IN.^2$)	TQ/RAD $X10^6$ (LB. IN./RAD)	Free End Float +/- Inch
	1.0 S.F								
33	4.84	3,050	6,100	8,400	150	5.76	14.5	4.57	0.03
38	10.08	6,350	112,500	7,500	240	11.4	46.6	9.41	0.04
43	19.84	12,500	25,000	6,800	420	17.3	91.7	17.8	0.05
48	26.98	17,000	34,000	6,500	655	25.2	171	35.5	0.06
53	38.10	24,000	48,000	6,000	720	29.8	226	29.8	0.06
58	53.97	34,000	68,000	5,500	930	45.4	443	50.0	0.06
63	76.19	48,000	96,000	5,200	1,125	58.4	715	76.6	0.07
68	114.29	72,000	144,000	4,800	1,530	73.4	984	96.7	0.07
73	198.41	125,000	250,000	4,200	2,190	115	2,050	139	0.08
78	369.84	233,000	466,000	3,700	4,600	212	5,340	251	0.08

Note: 1) Weight, WR^2 and torsional stiffness values shown for BH hubs at maximum bore size.

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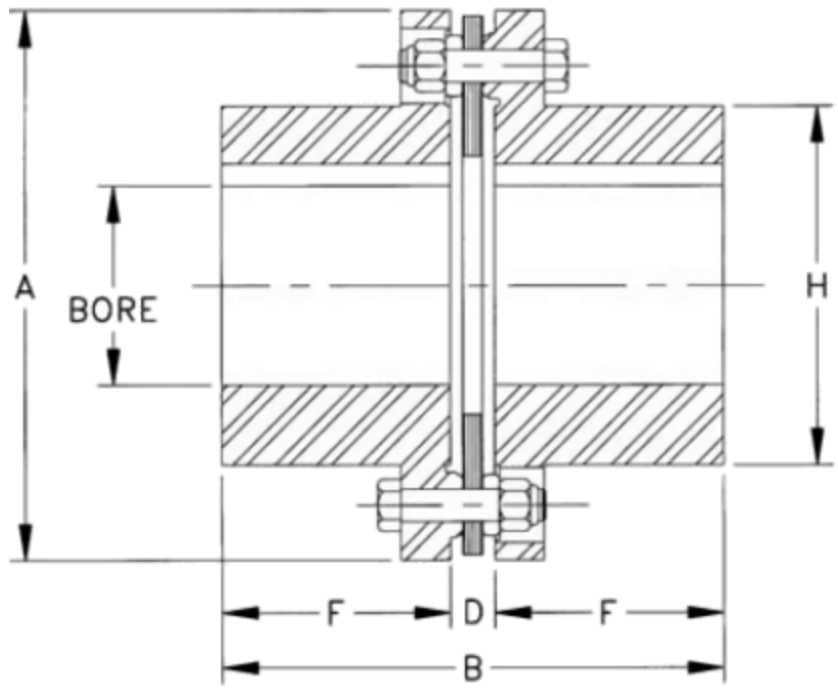
SINGLE FLEX - HH SERIES 8 BOLT SINGLE COUPLING

The HH series is designed for high torque, low speed applications, Hubs are cast of iron or steel. Flex discs are high strength alloy steel. Stainless steel flex discs are optional. Dynamic balancing for higher speed operation is not recommended. Single plane balancing of individual hubs is available.



Rated Misalignment: 0.7 Deg/Disc

Hub Options	
Hub Types	**Sizes**
C.I.	26-160
STL	31-160

Ordering: HH Series couplings are sold as complete assemblies.
Please specify hub type, bore sizes. and flex disc materials.
A coupling will be configured to meet your specification.

Size	Dimensions in Inches						
	Max Bore		A	B	D DBSE	F	H
	Iron	Steel					
22	2.25	-	6.00	5.43	0.43	2.50	3.87
26	2.62	-	6.87	6.29	0.53	2.88	4.50
31	3.12	3.25	8.12	7.38	0.62	3.38	5.50
35	3.62	3.81	9.12	8.16	0.66	3.75	6.12
37	3.75	4.19	10.06	8.81	0.81	4.00	6.50
42	4.25	4.50	11.00	9.31	0.81	4.25	7.00
45	4.50	4.75	11.87	9.87	0.87	4.50	7.43
50	5.12	5.50	13.43	11.06	1.06	5.00	9.50
55	5.62	6.25	15.00	12.25	1.25	5.50	9.50
60	6.50	7.12	16.75	13.84	1.34	6.25	10.50
70	7.00	7.87	18.93	15.50	1.50	7.00	11.75
75	7.75	8.75	20.62	16.05	1.55	7.25	13.00
80	8.00	9.12	22.37	17.06	1.56	7.75	13.75
85	8.50	9.62	23.75	18.12	1.62	8.25	14.50
92	10.00	11.00	25.75	19.75	1.75	9.00	15.87
105	10.50	12.00	29.25	22.75	1.75	10.50	20.00
160	16.00	17.00	33.50	26.25	2.25	12.00	24.00

SINGLE FLEX - HH SERIES 8 BOLT SINGLE COUPLING CONT.

Size	HP per 100 RPM 1.0 S.F	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Agma 7 Max RPM	Max Radial Load (LBS.)	Weight (LBS.)	WR^2 (LB. $IN.^2$)	TQ/RAD $X10^6$ (LB. IN./RAD)	Free End Float +/- Inch
22	15.08	9,500	14,250	3,800	338	17	62	12.7	0.018
26	25.40	16,000	24,000	3,300	570	26	129	22.1	0.022
31	38.10	24,000	36,000	2,800	700	43	304	36.4	0.026
35	69.84	44,000	66,000	2,600	930	61	557	52.8	0.028
37	95.24	60,000	90,000	2,500	1,170	77	820	69.6	0.031
42	115.87	73,000	109,500	2,400	1,300	95	1,250	84	0.034
45	157.14	99,000	148,500	2,250	1,700	115	1,810	106	0.036
50	203.17	128,000	192,000	2,000	2,250	163	3,290	147	0.041
55	300.00	189,000	283,500	1,800	3,200	228	5,570	243	0.046
60	414.29	261,000	391,500	1,600	4,000	328	10,300	349	0.051
70	658.73	415,000	622,500	1,400	6,100	451	18,200	482	0.058
75	846.03	533,000	799,500	1,300	6,900	588	27,400	682	0.062
80	1,087.30	685,000	1,027,500	1,200	7,500	732	42,100	779	0.068
85	1,315.87	829,000	1,243,500	1,100	8,700	840	54,700	911	0.070
92	1,650.79	1,040,000	1,560,000	1,000	11,100	1,160	89,400	1220	0.078
105	1,984.13	1,250,000	1,875,000	1,000	8,460	1,780	160,000	3200	0.085
160	3,174.60	2,000,000	3,000,000	900	11,300	2,310	325,000	5140	0.125

Note: 1) Weight, WR^2 and torsional stiffness values shown are for Cast Iron hubs at maximum bore size.

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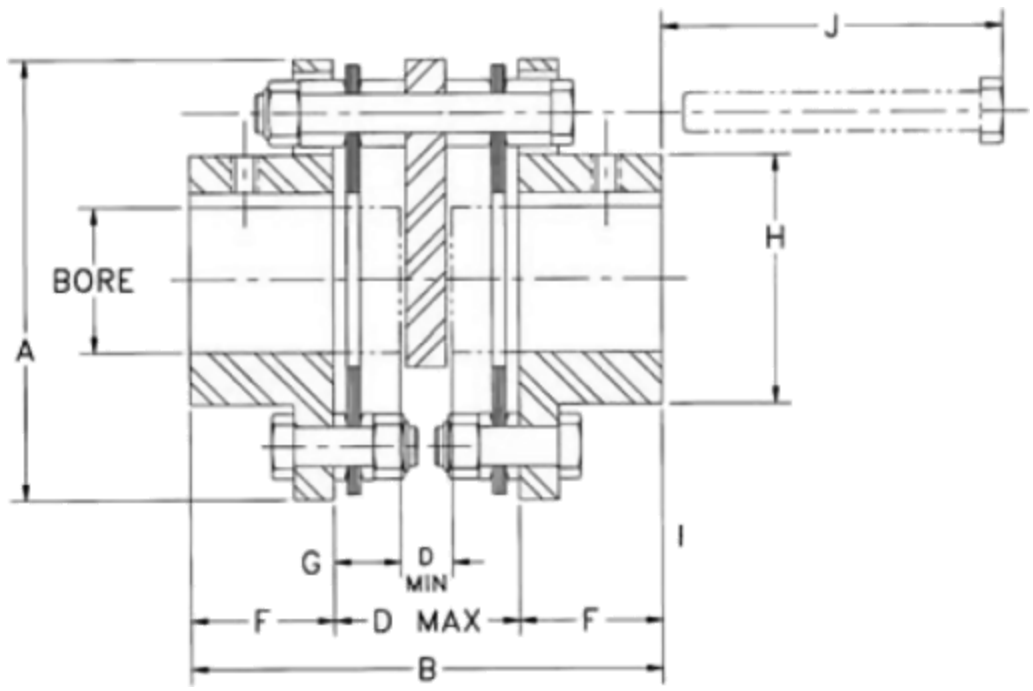
CLOSE COUPLE - AX SERIES 4 BOLT CLOSE COUPLED COUPLING

(General Use)

The AX series close coupling is made up of two hubs, a steel spacer block, two stainless flex discs and AX hardware. A special bolting arrangement supports the spacer between the flex discs. The AX is an economical design that is well suited to many general purpose applications. The AX accommodates close shaft separations when it is installed with the shafts extending through the flex discs into the centre of the coupling. The shaft diameter must be less than the flex disc I.D. listed in the dimensional table.



AD HUB SHOWN

Rated Misalignment: 1.0 Deg/Disc

Hub Options	
Hub Type	**Size**
AJ - STANDARD	05-45
AZ OVERSIZE	05-45
QD BUSHING MOUNT	15-40
AC/AD CLAMP	05-25
AL LOCK ELEMENT	05-25

Coupling Consists of:
2-Hubs-Example-AJ20A x 1-1/2”
1-Space Assembly-Example-A x 20SAA
This coupling is sold as components

Material Classes		Flex Assy Part No.
Class	**Size**	
A	05-45	AxxSAA
B	05-45	AxxSAB
C	N/A	N/A
E	N/A	N/A
		xx = Size

Size	Dimensions in Inches*										
	Max Bore		A	B	DBSE		F	G	H	J	Disc I.D.**
	AJ	AZ			Dmin	Dmax					
05	0.87	1.13	2.65	3.34	0.38	1.34	1.00	0.48	1.30	1.68	1.00
10	1.25	1.63	3.19	3.40	0.44	1.40	1.00	0.48	1.80	1.79	1.17
15	1.37	1.88	3.65	3.80	0.63	1.54	1.13	0.44	2.00	1.85	1.28
20	1.62	2.13	4.08	4.22	0.63	1.58	1.32	0.48	2.40	1.66	1.65
25	2.00	2.38	4.95	5.36	0.75	2.12	1.62	0.69	2.80	2.39	1.78
30	2.38	2.88	5.63	6.30	1.00	2.54	1.88	0.77	3.30	3.18	2.01
35	2.88	3.75	6.63	7.17	1.13	2.67	2.25	0.77	4.15	2.81	2.71
40	3.25	4.00	7.64	8.30	1.13	3.30	2.50	1.08	4.65	4.03	3.00
45	3.75	4.63	8.43	9.55	1.50	3.55	3.00	1.03	5.40	3.28	3.51

* Dimensions shown are for AJ hubs unless otherwise specified
** Shaft I.D. must be less than disc I.D. in order to extend shafts into coupling to eet Dmin dimension.

Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Agma 7 Max RPM	Weight (LBS.)	WR^2 (LB. $IN.^2$)	TQ/RAD $X10^6$ (LB. IN./RAD)	Free End Float +/- Inch
	1.0 S.F							
05	0.48	300	450	8,500	1.63	1.26	0.04	0.030
10	1.27	800	1,200	7,500	2.48	2.90	0.06	0.040
15	2.50	1,575	2,363	6,700	3.84	5.80	0.21	0.042
20	3.49	2,200	3,300	6,200	5.10	9.16	0.25	0.055
25	6.03	3,800	5,700	5,500	9.13	26.1	0.56	0.060
30	11.00	6,930	10,395	5,000	13.8	51.7	0.79	0.065
35	18.00	11,340	17,010	4,400	21.1	108	1.48	0.085
40	29.00	18,270	27,405	4,000	32.0	222	1.68	0.100
45	48.00	30,240	45,360	3,700	44.4	365	4.54	0.120

Note: 1) Weight, WR^2 and torsional stiffness values shown are for AJ hubs at maximum bore size.

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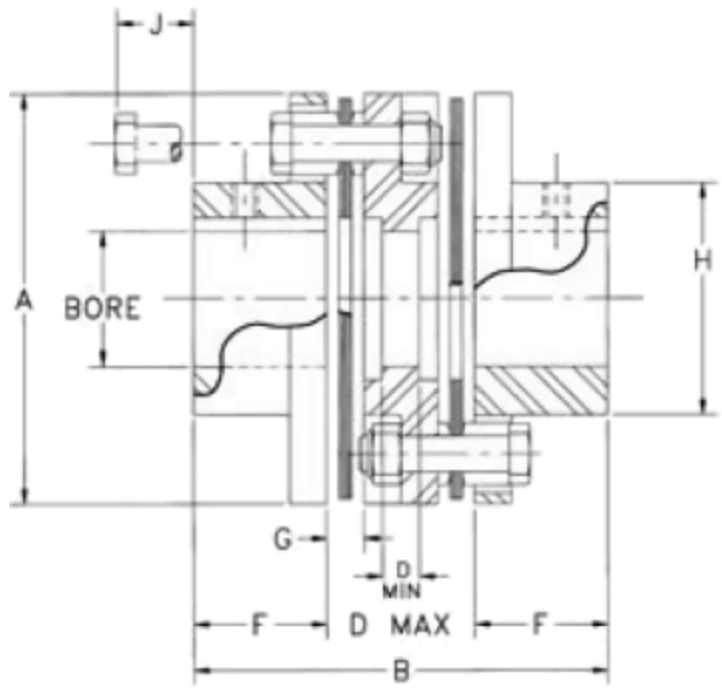
CLOSE COUPLE - AA SERIES 4 BOLT CLOSE COUPLED COUPLING

(General Use - Shorter Bolt Removal)

The AA series close coupling is made up of two hubs, a cast iron block type spacer and two sets of standard hardware. Stainless steel flex discs are standard. The AA accommodates close shaft separations when it is installed with the shafts extending through the flex discs into the centre of the coupling. The shaft diameter must be less than the flex disc I.D. listed in the dimensional table. This coupling is recommended when the bolt removal length (J) makes the AX coupling impractical. Special machined steel block spacers are also available in several sizes.



Rated Misalignment: 1.0 Deg/Disc

Hub Options	
Hub Type	**Size**
AJ - Standard	05-45
AZ Oversize	05-45
QD Bushing Mount	15-40
AC/AD Clamp	05-25
AL Lock Element	05-25

Coupling Consists of:
2-Hubs-Example–AJ35A x 2”
1-Space Assembly
-Example–AA35SAA
This coupling is sold as components

Material Classes		Spacer Assembly Part No.
Class	**Size**	
A	05-45	AAxxSAA
B	05-45	AAxxSAB
C	15-45	AAxxSAC
E	N/A	N/A
		xx = Size

Size	Dimensions in Inches*										
	Max Bore		A	B	DBSE		F	G	H	J	Disc I.D. **
	AJ	AZ			Dmin	Dmax					
05	0.87	1.13	2.65	3.23	0.25	1.23	1.00	0.24	1.30	0.54	1.00
10	1.25	1.63	3.19	3.73	0.25	1.73	1.00	0.27	1.80	0.56	1.17
15	1.37	1.88	3.65	3.82	0.31	1.56	1.13	0.32	2.00	0.88	1.28
20	1.62	2.13	4.08	4.38	0.41	1.74	1.32	0.34	2.40	0.79	1.65
25	2.00	2.38	4.95	5.26	0.41	2.02	1.62	0.45	2.80	1.00	1.78
30	2.38	2.88	5.63	6.24	0.56	2.48	1.88	0.47	3.30	1.14	2.01
35	2.88	3.75	6.63	6.91	0.66	2.41	2.25	0.55	4.15	0.97	2.71
40	3.25	4.00	7.64	7.70	0.75	2.70	2.50	0.60	4.65	1.30	3.00
45	3.75	4.63	8.43	9.26	0.88	3.26	3.00	0.85	5.40	0.77	3.51

* Dimensions shown are for AJ hubs unless otherwise specified
** Shaft I.D. must be less than disc I.D. in order to extend shafts into coupling to meet Dmin dimension.

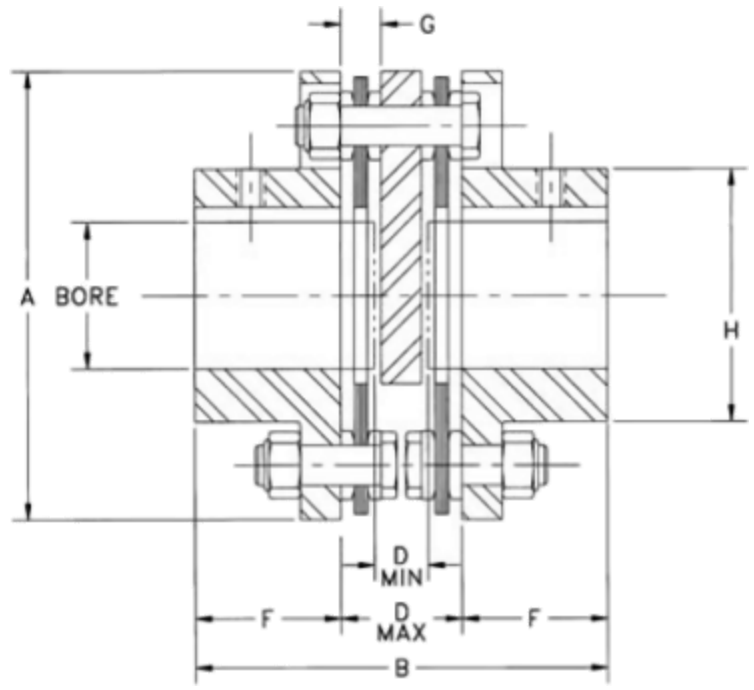
Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Max RPM	Weight (LBS.)	WR^2 (LB. $IN.^2$)	TQ/RAD $X10^6$ (LB. IN./RAD)	Free End Float +/- Inch
	1.0 S.F							
05	0.48	300	450	3,600	1.76	1.40	0.06	0.030
10	1.27	800	1,200	3,500	2.77	3.35	0.10	0.040
15	2.50	1,575	2,363	3,450	4.24	6.66	0.26	0.042
20	3.49	2,200	3,300	3,350	5.48	10.2	0.25	0.055
25	6.03	3,800	5,700	3,200	9.81	29.4	0.62	0.060
30	11.00	6,930	10,395	3,000	15.0	59	0.94	0.065
35	18.00	11,340	17,010	2,800	22.4	121	1.44	0.085
40	29.00	18,270	27,405	2,650	34.3	250	2.43	0.100
45	48.00	30,240	45,360	2,500	46.5	412	2.60	0.120

Note: 1) Weight, WR^2 and torsional stiffness values shown are for AJ hubs at maximum bore size.
2) Max RPM shown based on cast iron spacer material

CLOSE COUPLE - AY SERIES 4 BOLT CLOSE COUPLED COUPLING

(Positioning Applications)

The AY series is specifically designed for positioning applications where a servo or stepper drive is C flange mounted and connects to a ball screw. The AY accommodates the small amounts of angular and parallel misalignment with an absolute minimum size package, zero backlash and high torsional stiffness. The AY is made up of two hubs, a steel spacer block, two stainless flex discs and AY hardware. The coupling must be installed as an assembled unit. The spacer is not service removable.



AD HUB SHOWN

Rated Misalignment: 1.0 Deg/Disc

Hub Options	
Hub Type	**Size**
AJ - STANDARD	05-25
AZ - OVERSIZE	05-25
QD BUSHING MOUNT	15-25
AC/AD CLAMP	05-25
AL LOCK ELEMENT	05-25

Coupling Consists of:
2—Hubs—Example–AJ20A x 1/2”
1—Spacer Assembly
—Example–AY20SAA
This coupling is sold as components

Material Classes		Flex Assy Part No.
Class	**Size**	
A	05-25	AxxSAA
B	05-25	AxxSAB
C	N/A	N/A
E	N/A	N/A
		xx = Size

Size	Dimensions in Inches									
	Max Bore		A	B	DBSE		F	G	H	Disc I.D. **
	AJ	AZ			Dmin	Dmax				
05	0.87	1.13	2.65	2.85	0.49	0.85	1.00	0.24	1.30	1.00
10	1.25	1.63	3.19	2.91	0.50	0.91	1.00	0.27	1.80	1.17
15	1.37	1.88	3.65	3.33	0.56	1.07	1.13	0.32	2.00	1.28
20	1.62	2.13	4.08	3.76	0.56	1.12	1.32	0.34	2.40	1.65
25	2.00	2.38	4.95	4.77	0.87	1.53	1.62	0.45	2.80	1.78

* Dimensions shown are for AJ hubs unless otherwise specified
** Shaft I.D. must be less than disc I.D. in order to extend shafts into coupling to meet Dmin dimension.

Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Agma 7 Max RPM	Weight (LBS.)	WR^2 (LB. $IN.^2$)	TQ/RAD $X10^6$ (LB. IN./RAD)	Free End Float +/- Inch
	1.0 S.F							
05	0.48	300	600	8,500	1.64	1.24	0.13	0.030
10	1.27	800	1,600	7,500	2.68	3.08	0.35	0.040
15	2.50	1,575	3,150	6,700	4.23	6.41	0.64	0.042
20	3.49	2,200	4,400	6,200	5.49	9.92	0.83	0.055
25	6.03	3,800	7,600	5,500	9.78	27.6	1.56	0.060

Note: 1) Weight, WR^2 and torsional stiffness values shown are for AJ hubs at maximum bore size.

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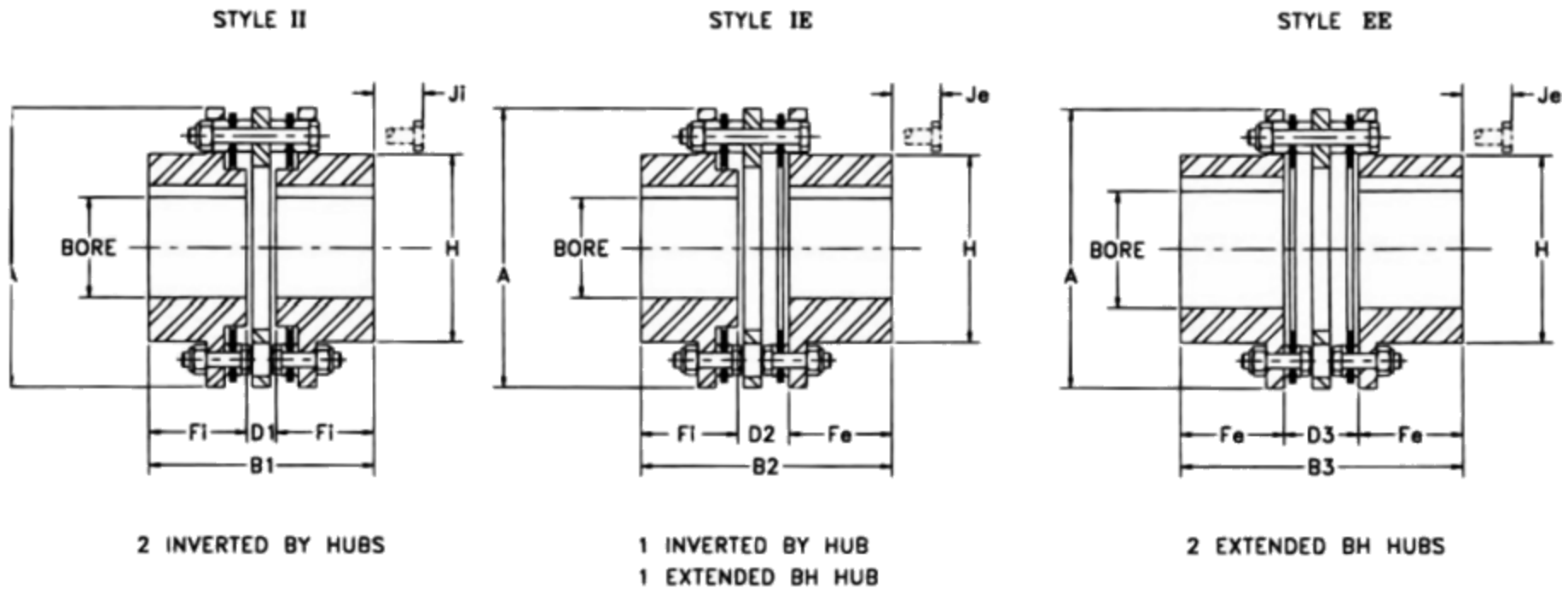
PRECISION MOTION SINCE 1982

CLOSE COUPLE - BY SERIES 6 BOLT CLOSE COUPLED COUPLING

The BY series close coupling is a low cost replacement for gear or elastomeric couplings. It is ideal for use in low to moderate speed applications with motor or turbine drivers. The BY is an economical alternative to Axial Split spacer designs. The BY accommodates close shaft spacings by allowing the connected shafts to extend through the flex discs and spacer without restriction. The spacer is not service removable if the shaft gap is less than the D1 dimension shown. For shorter shaft spacings, the flex discs may still be replaced by removing the coupling bolts and shuttling the spacer from side to side.



text

Coupling Consists of:
2-Hubs-Example-BY43A x 2-1/2”
1-Space Assembly-Example-BY43SAA
This coupling is sold as components

Rated Misalignment: 0.7 Deg/Disc

Material Classes		Flex Assy Part No.
Class	Size	
A	05-25	AxxSAA
B	05-25	AxxSAB
C	N/A	N/A
E	N/A	N/A
		xx = Size

Size	Dimensions in Inches														
	Max Bore		A	B1	B2	B3	C	DBSE			Fi	Fe	H	Ji	Je
	BY inv	BH ext						D1	D2	D3					
33	2.00	2.25	4.69	4.13	4.530	4.93	1.350	0.43	0.930	1.43	1.85	1.75	3.14	1.46	1.06
38	2.63	3.00	5.87	4.45	5.260	6.07	1.440	0.57	1.070	1.57	1.94	2.25	4.13	1.61	0.80
43	2.88	3.25	6.70	5.41	6.265	7.12	1.645	0.81	1.465	2.12	2.30	2.50	4.63	2.51	1.60
48	3.25	3.75	7.50	5.64	6.630	7.62	1.760	0.76	1.440	2.12	2.44	2.75	5.40	2.34	1.35
53	3.63	3.88	7.87	6.77	7.600	8.43	2.050	1.01	1.840	2.67	2.88	2.88	5.65	2.93	2.10
58	4.00	4.25	9.00	7.60	8.700	9.80	2.150	1.20	2.250	3.30	3.20	3.25	6.22	4.40	3.30
63	4.50	4.88	10.00	8.40	9.230	10.06	2.550	1.20	2.250	3.30	3.60	3.38	7.14	4.00	3.17
68	4.75	5.00	10.75	9.20	10.450	11.70	2.500	1.60	2.900	4.20	3.80	3.75	7.33	5.28	4.03

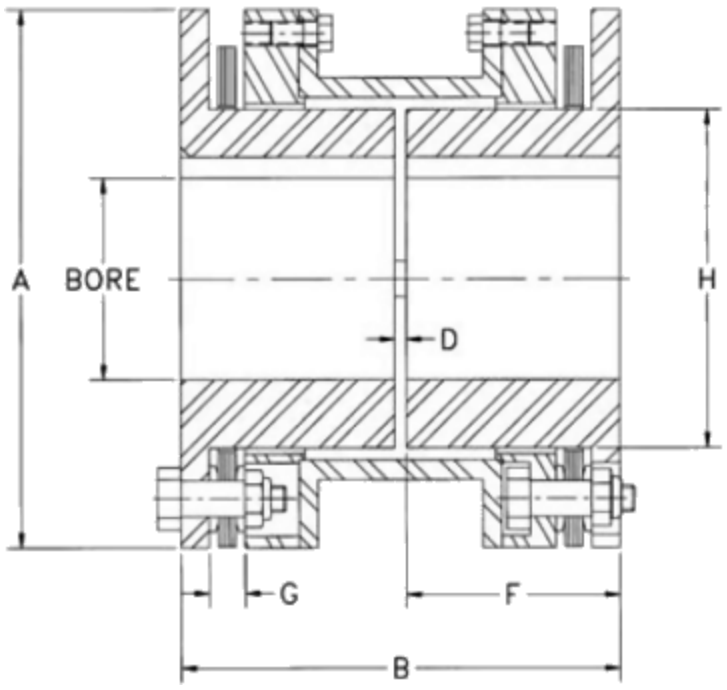
Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Agma 7 Max RPM	Weight (LBS.)	WR^2 (LB. $IN.^2$)	TQ/RAD $X10^6$ (LB. IN./RAD)	Free End Float +/- Inch
	1.0 S.F							
33	4.84	3,050	4,575	8,400	8.06	22.3	0.94	0.060
38	10.08	6,350	9,525	7,500	13.9	65.1	2.98	0.084
43	19.84	12,500	18,750	6,800	23.2	144	4.99	0.090
48	26.98	17,000	25,500	6,500	31.1	241	5.42	0.108
53	38.10	24,000	36,000	6,000	40.3	345	9.10	0.108
58	53.97	34,000	51,000	5,500	65.4	734	15.4	0.118
63	76.19	48,000	72,000	5,200	82.8	1150	25.8	0.140
68	114.29	72,000	108,000	4,800	106	1760	37.4	0.144

Note: 1) Weight, WR^2 and torsional stiffness values shown are for BY hubs at maximum bore size.

ABSSAC
PRECISION MOTION SINCE 1982

CLOSE COUPLE - BA SERIES - 6 BOLT DESIGN & DA SERIES-8 BOLT DESIGN AXIAL SPLIT SPACER COUPLINGS

Axial split spacer couplings are an ideal replacement for lubricated gear or grid couplings. Close shaft separations are met without requirements for extending shafts through hubs. The split spacer removes radially to allow removal of connected equipment. Flex discs may be replaced without disturbing the connected equipment. The axial split series features all steel contruction. Stainless steel flex discs are standard for the BA series. Both stainless and high strength alloy steel flex disc options are available with the DA series.



Ordering: BA and DA Series couplings are sold as components.
Please specify hub bore sizes and specify flex disc materials for DA series couplings.

Rated Misalignment: 0.5 Deg/Disc

Size	Dimensions in Inches						
	Max Bore	A	B	D DBSE	F	G	H
BA33	1.75	4.69	3.88	0.12	1.88	0.33	2.71
BA38	2.50	5.87	4.38	0.12	2.13	0.40	3.55
BA43	2.63	6.70	5.00	0.12	2.44	0.48	3.91
DA31	3.38	7.81	5.87	0.19	2.84	0.44	5.22
DA35	3.75	8.69	6.81	0.25	3.28	0.54	5.71
DA37	4.19	9.69	7.37	0.25	3.56	0.69	6.18
DA42	4.50	10.50	8.19	0.25	3.97	0.69	6.70
DA45	4.75	11.31	9.31	0.31	4.50	0.75	7.20
DA50	5.00	12.88	9.75	0.31	4.72	0.96	7.93
DA55	5.50	14.44	11.00	0.38	5.31	1.04	8.95
DA60	6.00	16.00	12.38	0.38	6.00	1.10	9.89
DA70	7.00	18.25	14.38	0.38	7.00	1.40	11.08

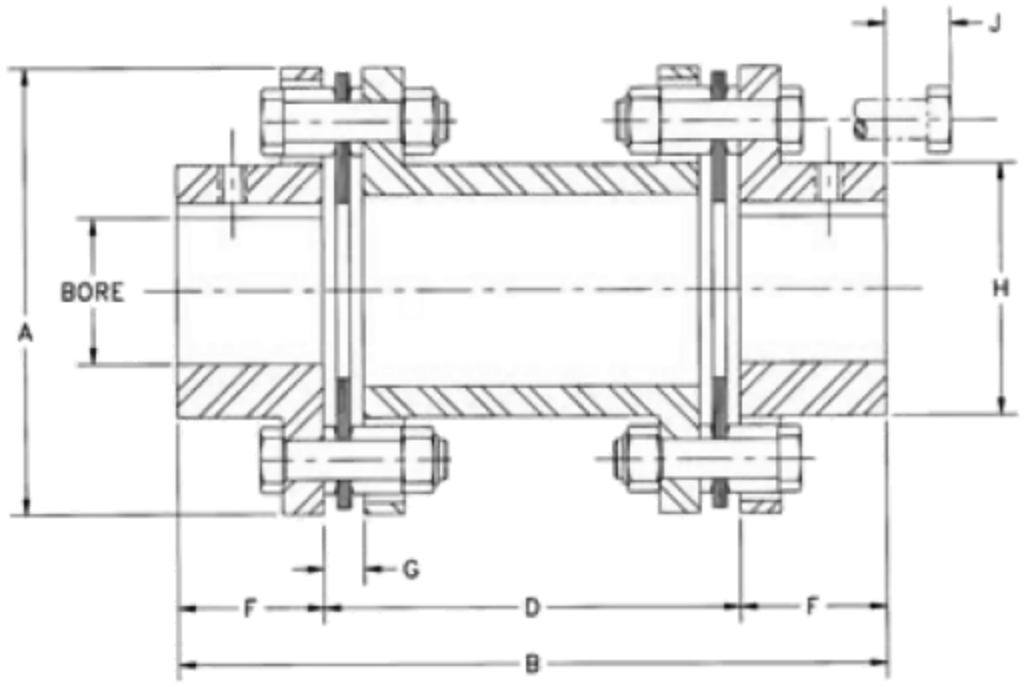
Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Max RPM		Weight (LBS.)	WR^2 (LB. $IN.^2$)	Free End Float +/- Inch
	1.0 S.F			Unbalanced	Balanced			
BA33	6.29	3,965	7,930	4,200	7,000	10.7	29.2	0.060
BA38	13.10	8,255	16,510	3,800	6,300	18.1	81.7	0.084
BA43	25.79	16,250	32,500	3,700	6,000	30.2	158	0.090
DA31	38.10	24,000	48,000	3,000	5,000	45.5	372	0.052
DA35	54.13	34,100	68,200	2,800	4,500	63.4	627	0.056
DA37	81.11	51,100	102,200	2,500	4,000	87	1,110	0.062
DA42	114.76	72,300	144,600	2,300	3,700	114	1,670	0.067
DA45	130.48	82,200	164,400	2,200	3,400	152	2,550	0.072
DA50	196.83	124,000	248,000	2,000	3,300	215	4,610	0.082
DA55	300.00	189,000	378,000	1,900	2,800	317	8,550	0.092
DA60	390.48	246,000	492,000	1,800	2,500	450	14,900	0.102
DA70	549.21	692,000	692,000	1,700	2,500	664	28,800	0.115

Note: 1) Weight, WR^2 and torsional stiffness values shown for BH hubs at maximum bore size.

ABSSAC
PRECISION MOTION SINCE 1982

SPACER - 4 BOLT AK SERIES - STOCK LENGTH COUPLING
AP SERIES-CUSTOM LENGTH COUPLING

The AK and AP series couplings are standard design spacer couplings. They are made up of two hubs, a one-piece machined spool spacer and two sets of flex discs with standard hardware, including stainless steel flex discs. The AK is the stocked minimum length spacer. The AP is made-to-order to any custom spacer length. AP series pricing is standard for any spacer length up to 9 inches.



Rated Misalignment: 1.0 Deg/Disc

For type AP, specify the D (DBSE) dimension in 1/100th inches.
Example: AP10A350 specifies AP10 class A 3.50" DBSE.

Hub Options	
Hub Type	**Size**
AJ - Standard	05-45
AZ Oversize	05-45
QD Bushing Mount	15-40
AC/AD Clamp	05-25
AL Lock Element	05-25

Coupling Consists of:
2-Hubs-Example–AJ25A x 1-3/4"
1-Space Assembly-Example–AK25SAA
This coupling is sold as components

Material Classes		Spacer Assembly Part No.	
Class	**Size**		
A	05-45	AKxxSAA	APxxAddd
B	05-45	AKxxSAB	APxxBddd
C	15-45	AKxxSAC	APxxCddd
E	MOT 15-45	AKxxSAE	APxxEddd
		xx = Size	ddd = DBSE

Size	Dimensions in Inches*									
	Max Bore		A	Bmin (AK)	Dmin (AK)	F	G	H	J	Free End Float +/- Inch
	AJ	AZ								
05	0.87	1.13	2.65	3.72	1.72	1.00	0.24	1.30	0.54	0.030
10	1.25	1.63	3.19	4.06	2.06	1.00	0.27	1.80	0.56	0.040
15	1.37	1.88	3.65	4.67	2.41	1.13	0.32	2.00	0.88	0.042
20	1.62	2.13	4.08	5.02	2.38	1.32	0.34	2.40	0.79	0.055
25	2.00	2.38	4.95	6.16	2.92	1.62	0.45	2.80	1.00	0.060
30	2.38	2.88	5.63	7.57	3.81	1.88	0.47	3.30	1.14	0.065
35	2.88	3.75	6.63	8.81	4.31	2.25	0.55	4.15	0.97	0.085
40	3.25	4.00	7.64	9.88	4.88	2.50	0.60	4.65	1.30	0.100
45	3.75	4.63	8.43	11.88	5.88	3.00	0.85	5.40	0.77	0.120

* Dimensions shown are for AJ hubs unless otherwise specified

Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Agma 7 Max RPM	Weight (LBS.)		WR^2 (LB. $IN.^2$)		$TQ/RAD X10^6$ (LB. IN./RAD)	
	1.0 S.F				At Min D	Add Per IN. of D	At Min D	Add Per IN. OF D	K Factor	Y Factor
05	0.48	300	600	8,500	2.32	0.14	1.87	0.05	0.15	2.00
10	1.27	800	1,600	7,500	3.62	0.22	4.48	0.11	0.43	4.64
15	2.50	1,575	3,150	6,700	5.44	0.26	8.86	0.19	0.74	7.51
20	3.49	2,200	4,400	6,200	6.96	0.32	13.8	0.34	1.08	13.8
25	6.03	3,800	7,600	5,500	12.7	0.41	38.8	0.62	1.74	25.1
30	11.00	6,930	13,860	5,000	19.0	0.46	77.7	0.92	2.89	37.4
35	18.00	11,340	22,680	4,400	27.6	0.63	156	2.29	5.34	93
40	29.00	18,270	36,540	4,000	42.1	0.76	322	3.55	8.21	144
45	48.00	30,240	60,480	3,700	55.5	1.1	507	6.77	12.5	275

Note: 1) Weight, WR^2 and torsional stiffness values shown are for AJ hubs at maximum bore size.
2) To calculate torsional stiffness for a given spacer length, let L=D - Dmin torsional stiffnes = 1/[(1/K) + (L/Y)]

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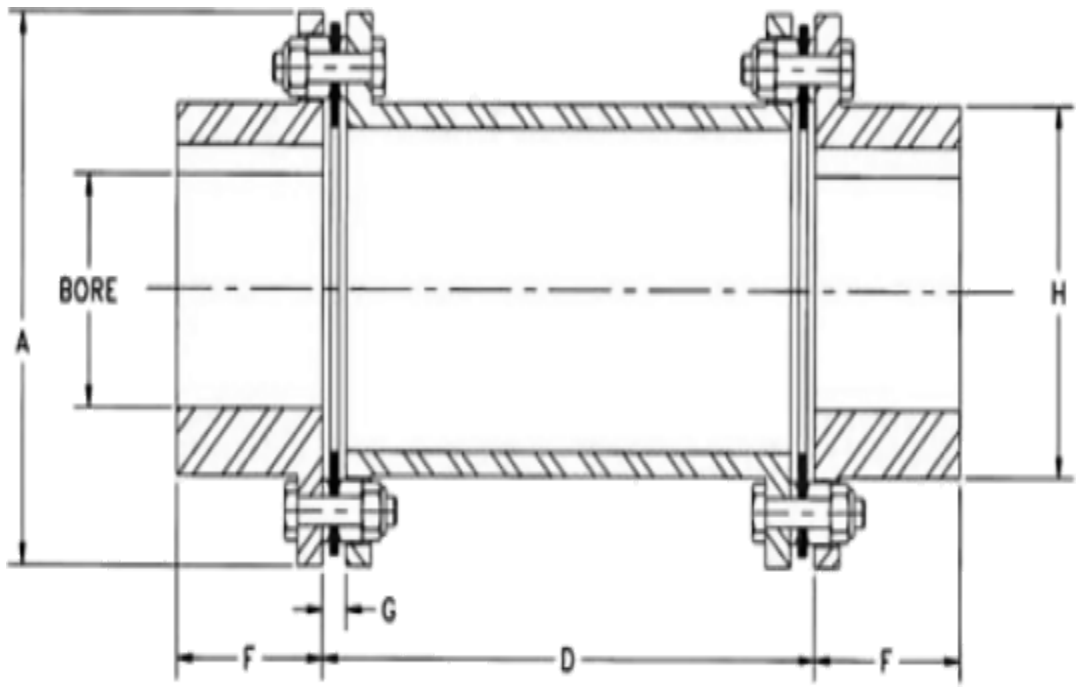
SPACER - BP SERIES 6 BOLT SPACER COUPLING

The BP series coupling is a standard design spacer coupling using the 6 bolt disc design. The coupling is made up of two hubs, a one-piece machined spool spacer and two sets of flex discs with standard hardware, including stainless steel flex discs. The BP is made-to-order to any custom spacer length. BP series pricing is standard for any spacer length up to 9 inches.



MEETS API 610 7th EDITION

Rated Misalignment: 0.7 Deg/Disc

Hub Types	Sizes
BH	33-78

Coupling Consists of:
2-Hubs-Example-BH33Ax2”
1-Space Assembly-Example-BP33A500 (5”DBSE)
This coupling is sold as components

Material Classes		Spacer Assembly Part No.
Class	Size	
A	33-73	BPxxAddd
B	33-78	BPxxDbbb
C	38-63	BPxCddd
E	N/A	N/A
		ddd = DBSE

Specify the D (DBSE) dimension in 1/100th inches. Example: BP33A350 specifies BP33 class A 3.50” DBSE. Specify each hub bore size as required.

Size	Dimensions in Inches						
	Max Bore	A	Dmin	F	G	H	Free End Float +/- Inch
33	2.25	4.69	2.09	1.75	0.285	3.14	0.060
38	3.00	5.87	2.37	2.25	0.335	4.13	0.084
43	3.25	6.70	2.95	2.50	0.465	4.63	0.090
48	3.75	7.50	3.00	2.75	0.495	5.40	0.108
53	3.88	7.87	3.91	2.88	0.520	5.65	0.108
58	4.25	9.00	4.80	3.25	0.555	6.22	0.118
63	4.88	10.00	4.88	3.38	0.600	7.14	0.140
68	5.00	10.75	6.20	3.75	0.849	7.33	0.144
73	5.25	12.50	7.70	5.13	1.000	7.80	0.156
78	6.50	14.90	8.08	6.38	0.940	9.50	0.165

Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Agma 8 Max RPM	Weight (LBS.)		WR^2 (LB. $IN.^2$)		TQ/RAD $X10^6$ (LB. IN./RAD)	
	1.0 S.F				At Min D	Add Per IN. of D	At Min D	Add Per IN. of D	K Factor	Y Factor
33	4.84	3,050	6,100	8,400	8.49	0.47	23.3	0.91	2.42	37.1
38	10.08	6,350	12,700	7,500	15.9	0.63	71.8	2.24	4.93	90.8
43	19.84	12,500	25,000	6,800	24.3	0.74	143	3.59	9.40	146
48	26.98	17,000	34,000	6,500	33.2	0.87	248	5.79	13.2	235
53	38.10	24,000	48,000	6,000	41.7	0.93	354	6.93	15.1	281
58	53.97	34,000	68,000	5,500	65.1	0.98	707	8.14	23.7	330
63	76.19	48,000	96,000	5,200	80.5	1.14	1,100	13.0	34.9	528
68	114.29	72,000	144,000	4,800	104	1.17	1,560	14.7	44.0	597
73	198.41	125,000	250,000	4,200	174	2.17	3,500	33.2	71.2	1,350
78	369.84	233,000	466,000	3,700	302	3.28	8,540	68.0	131	2,760

Note: 1) Weight, WR^2 and torsional stiffness values shown are for BH hubs at maximum bore size.
2) To calculate torsional stiffness for a given spacer length, let L=D - Dmin torsional stiffnes = 1/[(1/K) + (L/Y)]

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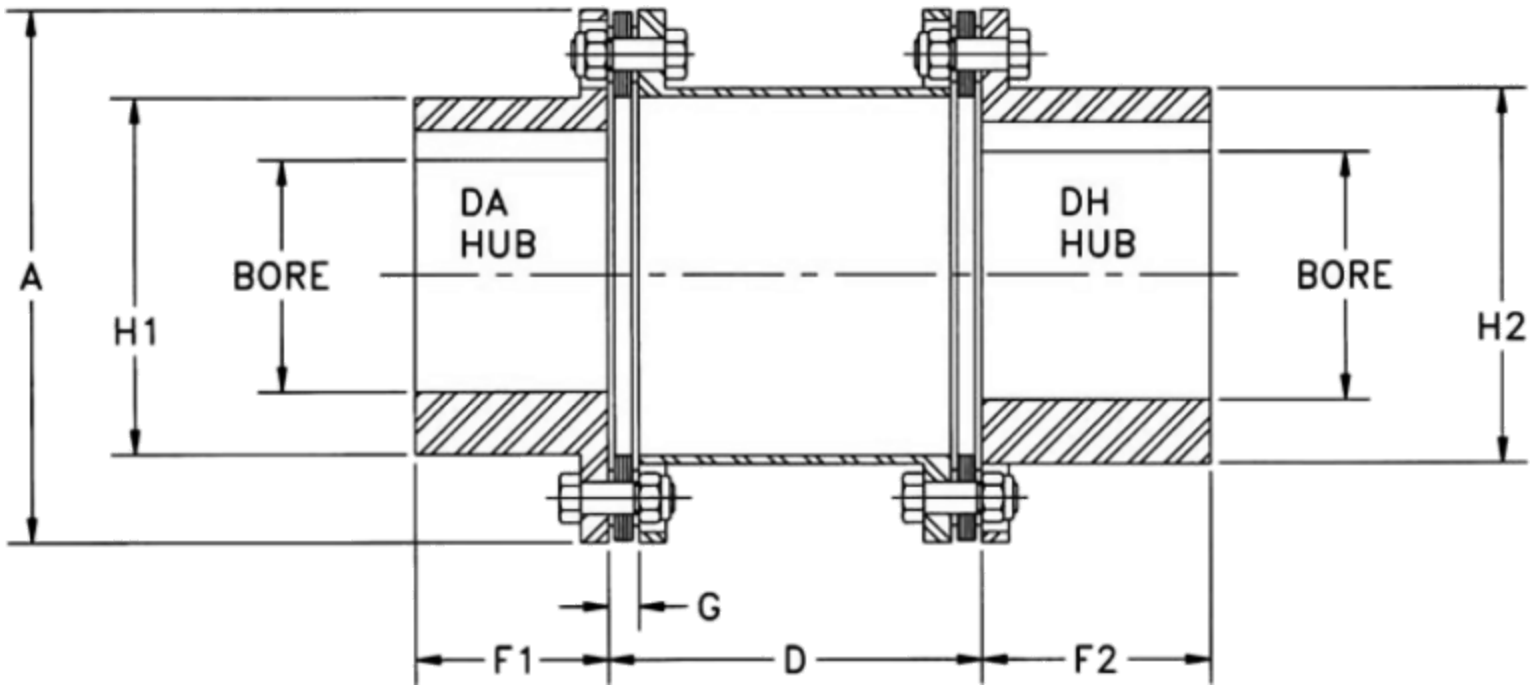
SPACER - DP SERIES 8 BOLT SPACER COUPLINGS

The DP series coupling is a fully machined spacer coupling using the 8 bolt disc design used for high torque applications at higher speeds. The coupling is made up of two hubs, a one-piece machined spool spacer and two sets of flex discs and hardware. The DP is made-to-order to any customer spacer length.Both stainless and high strength alloy flex disc materials are available.



MEETS API 610 7th EDITION

Rated Misalignment: 0.5 Deg/Disc

Specify Bores & DBSE
This coupling is sold as an assembly.

Size	Dimensions in Inches									
	Max Bore		A	Dmin DBSE	F1 DA	F2 DH	G	H1 DA	H2 DH	Free End Float +/- Inch
	DA	DH								
DP31	3.38	3.63	7.81	4.38	2.84	3.37	0.44	5.22	5.50	0.052
DP35	3.75	4.00	8.69	4.75	3.28	3.75	0.54	5.71	5.88	0.056
DP37	4.00	4.50	9.69	5.00	3.56	4.00	0.69	6.18	6.50	0.062
DP42	4.50	4.75	10.50	5.13	3.97	4.25	0.69	6.70	7.00	0.067
DP45	4.75	5.13	11.31	5.25	4.50	4.50	0.75	7.20	7.44	0.072
DP50	5.00	5.38	12.88	7.25	4.72	5.00	0.96	7.93	8.38	0.082
DP55	5.50	6.00	14.44	7.62	5.31	5.50	1.04	8.95	9.44	0.092
DP60	6.00	6.50	16.00	8.13	6.00	6.00	1.10	9.89	10.25	0.102
DP70	7.00	7.50	18.25	9.25	7.00	7.00	1.40	11.06	11.75	0.115

Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Agma 8 Max RPM	Weight (LBS.)		WR^2 (LB. IN.^{2})		TQ/RAD X10^6 (LB. IN./RAD)	
	1.0 S.F				At Min D	Add Per IN. of D	At Min D	Add Per IN. of D	K Factor	Y Factor
DP31	38.10	24,000	48,000	6,500	37.2	0.60	289	4.30	16.7	168
DP35	69.84	44,000	88,000	5,700	54.5	0.97	525	8.16	26.7	318
DP37	95.24	60,000	120,000	5,400	69.3	1.05	839	10.7	34.7	417
DP42	115.87	73,000	146,000	5,100	91.4	1.54	1,270	18.2	47.2	711
DP45	136.98	86,300	172,600	4,800	118	1.66	1,910	23.4	61.0	912
DP50	203.17	128,000	256,000	4,300	175	2.28	3,560	38.3	78.7	1,490
DP55	300.00	189,000	378,000	4,100	260	3.03	6,690	63.2	133	2,470
DP60	414.29	261,000	522,000	3,600	367	4.01	11,600	101	187	3,950
DP70	658.73	415,000	830,000	3,300	559	5.46	23,500	172	285	6,690

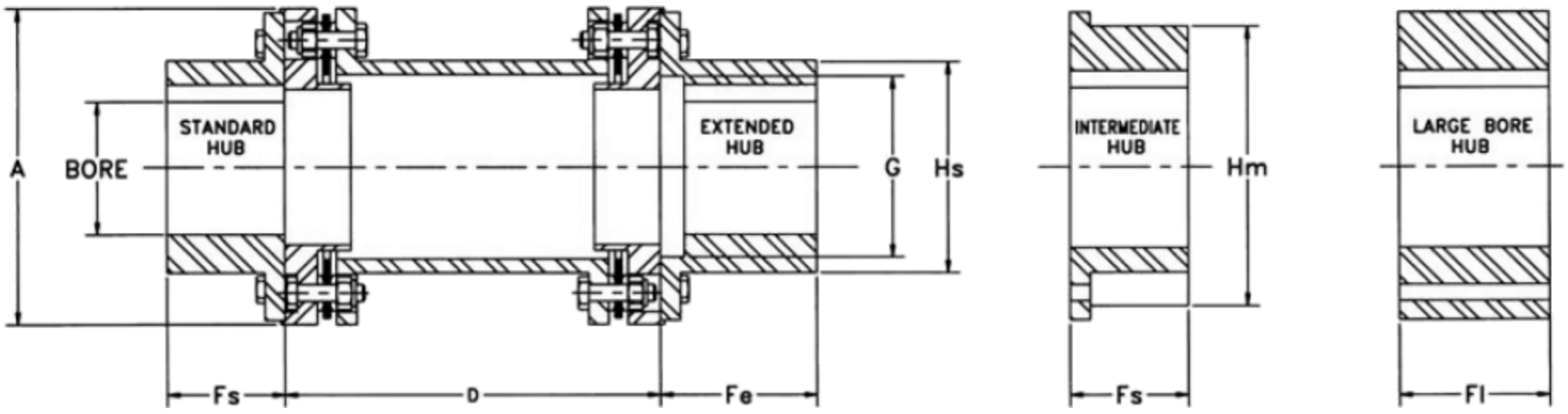
Note:
1) Weight, WR^2 and torsional stiffness values shown are for DA hubs at maximum bore size.
2) To calculate torsional stiffness for a given spacer length, let L=D - Dmin torsional stiffnes = 1/[(1/K) + (L/Y)]

ABSSAC
PRECISION MOTION SINCE 1982

SPACER - BF SERIES 6 BOLT DROP OUT SPACER COUPLING

The BF series is designed for moderate service in higher speed application. The coupling consists of factory assembled spacer unit which mounts between two hubs. The spacer assembly drops out as one unit for easy maintenance. The BF has all steel construction with standard stainless steel flex discs. The coupling is manufactured to meet AGMA class 9 balance requirements. Dynamic balancing for higher speed operation is alos available. Standard length spacers are stocked. Pricing is standard for any spacer length up to the Dmax value listed. Longer spacer lengths are also available. Models BF15 and BF20 use a 4 bolt disc design.

Rated Misalignment: 0.7 Deg/Disc



Specify Bores & DBSE
This coupling is sold as components unless balanced.

MEETS API 610 7th EDITION

MEETS API 610 8th EDITION WHEN FURNISHED BALANCED

Size	Dimensions in Inches												
	Max Bore			A	DBSE			Fs Std Interm,	Fe Ext	Fl Lrg	G Max	Hs Std	Hm Interm.
	Std Ext	Interm. Hub	Large Hub		Dmin	Dmax*	Stock						
15(3)	1.50	1.88	2.38	3.65	3.43	9.00	3.5, 4.37	1.31	1.69	1.63	2.09	2.33	2.75
20(3)	1.88	2.13	2.75	4.19	3.43	9.00	3.5, 4.37, 5	1.56	2.06	1.81	2.56	2.81	3.00
33	2.25	-	3.25	4.93	3.09	9.00	3.5, 5, 7	2.00	2.50	2.06	3.13	3.38	-
38	3.00	-	4.00	6.00	3.50	9.00	5, 7	2.63	3.25	2.75	4.13	4.43	-
43	3.50	-	4.50	6.77	4.43	9.00	5, 7	3.12	3.75	3.00	5.00	5.25	-
48	3.75	-	5.00	7.62	4.50	9.00	5, 7	3.25	4.00	3.25	5.38	5.63	-
53	4.13	-	-	8.00	5.69	9.00	7	3.63	4.38	-	5.75	6.13	-
58	4.63	-	-	9.00	6.88	9.00	7	4.12	5.00	-	6.50	6.88	-
63	5.13	-	-	10.00	6.93	9.00	7	4.50	5.38	-	7.25	7.63	-
68	5.63	-	-	11.00	7.56	12.00	-	5.00	6.00	-	8.00	8.38	-
73	6.50	-	-	12.75	11.00	12.00	-	5.13	6.38	-	8.38	9.38	-
78	7.50	-	-	15.30	11.88	12.00	-	6.38	7.38	-	10.19	10.75	-

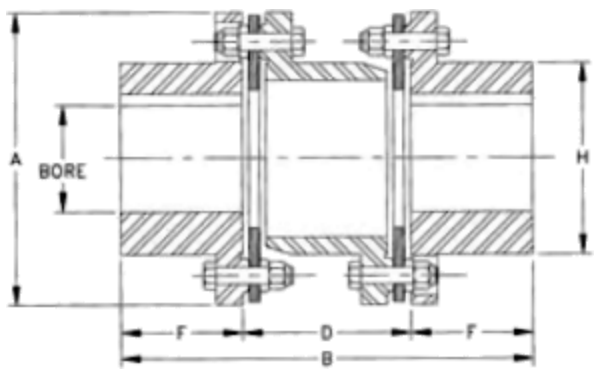
Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Max RPM		Weight (LBS.)		WR^2 (LB. IN.^{2})		TQ/RAD X10^6 (LB. IN./RAD)		FREE END FLOAT +/- INCH
	1.0 S.F			Agma 9	Balanced	At Min D	Add Per IN. of D	At Min D	Add Per IN. of D	K Factor	Y Factor	
(3)15	2.50	1,575	3,150	13,500	23,500	7.38	0.12	11.75	0.05	0.46	2.09	0.045
(3)20	3.49	2,200	4,400	12,500	20,000	10.1	0.19	23.0	0.15	0.87	3.72	0.055
33	4.84	3,050	6,100	11,000	27,400	14.8	0.47	43.3	0.91	2.49	37.1	0.060
38	10.89	6,860	13,720	9,800	14,300	28.1	0.63	129	2.24	5.04	90.8	0.084
43	21.43	13,500	27,000	8,800	12,700	44.5	0.70	276	3.05	9.66	124	0.090
48	29.21	18,400	36,800	8,300	11,000	54.3	0.79	422	4.61	12.8	187	0.108
53	38.10	24,000	48,000	7,800	10,700	72	0.88	633	5.92	14.9	240	0.108
58	65.08	41,000	82,000	7,000	9,475	107	0.98	1,200	8.14	23.4	330	0.118
63	76.19	48,000	96,000	6,700	8,590	134	1.14	1,870	13.0	33.5	528	0.140
68	114.29	72,000	144,000	6,200	7,800	188	1.48	3,020	16.2	44.7	569	0.144
73	198.41	125,000	250,000	5,700	6,740	272	2.02	5,990	27.0	75.1	1,100	0.156
78	369.84	233,000	466,000	5,000	5,600	475	3.21	14,700	63.8	142	2,590	0.170

Note:
1) Weight, WR^2 and torsional stiffness values shown are for standard hubs at maximum bore size.
2) To calculate torsional stiffness for a given spacer length, let L=D - Dmin torsional stiffness = 1/[)1/K) + (L/Y)]
3) 4 bolt disc design

ABSSAC
PRECISION MOTION SINCE 1982

SPACER - HSH SERIES 8 BOLT SPACER COUPLINGS

The HSH series is designed for high torque, low speed applications. Hubs and spacers are cast of iron or steel. Flex discs are high strength alloy steel. Stainless steel flex discs are optional. Dynamic balancing for higher speed operation is not recommended. Single plane balancing of hubs and spacers is available.



Hub Types	Sizes
C.I.	22-160
STL	31-160

Ordering: HSH Series couplings are sold as complete assemblies. Please specify hub type, bore sizes and flex disc materials. A coupling will be configured to meet your specification.

Rated Misalignment: 0.3 Deg/Disc

Size	Dimensions in Inches							
	Max Bore		A	B	D DBSE	F	G	H
	Iron	Steel						
22	2.25	-	6.00	8.00	3.00	2.50	0.43	3.87
26	2.62	-	6.87	9.50	3.50	2.88	0.55	4.50
31	3.12	3.25	8.12	10.87	4.12	3.38	0.62	5.50
35	3.62	3.81	9.12	12.06	4.56	3.75	0.66	6.12
37	3.75	4.19	10.06	13.12	5.12	4.00	0.81	6.50
42	4.25	4.50	11.00	13.93	5.43	4.25	0.81	7.00
45	4.50	4.75	11.87	14.75	5.75	4.50	0.87	7.43
50	5.12	5.50	13.43	16.81	6.81	5.00	1.06	9.50
55	5.62	6.25	15.00	18.68	7.68	5.50	1.25	9.50
60	6.50	7.12	16.75	20.93	8.43	6.25	1.34	10.50
70	7.00	7.87	18.93	23.62	9.62	7.00	1.50	11.75
75	7.75	8.75	20.62	25.00	10.50	7.25	1.53	13.00
80	8.00	9.12	22.37	26.87	11.37	7.75	1.56	13.75
85	8.50	9.62	23.75	28.62	12.12	8.25	1.62	14.50
92	10.00	11.00	25.75	31.00	13.00	9.00	1.75	15.87
105	10.50	12.00	29.25	34.25	13.25	10.50	1.75	20.00
160	16.00	17.00	33.50	30.25	16.25	12.00	2.25	24.00

Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Max RPM	Weight (LBS.)	WR^2 (LB. $IN.^2$)	TQ/RAD X10^6 (LB. IN./RAD)	FREE END FLOAT +/- INCH
	1.0 S.F							
22	15.08	9,500	14,250	3,800	22	80	1.5	0.036
26	25.40	16,000	24,000	3,300	33	161	2.3	0.044
31	38.10	24,000	36,000	2,800	56	401	2.9	0.052
35	69.84	44,000	66,000	2,600	81	750	6.5	0.056
37	95.24	60,000	90,000	2,500	103	1,130	9.9	0.062
42	115.87	73,000	109,500	2,400	133	1,740	6.9	0.067
45	157.14	99,000	148,500	2,250	161	2,510	14.8	0.072
50	203.17	128,000	192,000	2,000	223	4,580	44.3	0.082
55	300.00	189,000	283,500	1,800	302	7,480	54.2	0.092
60	414.29	261,000	391,500	1,600	435	13,800	80.1	0.102
70	658.73	415,000	622,500	1,400	640	25,900	144	0.115
75	846.03	533,000	799,500	1,300	839	38,600	148	0.125
80	1,087.30	685,000	1,027,500	1,200	1,070	59,800	205	0.136
85	1,315.87	829,000	1,243,500	1,100	1,240	79,400	204	0.140
92	1,650.79	1,040,000	1,560,000	1,000	1,710	131,000	384	0.156
105	1,984.13	1,250,000	1,875,000	1,000	c/f	c/f	c/f	0.170
160	3,174.60	2,000,000	3,000,000	900	c/f	c/f	c/f	0.250

Note: 1) Weight, WR^2 and torsional stiffness values shown are for Cast Iron hubs at maximum bore size.

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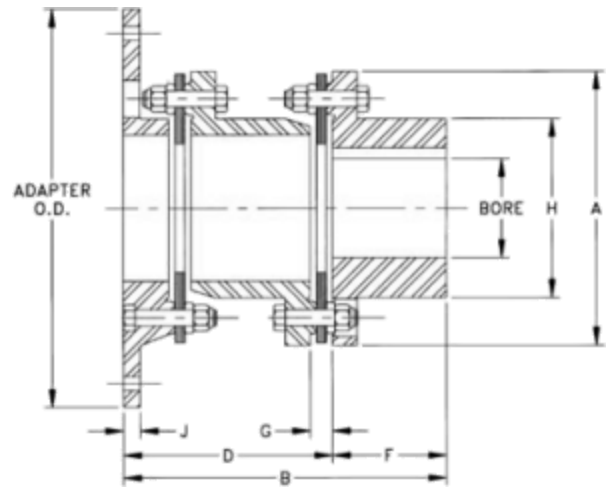
SPACER - FSH SERIES 8 BOLT FLYWHEEL MOUNT COUPLINGS

The FSH series is designed for high torque, low speed applications. Hubs and spacers are cast of iron or steel. Adapter plates are cast grey or ductile iron. Flex discs are high strength alloy steel. Stainless flex discs are optional. Dynamic balancing for higher speed operation is not recommended. Single plane balancing of flywheel adapters, hubs and spacers is available.

Hub Types	Sizes
C.I.	31-105
STL	31-105

Ordering: HSH Series couplings are sold as complete assemblies. Please specify hub type, bore sizes. and flex disc materials. A coupling will be configured to meet your specification.



STANDARD ADAPTER SIZES

Size	OD	SAE Bolting			HD Bolting		
		BC	Hole Qty	Hole Size	BC	Hole Qty	Hole Size
10	10.375	9.625	6	13/32	9,500	8	15/32
12	12.375	11.625	8	13/32	11,500	8	17/32
14	13.875	13.125	8	13/32	12,500	8	21/32
18	18.375	17.250	8	17/32	16,750	8	25/32
20	20.375	19.250	8	17/32	18,500	8	29/32
22	22.500	21.375	6	21/32	20,500	8	1-1/32
26	26.500	25.250	12	21/32	24,500	12	1-1/32
28	28.875	27.250	12	25/32	26,875	12	1-1/32

Rated Misalignment: 0.3 Deg/Disc

Size	Dimensions in Inches									AVAILABLE ADAPTER SIZES MAX BORE X = STOCK SIZE 0 = MTO							
	Max Bore		A	B	D DBSE	F	G	H	J								
	Iron	Steel								10	12	14	18	20	22	26	28
31	3.12	3.25	8.12	8.68	5.31	3.37	0.62	5.50	0.50	O	O	X	X	O	O		
35	3.62	3.81	9.12	9.62	5.87	3.75	0.66	6.12	0.50	O	O	X	X	O	X		
37	3.75	4.19	10.06	10.62	6.62	4.00	0.81	6.50	0.56			O	O	O	O		
42	4.25	4.50	11.00	11.37	7.12	4.25	0.81	7.00	0.63			O	X	O	X	X	X
45	4.50	4.75	11.87	12.00	7.50	4.50	0.87	7.43	0.69			O	X	O	X	X	X
50	5.12	5.50	13.43	13.75	8.75	5.00	1.06	8.37	0.75				X	O	X	X	X
55	5.62	6.25	15.00	15.38	9.87	5.50	1.25	9.50	0.88				X	O	X	X	X
60	6.50	7.12	16.75	17.12	10.87	6.25	1.34	10.50	1.00				X	O	X	X	X
70	7.00	7.87	18.93	19.43	12.43	7.00	1.50	11.75	1.00						X	X	X
75	7.75	8.75	20.62	20.75	13.50	7.25	1.53	13.00	1.13						O	O	X
80	8.00	9.12	22.37	22.50	14.75	7.75	1.56	13.75	1.25						O	O	X
85	8.50	9.62	23.75	23.93	15.68	8.25	1.62	14.50	1.25								X
92	10.00	11.00	25.75	26.25	17.25	9.00	1.75	15.87	1.38								X
105	10.50	12.00	29.25	27.77	17.27	10.50	1.75	20.00	1.75								

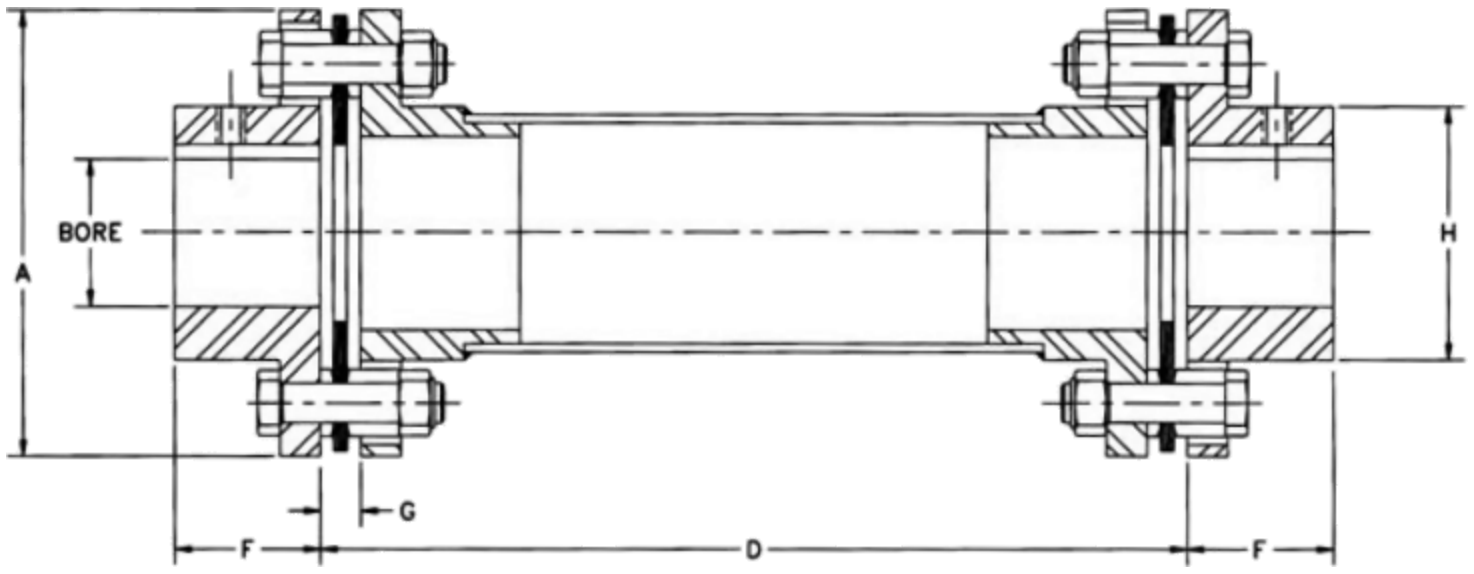
Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Max RPM (2)	Weight (LBS.) (1)	WR^2 (LB. IN.^{2}) (1)	TQ/RAD X10^6 (LB. IN./RAD)	FREE END FLOAT +/- INCH
	1.0 S.F							
31	38.10	24,000	36,000	2,800	48	442	2.95	0.052
35	69.84	44,000	66,000	2,600	64	661	6.69	0.056
37	95.24	60,000	90,000	2,500	87	1,170	10.3	0.062
42	115.9	73,000	109,500	2,400	115	1,860	7.03	0.067
45	157.1	99,000	148,500	2,250	138	2,500	15.4	0.072
50	203.2	128,000	192,000	2,000	202	5,550	48.8	0.082
55	300.0	189,000	283,500	1,800	263	8,000	58.6	0.092
60	414.3	261,000	391,500	1,600	359	12,700	86.5	0.102
70	658.7	415,000	622,500	1,400	559	26,200	161	0.115
75	846.0	533,000	799,500	1,300	766	43,600	160	0.125
80	1087	685,000	1,027,500	1,200	930	60,100	225	0.136
85	1316	829,000	1,243,500	1,100	1,110	83,000	222	0.140
92	1651	1,040,000	1,560,000	1,000	1,460	124,000	433	0.156
105	1984	1,250,000	1,875,000	1,000	c/f	c/f	c/f	0.170

Note: 1) Weight, WR^2 and torsional stiffness values shown are for Cast Iron hubs at maximum bore size and minimum available adapter O.D.
2) Max RPM listed is for smallest adapter size. Consult factory for speed ratings by adapter size.

ABSSAC
PRECISION MOTION SINCE 1982

FLOATING SHAFT - SERIES 4 BOLT FLOATING SHAFT COUPLINGS

The A5 series is used for spacer lengths that are longer than can be spanned economically with spacer couplings. The A5 series has a welded tubular spacer assembly along with two hubs and standard hardware, including stainless steel flex discs. The A5 is made-to-order to any customer spacer length. A5 series standard pricing is listed for D dimensions up to 36 inches and for D dimensions from 36 inches to maximum D at 1800 RPM.



Rated Misalignment: 1.0 Deg/Disc

Hub Options	
Hub Type	**Size**
AJ - Standard	05-45
AZ Oversize	05-45
QD Bushing Mount	15-40
AC/AD Clamp	05-25
AL Lock Element	05-25

Ordering: A5 Series couplings are sold as complete assemblies. Please specify hub types and bore sizes, DBSE (D) dimension, speed for dynamic balancing, and material class. A coupling will be configured to meet your specifications.

Ordering type A6 for vertical applications longer than 30" DBSE. A thrust button will be added on the lower end of the spacer to support the weight of the spacer.

Material Classes	
Class	**Size**
A	05-45
B	05-45
C	15-45
E	15-45

Size	Dimensions in Inches*							Max DBSE (D Inches) for RPM Shown					
	Max Bore		A	Dmin	F	G	H						
	Aj	Az						1800	1500	1200	900	750	600
05	0.87	1.13	2.65	4.00	1.00	0.24	1.30	51	56	62	71	78	87
10	1.25	1.63	3.19	4.00	1.00	0.27	1.80	62	69	76	88	96	107
15	1.37	1.88	3.65	5.00	1.13	0.32	2.00	64	71	79	91	99	111
20	1.62	2.13	4.08	5.00	1.32	0.34	2.40	73	81	90	103	113	126
25	2.00	2.38	4.95	5.00	1.62	0.45	2.80	79	87	97	112	122	137
30	2.38	2.88	5.63	6.00	1.88	0.47	3.30	85	94	102	120	132	147
35	2.88	3.75	6.63	7.00	2.25	0.55	4.15	97	107	119	137	150	168
40	3.25	4.00	7.64	7.00	2.50	0.60	4.65	103	113	126	146	160	178
45	3.75	4.63	8.43	8.00	3.00	0.85	5.40	113	125	139	160	175	196

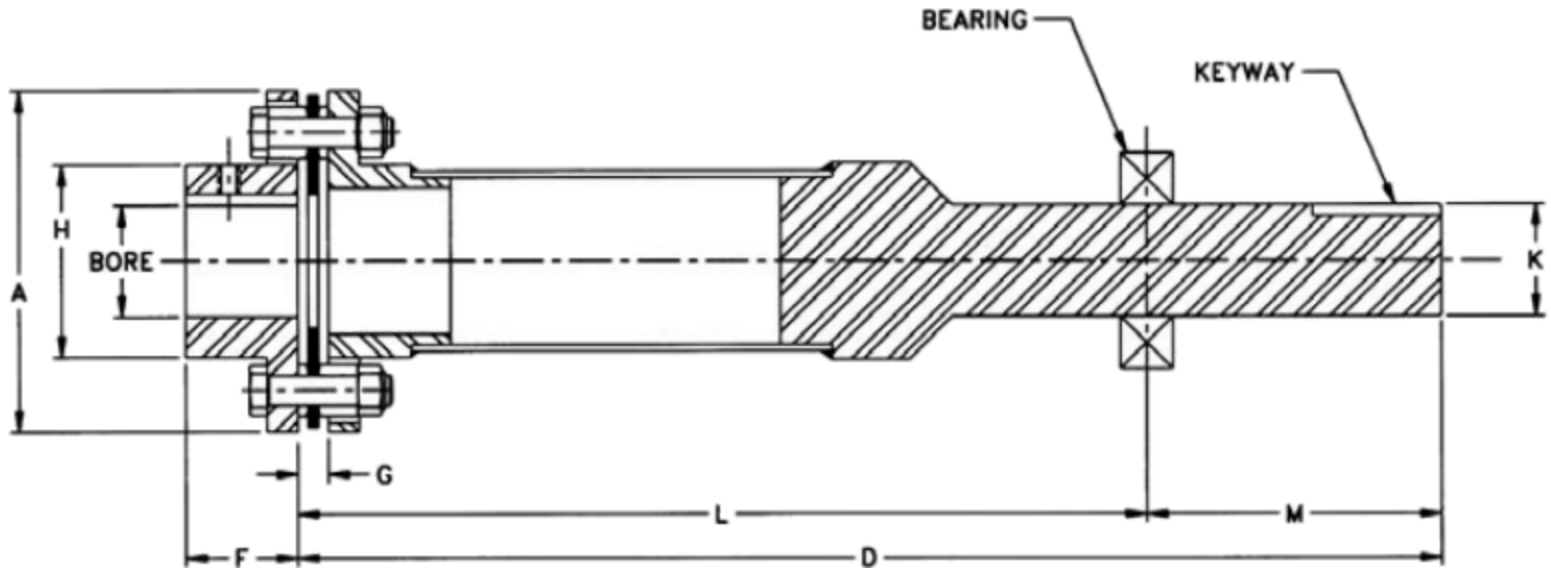
* Dimensions shown are for AJ hubs unless otherwise specified

Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Weight (LBS.)		WR^2 (LB. $IN.^2$)		Tors. Stiffness 10^6 (LB. IN./RAD)		FREE END FLOAT +/- INCH
	1.0 S.F			At D = 20"	Add Per IN. of D	At D = 20"	Add Per IN. of D	K Factor	Y Factor	
05	0.48	300	600	4.37	0.11	2.38	0.03	0.04	1.12	0.030
10	1.27	800	1,600	5.64	0.10	5.88	0.07	0.11	2.81	0.040
15	2.50	1,575	3,150	7.48	0.10	10.3	0.07	0.13	2.81	0.042
20	3.49	2,200	4,400	11.5	0.21	18.3	0.22	0.35	8.77	0.055
25	6.03	3,800	7,600	17.0	0.20	45.0	0.29	0.52	12.0	0.060
30	11.00	6,930	13,860	25.7	0.29	90.6	0.56	0.98	22.7	0.065
35	18.00	11,340	22,680	34.8	0.40	180	1.32	1.99	53.9	0.085
40	29.00	18,270	36,540	49.9	0.46	356	1.95	3.14	79.3	0.100
45	48.00	30,240	60,480	75.7	0.54	614	3.22	5.57	131	0.120

Note:
1) Weight, WR^2 and torsional stiffness values shown are for AJ hubs at maximum bore size.
2) To calculate torsional stiffness for a given spacer length, let L=D - Dmin torsional stiffness = 1/[(1/K) + (L/Y)]

FLOATING SHAFT - A7 SERIES
4 BOLT SEMI-FLOATING SHAFT COUPLINGS

The A7 coupling is a single flexing coupling designed for use in widely spaced three bearing systems. The shaft end of the coupling must be supported by a self-aligning bearing. A full floating coupling may be used in combination with the semi-floating coupling to span longer distances, or a V-belt drive or other component may be mounted to the shaft end. This A7 is made-to-order to any custom spacer length. A7 series standard pricing is listed at D dimensions up to 36 inches and D dimensions between 36 inches and max L at 1800 RPM motor speed.



Rated Misalignment: 1.0 Deg/Disc

Hub Options	
Hub Type	**Size**
AJ - Standard	05-45
AZ Oversize	05-45
QD Bushing Mount	15-40
AC/AD Clamp	05-25
AL Lock Element	05-25

Ordering: A5 Series couplings are sold as complete assemblies. Please specify hub types and bore sizes, DBSE (D) dimension, speed for dynamic balancing, and material class. A coupling will be configured to meet your specifications.

Material Classes	
Class	**Size**
A	10-45
B	05-45
C	15-45
E	15-45

Size	Dimensions in Inches*										Max DBSE (D Inches) for RPM Shown				
	Max Bore		A	Dmin	F	G	H	K	L	M	Keyway Size				
	Aj	Az										1800	1500	1200	900	600
10	1.25	1.63	3.19	20	1.00	0.27	1.80	1.25	16.50	3.50	.25 x .12	62	69	76	88	107
15	1.37	1.88	3.65	20	1.13	0.32	2.00	1.25	16.06	3.94	.25 x .12	64	71	79	91	111
20	1.62	2.13	4.08	20	1.32	0.34	2.40	1.50	15.75	4.25	.37 x .18	73	81	90	103	126
25	2.00	2.38	4.95	20	1.62	0.45	2.80	1.75	15.25	4.75	.37 x .18	79	87	97	112	137
30	2.38	2.88	5.63	20	1.88	0.47	3.30	2.00	14.50	5.50	.50 x .25	85	94	102	120	147
35	2.88	3.75	6.63	20	2.25	0.55	4.15	2.50	13.25	6.75	.62 x .31	97	107	119	137	168
40	3.25	4.00	7.64	20	2.50	0.60	4.65	3.00	12.75	7.25	.75 x .37	103	113	126	146	178
45	3.75	4.63	8.43	20	3.00	0.85	5.40	3.44	12.75	7.25	.87 x .43	113	125	139	160	196

* Dimensions shown are for AJ hubs unless otherwise specified

Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Max Radial Load - (LBS)	Weight (LBS.)		WR^2 ($LB.\ IN.^2$)		Tors. Stiffness 10^6 (LB. IN./RAD)		Free End Float +/- Inch
	1.0 S.F				At D = 20"	Add Per IN. of D	At D = 20"	Add Per IN. of D	K Factor	Y Factor	
10	1.27	800	1,600	34	5.37	0.10	3.30	0.07	0.26	2.81	0.020
15	2.50	1,575	3,150	56	6.65	0.10	5.72	0.07	0.28	2.81	0.021
20	3.49	2,200	4,400	125	11.0	0.21	11.0	0.22	0.56	8.77	0.027
25	6.03	3,800	7,600	183	14.7	0.20	24.9	0.29	0.91	12.0	0.030
30	11.00	6,930	13,860	275	19.7	0.29	52.4	0.56	1.52	22.7	0.032
35	18.00	11,340	22,680	400	34.7	0.40	106	1.32	3.03	53.9	0.042
40	29.00	18,270	36,540	600	51.6	0.46	211	1.95	5.26	79.3	0.050
45	48.00	30,240	60,480	850	76.5	0.54	378	3.22	8.56	131	0.060

Note:
1) Weight, WR^2 and torsional stiffness values shown are for AJ hubs at maximum bore size.
2) To calculate torsional stiffness for a given spacer length, let L=D - Dmin torsional stiffness = 1/[(1/K) + (L/Y)]

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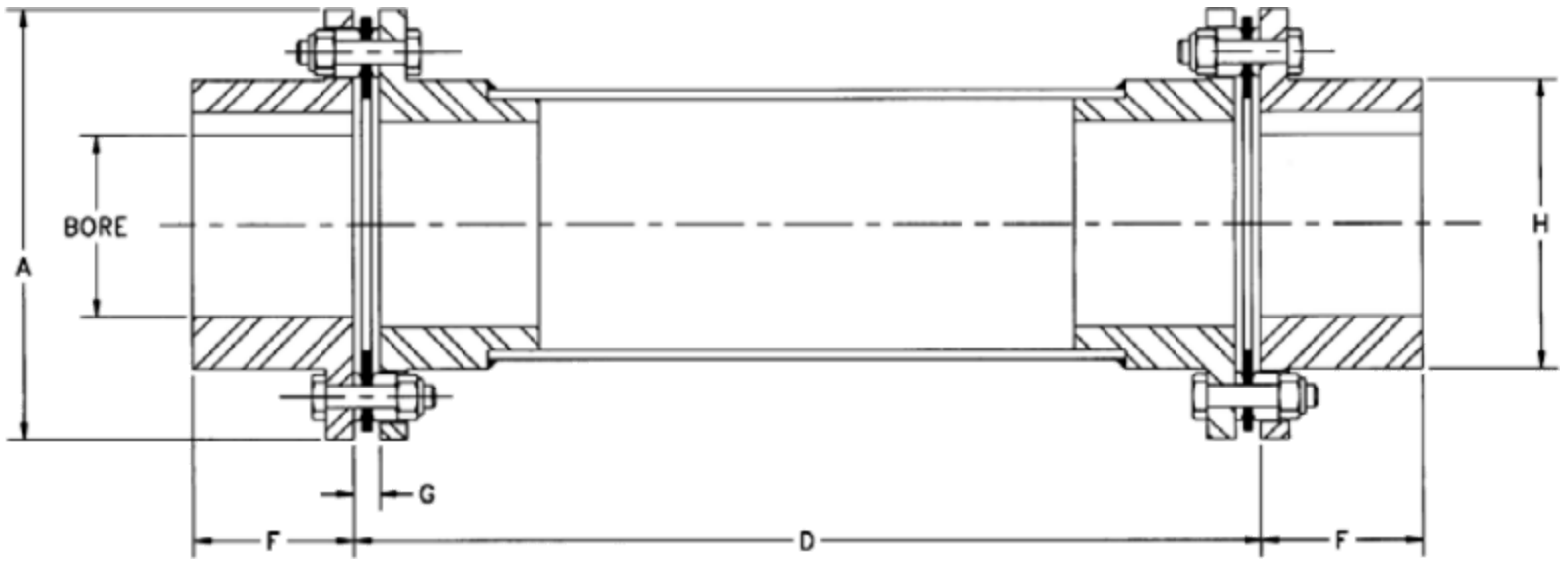
FLOATING SHAFT - B5 SERIES 6 BOLT FLOATING SHAFT COUPLINGS

The B5 series is used for spacer lengths that are longer than can be spanned economically with standard spacer couplings. The B5 has a welded tubular spacer assembly along with two hubs and standard hardware, including stainless steel flex discs. The B5 is made-to-order to any custom spacer length. B5 series standard pricing is listed at D dimensions up to 36 inches and D dimensions between 36 inches and max D at 1800 RPM motor speed.



Rated Misalignment: 0.7 Deg/Disc

Hub Types	Sizes
BH	33-78

Ordering: B5 Series couplings are sold as complete assemblies.
Please specify hub types and bore sizes, DBSE (D) dimension,
speed for dynamic balancing, and material class.
A coupling will be configured to meet your specifications.

Material Classes	
Class	**Size**
A	33-78
B	33-78
C	38-63
E	N/A

Size	Dimensions in Inches*						Max DBSE (D Inches) for RPM Shown					
	Max Bore	A	Dmin	F	G	H	1800	1500	1200	900	750	600
33	2.25	4.69	4.25	1.75	0.285	3.14	79	87	97	112	122	137
38	3.00	5.87	6.00	2.25	0.335	4.13	97	107	119	137	150	168
43	3.25	6.70	7.00	2.50	0.465	4.63	103	113	126	146	160	178
48	3.75	7.50	7.50	2.75	0.495	5.40	113	125	139	160	175	196
53	3.88	7.87	7.50	2.88	0.520	5.65	113	125	139	160	175	196
58	4.25	9.00	7.50	3.25	0.555	6.22	123	136	151	170	186	208
63	4.88	10.00	7.50	3.38	0.600	7.14	123	136	151	170	186	208
68	5.00	10.75	8.00	3.75	0.849	7.33	130	142	159	183	201	225
73	5.25	12.50	10.00	5.13	1.000	7.80	130	142	159	183	201	225
78	6.50	14.90	10.00	6.38	0.940	9.50	148	162	181	209	228	257

Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Weight (LBS.)		WR^2 (LB. $IN.^2$)		Tors. Stiffness 10^6 (LB. IN./RAD)		Free End Float +/- Inch
	1.0 S.F			At D = 20"	Add Per IN. of D	At D = 20"	Add Per IN. of D	K Factor	Y Factor	
33	4.84	3,050	6,100	14.4	0.20	32.7	0.29	0.48	12.0	0.060
38	10.08	6,350	12,700	29.1	0.39	113	1.28	1.77	51.9	0.084
43	19.84	12,500	25,000	41.0	0.44	210	1.88	2.89	76.4	0.090
48	26.98	17,000	34,000	60.0	0.52	402	3.10	4.57	126	0.108
53	38.10	24,000	48,000	67.4	0.52	494	3.10	5.52	126	0.108
58	53.97	34,000	68,000	85.5	0.63	874	5.43	8.44	220	0.118
63	76.19	48,000	96,000	108	0.63	1340	5.43	9.52	220	0.140
68	114.29	72,000	144,000	140	1.15	1940	13.37	19.9	543	0.144
73	198.41	125,000	250,000	210	1.15	3860	13.37	25.0	543	0.156
78	369.84	233,000	466,000	355	1.95	9640	37.32	59.3	1510	0.165

Note: Note: 1) Weight, WR^2 and torsional stiffness values shown are for BH hubs at maximum bore size.
2) To calculate torsional stiffness for a given spacer length, let L=D - 20" torsional stiffness = 1/[(1/K) + (L/Y)]

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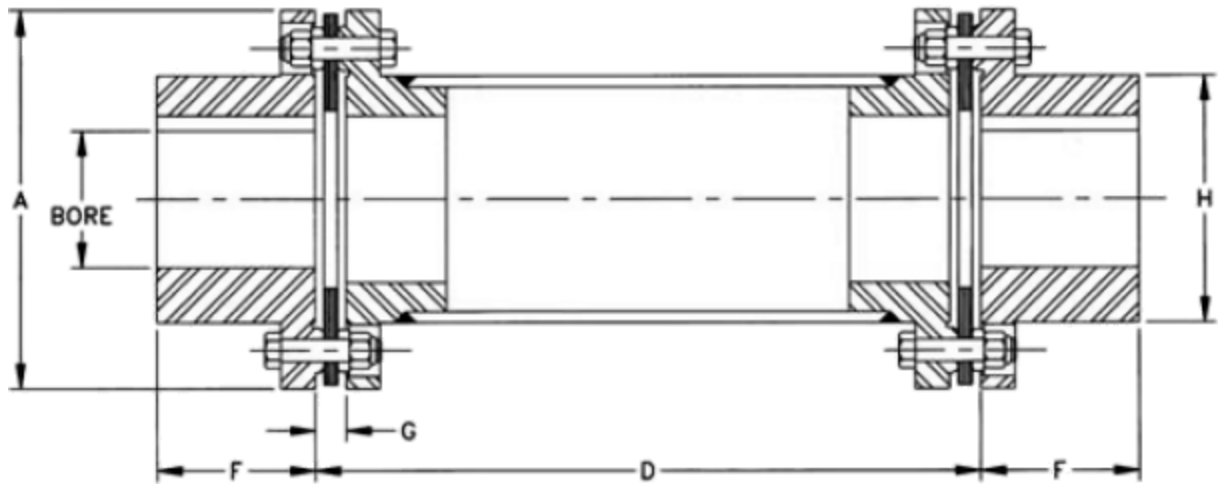
FLOATING SHAFT - HFTH SERIES 8 BOLT FLOATING SHAFT COUPLINGS

The HFTH series is designed for heavy duty applications that cannot use the A5 or B5 series. These include high torque and engine driven applications. The HFTH uses a welded tubular spacer assembly. Flex discs are high strength alloy steel. Stainless steel flex discs are optional. Dynamic balancing of the spacer assembly is included. The HFTH is made-to-order to any custom spacer length. Large tube designs are also available.

Hub Types	Sizes
C.I.	35-160
STL	35-160

Ordering:
HFTH Series couplings are sold as complete assemblies.
Please specify hub speed for dynamic balancing.
A coupling will be configured to meet your specifications.



Rated Misalignment: 0.3 Deg/Disc

Size	Dimensions in Inches							Max DBSE (D Inches) for RPM Shown					
	Max Bore		A	Dmin	F	G	H						
	Iron	Steel						1800	1500	1200	900	750	600
35	3.62	3.81	9.12	10.0	3.75	0.66	6.12	114	124	139	161	176	197
42	4.25	4.50	11.0	10.0	4.25	0.81	7.00	128	140	157	182	198	222
45	4.50	4.75	11.87	10.0	4.50	0.87	7.43	130	143	160	185	201	226
50	5.12	5.50	13.43	10.0	5.00	1.06	8.37	139	153	171	197	215	242
55	5.62	6.25	15.00	10.0	5.50	1.25	9.50	145	159	178	206	224	252
60	6.50	7.12	16.75	15.0	6.25	1.34	10.50	153	168	188	217	237	266
70	7.00	7.87	18.93	15.0	7.00	1.50	11.75	161	176	197	228	250	279
75	7.75	8.75	20.62	15.0	7.25	1.55	13.00	172	189	211	244	267	299
80	8.00	9.12	22.37	15.0	7.75	1.56	13.75	182	199	222	257	282	315
85	8.50	9.62	25.75	20.0	8.25	1.62	14.50	CONSULT ABSSAC					
92	10.00	11.00	25.75	20.0	9.00	1.75	15.87						
105	10.50	12.00	29.25	20.0	10.50	1.75	20.00						
160	16.00	17.00	33.50	20.0	12.00	2.25	24.00						

Size	HP per 100 RPM	Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	Weight (LBS.)		WR^2 (LB. $IN.^2$)		Tors. Stiffness 10^6 (LB. IN./RAD)		Free End Float +/- Inch
	1.0 S.F			At D = 20"	Add Per IN. of D	At D = 20"	Add Per IN. of D	K Factor	Y Factor	
35	69.84	44,000	66,000	111	0.81	1,040	5	9	190	0.056
42	115.9	73,000	109,500	186	1.14	2,520	13	21	537	0.067
45	157.1	99,000	148,500	201	1.14	3,370	13	23	537	0.072
50	203.2	128,000	192,000	311	1.31	6,430	20	38	810	0.082
55	300.0	189,000	283,500	374	1.95	10,100	37	67	1,510	0.092
60	414.3	261,000	391,500	556	3.21	18,600	75	110	3,020	0.102
70	658.7	415,000	622,500	769	3.21	33,000	75	134	3,020	0.115
75	846.0	533,000	799,500	948	4.13	49,000	158	252	6,430	0.125
80	1087	685,000	1,027,500	1260	4.13	78,900	158	265	6,430	0.136
85	1316	829,000	1,243,500	CONSULT ABSSAC						0.140
92	1651	1,040,000	1,560,000							0.166
105	1984	1,250,000	1,875,000							0.170
160	3175	2,000,000	3,000,000							0.250

Note:
1) Weight, WR^2 and torsional stiffness values shown are for AJ hubs at maximum bore size.
2) To calculate torsional stiffness for a given spacer length, let L=D - Dmin torsional stiffness = 1/[(1/K) + (L/Y)]

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TRUE-TUBE™ COMPOSITE TORQUE TUBES

TrueTube composite tubes are high-strength, lightweight torque tubes for long span drive shafts. These tubes are filament wound carbon or glass fibre construction in an oven cured epoxy matrix. TrueTube composites offer the following advantages over steel tubing:

Longer Spans
TrueTube composite tubes have a higher stiffness to weight ratio than steel tubing. That increases the critical speed of the tubing and allows longer spans without centre bearings.

Light Weight
TrueTube drive shafts weigh up to 80% less than equivalent steel driveshafts. That means better balance and reduced vibration. Bearing life may be improved by minimising overhung weight.

Design Flexibility
TrueTube composite tubes may be custom designed to meet your requirements for torsional stiffness, critical speed or torque capacity. With TrueTube, a designer can tune torsional or lateral critical speeds out of a machine system.

All TrueTube products include an ultraviolet barrier that is wound into the structure of the tube before it is cured. This UV barrier eliminates the need for paints or other protective coatings and results in a smooth, durable finish that other composite tubes don't offer. TrueTube products are cured in an enclosed oven to assure consistent strength and quality. Design data is shown below for standard series tubes. Standard series tubes are designed for maximum length at moderate torques. High torque designs are also available.

Model Number	Tube I.D. Inches	Tube O.D. Inches	Sleeve O.D. I nches	Rated Torque LB*IN	Tube Weight (LB/IN)	Tors. Stiffness 10^6 (LB. IN./RAD)	Max DBSE (D Inches)				Max Tube Length Inches
							2000 RPM	1800 RPM	1500 RPM	1000 RPM	
SERIES SL – ALL CARBON CONSTRUCTION											
SL2.0	2.00	2.30	2.40	6,500	0.05	1.26	90	95	104	127	82
SL3.0	3.00	3.25	3.50	12,000	0.08	3.61	110	116	127	155	128
SL4.0	4.00	4.23	4.50	22,000	0.11	8.60	127	134	147	180	145
SL6.0	6.00	6.25	6.63	42,000	0.20	34.4	152	160	175	214	177
SL8.0	8.00	8.25	8.63	63,000	0.24	80.2	180	190	208	255	192
SL10.0	10.00	10.25	10.75	80,000	0.32	155	199	210	230	281	232
SL12.0	12.00	12.25	12.75	100,000	0.38	258	215	227	249	304	232
SERIES SS – CARBON/GLASS CONSTRUCTION											
SS2.0	2.00	2.30	2.40	5,500	0.06	0.97	79	83	91	111	82
SS3.0	3.00	3.25	3.50	10,500	0.08	2.86	97	102	112	137	128
SS4.0	4.00	4.23	4.50	22,000	0.12	7.28	112	118	129	158	145
SS6.0	6.00	6.25	6.63	42,000	0.20	26.4	135	142	155	190	177
SS8.0	8.00	8.25	8.63	58,000	0.28	57.3	151	160	176	216	192
SS10.0	10.00	10.25	10.75	73,000	0.34	115	173	183	200	245	232
SS12.0	12.00	12.25	12.75	88,000	0.42	206	189	199	218	267	232
SERIES LS – ALL GLASS CONSTRUCTION											
LS2.0	2.00	2.30	2.40	5,000	0.07	0.75	66	70	77	94	82
LS3.0	3.00	3.25	3.50	10,000	0.09	2.06	80	84	92	113	128
LS4.0	4.00	4.23	4.50	18,000	0.14	5.04	93	98	107	131	145
LS6.0	6.00	6.25	6.63	39,000	0.23	18.9	110	116	127	155	177
LS8.0	8.00	8.25	8.63	51,000	0.30	43.0	128	135	148	181	192
LS10.0	10.00	10.25	10.75	64,000	0.37	86.0	142	150	164	201	232
LS12.0	12.00	12.25	12.75	77,000	0.46	149	155	163	178	218	232

Note:
1) Torque ratings at 100% humidity and 200 deg.f.
2) Max rpm values shown are calculated at 75% of first critical speed.
3) Torsional stiffness shown is per inch of tube length. Actual stiffness = torsional stiffness/tube length (in.)

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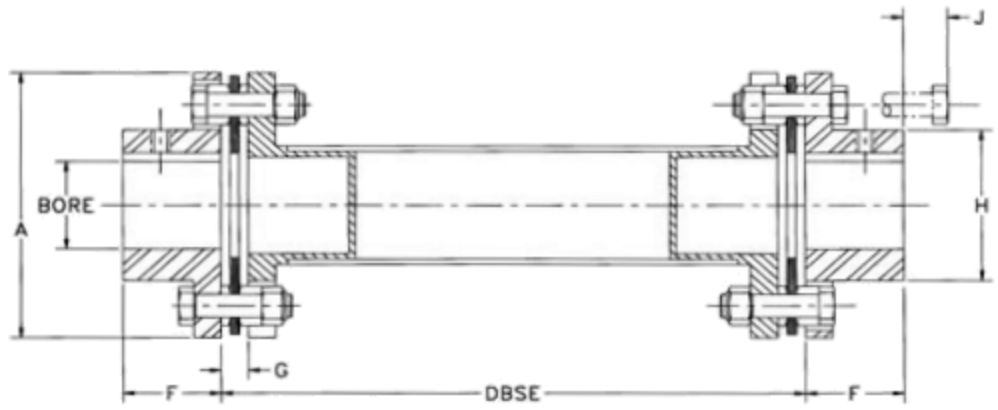
FORM-FLEX® COMPOSITE FLOATING SHAFT COUPLINGS

Form-Flex flexible couplings may be mated to TruTube composite tubes for use as long floating shaft couplings. All types and most sizes of Form-Flex couplings can be mated to TrueTube composites. Common combinations are shown below.



Size	Rated Torque LB IN	Hp per 100 RPM	Coupling Product No.	Maximum DBSE - Inches			Dimensions in Inches						
				Max	1800 RPM	1500 RPM	Maximum Bore Std Hub	Maximum Bore AZ Hub	A	F	G	H	J
A520	2,200	3.49	A520-CS2G	83	70	77	1.625	2.125	4.08	1.32	0.34	2.40	2.30
			A520-CS2R	83	83	83*							2.30
A525	3,800	6.03	A525-CS2G	83	70	77	2.000	2.375	4.95	1.62	0.45	2.80	2.30
			A525-CS2R	83	83	83*							2.30
A530	6,930	11.00	A530-CS3R	128	102	112	2.375	2.875	5.63	1.88	0.47	3.30	3.25
			A530-CS3B	128	116	127							3.25
A535	11,340	18.00	A535-CS4R	146	118	129	2.875	3.750	6.63	2.25	0.55	4.15	4.25
			A535-CS4B	146	134	146*							4.25
			A535-CS6R	179	142	155							6.30
			A535-CS6B	179	160	175							6.30
			A535-CS8R	196	175	191							8.31
			A535-CS8B	196	190	207*							8.31
A540	18,270	29.00	A540-CS4R	146	118	129	3.250	4.000	7.63	2.5	0.6	4.65	4.25
			A540-CS4B	146	134	146*							4.25
B558	34,000	54.00	B558-CS6R	179	142	155	3.75	–	9.00	2.75	0.56	5.43	6.30
			B558-CS6B	179	160	175							6.30
			B558-CS6X	182	165	181							6.30
			B558-CS8R	196	175	191							8.31
			B558-CS8B	196	190	207							8.31
			B558-CS10R**	236	206	224							10.31
			B558-CS10B**	236	210	230							10.31

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FORM-FLEX® COMPOSITE FLOATING SHAFT COUPLINGS CONT.

Quick Selection Guide for Cooling Tower Applications

1800 RPM		Coupling Model	1500 RPM	
DBSE	MAX HP		MAX HP	DBSE
70″	30	A520-S2G	25	77″
	50	HD4-CS2G***	42	
	50	A525-CS2G	42	
83″	30	A525-CS2R	25	83″
	50	HD4-CS2R***	42	
	50	A525-CS2R	42	
102″	100	A530-CS3R	83	112″
116″	100	A530-CS3B	83	127″
118″	150	A535-CS4R	125	129″
	250	A540-CS4R	208	
134″	150	A535-CS4B	125	146″
	250	A540-CS4B	208	
142″	150	A535-CS6R	125	155″
	400	B558-CS6R	333	
160″	150	A535-CS6B	125	175″
	400	B558-CS6B	333	
165″	400	B558-CS6X	333	181″
175″	150	A535-CS8R	125	191″
	400	B558-CS8R	333	
190″	150	A535-CS8B	125	207″
	400	B558-CS8B	333	
206″	400	B558-CS10R	333	224″
210″	400	B558-CS10B	333	230″
227″	400	B558-CS12B	333	236″

All selections use A 2.0 Service Factor

Composite Tube Construction

Model Code	Tube Material of Construction
G	Glass
R	Carbon/Glass Hybrid
B	Standard Carbon
X,Z	High Modulus Carbon

The model code is the last letter in the coupling model number. The number xx in the tube model number CSxxB denotes the nominal tube id.

Material Class	Material Used		
	Hub	Hardware	Spacer Flanges
A	Steel	Steel	Composite or Steel
B	Steel Zinc PLT	Steel, Zinc PLT	Composite or Zinc Plated Steel
C		304SS	
E	304SS	304SS	Composite or 304SS

Metal spacer flanges used if composite is not available.

Notes:

*	Length is restricted by available mandrels for winding composite tubes. Consult factory for longer lengths.
**	Tube diameter is larger than coupling “A” diameter. Consult factory for coupling drawing.
***	HD4-CS couplings are an all composite, high misalignment coupling.

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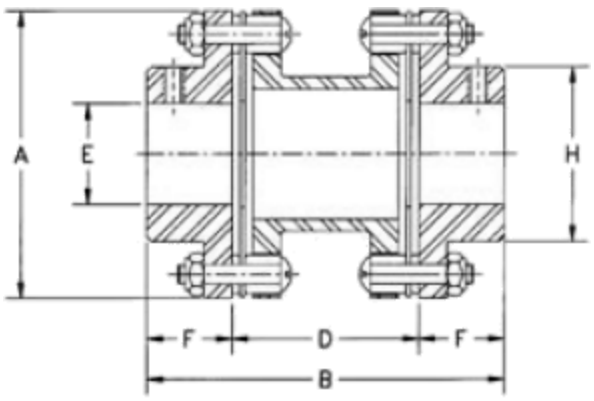
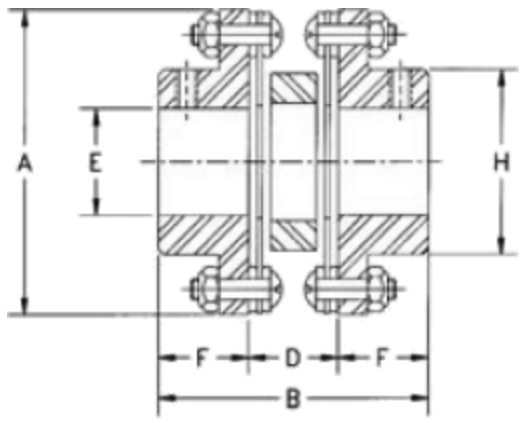
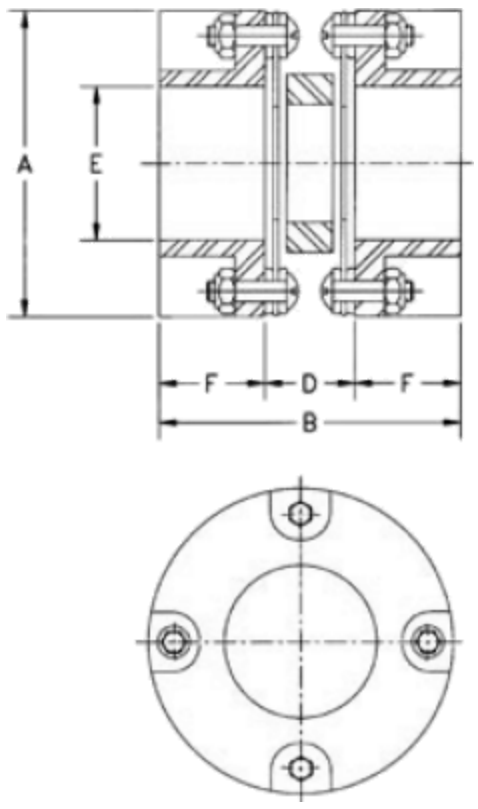
M SERIES - 4 BOLT MICRO COUPLINGS

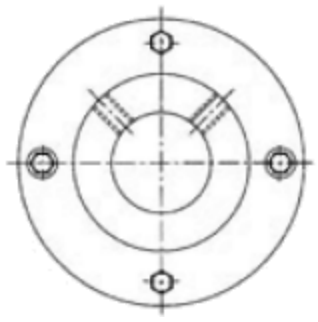
Form-Flex M series microcouplings are a more compact and lighter design than traditional A Series couplings. They are free from backlash and their high torsional stiffness makes them ideally suited for small servo and tachometer drives. Aluminium hub construction meets low inertia requirements while the bolted assembly provides superior life when compared to riveted types.

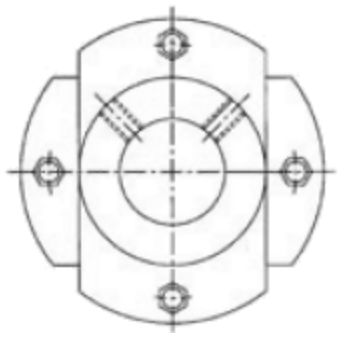
Style MA	Style MB	Style MC
This coupling style is available in size 04 only. It features a machined spool type spacer. Custom length spacers are also available.	This coupling style features a minimum length block spacer. Standard flanged hubs are supplied with the coupling. Style MB is a good, general use coupling.	This style features the MB style minimum length spacer and an oversize bore capacity. The style MC provides the shortest coupling overall.











Dimensions in Inches									Rated Torque (LB. IN.)	Peak O/L Torque (LB. IN.)	WR^2 OZ ($IN.^2$)	Torsional Stiffness (LB. IN./RAD)	Rated Mis-Alignment DEG/DISC	Free End Float (IN.)
Style	Size	Max Bore	A	B	D DBSE	F	H	STD Set Screw Size						
MA	04	0.79	2.24	2.93	1.36	0.79	1.22	M6 x 1.0	87	174	6.11	64.7 x 10^3	1.5	0.60
MB	02	0.38	1.26	1.39	0.45	0.47	0.71	M4 x 0.7	17	34	0.29	2..9 x 10^3	1.5	0.40
	03	0.63	1.65	1.80	0.54	0.63	1.02	M4 x 0.7	35	70	1.33	14.9 x 10^3	1.5	0.50
	04	0.79	2.24	2.38	0.81	0.79	1.22	M6 x 1.0	87	174	4.99	64.7 x 10^3	1.5	0.60
MC	01	0.38	1.02	1.08	0.45	0.32	-	M3 x 0.5	9	18	0.17	2.4 x 10^3	1.5	0.25
	02	0.59	1.26	1.53	0.45	0.32	-	M4 x 0.7	17	34	0.35	2.9 x 10^3	1.5	0.40
	03	0.79	1.65	1.53	0.54	0.50	-	M4 x 0.7	35	70	1.34	14.9 x 10^3	1.5	0.50

Note: Style MB04 coupling hubs will have round flanges as shown for type MA.

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INDIVIDUAL PARTS & KITS

Repair kits consist of flex discs and all the necessary installation hardware. SINGLE REPAIR KITS have one set of flex discs and all required hardware. Two single repair kits are required for a double flexing coupling. DOUBLE REPAIR KITS have two sets of flex discs and all required hardware. HARDWARE KITS have all the components of a repair kit except the flex discs. FLEX DISCS are also sold individually.

A Series (4 bolt) Coupling Parts

Kit Type	Repair		Hardware		Repair	Hardware	Repair	Hardware	Flex Disc
Sgl/Dbl	Single				Double		Double		
Used On Mat'l Class	AA, AK, AP, AR, A5, A7				AX		AY		ALL
	A,B	C,E	A,B	C,E	A,B	A,B	A,B	A,B	ALL
05	A05RKA	...	A05HKA	...	AX05RKA	AX05HKA	AY05RKA	AY05HKA	A0054101
10	A10RKA	...	A10HKA	...	AX10RKA	AX10HKA	AY10RKA	AY10HKA	A0104101
15	A15RKA	A15RKE	A10HKA	A15HKE	AX15RKA	AX15HKA	AY15RKA	AY15HKA	A0154101
20	A20RKA	A20RKE	A20HKA	A20HKE	AX20RKA	AX20HKA	AY20RKA	AY20HKA	A0204101
25	A25RKA	A25RKE	A25HKA	A25HKE	AX25RKA	AX25HKA	AY25RKA	AY25HKA	A0254101
30	A30RKA	A30RKE	A30HKA	A30HKE	AX30RKA	AX30HKA	...	...	A0304101
35	A35RKA	A35RKE	A35HKA	A35HKE	AX35RKA	AX35HKA	...	...	A0354101
40	A40RKA	A40RKE	A10HKA	A15HKE	AX40RKA	AX40HKA	...	...	A0404101
45	A45RKA	A45RKE	A45HKA	A45HKE	AX45RKA	AX45HKA	...	...	A0454101

B Series (4 bolt) Coupling Parts (EXCEPT BA)

Kit Type	Repair		Hardware		Repair	Hardware	Repair	Hardware	Flex Disc
Sgl/Dbl	Single				Single		Double		
Used On Mat'l Class	BH, BP, B5				BF		BY		ALL
	A,B	C	A,B	C	A,B	A,B	A,B	A,B	ALL
15	...	...	...	...	BF15RKA	BF15HKA	...	...	A0154101
20	...	...	...	...	BF20RKA	BF20HKA	...	...	A0204101
33	B033RKA	...	B033HKA	...	BF33RKA	BF33HKA	BY33RKA	BY33HKA	B0334101
38	B038RKA	B038RKE	B038HKA	B038HKE	BF38RKA	BF38HKA	BY38RKA	BY38HKA	B0384101
43	B043RKAB	B043RKE	B043HKAB	B043HKEB	BF43RKAB	BF43HKAB	BY43RKAB	BY43HKA	B0434101
48	048RKA	B048RKE	048HKA	048HKE	F48RKA	F48HKA	Y48RKA	BY48HKA	B0484101
53	B053RKA	B053RKE	B053HKA	B053HKE	BF53RKA	BF53HKA	BY53RKA	BY53HKA	B0534101
58	B058RKA	B058RKE	B058HKA	B058HKE	BF58RKA	BF58HKA	BY58RKA	BY58HKA	B0584101
63	B063RKA	B063RKE	B063HKA	B063HKE	BF63RKA	BF63HKA	BY63RKA	BY63HKA	B0634101
68	B068RKA	...	B068HKA	...	BF68RKA	BF68HKA	BY68RKA	BF68HKA	B0684101
73	B073RKA	...	B073HKA	...	BF73RKA	...	BY73RKA	...	B0734101
76	B078RKA	...	B078HKA	....	BF78RKA	...	BY78RKA	...	B0784101

8 Bolt Coupling Parts (EXCEPT DA AND DP)

Coupling Size	HH, HSH, FSH, HFTH							
	Double Repair Kit		Single Hardware Kit	Flex Disc		Bolt	Washer	Nut
	STD Disc	SS Disc		STD	SS			
22	D22-DF	D22-DF-SS	D22-BNW	D22-5	D22-5-SS	D22-6H	D22-7	D22-6N
26	D26-DF	D26-DF-SS	D26-BNW	D26-5	D26-5-SS	D26-6H	D26-7	D26-6N
31	D31-DF	D31-DF-SS	D31-BNW	D31-5	D31-5-SS	D31-6H	D31-7	D31-6N
35	D35-DF	D35-DF-SS	D35-BNW	D35-5	D35-5-SS	D35-6H	D35-7	D35-6N
37	D37-DF	D37-DF-SS	D37-BNW	D37-5	D37-5-SS	D37-6H	D37-7	D37-6N
42	D42-DF4*	D42-DF4-SS*	D42-BNW4*	D42-5	D42-5-SS	D42-6H4*	D42-7	D42-6N
45	D45-DF4*	D45-DF4-SS*	D45-BNW4*	D45-5	D45-5-SS	D45-6H4*	D45-7	D45-6N
50	D50-DF4*	D50-DF4-SS*	D50BNW4*	D50-5	D50-5-SS	D50-6H4*	D50-7	D50-6N
55	D55-DF4*	D55-DF4-SS*	D55-BNW4*	D55-5	D55-5-SS	D55-6H4*	D55-7	D55-6N
60	D60-DF4*	D60-DF4-SS*	D60-BNW4*	D60-5	D60-5-SS	D60-6H4*	D60-7	D60-6N
70	D70-DF	D70-DF-SS	D70-BNW	D70-5	D70-5-SS	D70-6H	D70-7	D70-6N
75	D75-DF4*	D75-DF4-SS*	D75BNW4*	D75-5	D75-5-SS	D75-6H4*	D75-74*	D75-6N4*
80	D80-DF4*	D80-DF4-SS*	D80BNW4*	D80-5	D80-5-SS	D80-6H4*	D80-7	D80-6N
85	D85-DF	D85-DF-SS	D85-BNW	D85-5	D85-5-SS	D85-6H	D85-7	D85-6N
92	D92-DF	D92-DF-SS	D92-BNW	D92-5	D92-5-SS	D92-6H	D92-7	D92-6N

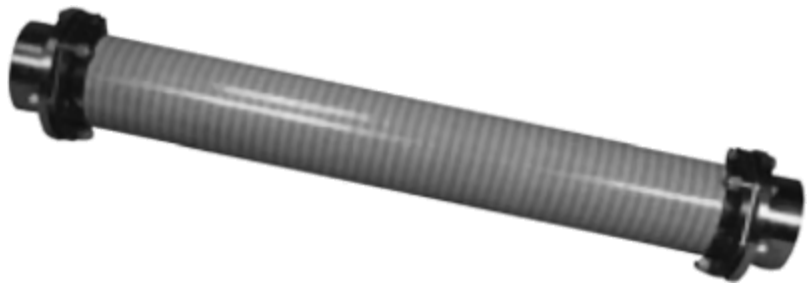
*Items marked * have new style bolts. Bolt head hex may not fit FSH type flywheel adapters manufactured 1994 or earlier.
To received Old Style Bolts, delete the “4” from these part numbers.

ABSSAC
PRECISION MOTION SINCE 1982

COOLING TOWER COUPLINGS

The traditional A5 design features all metal construction. It can be ordered to meet any custom spacer length. A wide variety of materials and finishes is available.

Designed specifically as a connection for cooling tower applications and other drives requiring long shaft spans. Form-Flex couplings with TrueTube composite tubing weigh less than half of its steel counterpart and can span shaft separations of up to 240 inches. They are easy to handle, install and maintain. TrueTube composites are extremely corrosion resistant and are custom designed to provide the optimum combination of torsional strength and lateral stiffness for cooling tower drive applications. TB Wood's proprietary composite flange design transmits torque reliably from the metal outboard hubs to the composite flange and into the TrueTube composite tube.



HD elastometric couplings and TrueTube composites are combined into a high misalignment, all composite coupling. These couplings are easy to install and align. Their high misalignment capacity makes them ideal for smaller, wood framed and fibreglass towers.

Please contact our technical sales department for further details.

ABSSAC
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Proposal form for Couplings and U-Joints

Name _____ Tel _____

E-Mail _____

Company _____ Fax _____

Address _____

Operating Information

1. Drive*

a or b. Direction 

c. Continuous d. Reversing

e. Stop-Start cycles/sec

f. RPM g. Manual

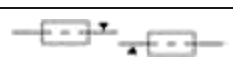
2. Service*

a. Operating Torque lbin or Nm.

b. Maximum Torque lbin or Nm.

3. Misalignments*

a. Angular  deg

b. Parallel  in. or mm

c. Axial Compression/Extensions in. or mm

d. Skew - please provide sketch

4. Torsional Rate*

deg/lb.in. or deg/Nm

a. less than b. equal to c. greater than

5. Inertial Limitations / Mass Moment of Inertia

deg/lb.in. or deg/Nm

a. less than b. equal to c. greater than

6. Weight

oz. or gm

a. less than b. equal to c. greater than

7. Environment

a. Temperature °F or °C

b. Corrosive

c. Abrasive

Flexure and Component Layout

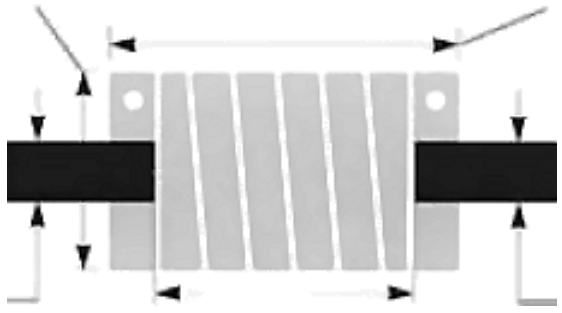
8a.* Preferred Outside Diameter in. or mm

Maximum Outside Diameter in. or mm

b.* Preferred Length in. or mm

Maximum Length in. or mm

c. *Driver Description



d. *Driver Description

e.*Shaft Diameter in. or mm

g.*Shaft to Shaft in. or mm

f.*Shaft Diameter in. or mm

9. Bore Tolerance

a. Commercial
+.002 in. -.000 in.
or
+.05 mm -.00mm

b. Precision
+.0005 in. -.0000 in.
or
+.015 mm -.000mm

ATTACHMENTS

	10. Driver*		11. Driven*
a	Integral Clamp	a	
b	2 Set Screws at 120°	b	
c	2 Set Screws at 90°	c	
d	1 Set Screw	d	
e	Roll Pin in. or mm	e	
f	Dowel Pin in. or mm	f	
g	Keyway type _____ size _____	g	
h	Other/describe below	h	

12.Material

7075-T6 Aluminium Alloy

17-4 PH Stainless Steel

Other

13.Production Quantity

1-24

25-100

100+

* Items marked with an asterisk are essential for optimum design.

Type of equpiment _____

Comments _____

T: +44 (0)1386 421005 ***F:*** +44 (0)1386 422441 ***E:*** sales@abssac.co.uk ***W:*** www.abssac.co.uk

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ABSSAC
PRECISION MOTION SINCE 1982

STANDARD CONDITIONS OF SALE

1. Interpretation

1.1 In these Conditions:
"Buyer" means the person who accepts a quotation of the Seller for the sale of the Goods or whose order for the Goods is accepted by the Seller
"Goods" means the goods (including any instalment of the goods or any parts for them) which the Seller is to supply in accordance with these Conditions
"Seller" means ABSSAC LIMITED a company incorporated in England and whose registered number is 1677177.
"Conditions" means the standard terms and conditions of sale set out in this document and (unless the context otherwise requires) includes any special terms and conditions agreed in writing between the Buyer and the Seller
"Contract" means the Contract for the purchase and sale of the Goods
"Writing" includes telex, cable, facsimile transmission, E-Mail and comparable means of communication

1.2 Any reference in these Conditions to any provision of a statute shall be construed as a reference to that provision as amended, re-enacted or extended at the relevant time

1.3 The headings in these Conditions are for convenience only and shall not affect their interpretation

2. Basis of the sale

2.1 Subject to Condition 3 below, the Seller shall sell and the Buyer shall purchase the Goods in accordance with any oral or written order of the Buyer which is accepted by the Seller, or any written quotation of the Seller which is accepted by the Buyer, subject to these Conditions which shall govern the Contract to the exclusion of any other terms and conditions subject to which any such quotation is accepted or purported to be accepted, or any such order is made or purported to be made, by the Buyer

2.2 No variation, addition or waiver of any of these Conditions shall be effective unless it is in Writing and signed by a duly authorised representative of both the Seller and the Buyer

2.3 The Seller's employees or agents are not authorised to make any representations concerning the Goods unless confirmed by the Seller in Writing. In entering into the Contract the Buyer acknowledges that it does not rely on any such representations which are not so confirmed

2.4 Samples supplied and advice or recommendations as to storage, application or use of the Goods given by the Seller or its employees or agents to the Buyer or its employees or agents are for guidance only and any such matter which is not confirmed in Writing by the Seller is followed or acted upon entirely at the Buyer's own risk and accordingly the Seller shall not be liable for any such advice or recommendation which is not so confirmed then the Buyer should depend on their accuracy only after obtaining specific written confirmation to that effect from the Seller

2.5 Any typographical, clerical or other error or omission in any sales literature, quotation, price list, acceptance of offer, invoice or other document or information issued by the Seller shall be subject to correction without any liability on the part of the Seller

3. Quotations and acceptance of orders

3.1 Quotations issued by the Seller are invitations to order Goods from the Seller. No Contract will exist until the Seller has accepted the Buyer's order in accordance with condition 3.3.

3.2 Subject to condition 3.1 the price in the quotation should be valid for a period of 30 days from the date of the quotation unless otherwise advised by the Seller in Writing

3.3 The Seller shall not be bound by any order submitted by the Buyer unless and until confirmed by the Seller in Writing

3.4 Scheduled call off purchase orders made by the Buyer with the Seller are for twelve month periods only, or until 19th December ofthat year, depending which comes first unless otherwise agreed in Writing by the Seller

3.5 The Buyer is committed to purchasing any remaining amount of products on his purchase order if the Buyer decides to cancel the order mid schedule unless otherwise agreed in Writing by the Seller

3.6 No order which has been accepted by the Seller may be cancelled by the Buyer except with the agreement in Writing of the Seller on the terms that the Buyer shall indemnify the Seller in full against all loss (including loss of profit), costs (including the costs of all labour and materials used), damages, charges and expenses incurred by the Seller as a result of cancellation.

3.7 Compliance with United States Export Regulations
It is Abssac's policy to request, if applicable, the end use and end user details in all sales and repairs of USA origin products and in all transfers of technical data or software to ensure compliance with applicable u.s. export control laws and regulations. Because the products you are purchasing may be used outside of the United States, we will need confirmation of the following from the (buyer). It is on the onus of the buyer to ensure that Abssac is informed of the following information.

1.1 (Buyer) will not export or re-export any USA origin products, technology or software to Cuba, Iran, Iraq, Libya, North Korea, Sudan, or Syria, unless otherwise authorized by the United States Govern ment.

2.1 (Buyer) will not sell, transfer, export or re-export any USA origin products for use in activities which involve the development, production, use or stockpiling of nuclear, chemical or biological weapons or missiles, nor use USA origin products in any facilities which are engaged in activities relating to such weapons.

3.1 (Buyer) acknowledge that u.s. law prohibits the sale, transfer, export or re-export or other participation in any export transaction involving USA origin products with individuals or companies listed in the u.s. Commerce Department's Table of Denial Orders, the u.s. Treasury Department's list of Specially Designated Nationals or the u.s. Department of State's list of individuals debarred from receiving Munitions List items.

4.1 (Buyer) will abide by all applicable u.s. export control laws and regulations for any products purchased from USA origin products, software or technology.

5.1 (Buyer) agree that the export control requirements in No. 1-4 above shall survive the completion, early termination, cancellation or expiration of the applicable purchase order, agreement or contract.

4. Specifications

4.1 The Buyer shall be responsible to the Seller for ensuring the accuracy of the terms of any order (including any applicable specification) submitted by the Buyer, and for giving the Seller any necessary information relating to the Goods within a sufficient time to enable the Seller to perform the Contract in accordance with its terms

4.2 The quantity, quality and description of any specification for the Goods shall be those set out in the Seller's quotation (if accepted by the Buyer) or the Buyer's order (if accepted by the Seller)

4.3 If Goods are supplied in accordance with the Buyer's specifications the Buyer shall be solely responsible for the specifications and ensuring that they are accurate

4.4 If any technical calculations are made by the Seller using information supplied by the Buyer the Buyer accepts that they are responsible for supplying accurate technical information and accordingly the Seller is not liable in respect of calculations based on incorrect information given

4.5 If Goods are to be manufactured or any process is to be applied to the Goods by the Seller in accordance with a specification or request submitted by the Buyer or should any change be made to the Goods at the request of the Buyer the Buyer shall indemnify the Seller against all loss damages costs and expenses awarded against or incurred by the Seller in connection with or paid or agreed to be paid by the Seller in settlement of any claims for infringement of any patent, copy right, design, trade mark or other industrial or intellectual property rights of any person which results from the Seller's use of the Buyers specification

4.6 The Seller reserves the rights to make any changes in the specification of the Goods which are required to conform with any applicable statutory or EC requirements or, where the Goods are to be supplied to the Seller's specification, which do not materially affect their quality or performance

4.7 At all times the buyer has the responsibility to adequately guard and maintain the product supplied in accordance with relevant operation manuals, service factors and health and safety legislation applicable for any product supplied by ABSSAC Limited.

4.8 The seller (Abssac Limited) shall not in any event be liable for any consequential damages, secondary charges, expenses for installing or disconnecting, or losses or injuries to persons or property resulting from any alleged defect in the product or any use of the product, and lor in manner that exceeds its design, duty cycle and or ability.

4.9 It remains the responsibility of the buyer to test any samples or other products that the seller will provide for fatigue, stress and general ability in the application. All products that the seller provides and are used in both real and test situations are considered by Abssac Ltd to have been thoroughly tested to meet and exceed the anticipated life and duty requirement of the product in its application by the buyer. It remains the responsibility of the buyerto give all technical information to the seller and all buyers are responsible for meeting health and safety measures and adequately guarding users and all associated parties against all and any possible failures in line with the health and safety requirements.

Other Where recommended guidelines of serviceable or replaceable parts and maintenance/inspection requirements are exceeded or ignored by the user and/or buyer, no warranty or other claim can or will exist. Where minimum or maximum values/sizes/limits/dimensions/fitting instructions and technical data of parts are ignored/abused/extended/not applied/not actioned or used in excess ofthe design or standard parameters ofthe product by the user and/or buyer then no warranty claim or other claim can exist.

No warranty or other claim can exist or be made by the user or buyer or other to the seller or its agent or other for any part used in motor sport, military or aviation. No warranty is given to this type of application.

All or any secondary or further processes/disassembly/machining/ heating/drying/coating or any other additional process the originally supplied product or associated part/product after dispatch from the seller or its agent voids any warranty claim or other claim.

It remains the responsibility of the buyer or user to advise us the seller of any and all certification/test/traceable certification requirement.

Conversations may be recorded as part of our ongoing customer service program.

5. Packaging

5.1 Packaging for the Goods shall be at the discretion of the Seller which has the right to pack the Goods in such a manner and with such materials and in such quantities as in his absolute discretion thinks fit unless detailed packaging instructions are received from the Buyer prior to agreeing a price for the Goods which the Seller agrees to in Writing

6. Price of the Goods

6.1 Price of the Goods shall be the Seller's quoted price or, where no price has been quoted (or a quoted price is no longer valid) the price listed in the Seller's published price list current at the date of acceptance of this order. Where the Goods are supplied for export from the United Kingdom, the Seller's published export price list shall apply. All prices quoted are valid for 30 days only or until earlier acceptance by the Buyer, after which time they may be altered by the Seller without given giving written notice to the Buyer

6.2 The price is exclusive of any applicable value added tax, which the Buyer shall be additionally liable to pay to the Seller

6.3 All prices stated shall be subject to variation at the sole discretion of the Seller at any time without prior notice and the Seller shall notify the Buyer of any variation before delivery of the Goods

7. Payment

7.1 Liability for payment for the Goods supplied to customers who have a trading account with the Seller shall arise on delivery and payment in cash is due 30 days from the date of the invoice or as otherwise specifically agreed in Writing by the Seller. Payment shall be due and the company shall be entitled to sue for the price whether or not property in the Goods has passed by virtue of condition 10 and not withstanding the delivery may not have taken place as a result of the Buyer's wrongful or refusal to accept delivery. The time of payment of the price shall be of the essence of the Contract

7.2 Liability for payment forthe Goods supplied on a proforma invoice basis for customers who do not have a trading account with the Seller shall be prior to delivery of the Goods. The ti me of payment of the price shall be of the essence of the Contract. It is the Buyer's responsibility to give written notice to the Seller of any payment under proforma invoice arrangements

7.3 Sums paid after the due date shall pay interest until the day payment is received at the rate of 5% per annum above the base rate from time to time of National Westminster Bank Pic occurring from day to day from the date of delivery until the date of payment in full

7.4 If the recovery of sums outstanding from the Buyer is passed to a debt collection agency the Buyer shall pay the Seller's costs in instructing the said debt collection agency and all ancillary legal costs

7.5 Without prejudice to any other rights or remedies ofthe Seller any in default of the Buyer in making payment on the due date shall entitle the Seller to suspend deliveries under the Contract or any other Contract so long as the default continues and break the Contract as repudiated by the Buyer and determined if the Buyer has not within 14 days of receiving written notice from the Seller paid all sums due to the Seller.

8. Delivery

8.1 Delivery shall take place when the Goods are unloaded at or delivered to the Buyer's premises or other delivery location agreed between the Seller and the Buyer exceptthat if the Buyer collects or arranges collection of the Goods from the Seller's premises, or nominates a carrier for the Goods delivery shall take place when the Goods are loaded on the collection or carriers vehicle

8.2 Any dates quoted for delivery of the Goods are approximate only and the Seller will not be liable for any delay in delivery of the Goods however so caused. Time for delivery shall not be of the essence of the Contract unless previously agreed by the Seller in Writing. The Goods may be delivered by the Seller in advance of the quoted delivery date upon giving responsible notice to the Buyer

8.3 The Buyer shall accept immediate delivery or arrange to collect the Goods or arrange suitable storage, failing which the company may either:

8.3.1 effect delivery by whatever means they think most appropriate; or

8.3.2 arrange storage atthe Buyer's risk and expense pending delivery; or

8.3.3 re-sell or otherwise dispose ofthe Goods without prejudice to any other rights the Seller may have against the Buyer for breach of Contract or otherwise

8.4 Where the agreement provides for delivery by instalments each delivery shall constitute a separate Contract and failure by the Seller to deliver any one or more of the instalments in accordance with these Conditions or any claim by the Buyer in respect of any one or more instalments shall not entitle the Buyer to treat the Contract as a whole as repudiated

8.5 The Buyershall not be entitled to reject the Goods by reason only of short delivery

8.6 The quantity of the Goods delivered under the Contract shall be recorded by the Seller upon dispatch from the Seller's factory or warehouse and the Seller's records shall be accepted by the Buyer as conclusive evidence of the quantity delivered.

8.7 It is the Buyer's responsibilityto notify the seller if Goods have not been received by the Buyer within seven days of the date of receipt of the Seller's invoice, therefore, if no notification is made the Buyer shall be deemed to have received the Goods.

8.8 If the Seller fails to deliver the Goods (or any instalment) for any reason other then any cause beyond the Seller's reasonable control or the Buyer's fault, and the Seller is accordingly liable to the Buyer, the Seller's liability shall be limited to the excess (if any) of the cost to the Buyer (in the cheapest available market) of similar Goods to replace those not delivered over the price of the Goods. The seller is under no obligation or liability in respect of failure to complete or delay or failure to deliver the goods comprised in any order or contract caused directly or indirectly by act of war or terrorism, strikes, lockouts, labour troubles, breakdowns, delays in transport, accidents, delay in obtaining material, fire, government prohibition, delivery of necessary fuel requirements, any and all problems or other restrictions relating to design or other manufacturing difficulties that arise during an order.

8.9 If the Buyer fails to take delivery of the Goods or fails to give the Seller adequate delivery instructions at the time stated for delivery (otherwise than by reason of any cause beyond the Buyer's reasonable control or by reason of the Seller's fault) then, with out prejudice to any other right or remedy available to the Seller, the Seller may:

8.9.1 store the Goods until actual delivery and charge the Buyer for the reasonable costs (including insurance) of storage;
or

8.9.2 sell the Goods at the best price readily obtainable and (after deducting all reasonable storage and selling expenses) account to the Buyer for the excess over the price under the Contract or charge the Buyer for any shortfall below the price under the Contract

9. Examinations and claims

9.1 The Buyer shall upon delivery examine the Goods and shall promptly (but in any event within seven working days of delivery) notify in Writing the Seller and the carrier, where relevant, of any apparent damage defect or shortage.

9.2 The Buyer shall comply with the carriers rules, regulations and requirements so as, when appropriate, to the Seller to make a claim against the carrier in respect of any damage or loss in transit.

9.3 Claims in respect of damage defects or shortage not apparent on examination and under clause 9.1 must be notified in Writing to the Seller within 7 days of the date of delivery

9.4 Notification under clauses 9.1 to 9.3 above shall be first made by telephone then by notice in Writing delivered by facsimile transmission or by first class recorded delivery mail and addressed to Abssac Limited Units 19/20 Bond Industrial Estate Wickhamford Evesham Worcs WRll 7RH.

9.5 In default of such notification the seller shall be deemed conclusively to have properly preformed its obligations under the Contract.

10. Property and risk

10.1 All risk including that of dam age to or loss of the Goods shall pass to the Buyer:

10.1.1 at the time when the Seller notifies the Buyer that the Goods are available for collection the case of Goods to be supplied at the Seller's premises
or

10.1.2 at the time of delivery but prior to unloading or if the Buyer wrongfully fails to take delivery of the Goods at the time when the Seller has tendered to delivery of the Goods in the case of Goods to be supplied otherwise than at the Seller's premises
or;

10.1.3 at the time of delivery of the Goods to a carrier for delivery to the Buyer in the case of Goods to be supplied in a manner otherwise than as set out in Conditions 10.1.1 or 10.1.2 above

10.2 The Buyer shall fully insure the Goods against all risks from the times stipulated forthe passing of risk in condition 10.1 above up to the time when the proprietary rights in such Goods pass to the Buyer

10.3 Property (both legal and beneficial) in the Goods shall remain in the company until all sums owing to the Seller whether under the Contract or any other Contract at any time between the Seller and the Buyer made prior to the date of the Contract ("the Indebtedness) shall have been paid in full, until such time the Buyer shall hold the Goods as bailee for the Seller

10.4 The Buyer shall not be entitled to pledge or in any way charge by way of security for any indebtedness any of the Goods which remain the property of the Seller, but if the Buyer does so all moneys owing by the Buyer to the Seller shall (without prejudice to any other right or remedy of the Seller) forthwith become due and payable

10.5 The Buyer until otherwise notified by the Seller or on the happening of any of the event specified in Condition 10.7 ("the Events") may in the ordinary course of business sell the Goods and pass property in them ("the Re-Sale") subject to the stipulations ("the Stipulations") imposed in Condition 1 0.5

10.6 The Stipulations are that until the Indebtedness has been fully discharged;

10.6.1 the Goods shall not be converted into any other product or mixed with any other Goods to make another product ("the New Product") nor will the Buyer sell the New Product and property in it ("the Sale") but if the Buyer in breach of the above provision does convert or mix the Goods property in the New Product shall atthe earliest moment that such vesting is possible, vest and remain in the Seller whether or not property in the Goods is at the moment extinguished

10.6.2 the Re-Sale shall be for the account of the Seller and, unless the Seller by written notice requires the paymentto it of the proceeds ofthe Re-Sale ("the Proceeds") to the extent of the Indebtedness, in which case the Buyer shall forthwith on receipt of such notice or as soon as thereafter as it shall receive the Proceeds makes its payment, the Buyer shall retain the Proceeds in a separate bank accountto the order of the Seller and not mix them with any other monies

10.6.3 in the event of a breach by the Buyer of its obligations under additions 10.6.1 the Seller shall have the right to trace the Proceeds in to any other moneys which may have been mixed and the Buyer shall indemnify the Seller on a full indemnity basis against loss, damage, costs or expenses incurred in such tracing

10.6.4 until the Re-Sale the Seller has have the right to repossess the Goods or take possession of the New Product at any time and for this purpose shall have the right to enter on to any premises or land in the ownership or possession of the Buyer and remove the Goods and/or the New Product not withstanding that they are affixed to such premises or land and the Buyer shall indemnifythe Seller on a full indemnity basis against all loss, damage, costs or expenses so arising including loss, damage, costs or expenses in respect of third party claims. Such taking of possession re delivery shall be without prejudice in the obligation of the Buyer to purchase Goods

10.6.5 the Goods and the New Product shall until their Re-Sale or Sale be stored separately, protected and insured and identified and clearly marked as the Seller's property

10.7 The Events are;

10.7.1 The giving of any notice to the Buyer that a receiver, manager, administrative receiver, supervisor, nominee or administrator is to be or has been appointed over any of the property or assets of the Buyer or that a petition to wind up the Buyer is to be or has been presented or that an application for an administration order is to be or has been made or any notice of a resolution to wind up the Buyer (say for the purposes of bona fide reconstruction or amalgamation)

10.7.2 A decision by the Buyer that the Buyer intends to make any arrangement or composition with its creditors generally.

10.7.3 Where the Buyer pursuant to section 123 or 268 of the Insolvency Act 1986 appears to be unable to pay a debt or appears to have no reasonable prospects of being able to pay a debt

10.7.4 any distress or execution levied as threatened to be levied on any property or assets of the Buyer

10.7.5 the inability of the Buyer to pay its debts as they fall due

10.7.6 on receipt of notification from the company under Condition 10.5 or on the happening of any of the Events the Buyer shall immediately deliver the Goods and the New Product property in which the Product is reserved to or is vested in the Seller to such address as the Seller shall specify in default of which or in the alternative, the Seller shall have the right to enter on any premises or land in the ownership or possession of the Buyer in order to recover the Goods and the New Product and the Buyer shall indemnify the Seller on a full indemnity basis against all loss, damage, costs or expenses as arising including loss, damage, cost or expenses in respect of third party claims

11. Breach by or insolvency by the Buyer

11.1 if the Buyer shall not comply with any of its obligations to the Seller or upon the occurrence of any of the Events referred to in clause 10.7 the Seller shall have the right forthwith to terminate the Contract but without affecting any other claim right or remedy of the Seller against the Buyer and without any liabilityto the Buyer, and if the Goods have been delivered but not paid for the price shall become immediately due and payable notwithstanding any previous agreement or arrangement to the contrary

12. Export Terms

12.1 In these Conditions "Incoterms" mean the international rules for the interpretation of trade terms of the International Chambers of Commerce as in force at the date when the Contract is made. Unless the Context otherwise requires, any term or expression which is defined in or given a particular meaning my the provisions Incoterms shall have the same meaning in these Conditions, but if there is any conflict between the provisions of Incoterms and these Conditions, the latter shall prevail

12.2 Where the Goods are supplied for export from the United Kingdom, the provisions of this clause 12 shall (subject to any special terms agreed in Writing between the Buyer and the Seller) apply not withstanding any other provision of these Conditions

12.3 The Buyer shall be responsible for complying with any legislation or regulations governing the importation of the Goods in to the country or destination and forthe payment of any duties on them

12.4 Unless otherwise agreed in Writing between the Buyer and the Seller, the Goods shall be delivered fob the air or sea port of shipment and the Sellers shall be under no obligation to give notice under section 32(3) of the Sale Of Goods Act 1979

12.5 The Buyer shall be responsible for arranging for testing and inspection of the Goods at the Sellers premises before shipment. The Seller shall have no liability for any claim in respect of any defect in the Goods which would be apparent on inspection and which is made after shipment, or in respect of any damage during transit

12.6 Payment of all amounts due to the Seller shall be made by irrevocable letter of credit opened by the Buyer in favour of the Seller and confirmed by a bank acceptable by the Seller, or by telegraphic transfer in to the Sellers aforementioned bank account or if the Seller agrees in Writing on or before acceptance of the Buyer order to waive this requirement, by acceptance by the Buyer and delivery to the Seller of a bill of exchange drawn on the Buyer payable 60 days after sight of the order to the Seller at such branch of National Westminster Bank in England as may be specified in the bill of exchange

12.7 Unless otherwise specifically agreed between the Seller and the Buyer all Exports sales shall be made by delivery to the Buyer's premises and the Seller's prices shall be increased to cover the Seller's costs in making such deliveries

12.8 The Buyer warrants that if an import licence or permit is required for the importation of the Goods into the county or destination then such import licence or permit has been obtained or would be obtain prior to shipment

13. Cancelation, suspension and termination

13.1 If the Buyer shall purport to cancel the whole or any part of the Contract the Seller may by notice in Writing to the Buyer elect to treat the Contract as repudiated and the Buyers shall thereupon be liable to pay the Seller by way of liquidated damages a sum equal to all the expenses incurred by the Seller in connection with the Contract including an appropriate amount in respect of administration overheads, costs and loss of profit. The Sellers reasonable estimate of the expenses incurred shall be final and binding on the parties

13.2 If for any cause whatsoever beyond its control the Seller is unable to make any delivery on the applicable delivery date or preform any of its obligations under the Contract the Seller may be notice in Writing to the Seller terminate the Contract or suspend the Contract without liability of any loss or damage thereby occurred by the Buyer

14. Intellectual property

14.1 The Buyer shall not infringe any patent, trade name, registered design, copyright industrial or other intellectual property right belonging to the Seller in relation to the Goods or any other goods or matters supplied by the Seller with or in relation to the Goods

14.2 The Buyer shall promptly reportto the Seller particulars of any use by any person of a patent, trade name, registered design, trade mark or get up of Goods which might amountto infringement of any patent, trade mark, registered design, copy right, industrial or other intellectual property right attaching to the Goods or to unfair competition on passing off

14.3 In the event that it comes to the notice of the Buyer that any person alleges that a patent, trade name, registered design, copy right, industrial or other intellectual property right is invalid or that they infringe any rights of that person or that they are open to any form of attach the Buyer shall not make any omissions but shall promptly report the matter to the Seller

14.4 The Seller shall have conduct of all proceedings relating to any patent, trade name, registered design, copy right, industrial or other intellectual property right attaching to the Goods

15. Force majeure

15.1 In so far as the performance of the Contract by the Seller may be affected by any strike, any lack of available, shipping or transport or materials, any restriction regulation or decree by any local or municipal authority or government department or by any cause beyond the Seller's reasonable control (which shall be construed without reference to the proceeding causes) the Seller may elect at its absolute discretion either;

15.1.1 to terminate the Contract or;

15.1.2 to proceed to preform or continue performance under the Contract within a reasonable time after the termination of such events of circumstance

15.2 In the event that the Seller makes an election under clause 15.1 the Buyer shall accept the Goods or such part of them as are delivered to it not withstanding any delay

16. Exclusion of Contract (rights of the third party) Act 1999

16.1 Nothing in these Conditions will confer on any third party any benefit or the right to enforce any terms of these Conditions

17. Proper law

17.1 The Contract is and shall be deemed to be made in England and shall in all respects be governed by English Law and shall be subject to the non-exclusive jurisdiction of the English Court

18. General

18.1 Any notice required or permitted to be given by either party to the other under these Conditions shall be in Writing and addressed to that other party at its registered office or principal place of business or such other address as may atthe relevanttime having been notified pursuant to this provision to the party giving the notice

18.2 No waiver by the Seller of any breach of the Contract by the Buyer shall be consider as a waiver of any subsequent breach of the same or any other provision

18.3 If any provision of these Conditions is held by any competent authority to be invalided or unenforceable in whole or in part the validity of the other provisions of these Conditions and the remainder of the provision in question shall not be affected

18.4 No liability, warranty or any other claim can or will exist for any product(s) during or as a consequence of or any consequence whatsoever resulting directly or indirectly from or in connection with any of the following regardless of any other contributory cause or event from :
Terrorism Terrorism is defined as any act or acts including and not limited to the use or threat of force/violence/harm or damage to life or property orthe threat of such harm or damage including harm or damage by nuclear and or chemical and or biological and or radiological means. Caused or occasioned by any persons or groups or so claimed in whole or in part for political religious ideological or similar purposes. Or, any action taken in controlling preventing suppressing or in anyway relating to the above.
War War or invasion, act of foreign enemy hostilities of a warlike operation or operations (whether war be declared or not) civil war rebellion revolution insurrection civil commotion assuming the proportions of or amounting to an uprising military or usurped power. Or any action taken in controlling preventing suppressing or in any way relating to any of the above.

18.5 Any dispute arising under or in connection with these Conditions or the sale ofthe Goods shall be referred to arbitration by a single arbitrator appointed by agreement or (in default) nominated on the application of either party by the president forthetime being of the Law Society.
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