

EVER-FLEX® Couplings

EVER-FLEX® FEATURES...

1. Easy to Install.
2. Minimum Maintenance Required.
3. Long Dependable Service Life.
4. Generally Minimizes Torsional Vibration.
5. Cushion Shock Loads.
6. Compensate for Parallel Misalignment up to 1/32".
7. Accommodate Angular Misalignment of $\pm 3^\circ$.
8. Provide Adequate End Float, $\pm 1/32$ ".

Rigid Couplings

Sleeve Couplings



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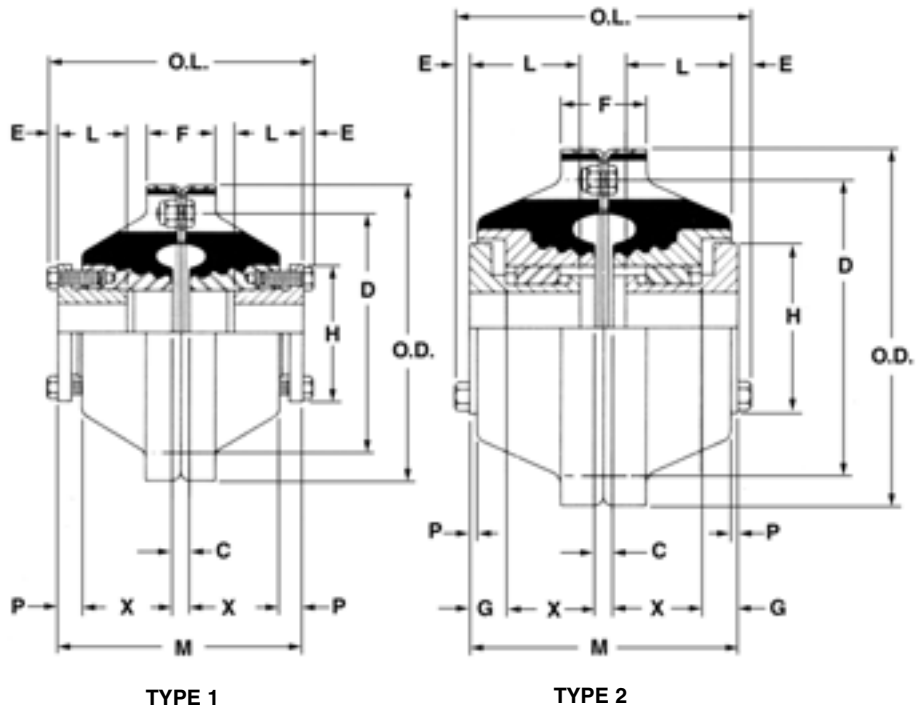


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BUSHING TYPE



EVER-FLEX® Couplings have a rubber flex member permanently bonded to steel flanges and to steel or cast iron hubs. They are used with SPLIT TAPER™ Bushings for a wide bore selection FROM STOCK.



Patent Pending

Table No. 1

Specifications

Coupling* Ref. No.	Half* Coupling Part No.	Bushing	Type	DIMENSIONS													Wt.-Lbs. Half Coup. Less Bush.
				O.D.	O.L.	C	D	E	F	G	H	L	M	P	X		
CFR4G	CHCFR4G	G	1	4 5/8"	4 3/8"	1/4"	3 3/4"	3/16"	1 1/8"	-	2"	1"	4"	7/16"	1 7/16"	1.8	
CFR5H	CHCFR5H	H	1	5 1/4"	4 13/16"	5/16"	4 3/8"	3/16"	1 1/4"	-	2 1/2"	1 1/4"	4 7/16"	7/16"	1 5/8"	2.8	
CFR6P	CHCFR6P	P1	2	6 1/4"	4 15/16"	5/16"	5 1/4"	1/4"	1 1/2"	5/8"	3"	1 15/16"	4 7/16"	0	1 7/16"	3.0	
CFR8P	CHCFR8P	P1	2	7 7/8"	5 1/2"	1/2"	6 11/16"	1/4"	1 1/2"	5/8"	3"	1 15/16"	5"	0	1 5/8"	6.3	
CFR9Q	CHCFR9Q	Q1	2	9 1/8"	6 1/16"	1/2"	7 7/8"	9/32"	1 3/4"	3/4"	4 1/8"	2 1/2"	5 1/2"	1/8"	1 3/4"	8.2	
CFR10Q	CHCFR10Q	Q1	2	10 1/4"	6 11/16"	5/8"	8 7/8"	9/32"	2"	3/4"	4 1/8"	2 1/2"	6 1/8"	0	2"	14.3	
CFR12R	CHCFR12R	R1	2	11 5/8"	7 7/16"	3/4"	10 1/4"	9/32"	2"	7/8"	5 3/8"	2 7/8"	6 7/8"	0	2 3/16"	17.3	
CFR14S	CHCFR14S	S1	2	13 3/4"	10 1/8"	5/8"	12"	3/8"	2 1/4"	1 1/16"	6 3/8"	4 3/8"	9 3/8"	9/16"	3 5/16"	29.0	

* Packaged Half Couplings only. For Complete Coupling, Order two Halves and two Bushings.

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5. Cushion Shock Loads.
6. Compensate for Parallel Misalignment up to 1/32".
7. Accommodate Angular Misalignment of $\pm 3^\circ$.
8. Provide Adequate End Float, $\pm 1/32$ ".

Bore Range

Table No. 2

Bushing	Bore Range
G	3/8" - 1"
H	3/8 - 1 1/2"
P1	1/2 - 1 3/4"
Q1	3/4 - 2 11/16"
R1	1 1/8 - 3 3/4"
S1	1 11/16 - 4 1/4"

Standard Keyseats

Table No. 3

Bore Range	Keyseat
3/8" - 7/16"	None
1/2 - 9/16"	1/8" x 1/16"
5/8 - 7/8"	3/16 x 3/32"
1 5/16 - 1 1/4"	1/4 x 1/8"
1 5/16 - 1 3/8"	5/16 x 5/32"
1 7/16 - 1 3/4"	3/8 x 3/16"
1 13/16 - 2 1/4"	1/2 x 1/4"
2 5/16 - 2 3/4"	5/8 x 5/16"
2 13/16 - 3 1/4"	3/4 x 3/8"
3 3/8 - 3 3/4"	7/8 x 7/16"
3 7/8 - 4 1/4"	1 x 1/2"

1 3/8" Bore Bushings also available with 3/8" x 3/16" Keyseat.

MINIMUM BORE TYPE

Minimum Bore Couplings have a small plain bore with no setscrews. They may be rebored up to the maximum shown in Table No. 1, below.

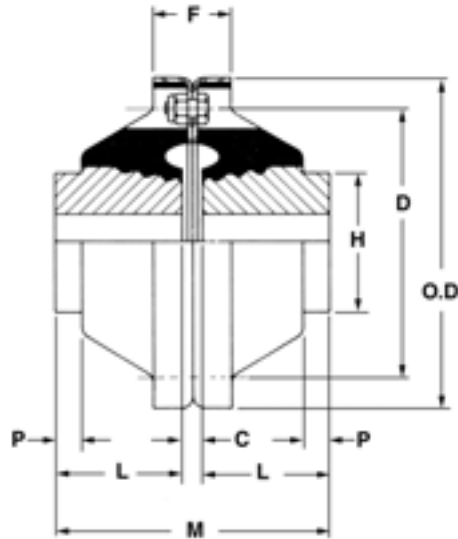


Table No. 1

Specifications — Minimum Bore

Coupling* Ref. No.	Coupling Half* Part No.	Bore		DIMENSIONS								Wt.-Lbs. Coupling Half
		Stock	Max.	O.D.	C	D	F	H	L	M	P	
CFRB4	CHCFRB4	5/8"	1 1/8"	4 5/8"	1/4"	3 3/4"	1 1/8"	1 7/8"	1 7/8"	4"	7/16"	2.0
CFRB5	CHCFRB5	1 1/8"	1 1/2"	5 1/4"	5/16	4 3/8"	1 1/4"	2 3/8"	2 1/8"	4 9/16"	1/2"	3.1
CFRB6	CHCFRB6	1 3/8"	1 3/4"	6 1/4"	5/16	5 1/4"	1 1/2"	3 1/4"	2 9/16"	5 7/16"	1/2"	3.5
CFRB8	CHCFRB8	1 5/8"	2 1/4"	7 7/8"	1/2"	6 11/16"	1 1/2"	3 11/16"	2 7/8"	6 1/4"	5/8"	6.8
CFRB9	CHCFRB9	1 7/8"	3"	9 1/8"	1/2"	7 7/8"	1 3/4"	4 3/4"	3 1/8"	6 3/4"	3/4"	8.6
CFRB10	CHCFRB10	2 1/8"	3 1/4"	10 1/4"	5/8"	8 7/8"	2"	5 1/4"	3 1/2"	7 5/8"	3/4"	14.8

Packaged Coupling Halves only. For Complete Coupling order Two Halves.

Table No. 2

RATING CHART — NORMAL SERVICE

Coupling Ref. No.	Bore Range	Torsional Stiffness In.-Lbs./Radian	Maximum R.P.M.	Horsepower at Indicated Speed in R.P.M.							
				50	100	300	600	900	1200	1800	3600
CFR4	3/8" - 1"	1620	5800	.28	.56	1.67	3.33	5.00	6.67	10.00	20.00
CFR5	3/8 - 1 1/2	3204	5100	.55	1.10	3.30	6.59	9.89	13.18	19.77	39.54
CFR6	1/2 - 1 3/4	6485	4100	1.11	2.22	6.67	13.34	20.01	26.69	40.03	80.06
CFR8	1/2 - 1 3/4	12089	3300	2.07	4.14	12.43	24.87	37.30	49.73	74.60	
CFR9	3/4 - 2 11/16	20094	2900	3.44	6.89	20.67	41.33	62.00	82.67	124.0	
CFR10	3/4 - 2 11/16	32929	2500	5.64	11.29	33.87	67.73	101.6	135.5	203.2	
CFR12	1 1/8 - 3 3/4	46793	2200	8.02	16.04	48.12	96.25	144.4	192.5	288.7	
CFR14	1 11/16 - 4 1/4	77258	1900	13.24	26.49	49.46	158.9	238.4	317.8	476.7	

Ratings below heavy line are not recommended due to excessive speed. They may be used for interpolation for ratings up to maximum recommended speeds.

"Normal Service" Ratings shown above are for 1.0 Service Factor. See "Selecting an Ever-Flex Coupling", page 120.

Operating Temperature Range: -30°F to 225°F.

To determine torque in inch pounds at any given speed use formula:

$$T = \frac{63025 \times \text{H.P.}}{\text{R.P.M.}}$$

Ratings for speeds less than 50 R.P.M. can be determined by torque value derived from torque formula at 100 R.P.M.



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Table No. 1

Service Factors

Application	Service Factor (*)	Application	Service Factor (*)	Application	Service Factor (*)
Agitators	1.0	Dynamometer	1.0	Paper Mills	
Brewing and Distilling		Elevators	2.0	Agitator, Bleacher, Felt Stretcher	1.0
Bottling Machinery, Brew Kettle,		Fans		Calender, Jordan, Press, Pulp Grinder	2.0
Cooker, Mash Tub	1.0	Centrifugal, Light	1.0	Backing Drum	2.5
Scale Hopper—Frequent		Large, propeller	1.5	Chipper	3.0
Starting Peaks	1.5	Cooling Tower	2.0	Pulverizers	
Car Filling	1.0	Food Industry		Hammermill—Light Duty, Roller	1.5
Car Dumper	1.5	Cereal Cooker	1.0	Hammermill—Heavy Duty, Hog	2.0
Car Puller	1.5	Dough Mixer, Meat Grinder	1.5	Pumps	
Clay Working Machines	1.5	Generators		Centrifugal	
Compressors		Even Load	1.0	Horizontal Duty	1.0
Reciprocating**		Hoist or Railway Service	1.5	Heavy Duty	1.5
1 cylinder—single acting	3.5	Welder Load	2.0	Rotary—Other than Gear	1.5
1 cylinder—double acting	3.0	Kilns	2.0	Reciprocating	
2 cylinder—single acting	3.0	Laundry Machines	2.0	1 cylinder—single acting	2.5
2 cylinder—double acting	2.5	Line Shafts	1.0	1 cylinder—double acting	2.0
3 cylinder—single acting	2.5	Lumber Industry		2 cylinder—single acting	2.0
3 cylinder—double acting	2.0	Band Saw, Circular Saw, Planer	1.5	2 cylinder—double acting	1.5
Conveyors		Edger, Head Rig, Hog, Log Haul	2.0	3 cylinder—or more	1.5
Apron, Assembly, Belt, Chain		Machine Tools		Rubber Industry	
Flight, Oven	1.0	Auxiliary, Traverse	1.0	Tire and Tube Press Opener	
Reciprocating	2.5	Metal Forming Machines	2.0	(Based on Peak Torque)	1.0
Screw	1.0	Mills		Calender, Refiners, Sheeter Tire	
Cranes and Hoists		Dryer and Cooler, Tumbling Barrel	1.5	Building Machine, Warming Mill	2.0
Main Hoist—Medium Duty	1.5	Ball or Pebble direct or		Banbury Mixer, Cracker, Mixing Mill,	
Main Hoist—Heavy Duty	2.0	on LS Shaft Gear Reducer	2.5	Plasticator, Washer	2.5
Skip Hoist, Travel Motion		on HS Shaft Gear Reducer	2.0	Screens	
Trolley Motion, Slope	1.5	Rod or Tube Direct or		Air Washing, Water	1.0
Crushers		on LS Shaft Gear Reducer	2.5	Coal and Sand (Rotary)	1.5
Cane	2.0	on HS Shaft Gear Reducer	2.0	Vibrating	2.5
Gyratory	2.5	Mixers	1.5	Textile Mills	
Dredges		Oil Industry		Batcher, Dyeing Machine, Mangle,	
Cable Reel, Conveyor	1.5	Chiller	1.0	Napper, Soaper	1.0
Jig Drive, Pump, Screen Drive,		Oil Well Pump	2.0	Can, Loom, Spinner	1.5
Stacker	2.0			Wood Working Machines	1.0
				Worm Gear Speed Reducers, input side	1.0

* Service factors listed are to be used as a general guide. For each degree of angular misalignment add .1 to the service factor up to 3°. Should any questions arise concerning specific application, contact the our engineers.

** For application in which power source is an internal combustion engine, and for compressors without flywheels, add 0.75 to service factor.

Selecting an EVER-FLEX® Coupling

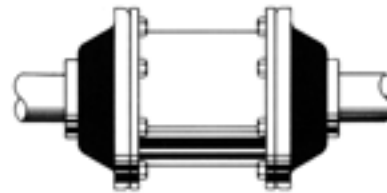
- Multiply the power supply rating by the appropriate Service Factor from Table No. 1, above, to get the "Normal Rating".
- From Table No. 2, page 119, select a coupling which will deliver the "Normal Rating" or more at the proper speed.
- Check Tables No. 1 and 2, page 118 and Table No. 1, page 119 to make sure the coupling has a bore range to fit both driver and driven shaft.

Example

A coupling is required for a 1800 RPM, 10 HP motor driving a rotary oil pump. Motor shaft is 1 3/8" and the pump shaft is 1 1/4".

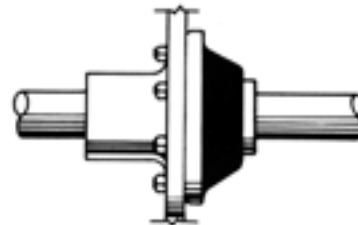
- Multiply motor rating (10) by the service factor for a rotary pump (1.5), see Table No. 1, above.
10 x 1.5 = 15.0
- From Table No. 2, page 119, note that a CFR5 coupling will deliver 19.77 HP at 1800 RPM which is greater than the 15.0 HP which is required.
- From Tables 1 and 2, page 118, note that a CFR5H uses and "H" bushing which has a bore range of 3/8" to 1 1/2". A CHFR5H is the correct coupling for this application. A CFRB5 Minimum Bore may also be used, see page 119.

Adaptability Suggestions



SPACER MOUNTING

(Spacers must be provided by customer)



HUB MOUNTING

EVER-FLEX® Couplings provide versatile mounting possibilities. Stock halves can be mounted with spacers or one half can be mounted to customer's hub, flange, sheave, sprocket, gear or other drive member for flexibility. When hub mounting is used, the half coupling will provide approximately half the misalignment compensation as a complete coupling.

BUSHED TYPE RIGID COUPLINGS



Rigid Couplings are machined from malleable castings for use with SPLIT TAPER™ Bushings.

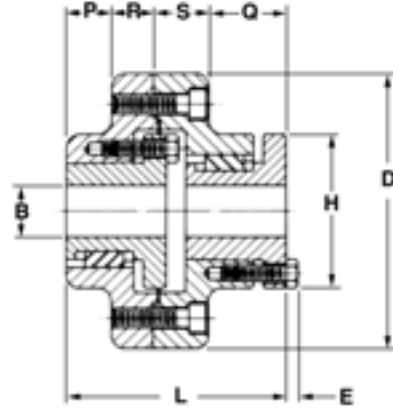


Table No. 3

Specifications

Part No.	BUSHING		DIMENSIONS								Maximum★ Torque Inch Pounds	Weight Lbs.
	Size	Bore Range	D	L	H	P	Q	R	S	E		
RS5H	H	3/8" - 1 1/2"	4 11/16"	2 13/16"	2 1/2"	3/8"	13/16"	3/4"	7/8"	3/16"	4300	6.8
RS6P	P1	1/2 - 1 3/4	5 3/8	4 1/4	3	7/8	1 1/2	13/16	1 1/16	1/4	5660	10.0
RS7Q	Q1	3/4 - 2 11/16	6 5/8	5 7/16	4 1/8	1 1/4	2	1 1/16	1 1/8	9/32	14600	17.8
RS9R	R1	1 1/8 - 3 3/4	8 3/8	6 9/16	5 3/8	1 1/2	2 9/16	1 3/16	1 5/16	9/32	33000	31.6

★Ratings Shown are for Normal Service. For Shock Loads reduce ratings shown by 50%. Maximum Torque shown is based on coupling strength. Smaller shafts in the coupling bore range may not transmit this maximum torque, check shaft and key stress.
NOTE—Order two Bushings.



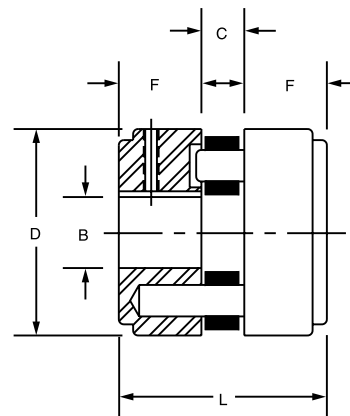
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“FS” FINISHED BORE—STEEL



STEEL

Finished Bore “FS” Couplings are machined from bar steel and have steel drive pins. They are equipped with Neoprene Inserts which are oil and grease proof as well as heat resistant. They are fitted with hollow head setscrews and have standard keyseats.



Type 1

Table No. 1 Specifications

Coupling* Ref. No.	Half* Coupling Part No.	Type	DIMENSIONS				Weight Lbs. Half Coupling	STOCK BORES MARKED "X"											
			D	L	F	C		3/8"	7/16"	1/2"	5/8"	3/4"	7/8"	15/16"	1"	1 1/8"	1 3/16"	1 1/4"	
FS1	CHFS1	1	1 3/4"	1 1/2"	9/16"	3/8"	.13	X	X	X	-	-	-	-	-	-	-	-	-
FS2	CHFS2	1	2	1 5/8"	5/8"	3/8"	.50	X	X	X	X	X	-	-	-	-	-	-	-
FS3	CHFS3	1	2 5/8"	2 3/16"	7/8"	7/16"	1.00	-	-	X	X	X	X	X	X	-	-	-	-
FS4	CHFS4	1	3 1/4"	2 3/16"	7/8"	7/16"	1.75	-	-	-	-	X	X	X	X	X	X	-	X

* Packaged Half Couplings only. For Complete Coupling, order two halves and one insert, see Table No. 3.

Standard Keyseats

Table No. 2

Bore	Keyseat
3/8" - 1/2"	None
5/8 - 7/8	3/16" x 3/32"
15/16 - 1 1/4	1/4 x 1/8

Type 1 Couplings are furnished with Keyseats as shown in above table.

**SOLID
STEEL**

**ACCURATELY
MACHINED**

Inserts

Table No. 3

Coupling Ref. No.	Insert Part No.	Wt. Lbs.
FS1	FS1 Insert	.03
FS2	FS2 Insert	.03
FS3	FS3 Insert	.05
FS4	FS4 Insert	.07

Table No. 4 RATING CHART—NORMAL SERVICE

Coupling Ref. No.	Max. Bore	Horsepower at Indicated Speeds							
		50	100	300	600	900	1200	1800	3600
FS1	1/2"	.03	.05	.13	.22	.25	.28	.34	.56
FS2	3/4	.04	.08	.24	.49	.73	.98	1.47	2.71
FS3	1	.13	.25	.75	1.48	1.81	2.16	2.75	4.58
FS4	1 1/4	.20	.41	1.22	2.44	3.47	4.15	5.48	9.45
FS5H	1 1/2	.40	.80	2.41	4.81	6.87	8.20	9.92	18.80
FS6P	1 3/4	.86	1.72	5.15	9.85	12.06	14.10	18.00	27.50
FS7Q	2 11/16	1.83	3.67	11.00	19.36	24.34	28.20	34.80	-
FS9R	3 3/4	4.01	8.20	24.06	39.60	47.17	54.30	68.70	-

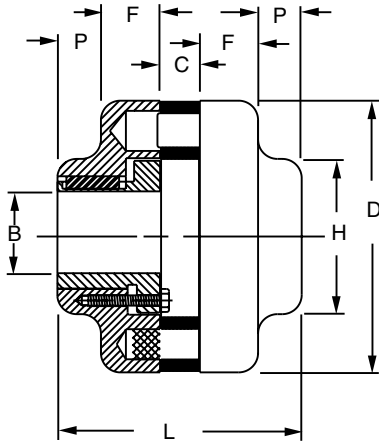
Smaller shafts in coupling bore range and short key applications may not transmit horsepowers listed above, check shaft and key stress.

Normal Service Ratings are steady, non-reversing, eight hour service per day, with normal starting torque motor. Apply Service Factor per page 58 for more rugged service.

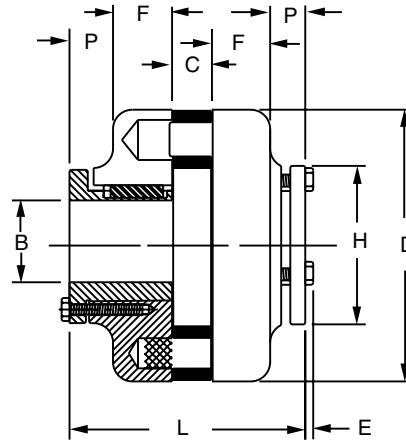
To determine torque in inch pounds at any given speed use formula: $T = \frac{63025 \times \text{H.P.}}{\text{R.P.M.}}$

Ratings for speeds less than 50 or 100 R.P.M. can be determined by torque value derived from torque formula at 100 R.P.M.

“FS” BUSHED TYPE



Type 2
Bushings Mounted with flanges
in center of Coupling.
No projections.



Type 3
Bushings Mounted with flanges
on outside of couplings

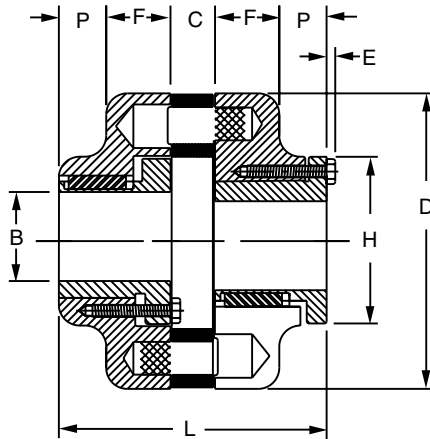


Table No. 1

Specifications

Coupling* Ref. No.	Half* Coupling Part No.	Type	BUSHING		DIMENSIONS							Weight Lbs. Half Coupling
			Size	Bore Range	D	L	H	P	F	C	E	
FS5H	CHFS5H	2	H	3/8" - 1 1/2"	4 11/16"	3 1/16"	2 1/2"	3/8"	7/8"	9/16"	3/16"	3.1
FS5HX	CHFS5HX	3	H	3/8 - 1 1/2	4 11/16	3 1/16	2 1/2	7/16	13/16	9/16	3/16	3.0
FS6P	CHFS6P	2	P1	1/2 - 1 3/4	5 3/8	4 9/16	3	7/8	1 1/16	11/16	1/4	5.5
FS6PX	CHFS6PX	3	P1	1/2 - 1 3/4	5 3/8	4 9/16	3	7/8	1 1/16	11/16	1/4	5.5
FS7Q	CHFS7Q	2	Q1	3/4 - 2 11/16	6 5/8	5 13/16	4 1/8	1 1/4	1 1/4	13/16	9/32	10.0
FS7QX	CHFS7QX	3	Q1	3/4 - 2 11/16	6 5/8	5 13/16	4 1/8	1 1/4	1 1/4	13/16	9/32	10.0
FS9R	CHFS9R	2	R1	1 1/8 - 3 3/4	8 3/8	6 15/16	5 3/8	1 1/2	1 1/2	15/16	9/32	17.8
FS9RX	CHFS9RX	3	R1	1 1/8 - 3 3/4	8 3/8	6 15/16	5 3/8	1 1/2	1 1/2	15/16	9/32	17.8

*Packaged Half Couplings only. For Complete Coupling, order two Halves, two Bushings and one Insert. See Table No. 2.



Type 4

Combination Couplings (Type 4) consist of one half Type 2 Coupling and one half Type 3 Coupling. Dimensions in the above table also apply to the combination couplings.

Table No. 2 Inserts

Coupling Part No.	Insert Part No.	Wt. Lbs.
FS5H FS5HX	FS5 Insert	.13
FS6P FS6PX	FS6 Insert	.19
FS7Q FS7QX	FS7 Insert	.63
FS9R FS9RX	FS9 Insert	1.13



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FINISHED BORE SLEEVE COUPLINGS



Finished Bore Sleeve Couplings are machined from bar steel. They are fitted with Hollow Head Set Screws.

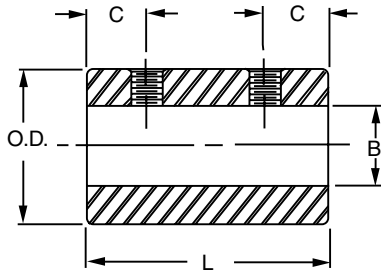


Table No. 1 Specifications

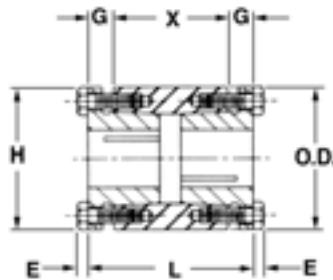
Part No.	O.D.	L	B	C	Wt.
CS-04	1/2"	3/4"	1/4"	3/16"	.06
CS-05	5/8	1	5/16	1/4	.06
CS-06	3/4	1	3/8	1/4	.1
CS-08	1	1 1/2	1/2	3/8	.2
*CS-10	1 1/4	2	5/8	1/2	.5
*CS-12	1 1/2	2	3/4	1/2	.8
*CS-14	1 3/4	2	7/8	1/2	1.0
*CS-16	2	3	1	3/4	1.9
*CS-18	2 1/8	3	1 1/8	3/4	2.1
*CS-20	2 1/4	4	1 1/4	1	3.1
*CS-22	2 1/2	4 1/2	1 3/8	1	4.3

* These sizes are also available with Standard Keyseats. Indicate Keyseat by adding "K" to part number; for example "CS-12K."

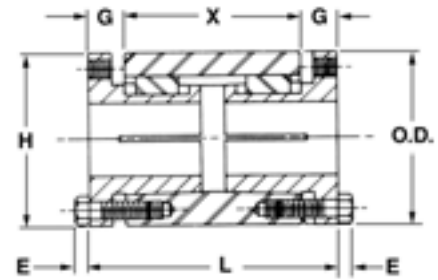
BUSHED TYPE SLEEVE COUPLINGS



Bushed Type Sleeve Couplings are machined from steel for use with SPLIT TAPER™ Bushings.



Type CSH



Type CSP and CSQ

Table No. 2 Specifications

Part No.	BUSHING		DIMENSIONS						T★	Wt. Lbs.
	Size	Bore Range	O.D.	L	H	G	X	E		
CSH	H	3/8" - 1 1/2"	2 1/2"	2 7/8"	2 1/2"	7/16"	2"	3/16"	1700	1.6
CSP	P1	1/2 - 1 3/4	3	4 1/4	3	5/8	3	1/4	5660	3.4
CSQ	Q1	3/4 - 2 11/16	4 3/8	5 1/2	4 1/8	3/4	4	9/32	14600	9.6

★T = Maximum Recommended Torque in inch pounds for Normal Service. For Shock Loads reduce these ratings by 50%. Maximum Torque shown is based on coupling strength. Smaller shafts in the coupling bore range and short key applications may not transmit this maximum torque, check shaft and key stress.

NOTE—Order two Bushings.