

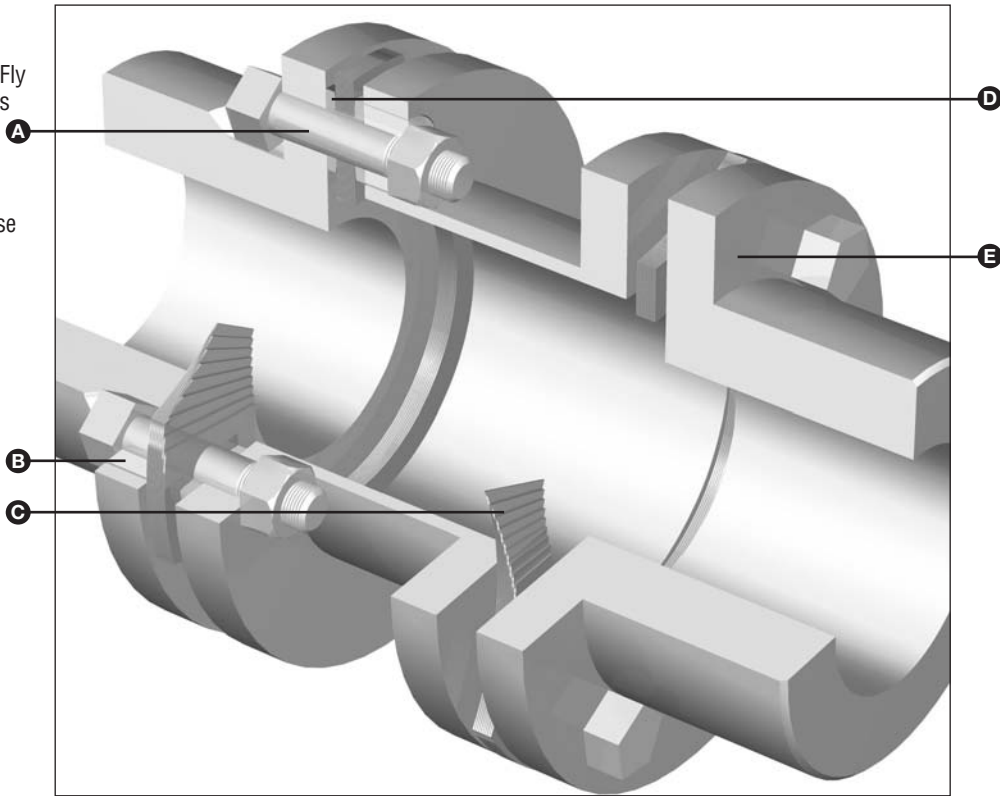


# L SERIES

## METASTREAM™ Membrane Couplings

# L Series

- A – Fitted Bolts for Balance Integrity
- B – Overload & Anti-Fly Protection Collars
- C – Stainless Steel, Flexible Discs
- D – Disc Pack Assembly for Ease of Installation
- E – Anti-Corrosion Treatment



### Product Description

The Metastream™ L Series range of membrane couplings has been specifically designed to provide a cost effective solution for demanding industrial applications. Couplings are selected by their torque capacity, and are available in numerous options to meet the application requirements.

- Easy to install.
- Operates in either direction.
- Hubs supplied either finish machined or solid.
- Coated carbon steel hardware for corrosion protection.
- Choice of hub configuration to suit the shaft diameter.

### Design Features

- **Fit and Forget:** The L series coupling is designed for infinite life, and with correct machinery alignment, often outlasting the machines it is connected to.
- **Overload Protection:** The coupling is fitted with overload collars to protect the flexible discs in the event of severe torsional overload.
- **Low Imposed Loads:** The flexible discs have been designed to optimize their torque capability, while minimizing the reaction forces due to misalignment. Thereby reducing machinery vibration and maximizing bearing life.
- **Zero Maintenance:** The coupling has no relative moving parts, requiring no lubrication or maintenance.
- **No Backlash:** The coupling design, with fitted bolts and torsionally stiff flexible discs, insures that there is zero backlash. This makes the coupling ideal for drives such as machine tool indexers, printing processes, packaging, and all applications where constant speed without fluctuations is crucial.



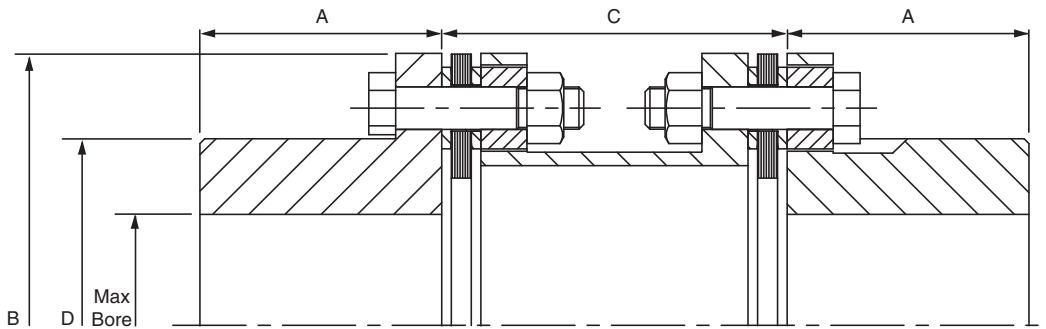
# L SERIES

## METASTREAM™ Membrane Couplings

### L Series Technical Data

Coupling Size	Rating HP/100 rpm	Max. Continuous Torque lb.in.	Peak Overload Torque lb.in.	Max. rpm		Coupling Weight		Unbored Hub Weight lb.
				Unbalanced Speed	Balanced Speed	Min. Std. DBSE lb.	Extra DBSE lb./in.	
L001	0.9	620	1239	7000	22000	3.2	0.11	0.93
L002	1.9	1150	2301	6500	20000	4.7	0.13	1.45
L003	3.7	2390	4868	6000	18000	9.3	0.27	2.98
L004	6.0	3806	7965	6000	18000	10.4	0.27	3.48
L009	12	7611	15045	5200	15000	22.0	0.39	6.99
L017	23	14602	29205	4800	12300	35.3	0.63	12.1
L026	35	22125	44250	4400	10800	61.7	0.79	21.2
L052	70	44250	88500	4200	9000	92.6	1.4	32.4
L081	109	68145	137175	4000	7800	132	1.9	45.4
L115	154	97350	194700	3800	7000	181	2.5	63.9
L156	209	132750	265500	3700	6000	247	3.0	86.0
L185	248	155760	309750	2500	5500	229	2.5	79.4
L300	402	253110	504450	2250	5200	364	3.5	132
L420	563	354000	708000	2100	4700	518	4.0	192
L600	805	504450	1017750	2000	4200	754	5.3	267
L909	1207	761100	1504500	1750	3600	1136	8.3	412
L912	1609	1017750	2035500	1600	3200	1488	10.2	540
L915	2012	1239000	2478000	1500	3000	1852	12.6	701
L925	3353	2079750	4159500	1400	2600	3153	12.9	1224

### Typical Arrangement



### Dimensional Data (inches)

Coupling Size	Max Bore*	A	B	Standard DBSE C inches**					D	
				Min (in.)	3.50	4.38	5.00	7.00		9.00
L001	1.250	1.30	2.44	1.57	*	*	*			1.61
L002	1.375	1.50	2.91	1.97	*	*	*			1.89
L003	1.937	1.65	3.74	2.56	*	*	*	*		2.64
L004	1.812	2.05	3.74	2.56						2.60
L009	2.437	2.44	4.72	2.95	*	*	*	*		3.38
L017	2.875	2.95	5.71	3.94			*	*		4.05
L026	3.625	3.54	6.77	3.94			*	*		4.92
L052	4.000	4.13	7.75	5.51				*	*	5.63
L081	4.500	4.57	8.74	5.51				*	*	6.34
L115	5.000	5.12	9.72	5.51				*	*	7.09
L156	5.500	5.71	10.71	7.09					*	7.79
L185	5.125	5.39	11.50	7.09					*	7.56
L300	6.000	6.42	13.43	7.09					*	9.02
L420	7.250	7.32	15.11	7.09						10.24
L600	8.125	8.11	16.89	7.87						11.38
L909	9.625	9.45	19.13	7.87						13.23
L912	10.500	10.31	21.06	9.84						14.45
L915	11.500	11.34	22.48	9.84						15.87
L925	12.000	13.66	26.89	11.81						19.13

Dimensions should not be used for construction. Certified dimensions furnished upon request.

\* Maximum bore shown are based on standard ANSI/AGMA square key dimensions for size L001 through L300 and rectangular key dimensions for size L420 through L925.

\*\* These Distance Between Shaft End (DBSE) sizes are more readily available. Other lengths to suit specific shaft separations are available.



# L SERIES

## METASTREAM™ Membrane Couplings

### Selection Procedure

1. Select appropriate service factor SF1.
2. Select appropriate service factor from table SF2.
3. Calculate coupling rating T<sub>N</sub> from  

$$R = \frac{HP \times 100 \times SF_2}{N}$$
 where:  
 HP = rated power for driven equipment (HP)  
 N = speed (rpm)
4. Select a coupling with the same or higher rating.
5. Check that the hub bore capacity is suitable, if not select a larger size coupling.
6. Check peak torque capability is suitable for application.
7. Check speed capability.
8. Check whether additional dynamic balancing is required.
9. Specify Distance Between Shaft Ends (DBSE).

#### Example:

250 HP electric motor to a paper mill calender at 1800 rpm.

$$R = \frac{250 \times 100 \times 2.00}{1800}$$

$$R = 27.8 \text{ HP per 100 rpm}$$

#### Selection: L026

Maximum bore capacity: 3.625 inches.

Coupling is capable of operating up to 4400 rpm.

Additional dynamic balancing is not required.

### Load Factor SF1

AGITATORS	Forced Draft . . . . . A	Hot Mills . . . . . H	Calenders . . . . . H
Pure Liquids . . . . . U	Induced Draft without	Ingot Cars . . . . . A	Chippers . . . . . A
Liquids & Solids . . . . . A	Dampner Control . . . . . H	Kick-outs . . . . . A	Coaters . . . . . U
Liquid - Variable Density . . . . . A	FEEDERS	Manipulators . . . . . H	Couch Roll . . . . . A
BLOWERS	Apron, Belt, Disc, Screw . . . . . U	Merchant Mills . . . . . H	Cutter, Platers . . . . . H
Centrifugal . . . . . U	Reciprocating . . . . . H	Pusher Rams . . . . . A	Cylinders . . . . . A
Lobe . . . . . A	HAMMER MILLS . . . . . A	Reel Drives . . . . . A	Disc Refiners . . . . . A
Vane . . . . . U	LUMBER INDUSTRY	Reel Drums . . . . . A	Dryers . . . . . U
CLAY & STONE WORKING	Barkers - Drum Type . . . . . H	Reelers . . . . . H	Felt Stretcher . . . . . U
MACHINERY . . . . . H	Edger Feed . . . . . H	Rod and Bar Mills . . . . . H	Felt Whipper . . . . . H
COMPRESSORS	Live Rolls . . . . . H	Roughing Mill . . . . . H	Line Shaft . . . . . U
Centrifugal . . . . . U	Log Haul - Incline . . . . . H	Delivery Table . . . . . H	Log Haul . . . . . H
Lobe . . . . . A	Log Haul - Well Type . . . . . H	Runout Tables . . . . . A	Pulp Grinder . . . . . A
Reciprocating-	Off Bearing Rolls . . . . . H	Saws, Hot & Cold . . . . . A	Press Roll . . . . . H
Multi-Cylinder . . . . . H	Planer Feed Chains . . . . . A	Screwdown Drives . . . . . H	Reel . . . . . A
CONVEYORS—Light Duty Uniformly Fed	Planer Floor Chains . . . . . A	Slitters . . . . . H	Stock Chests . . . . . A
Apron, Bucket, Chain,	Planer Tilting Hoist . . . . . A	Slab Mills . . . . . H	Suction Roll . . . . . A
Flight, Screw . . . . . U	Slab Conveyor . . . . . U	Soaking Pit Cover Drives . . . . . H	Washers & Thickeners . . . . . A
Belt . . . . . U	Sorting Table . . . . . U	Straighteners . . . . . A	Winders . . . . . A
Oven . . . . . A	Trimmer Feed . . . . . A	Tables, Transfer & Runout . . . . . A	PUMPS
CONVEYORS—Heavy Duty Not Uniformly Fed	METAL MILLS	Thrust Block . . . . . H	Centrifugal . . . . . U
Apron, Bucket, Chain, Flight,	Draw Bench - Carriage . . . . . H	Traction Drive . . . . . H	Reciprocating Single Acting
Oven . . . . . A	Draw Bench - Main Drive . . . . . H	Tube Conveyor Rolls . . . . . A	1 or 2 Cylinders . . . . . H
Belt . . . . . U	Forming Machines . . . . . H	Wire Drawing . . . . . A	Double Acting . . . . . H
Reciprocating, Shaker . . . . . H	Slitters . . . . . A	MILLS ROTARY TYPE	Rotary, Gear, Lobe, Vane . . . . . A
CRANES AND HOISTS (Note)	Table Conveyors	Ball . . . . . H	RUBBER INDUSTRY
Main Hoists, Reversing . . . . . H	Non-Reversing . . . . . H	Driers & Coolers . . . . . H	Mixer - Banbury . . . . . H
Skip Hoists, Trolley &	Reversing . . . . . H	Hammer . . . . . H	Rubber Calendar . . . . . H
Bridge Drives . . . . . A	Wire Drawing &	Kilns . . . . . H	Rubber Mill (2 or more) . . . . . H
Slope . . . . . A	Flattening Machine . . . . . A	Pebble & Rod . . . . . H	Sheeter . . . . . H
CRUSHERS	Wire Winding Machine . . . . . A	Pug . . . . . H	Tire Building Machines . . . . . H
Ore Stone . . . . . H	METAL ROLLING MILLS	Tumbling Barrels . . . . . H	Tire & Tube Press Openers . . . . . U
ELEVATORS (Note)	Coilers, Hot Mill . . . . . A	MIXERS	Tubers & Strainers . . . . . H
Bucket . . . . . A	Coilers, Cold Mill . . . . . U	Concrete . . . . . A	SEWAGE DISPOSAL EQUIPMENT
Centrifugal & Gravity	Cold Mills . . . . . A	Drum Type . . . . . A	Bar Screens . . . . . U
Discharge . . . . . U	Cooling Beds . . . . . A	PAPER MILLS	Chemical Feeders . . . . . U
Escalators . . . . . U	Door Openers . . . . . A	Barker Auxiliaries,	Dewatering Screens . . . . . U
Freight . . . . . H	Draw Benches . . . . . A	Hydraulic . . . . . H	Grit Collectors . . . . . U
FANS	Edger Drives . . . . . A	Barker, Mechanical . . . . . H	Scum Breakers . . . . . U
Centrifugal . . . . . U	Feed Rolls,	Barking Drum Spur	Slow or Rapid Mixers . . . . . U
Cooling Towers . . . . . A	Reversing Mills . . . . . H	Gear Only . . . . . H	Sludge Collectors . . . . . U
	Furnace Pushers . . . . . A	Beater & Pulper . . . . . A	Thickeners . . . . . U
		Bleacher . . . . . U	Vacuum Filters . . . . . U

Note: Consult local safety codes.

### Service Factor SF2

PRIME MOVER	LOAD FACTOR FOR DRIVEN MACHINE		
	U	A	H
ELECTRIC, HYDRAULIC MOTORS & TURBINES	1.00	1.50	2.00
PISTON ENGINES: 4 CYLINDERS & ABOVE	1.50	1.75	2.50
PISTON ENGINES: 1 - 3 CYLINDERS	1.75	2.25	3.00

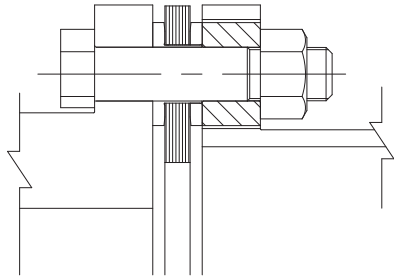


# L SERIES

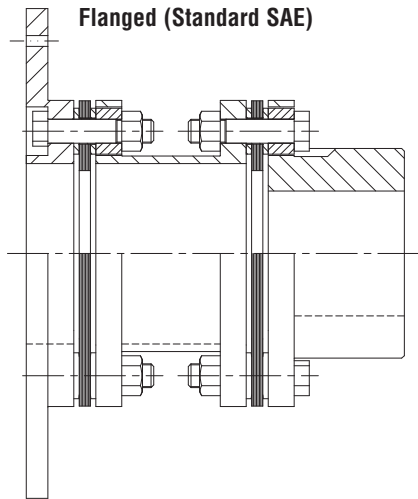
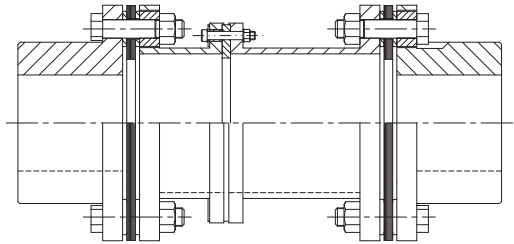
## METASTREAM™ Membrane Couplings

### Available Options

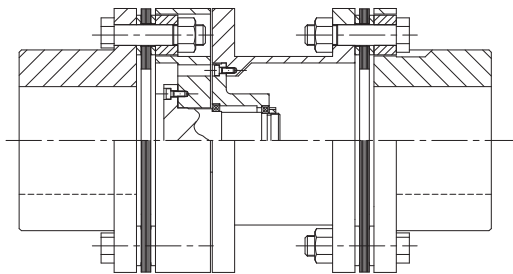
Spark Resistant



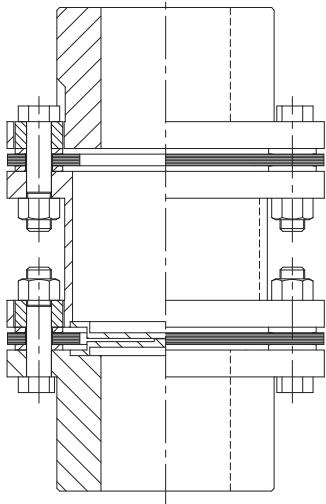
Electrically Insulated



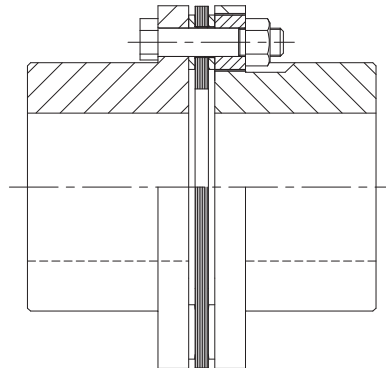
Torque Limiting



Vertical Supported From Lower Shaft



Non Spacer



CUT LINE FOR SHORT PAGE

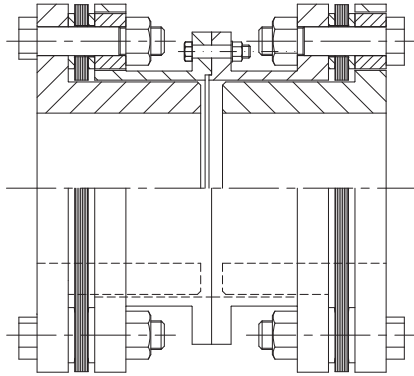


# L SERIES

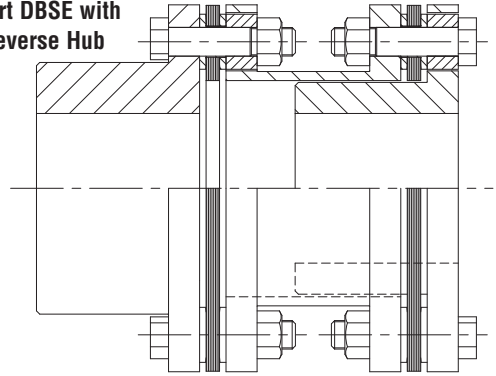
**METASTREAM™** Membrane Couplings

## Available Options (continued)

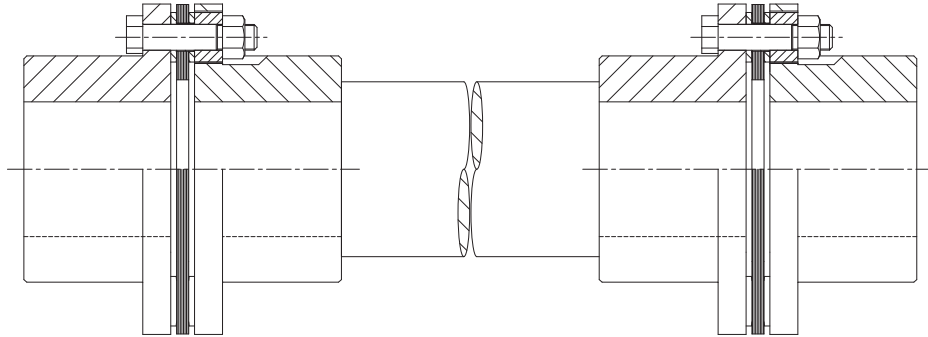
**Short DBSE  
with 2  
Reverse  
Hubs**



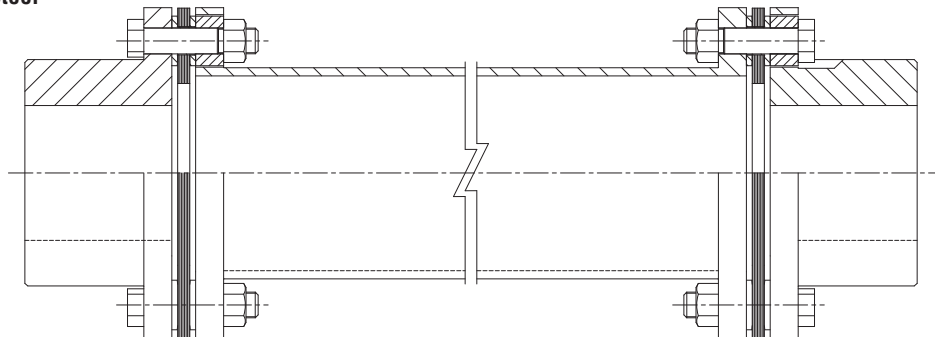
**Short DBSE with  
1 Reverse Hub**



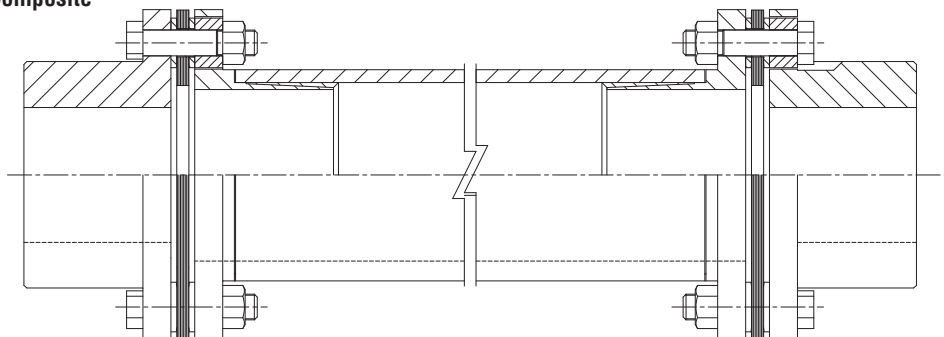
**Long DBSE Steel (Cardan shaft)**



**Long DBSE Steel**



**Long DBSE Composite**



CUT LINE FOR SHORT PAGE



# L SERIES

## METASTREAM™ Membrane Couplings

### Coupling Alignment

Correct installation and alignment of couplings are essential for reliable machinery performance. John Crane supplies a variety of shaft alignment equipment and offers alignment training courses.

L SERIES MISALIGNMENT CAPABILITIES			
Coupling Size	Max.		Max. Parallel** inch
	Axial ± inch	Angular* Degrees	
L001	0.059	1.0	0.020
L002	0.059	1.0	0.027
L003	0.071	1.0	0.035
L004	0.047	0.8	0.027
L009	0.059	0.8	0.035
L017	0.079	0.8	0.047
L026	0.098	0.8	0.047
L052	0.106	0.8	0.063
L081	0.126	0.8	0.063
L115	0.146	0.8	0.063
L156	0.165	0.8	0.078
L185	0.118	0.5	0.055
L300	0.157	0.5	0.055
L420	0.173	0.5	0.055
L600	0.197	0.5	0.059
L909	0.236	0.5	0.059
L912	0.268	0.5	0.075
L915	0.295	0.5	0.075
L925	0.346	0.5	0.090

Notes: These values are maximums for each type of misalignment. It is recommended that the coupling is initially aligned to 10% of these values to allow for inevitable movements during the life of the machines.

- \* The values given are for each flexing disc pack.
- \*\* These values are based on the standard minimum distance between shaft ends.



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For your nearest John Crane facility, please contact one of the locations above.

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