

# CHAIN COUPLINGS



**Morse**<sup>®</sup>

**DESIGNED FOR OPTIMUM  
PERFORMANCE AND RELIABILITY**

Chain couplings offer a rugged yet lightweight and economical method for connecting two shafts. They consist of two sprockets connected by a length of standard double roller chain, permitting easy installation, alignment and maintenance. In the DRC line, we now extend the advantages of chain couplings even further by providing a broader selection of sizes and mounting types than ever before.

**Shaft-ready finished bore couplings** are available in 80 stock sizes with bore ranges from 1/2" to 4 1/2" and capacities to 708 HP (@1800 RPM). They are furnished complete with standard keyseat, ready to install.

**Minimum bore couplings** are reboreable to any required bore size from 1/2" - 4 1/2", capacities to 708j HP (@1800 RPM).

**SPLIT TAPER™ bushing type couplings** utilize the same split taper bushing system interchangeable in the full range of sheaves, sprockets, gears, pulleys and hubs. Completely shaft-ready - no reboring required - in bore sizes 3/8" to 3 3/4".

**Taper bore bushing type couplings** utilizing the full-split type bushing are available in 1/2" to 3 1/2" bore sizes, ready to install without reboring.

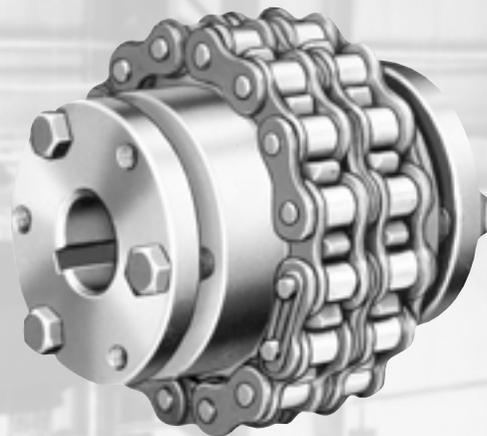
With proper selection and lubrication, DRC chain couplings provide one of the strongest couplings available, along with easy installation and maintenance with maximum economy.

- **High capacity** is derived through the use of hardened tooth sprockets, and precision roller chain with hardened rollers, providing maximum HP in minimum space.
- **Flexibility**...the chain coupling design permits moderate angular and parallel shaft misalignment while maintaining maximum capacity.
- **Easy installation**...chain couplings are easily installed and aligned without special tools. The driver the driven components are quickly disconnected by simply removing a single pin and unwrapping the chain.
- **Minimum maintenance**...through the use of our coupling covers, continuous lubrication can be provided for the components.
- **Inexpensive**...DRC chain couplings provide long service life per dollar invested because of the hardened working members and low maintenance.

DRC chain couplings are available from your Authorized Distributor. Call today for further information and immediate shipment.



# Chain Couplings



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## Finished Bore and Minimum Bore



**FINISHED BORE CHAIN COUPLINGS**  
 Finished Bore Chain Couplings are made with solid steel sprockets with hardened teeth, standard keyway and hollow head set screw.

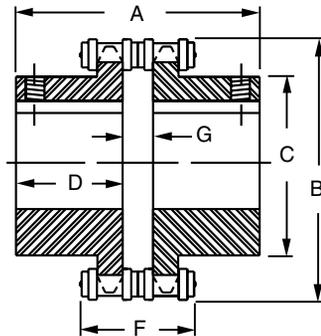
**Table No. 1** Finished Bore Chain Couplings - Stock Sizes

BORE	Couplings Ref. No.* - Stock Bores Marked "X"									
	C4012	C4016	C5016	C5018	C6018	C6020	C6818	C8020	C10018	C10020
1/2"	X	-	-	-	-	-	-	-	-	-
5/8	X	X	-	-	-	-	-	-	-	-
3/4	X	X	X	X	-	-	-	-	-	-
7/8	X	X	X	X	-	-	-	-	-	-
1	-	X	X	X	X	-	-	-	-	-
1 1/8	-	X	X	X	X	X	-	-	-	-
1 3/16	-	X	X	X	X	-	-	-	-	-
1 1/4	-	X	X	X	X	X	-	-	-	-
1 3/8	-	-	X	X	X	-	-	-	-	-
1 7/16	-	-	X	X	X	-	-	-	-	-
1 1/2	-	-	X	X	X	X	-	-	-	-
1 5/8	-	-	X	X	X	-	-	-	-	-
1 3/4	-	-	-	X	X	X	X	-	-	-
1 7/8	-	-	-	X	X	-	-	-	-	-
1 15/16	-	-	-	X	X	X	X	-	-	-
2	-	-	-	-	X	-	X	-	-	-
2 1/8	-	-	-	-	X	X	X	-	-	-
2 3/16	-	-	-	-	X	-	-	X	-	-
2 1/4	-	-	-	-	X	-	-	-	-	-
2 3/8	-	-	-	-	X	X	X	-	-	-
2 7/16	-	-	-	-	X	X	X	X	X	-
2 1/2	-	-	-	-	-	-	-	-	-	-
2 5/8	-	-	-	-	-	X	X	-	-	-
2 11/16	-	-	-	-	-	-	-	X	-	-
2 7/8	-	-	-	-	-	-	X	-	X	-
2 15/16	-	-	-	-	-	-	X	X	X	-
3 1/8	-	-	-	-	-	-	-	X	-	X
3 3/8	-	-	-	-	-	-	-	X	-	X
3 7/16	-	-	-	-	-	-	-	X	X	X
3 15/16	-	-	-	-	-	-	-	-	X	X

\*Packaged half coupling only. For Part No., add bore size—for example C4012 X 3/4.  
 For complete coupling, order two halves, one chain and one cover.

**Standard Keyways**  
**Table No. 2**

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



**Finished Bore Chain Couplings - Specifications**  
**Table No. 3**

Coupling Ref. No.	Dimensions - Inches						Wt. Lbs. Half Cplg.
	A	B	C	D	F	G	
C4012	2 9/16	2 13/32	1 13/32	1 1/8	1.262	5/16	0.5
C4016	2 9/16	3 1/2	1 31/32	1 1/8	1.262	5/16	1.0
C5016	3 9/32	3 25/32	2 1/2	1 7/16	1.581	13/32	1.8
C5018	3 25/32	4 3/16	2 31/32	1 11/16	1.581	13/32	2.3
C6018	4 7/32	5	3 1/2	1 7/8	1.973	15/32	5.1
C6020	4 15/32	5 1/2	3 7/8	2	1.973	15/32	5.2
C8018	5 3/8	6 11/16	4 9/16	2 3/8	2.643	5/8	11.5
C8020	5 7/8	7 3/8	5 3/8	2 5/8	2.643	5/8	16.5
C10018	6 1/4	8 3/8	5 11/16	2 3/4	3.175	3/4	20.6
C10020	7	9 1/8	6 23/32	3 1/8	3.175	3/4	30.6

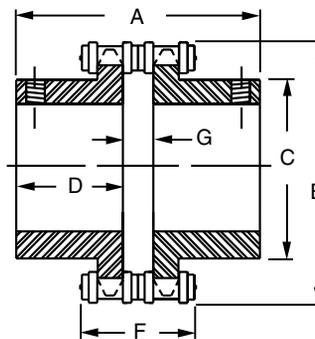
### MINIMUM BORE CHAIN COUPLINGS

Minimum Bore Chain Couplings are made with solid steel sprockets with hardened teeth. They can be rebored to "Max. Bore" - shown in table.

**Minimum Bore Chain Couplings - Specifications**  
**Table No. 4**

Coupling Ref. No.	Stock Bore	Max. Bore	Dimensions - Inches						Wt. Lbs. Half Cplg.
			A	B	C	D	F	G	
C40B12	1/2"	7/32"	2 9/16	2 13/32	1 13/32	1 1/8	1.262	5/16	0.5
C40B16	5/8	1 1/4	2 9/16	3 1/2	1 31/32	1 1/8	1.262	5/16	1.0
C40B20	5/8	1 5/8	2 3/4	3 3/4	2 1/2	1 7/16	1.262	5/16	1.5
C50B16	5/8	1 5/8	3 9/32	3 25/32	2 1/2	1 7/16	1.581	13/32	1.8
C50B18	3/4	1 15/16	3 25/32	4 3/16	2 31/32	1 11/16	1.581	13/32	2.3
C60B18	1	2 7/16	4 7/32	5	3 1/2	1 7/8	1.973	15/32	5.1
C60B20	1 1/8	2 5/8	4 15/32	5 1/2	3 7/8	2	1.973	15/32	5.2
C80B18	1 1/8	3 1/8	5 3/8	6 11/16	4 9/16	2 3/8	2.643	5/8	11.5
C80B20	1 1/2	3 1/4	5 7/8	7 3/8	5 3/8	2 5/8	2.643	5/8	16.5
C100B18	1 1/2	3 3/16	6 1/4	8 3/8	5 11/16	2 3/4	3.175	3/4	20.6
C100B20	1 1/2	4 1/4	7	9 1/8	6 23/32	3 1/8	3.175	3/4	30.6

\* Packaged half coupling only. For complete coupling, order two halves, one chain and one cover.



### SPLIT TAPER™ BUSHING TYPE

SPLIT TAPER™ Bushing Type Chain Couplings are made with solid steel sprockets with hardened teeth. They are machined specifically for exclusive SPLIT TAPER™ Bushings, which are interchangeable in the full range of sheaves, sprockets, gears, pulleys, hubs and other couplings.

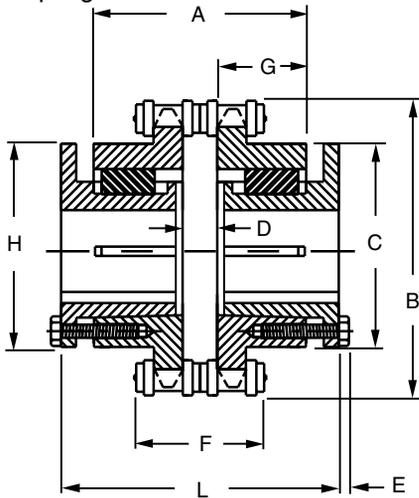
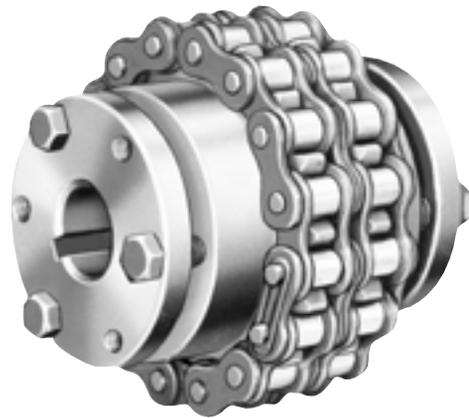


Table No. 5 SPLIT TAPER™ Bushing Type Chain Couplings - Specifications

Coupling Half Part No.*	Bushing		Dimensions - Inches										Wt. Lbs. Half Coupling
	Size	Bore Range	A	B	C	D	E	F	G	H	L		
C4020XH	H	3/8" - 1 1/2"	2 5/16	3 21/32	2 1/2	5/16	5/32	1.194	1	2 1/2	3 1/16	0.8	
C5016XH	H	3/8 - 1 1/2	2 1/4	3 25/32	2 1/2	3/8	5/32	1.52	15/16	2 1/2	3 1/8	0.9	
C5018XP	P1	1/2 - 1 3/4	3 3/16	4 3/16	2 31/32	3/8	13/64	1.52	1 13/32	3	4 7/16	1.8	
C6018XP	P1	1/2 - 1 3/4	3 3/16	5 1/64	3 1/2	7/16	13/64	1.894	1 3/8	3	4 7/16	3.0	
C6020XB	B	1/2 - 2 7/16	3 5/16	5 1/2	3 7/8	7/16	13/64	1.894	1 7/16	3 11/16	4 3/4	3.5	
C8018XQ	Q1	3/4 - 2 11/16	4 1/16	6 11/16	4 9/16	9/16	15/64	2.432	1 3/4	4 1/8	5 9/16	6.0	
C10018XR	R1	1 1/8 - 3 3/4	4 3/4	8 3/8	5 11/16	3/4	15/64	2.962	2	5 3/8	6 1/2	8.0	

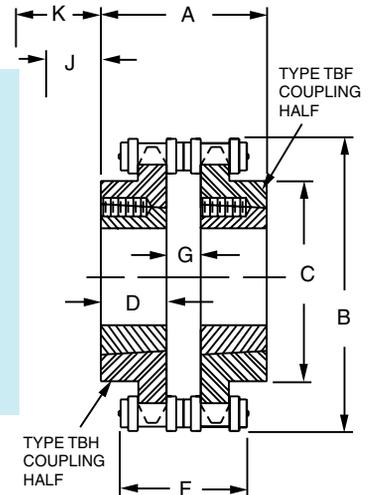
\*Packaged half coupling only. For complete couplings, order two halves, two bushings, one coupling chain and one cover.



Type TBH



Type TBF



### TAPER BORE BUSHING TYPE

Taper Bore Chain Couplings are made with solid steel sprockets with hardened teeth, and machined specifically for use with Taper Bore Couplings. They are available in two types: TBM - Bushing mounts on Hub side of coupling. TBF - Bushing mounts on Flange side of coupling.

Table No. 5 Taper Bore Chain Couplings - Specifications

Coupling Half Part No.*	Bushing		Dimensions - Inches										Wt. Lbs. Half Coupling
	Size	Bore Range	A	B	C	D	F	G	J <sup>①</sup>	K <sup>②</sup>			
C4016	1108	1/2" - 1 1/8"	2 1/16	3 1/2	1 31/32	7/8	1.262	5/16	5/8	3/4	0.5		
C5018	1610	1/2 - 1 5/8	2 13/32	4 3/16	2 31/32	1	1.581	13/32	3/16	1 1/16	2.3		
C6020	2012	1/2 - 2	2 31/32	5 1/2	3 7/8	1 1/4	1.973	15/32	15/16	1 3/8	5.2		
C8020	3020	15/16 - 3	4 5/8	7 3/8	5 3/8	2	2.643	5/8	1 3/16	2 1/16	6.3		
C10020	3535	1 3/16 - 3 1/2	7 3/4	9 1/8	6 23/32	3 1/2	3.175	3/4	1 5/16	2 11/16	19.6		

\* Packaged half coupling only. To form Part No., add size and "TBH" for Hub mount or "TBF" for Flange Mount — for example C4016x1180 TBH (or TBF). For complete coupling, order two halves, two bushings, one coupling chain and one cover.

- ① Space required to loosen screws and then remove hub with a wheel puller. Also space needed to straighten bushing with shortened hex key.
- ② Space needed to remove hub using the screws as jack screws with a shortened hex key.



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### CHAIN COUPLING COVERS

Chain Coupling Covers extend the life of the couplings by providing continuous lubrication and protection from abrasive and corrosive conditions. They are fitted with Neoprene seals, standard 1/8" pipe plugs and "Nyloc" cap screws, and fit all chain couplings — finished bore, minimum bore, split taper bushing type and taper bore bushing type.

**CAUTION** - Chain Coupling Covers should not be operated at speeds exceeding 5000 FPM rim speed.

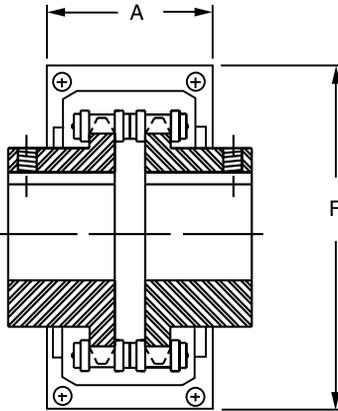


Table No. 7

### Aluminum Covers

Cover Part No.*	Coupling Ref. No.	Dimensions (inches)		Wt. Lbs.	Accessory Kit**	
		A	F		Part No.	Wt. Lbs.
AL40	C4012	2	4	0.75	AL4012AK	0.2
	C4016				AL4016AK	0.2
AL4020	C4020	2 3/8	5 1/8	1.25	AL5020AK	0.3
	C5016				AL5016AK	0.3
AL50	C5018	2 3/8	5 1/8	1.25	AL5018AK	0.3
	C6018				AL6018AK	0.5
AL60	C6020	2 15/16	6 3/8	2.25	AL6020AK	0.5
	C8018				AL8018AK	0.7
AL80	C8020	4	8 3/16	4.50	AL8020AK	0.7
	C10018				AL10018AK	1.0
AL100	C10020	5 1/4	10 1/8	12.25	AL10020AK	1.0

\* Cover includes 2 cover halves, 4 seals (except 2 seals for AL4020), gaskets and all necessary hardware for installation.

\*\* Accessory Kit includes 2 seals for specified hub, 2 gaskets and all necessary hardware for reinstallation.



### Chains for Couplings

Table No. 8

Coupling Ref. No.	Chain Part No.	Wt. Lbs.
C4012	<b>C4012</b>	0.4
C4016	<b>C4016</b>	0.5
C4020	<b>C4020</b>	0.7
C5016	<b>C5016</b>	1.2
C5018	<b>C5018</b>	1.3
C6018	<b>C6018</b>	2.2
C6020	<b>C6020</b>	2.6
C8018	<b>C8018</b>	5.3
C8020	<b>C8020</b>	5.9
C10018	<b>C10018</b>	9.8
C10020	<b>C10020</b>	10.9



### REPLACEMENT CHAIN

Replacement chains of correct length for each stock coupling are available from stock, individually packaged and complete with connecting links.



### Horsepower Ratings for Finished Bore and Minimum Bore Chain Couplings

Table No. 9



Coupling Size	Below 50 RPM Max. Torque	Horsepower at Indicated Speeds											Max. RPM with Cover*
		50	100	200	300	400	600	900	1200	1500	1800	3600	
C4012	113	1.08	2.15	3.43	4.52	5.57	7.56	10.45	13.10	15.70	18.20	33.10	5,000
C4016	200	1.90	3.81	6.07	8.00	9.86	13.40	18.50	23.20	27.80	32.20	58.50	5,000
C4020	308	2.93	5.86	9.26	12.32	15.01	20.41	28.50	35.18	42.22	49.61	88.67	4,000
C5016	384	3.66	7.32	11.70	15.35	18.90	25.70	35.53	44.50	53.30	61.90	112.00	4,000
C5018	525	5.00	10.00	15.00	21.00	25.00	33.00	48.58	57.00	67.00	79.00	145.00	4,000
C6018	910	8.70	17.30	27.60	36.38	44.90	60.90	84.20	105.00	126.00	147.00		3,000
C6020	1050	10.00	23.00	36.00	41.98	58.00	79.00	97.16	135.00	165.00	192.00		3,000
C8018	2027	19.30	38.60	61.40	81.05	99.80	135.00	187.57	234.00	281.00	326.00		2,000
C8020	2625	25.00	50.00	80.00	104.96	130.00	175.00	242.90	302.00	365.00	430.00		2,000
C10018	3644	34.70	69.40	111.00	145.70	180.00	244.00	337.30	422.00	506.00	587.00		1,800
C10020	4495	42.80	85.60	136.00	179.73	221.00	300.00	415.95	517.00	621.00	708.00		1,800

For maximum service life, a cover with proper lubrication is required for couplings selected with ratings to the right of the heavy line. Shaft and key stresses have not been considered in the above ratings.

\*WARNING - Couplings with covers must not be operated beyond this speed.

### Horsepower Ratings for Chain Couplings with SPLIT TAPER™ Bushings

Table No. 10



Coupling Size	Below 50 RPM Max. Torque	Horsepower at Indicated Speeds											Max. RPM with Cover*
		50	100	200	300	400	600	900	1200	1500	1800	3600	
C4020XH	220	2.09	4.19	6.61	8.79	10.72	14.57	20.36	25.13	30.16	35.43	63.33	4,000
C5016XH	220	2.09	4.19	6.61	8.79	10.72	14.57	30.36	25.13	30.16	35.43	63.33	4,000
C5018XP	525	5.00	10.00	15.00	21.00	25.00	33.00	48.58	57.00	67.00	79.00	145.00	4,000
C6018XP	708	6.74	13.48	21.29	28.30	34.51	46.91	65.51	80.88	97.06	114.04		3,000
C6020XB	708	6.74	13.48	21.29	28.30	34.51	46.91	65.51	80.88	97.06	114.04		3,000
C8018XQ	1750	16.66	33.32	52.64	69.97	85.30	115.95	161.93	199.92	239.90	281.89		2,000
C10018XR	2750	26.18	52.36	82.73	109.95	134.04	182.21	254.47	314.16	376.99	442.97		1,800

For maximum service life, a cover with proper lubrication is required for couplings selected with ratings to the right of the heavy line.

\*WARNING - Couplings with covers must not be operated beyond this speed.

### Horsepower Ratings for Chain Couplings with Taper Bore Bushings

Table No. 10



Coupling Size	Below 50 RPM Max. Torque	Horsepower at Indicated Speeds											Max. RPM with Cover*
		50	100	200	300	400	600	900	1200	1500	1800	3600	
C40TB16	108	1.02	2.05	3.24	4.31	5.26	7.15	9.99	12.33	14.80	17.39	31.09	5,000
C50TB18	358	3.40	6.81	10.77	14.31	17.45	23.72	33.12	40.89	49.07	57.66	103.06	4,000
C60TB20	595	5.66	11.32	17.89	23.79	29.00	39.42	55.05	67.97	81.56	95.84		3,000
C80TB20	2000	19.04	38.08	60.16	79.96	97.48	132.52	185.07	228.48	274.18	322.16		2,000
C100TB20	3733	35.53	71.07	112.30	149.26	181.95	247.35	345.43	426.46	511.75	601.31		1,800

For maximum service life, a cover with proper lubrication is required for couplings selected with ratings to the right of the heavy line.

\*WARNING - Couplings with covers must not be operated beyond this speed.



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**Table No. 12 Load Classifications**

CLASS E Even Load	CLASS U Uneven Load	CLASS H Heavy Shock Load
Agitators for liquids Blowers, centrifugal Conveyor, belt or chain smoothly loaded Cranes Elevator, smoothly loaded Fans, centrifugal Generators Line Shafts, even load Machines, uniform load, non-reversing Pumps, centrifugal Screens, uniformly fed Worm gear speed reducers	Beaters Compressors, centrifugal Conveyors, pulsating load Grinders, pulp Hoists Kilns and dryers Line shafts, uneven load Machines, pulsating load, non-reversing Mills, ball, blooming, pebble, tube Pumps, reciprocating	Boat propellers Compressors, reciprocating Crushers Feeders, reciprocating Machines, reversing or impact loads Mills, hammer Oil Well Pumping Units Presses Pumps, simplex or duplex, reciprocating Refuse hogs

**Table No. 13 Service Factors**

Class	Characteristics of Driven Unit	Source of Power		
		Electric Motor or Steam Turbine	Steam Engine or Gasoline Engine 4 or more Cyl.	Diesel or Gas Engine
E	Even load - 8 hour/day service* Non-reversing - low torque starting	1	1 1/2	2
U	Uneven load - 8 hour/day service* Moderate shock or torsional loads - Non reversing - This is the most common type of service.	1 1/2	2	2 1/2
H	Heavy shock load - 8 hour/day service* High peak torsional loads - Reversing under load - Full load starting.	2	2 1/2	3

\* For 16 to 24 hour/day service use service factor for next higher class loading.  
Note—For even load, stand by, seasonal or infrequent service the normal service rating of the coupling will determine its proper selection.

### COUPLING SELECTION INFORMATION:

Application information: A finished bore chain coupling is required to drive a pulp grinder (1 3/4" shaft) from a 1800 RPM, 20 HP electric motor (1 5/8" shaft) approximately 16 hours per day.

#### 1. Determine load classification and service factor.

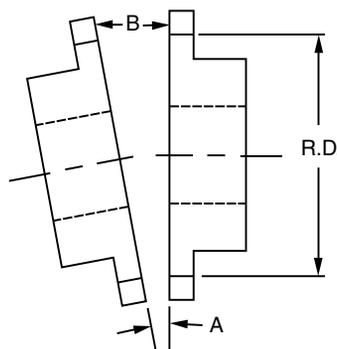
Note that a pulp grinder is considered a Class "U" load but since it is to operate 16 hours per day, it must be classed as an "H" load. Table No. 13 indicates that the service factor for a Class H load driven by an electric motor is 2.

**2. Calculate the required horsepower.** Input Horsepower (20) x Service Factor (2) = Required Horsepower (40).

**3. Determine the Coupling Size.** From Table No. 9, Page 229, select the smallest coupling for 1800 RPM that meets the horsepower requirements. Verify bore requirements (1 5/8" driver, 1 3/4" driven) for selected hub size. Select C5018 based on shaft requirements.

### MISALIGNMENT

For maximum life, angular misalignment should not exceed 1/2". Refer to sketch to insure that .009 inches per inch of root diameter is not exceeded. This is equivalent to 1/2° of angular misalignment. Offset or parallel misalignment not to exceed 2% of chain pitch is recommended.



$$B-A = .009" \times R.D.$$



# HIGH PERFORMANCE COUPLINGS

## KOP-FLEX®

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**Available In Four Standard Styles...**

**Designed And Manufactured To Meet API 671 As Standard**

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

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

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

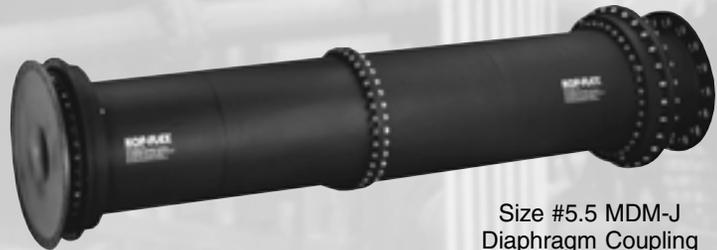


Reduced Moment  
High Performance Disc Coupling

### High Performance Flexible Diaphragm Couplings

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

- Field-replaceable stockable diaphragms
- Specially-contoured one-piece diaphragm design
- Patented diaphragm shape
- Piloted fits
- Diaphragms are 15.5 PH shot-peened stainless steel
- Inherently low windage design
- Conforms to API 671 specifications



Size #5.5 MDM-J  
Diaphragm Coupling

### High Performance Gear Couplings

- Thousands in service
- Choose from straight or crowned nitrided gear teeth, depending on your application
- Precision lapped teeth, if required
- Heat-treated alloy components



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

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**Request a copy of Catalog KHP-00 or visit [www.kop-flex.com](http://www.kop-flex.com)**

