MS Style Selection and Dimensional Data (SI Units)

⑥ Cplg. Size	Cplg. Series	①② Max. Continuous Torque Rating (kNm)	③ Axial Rating per Cplg. (± mm.)	③ Misalignment Rating per End (± Deg.)	Maximum Speed (RPM)	Coupling O.D. A (mm)	④ Bore (max.) B (mm)	⑤ Shaft-to-Shaft (min.) C (mm)
1.0	**MSM**	2.15	1.6	0.33	24000	152	83	119
1.0	**MSH**	2.83	1.3	0.25	24000	152	83	119
1.0	**MSX**	4.07	0.9	0.20	24000	152	83	119
1.5	**MSM**	4.29	1.9	0.33	20000	178	102	145
1.5	**MSH**	5.65	1.5	0.25	20000	178	102	145
1.5	**MSX**	8.14	1.0	0.20	20000	178	102	145
2.0	**MSM**	10.06	2.7	0.33	17000	233	137	171
2.0	**MSH**	13.3	2.2	0.25	17000	233	137	171
2.0	**MSX**	19.2	1.5	0.20	17000	233	137	171
2.5	**MSM**	19.1	3.2	0.33	14000	278	171	211
2.5	**MSH**	25.4	2.5	0.25	14000	278	171	211
2.5	**MSX**	36.7	1.8	0.20	14000	278	171	211
3.0	**MSM**	34.8	4.0	0.33	13000	332	210	229
3.0	**MSH**	46.3	3.2	0.25	13000	332	210	229
3.0	**MSX**	66.7	2.2	0.20	13000	332	210	229
3.5	**MSM**	50.9	4.5	0.33	12000	378	241	246
3.5	**MSH**	67.8	3.6	0.25	12000	378	241	246
3.5	**MSX**	97.2	2.4	0.20	12000	378	241	246
4.0	**MSM**	78.0	5.2	0.33	11000	431	279	363
4.0	**MSH**	104	4.2	0.25	11000	431	279	363
4.0	**MSX**	149	2.8	0.20	11000	431	279	363
4.5	**MSM**	114	5.9	0.33	10000	482	318	381
4.5	**MSH**	153	4.7	0.25	10000	482	318	381
4.5	**MSX**	218	3.2	0.20	10000	482	318	381
5.0	**MSM**	159	6.7	0.33	9000	537	356	375
5.0	**MSH**	212	5.3	0.25	9000	537	356	375
5.0	**MSX**	306	3.6	0.20	9000	537	356	375
5.5	**MSM**	202	7.1	0.33	8000	582	381	481
5.5	**MSH**	269	5.7	0.25	8000	582	381	481
5.5	**MSX**	386	3.9	0.20	8000	582	381	481

Consult KOP-FLEX Engineering Department for Mass Elastic Data.
Consult KOP-FLEX for Custom or Special Designs.

① Peak torque rating is 133% of maximum continuous torque rating. Peak torques are defined as intermittent conditions which may occur at multiple intervals (such as break-away start up torques).

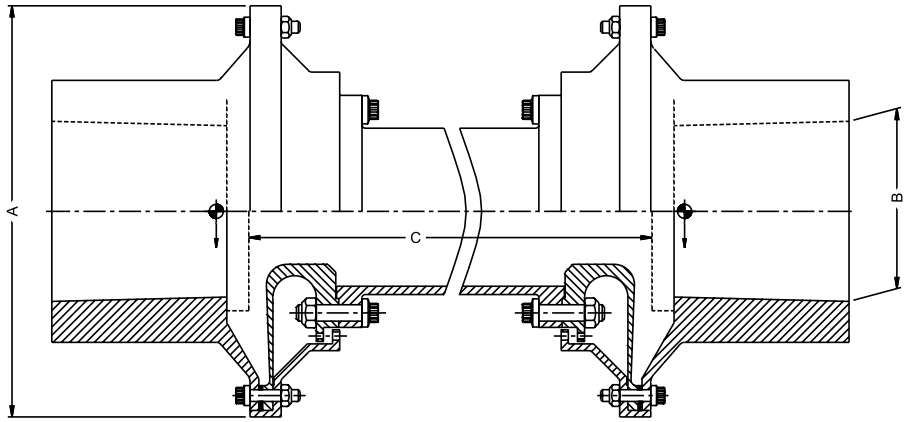
② Maximum momentary torque rating is 176% of maximum continuous torque rating. Maximum momentary torques are defined as torsional impact type loads which may occur for one brief duration (such as generator short circuits).

③ Axial and angular capabilities shown are for the “I” type diaphragm. Additional axial and angular capacities can be accommodated with the “J” type or the “U” type diaphragms. See page 85 for details.

④ Maximum bore capacity shown are for straight shaft. Consult KOP-FLEX for maximum bore capacity of tapered and keyed shafts.

⑤ Minimum standard shaft separation is shown. Consult KOP-FLEX for shorter shaft separations.

⑥ Consult KOP-FLEX for larger sizes.



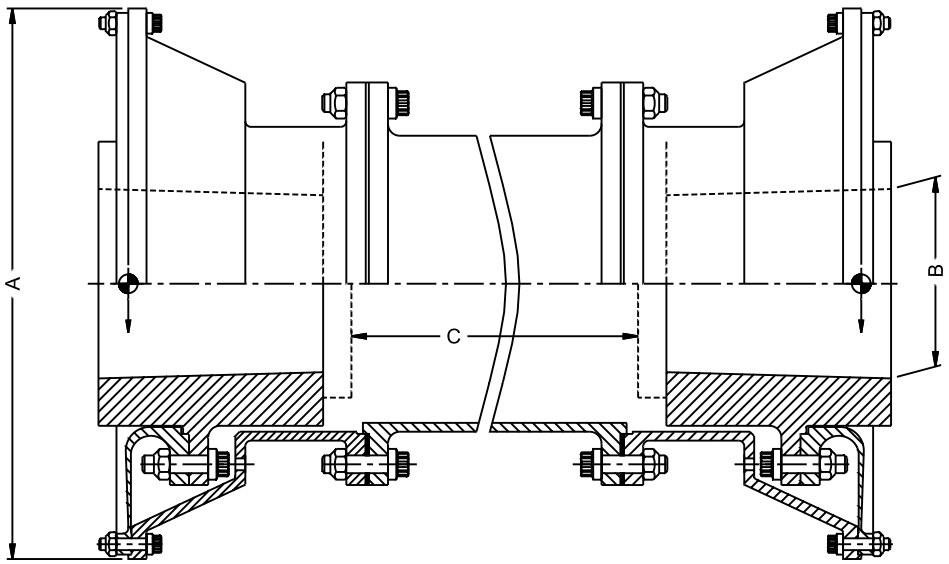
Specifications and selection data are subject to change without notice.

RM Style Selection and Dimensional Data (SI Units)

⑦ Cplg. Size	⑥ Cplg. Series	①② Max. Continuous Torque Rating (kNm)	③ Axial Rating per Cplg. (± mm.)	③ Misalignment Rating per End (± Deg.)	Maximum Speed (RPM)	Coupling O.D. A (mm)	④ Bore (nominal) B (mm)	⑤ Shaft-to-Shaft (min.) C (mm)
1.5	**RMM**	3.39	1.3	0.25	24000	153	51	64
2	**RMM**	6.78	1.6	0.25	19000	187	64	64
2.5	**RMM**	11.3	1.9	0.25	18000	220	76	79
3	**RMM**	18.1	2.2	0.25	15000	262	89	79
3.5	**RMM**	27.1	2.5	0.25	14000	295	102	79
4	**RMM**	38.6	2.9	0.25	13000	333	114	89
4.5	**RMM**	53.0	3.2	0.25	12000	369	127	102
5	**RMM**	70.5	3.5	0.25	11000	409	140	102
5.5	**RMM**	91.5	3.8	0.25	10000	445	152	114
6	**RMM**	116	4.1	0.25	9000	478	165	117

Consult KOP-FLEX Engineering Department for Mass Elastic Data.
Consult KOP-FLEX for Custom or Special Designs.

① Peak torque rating is 133% of maximum continuous torque rating. Peak torques are defined as intermittent conditions which may occur at multiple intervals (such as break-away start up torques).
② Maximum momentary torque rating is 176% of maximum continuous torque rating. Maximum momentary torques are defined as torsional impact type loads which may occur for one brief duration (such as generator short circuits).
③ Axial and angular capabilities shown are for the standard RMM series. Consult KOP-FLEX for higher axial and angular capacities.
④ Nominal bore capacities are shown. Consult KOP-FLEX for higher bore capacities.
⑤ Minimum shaft separation is shown. Consult KOP-FLEX for shorter shaft separations.
⑥ Integral hub configuration is offered for sizes 3.0 and below.
⑦ Consult KOP-FLEX for larger sizes.



Selection Procedure

Step 1.
Calculate the normal continuous torque with specified application service factor. Select the coupling which has a maximum continuous torque rating (shown on pages 4 and 5) greater than the normal continuous torque with specified application service factor.

APPLICATION FACTORS

Generally Constant Torque with Off-Design Conditions (Turbines, Centrifugal Compressors, Gearboxes)	1.50
API 671 - 3rd Edition	1.50
Moderate Torque Fluctuations (Large Fans, Screw Compressors, etc.)	2.00

Step 2.
Check the maximum momentary torque capacity of the coupling selected. (Consult KOP-FLEX for synchronous motor applications.)

Step 3.
Check the maximum bore capacity where applicable or contact KOP-FLEX for customized flange bolt patterns.

Step 4.
Check the axial and angular misalignment requirements of the application (thermal growth, etc....)

Step 5.
Check that the coupling will not interfere with the machinery housings, guards, piping, or the equipment housing and that it will fit in the shaft separation required.

Coupling selection, Mass Elastic Data, windage data, lateral critical speeds and axial natural frequencies (ANFs) can be supplied by KOP-FLEX as required.

EXAMPLE:

Application: Gas Turbine driving centrifugal compressor
38,500 HP (28,700 kW) at 4600 rpm
Turbine shaft = 5 in. (127 mm) - Tapered, keyless hydraulic
Compressor shaft = 5 in. (127 mm) - Tapered keyless hydraulic
AP1671 Service Factor required (1.50)
Angular Misalignment capacity required = 0.25°
Compressor is sensitive to overhung weight

CALCULATION:

$$\text{Normal Continuous Torque} = \frac{\text{HP} \times 63025 \times \text{S.F.}}{\text{RPM}}$$

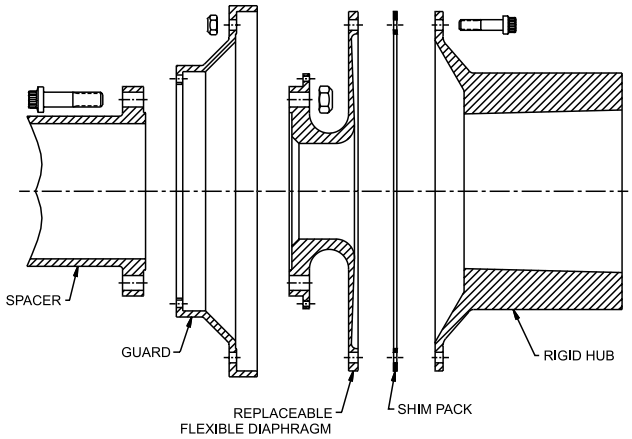
$$= \frac{38{,}500 \times 63025 \times 1.50}{4600}$$

$$= 791{,}238 \text{ in.-lb } (102926 \text{ N-m})$$

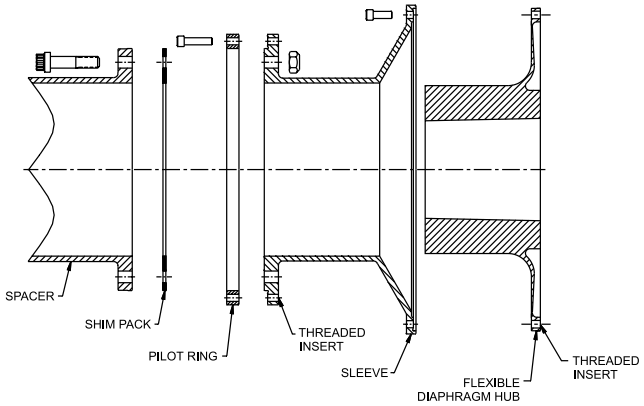
SELECTION:

Size #4.0 MSH/RMH/#5.5 RMM
[Marine Style (MS) coupling on Turbine end and Reduced Moment (RM style on the Compressor end).
Check steps 2 through 5 as stated above.

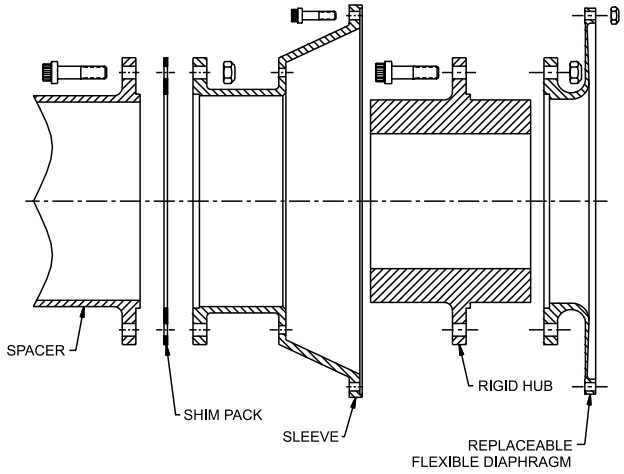
MS Style Diaphragm (MARINE STYLE)



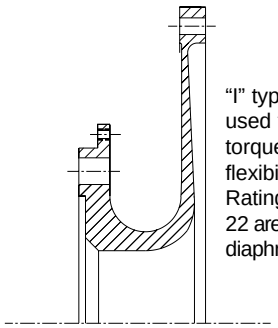
RM Style Diaphragm (REDUCED MOMENT STYLE WITH INTEGRAL HUB)



RM Style Diaphragm (REDUCED MOMENT STYLE)



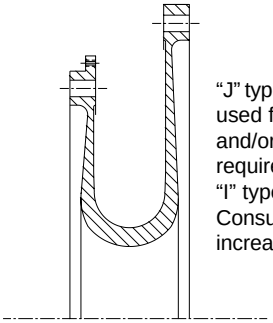
Standard



"I" TYPE DIAPHRAGM

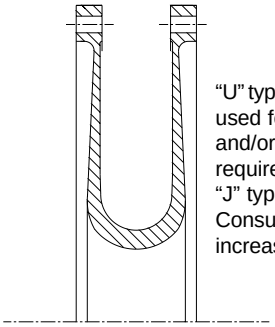
"I" type diaphragms are used for moderate torque and/or moderate flexibility requirements. Ratings shown on page 22 are for the "I" type diaphragms.

Optional



"J" TYPE DIAPHRAGM

"J" type diaphragms are used for higher torque and/or higher flexibility requirements than the "I" type diaphragm. Consult KOP-FLEX for increased capacities.



"U" TYPE DIAPHRAGM

"U" type diaphragms are used for higher torque and/or higher flexibility requirements than the "J" type diaphragm. Consult KOP-FLEX for increased capacities.

Retrofit Applications

Replacing any high speed coupling with another type of high speed coupling requires great care. The replacement coupling should have the same characteristics as the original equipment. When supplying a coupling for a retrofit application, KOP-FLEX tries to match the weight, overhung moment and torsional stiffness of the existing coupling. It is important to supply this information when you request a quote. The dimensional constraints, the history of the existing coupling and the reasons you are changing the coupling are also required. If the original coupling can not be replaced with one of comparable mass-elastic characteristics, KOP-FLEX recommends a thorough torsional and lateral vibration study of the system.

"Drop-In" Replacement for a Lucas®

The heart of a KOP-FLEX® Flexible Diaphragm Coupling (the flex elements and spacer) can be bolted directly to the rigid hubs used by Lucas (Bendix) diaphragm couplings. So you can drop a superior KOP-FLEX diaphragm coupling into any application covered by a Lucas *without removing the rigid hubs from the shafts*. The following interchange guide will help you select the right KOP-FLEX replacement for a Lucas coupling. The chart covers Lucas models 74E and 88E. To interchange with Lucas models 67E and 81E, ask KOP-FLEX about coupling retrofit considerations.

Lucas Interchange Guide

Lucas Diaphragm	Kop-Flex Interchange	Lucas Diaphragm	Kop-Flex Interchange
88E305 or 74E305	**1.0 MSM**	88E314 or 74E314	**3.5 MSM**
88E405 or 74E405	**1.0 MSH**	88E414 or 74E414	**3.5 MSH**
88E306 or74E306	**1.5 MSM**	88E514 or 74E514	**3.5 MSX**
88E406 or 74E406	**1.5 MSH**	88E316 or 74E316	**4.0 MSM**
88E506 or 74E506	**1.5 MSX**	88E416 or 74E416	**4.0 MSH**
88E308 or 74E308	**2.0 MSM**	88E516 or 74E516	**4.0 MSX**
88E408 or 74E408	**2.0 MSH**	88E616 or 74E616	**4.0 MSX**
88E508 or 74E508	**2.0 MSX**	88E318 or 74E318	**4.5 MSM**
88E310 or 74E310	**2.5 MSM**	88E418 or 74E418	**4.5 MSH**
88E410 or 74E410	**2.5 MSH**	88E518 or 74E518	**4.5 MSX**
88E510 or 74E510	**2.5 MSX**	88E618 or 74E618	**4.5 MSX**
88E312 or 74E312	**3.0 MSM**	88E322 or 74E322	**5.5 MSM**
88E412 or 74E412	**3.0 MSH**	88E422 or 74E422	**5.5 MSH**
88E512 or 74E512	**3.0 MSX**	88E522 or 74E522	**5.5 MSX**
		88E622 or 74E622	**5.5 MSX**

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