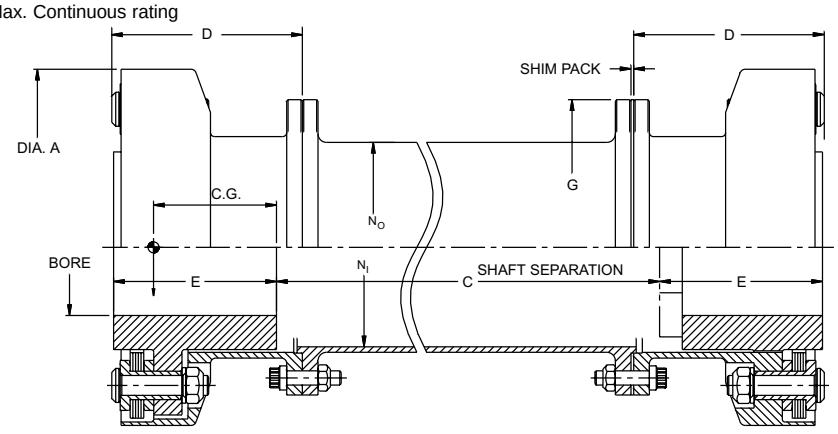
RM Coupling Selection Data

Size	① Nominal Bore Capacity (mm)	④ ⑤ ⑧ Max. Continuous Coupling Rating (kW/RPM)	④ ⑤ ⑧ Max. Continuous Torque Rating (kNm)	Maximum Speed (RPM)	⑥ Total Weight (kg)	⑥ Total WR^2 (kgm^2)	⑥ Half Coupling C.G. (mm)	⑥ ⑦ Torsional Stiffness K (MNm/rad)	Spacer Tube		
									K (MNm/rad)/m	Weight (kg)m	WR^2 (kgm^2)/m
103	38	.13	1.24	34300	5.72	.006	44	.04	.03	4.11	.003
153	51	.32	3.05	28600	8.98	.018	46	.11	.09	5.71	.008
154	51	.48	4.75	28600	10.7	.023	47	.11	.09	5.71	.008
203	64	.59	5.65	23800	14.8	.044	58	.20	.18	7.68	.018
204	64	.89	8.48	23800	16.5	.052	59	.21	.18	7.68	.018
253	76	.91	8.7	19900	23.5	.104	68	.34	.29	8.57	.028
254	76	1.4	13.4	19900	25.1	.114	69	.35	.29	8.57	.028
303	89	1.5	14.0	17100	35.4	.202	79	.64	.63	13.4	.060
304	89	2.2	21.2	17100	39.0	.237	80	.68	.63	13.4	.060
353	102	2.3	22.0	14900	52.6	.401	89	1.0	1.10	17.9	.106
354	102	3.5	33.2	14900	58.5	.475	90	1.1	1.10	17.9	.106
403	114	3.4	32.1	13100	75.8	.753	98	1.6	1.83	23.8	.176
404	114	5.0	48.1	13100	83.9	.885	99	1.7	1.83	23.8	.176
453	127	4.4	42.4	11900	100	1.18	113	2.3	2.81	29.8	.271
454	127	6.8	65.3	11900	112	1.39	112	2.6	2.81	29.8	.271
504	140	8.7	82.7	10900	135	2.08	113	2.9	3.73	32.7	.360
505	140	11	103	10900	142	2.18	113	3.3	4.99	44.6	.480
554	152	12	110	9900	199	3.75	136	3.9	5.40	39.8	.518
555	152	14	138	9900	203	3.81	136	4.2	7.00	52.9	.674
604	165	15	141	9200	235	5.01	151	5.3	7.52	47.7	.723
605	165	18	175	9200	246	5.24	152	5.8	9.56	61.6	.918

RM Dimensional Data

Size	A	D	G	No	Ni	Nominal Bore ① Capacity	② E Std	MAX O	③ MIN C	Size
103	103	70	94	55	49	38	57	57	93	**103**
153/154	141	75	116	79	73	51	62	76	99	**153/154**
203/204	167	90	139	99	92	64	77	95	117	**203/204**
253/254	199	106	165	117	111	76	91	114	124	**253/254**
303/304	231	119	187	138	130	89	106	133	147	**303/304**
353/354	266	133	216	159	149	102	119	152	149	**353/354**
403/404	303	152	241	178	167	114	135	171	175	**403/404**
453/454	332	168	268	197	184	127	153	191	192	**453/454**
504/505	363	184	291	216	203/198	140	171	210	217	**504/505**
554/555	400	204	321	235	221/216	152	188	229	220	**554/555**
604/605	432	219	343	254	238/233	165	202	248	278	**604/605**

① Based on 1.5 hub O.D./ bore ratio; larger bores are possible, consult KOP-FLEX for specific applications
② Can be reduced for smaller bores with shorter bore lengths
③ Minimum shaft separation for standard (E) bore lengths and installation without disturbing connected equipment
④ A minimum application factor of 1.5 is recommended
⑤ Peak rating is 1.33 x Max. Continuous rating
⑥ Data based on coupling with 457 mm shaft separation and nominal tapered bores for keyless hydraulic shaft connections; data can be changed to meet specific requirements
⑦ KOP-FLEX torsional stiffness calculation method
⑧ Max Momentary (short circuit) Rating is 1.76 x Max. Continuous rating



Specifications and selection data are subject to change without notice.

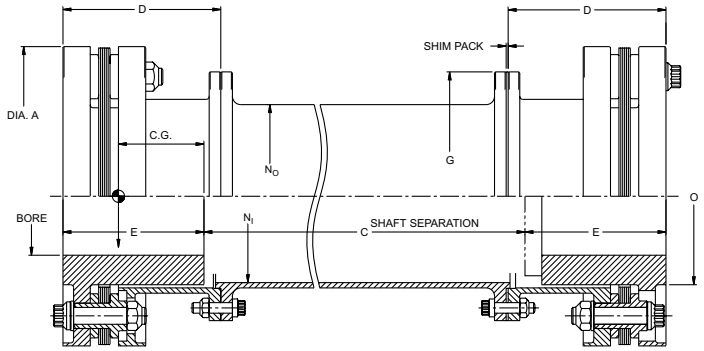
RZ Coupling Selection Data

Size	① Nominal Bore Capacity (mm)	④ ⑤ ⑧ Max. Continuous Coupling Rating (kW/RPM)	④ ⑤ ⑧ Max. Continuous Torque Rating (kNm)	Maximum Speed (RPM)	⑥ Total Weight (kg)	⑥ Total WR² (kgm²)	⑥ Half Coupling C.G. (mm)	⑥ ⑦ Torsional Stiffness K (MNm/rad)	Spacer Tube		
									K (MNm/rad)/m	Weight (kg)m	WR² (kgm²)/m
103	38	.13	1.24	34300	6.17	.006	38	.04	.03	4.11	.003
153	51	.32	3.05	28600	10.0	.021	41	.10	.09	5.71	.008
154	51	.48	4.75	28600	10.7	.023	40	.11	.09	5.71	.008
203	64	.59	5.65	23800	15.7	.048	53	.19	.18	7.68	.018
204	64	.89	8.48	23800	16.0	.049	53	.20	.18	7.68	.018
253	76	.91	8.70	19900	23.8	.104	61	.33	.29	8.57	.028
254	76	1.4	12.4	19900	24.3	.106	61	.34	.29	8.57	.028
303	89	1.5	14.0	17100	36.8	.214	72	.63	.63	13.4	.060
304	89	2.2	21.2	17100	37.4	.221	72	.66	.63	13.4	.060
353	102	2.3	22.0	14900	54.9	.428	81	1.0	1.10	17.9	.106
354	102	3.5	33.2	14900	56.2	.440	81	1.0	1.10	17.9	.106
403	114	3.4	32.1	13100	78.9	.797	88	1.6	1.83	23.8	.176
404	114	5.0	48.1	13100	80.7	.817	88	1.6	1.83	23.8	.176
453	127	4.4	42.4	11900	104	1.25	103	2.1	2.81	29.8	.271
454	127	6.8	65.3	11900	106	1.28	103	2.3	2.81	29.8	.271
504	140	8.7	82.7	10900	128	1.91	100	2.8	3.73	32.7	.360
505	140	11	103	10900	137	2.04	100	3.5	4.99	44.6	.480
554	152	12	110	9900	183	3.22	122	3.7	5.40	39.8	.518
555	152	14	138	9900	192	3.40	122	4.1	7.00	52.9	.673
604	165	15	141	9200	223	4.57	137	5.2	7.52	47.7	.723
605	165	18	175	9200	234	4.81	137	5.5	9.56	61.6	.918
704	203	28	265	7500	399	12.3	168	11	17.5	72.3	1.68
705	203	35	331	7500	417	13.0	168	11	22.4	94.3	2.16
804	229	41	392	6600	567	22.3	182	15	28.99	94.3	2.78

RZ Dimensional Data

Size	A	D	G	No	Ni	Nominal Bore ① Capacity	② E Std	MAX O	③ MIN C	Size
103	99	70	94	57	51	38	57	54	93	**103**
153/154	137	75	116	79	73	51	62	76	99	**153/154**
203/204	162	90	139	99	92	64	77	95	117	**203/204**
253/254	194	106	165	117	111	76	91	114	124	**253/254**
303/304	226	119	187	138	130	89	106	133	147	**303/304**
353/354	257	133	216	159	149	102	119	152	149	**353/354**
403/404	292	152	241	178	167	114	135	171	175	**403/404**
453/454	321	168	268	197	184	127	153	191	192	**453/454**
504/505	353	184	291	216	203/198	140	171	210	217	**504/505**
554/555	384	204	321	235	221/216	152	188	229	220	**554/555**
604/605	419	219	343	254	238/233	165	202	248	278	**604/605**
704/705	514	267	406	314	295/2889	203	249	305	299	**704/705**
804	581	302	460	354	332	229	282	343	314	**804**

① Based on 1.5 hub O.D./ bore ratio; larger bores are possible, consult KOP-FLEX for specific applications
② Can be reduced for smaller bores with shorter bore lengths
③ Minimum shaft separation for standard (E) bore lengths and installation without disturbing connected equipment
④ A minimum application factor of 1.5 is recommended
⑤ Peak rating is 1.33 x Max. Continuous rating
⑥ Data based on coupling with 457 mm shaft separation and nominal tapered bores for keyless hydraulic shaft connections; data can be changed to meet specific requirements
⑦ KOP-FLEX torsional stiffness calculation method
⑧ Max Momentary (short circuit) Rating is 1.76 x Max. Continuous rating



Conversion Factors

(U.S. Customary to Metric)

1 lb (mass)	=	0.4536kg
1 inch	=	25.4 mm
1 in-lb	=	0.113Nm
1 HP	=	0.7457 kW
1 lb-in²	=	0.000293kgm²

MS Coupling Selection Data

Size	① Nominal Bore Capacity (mm)	④ ⑤ ⑧ Max. Continuous Coupling Rating (kW/RPM)	③ ④ ⑧ Max. Continuous Torque Rating (kNm)	Maximum Speed (RPM)	⑥ Total Weight (kg)	⑥ Total WR^2 (kgm^2)	⑥ Half Coupling C.G. (mm)	⑥ ⑦ Torsional Stiffness K (MNm/rad)	Spacer Tube		
									K (MNm/rad)/m	Weight (kg)m	WR^2 (kgm^2)/m
103	64	.13	1.24	27700	8.53	.015	3	.06	.04	3.75	.003
153	89	.32	3.02	23100	14.9	.044	5	.16	.12	6.79	.011
154	89	.49	4.75	23100	15.7	.039	5	.19	.12	6.79	.011
203	102	.59	5.65	20200	21.4	.085	9	.27	.21	7.68	.020
204	102	.89	8.48	20200	21.5	.086	9	.29	.21	7.68	.020
253	127	.91	8.70	16900	34.1	.196	10	.49	.37	9.82	.036
254	127	1.4	13.4	16900	34.6	.199	10	.54	.37	9.82	.036
303	152	1.5	14.0	14800	49.9	.199	12	.90	.72	13.8	.070
304	152	2.2	21.2	14800	50.8	.384	11	1.0	.72	13.8	.070
353	165	2.3	22.0	12800	74.4	.759	11	1.5	1.31	19.0	.127
354	165	3.5	33.0	12800	75.8	1.06	11	1.6	1.31	19.0	.127
403	191	3.4	32.1	11300	107	1.41	10	2.1	2.21	25.2	.212
404	191	2.0	48.1	11300	108	1.41	10	2.5	2.21	25.2	.212
453	216	4.4	42.4	10100	144	2.33	15	3.1	3.42	31.8	.329
454	216	6.8	65.3	10100	146	2.37	14	3.5	3.42	31.8	.329
504	229	8.7	82.7	9400	181	3.40	19	4.2	4.48	34.6	.429
505	229	11	103	9400	185	3.37	18	4.6	4.48	34.6	.429
554	254	12	110	8400	250	5.92	17	5.5	6.46	42.3	.622
555	254	14	138	8400	256	5.89	15	6.1	6.46	42.3	.622
604	279	15	141	7900	303	8.20	21	8.1	9.07	50.7	.872
605	279	18	175	7900	310	8.18	20	8.7	9.07	50.7	.872

MS Dimensional Data

Size	A	No	Ni	Typical Bore	② E Std	MAX O	MIN C	Size
103	138	62	57	51	61	102	102	**103**
153/154	183	86	79	64	77	133	127	**153/154**
203/204	198	105	99	76	91	152	152	**203/204**
253/254	236	124	117	89	106	191	178	**253/254**
303/304	270	146	138	102	121	229	203	**303/304**
353/354	312	168	159	114	135	248	203	**353/354**
403/404	354	189	178	127	153	286	254	**403/404**
453/454	395	210	197	140	171	324	279	**453/454**
504/505	424	229	216	152	188	343	305	**504/505**
554/555	475	249	235	165	202	381	330	**554/555**
604/605	508	270	254	178	217	419	356	**604/605**

① Based on 1.5 hub O.D./ bore ratio; larger bores are possible, consult KOP-FLEX for specific applications
② Can be reduced for smaller bores with shorter bore lengths
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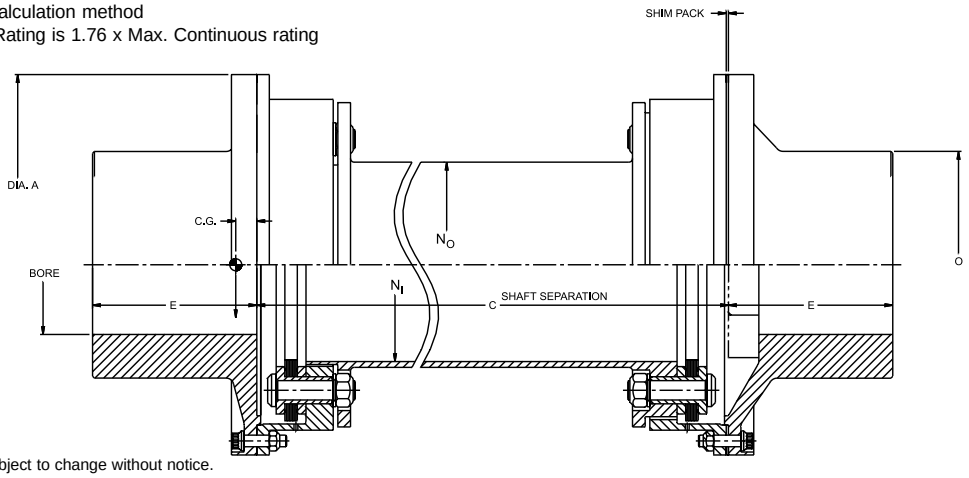

Specifications and selection data are subject to change without notice.

MP Coupling Selection Data

Size	① Nominal Bore Capacity (mm)	④ ⑤ ⑧ Max. Continuous Coupling Rating (kW/RPM)	③ ④ ⑧ Max. Continuous Torque Rating (kNm)	Maximum Speed (RPM)	⑥ Total Weight (kg)	⑥ Total WR² (kgm²)	⑥ Half Coupling C.G. (mm)	⑥ ⑦ Torsional Stiffness K (MNm/rad)	Spacer Tube		
									K (MNm/rad)/m	Weight (kg)m	WR² (kgm²)/m
103	64	.13	1.24	27700	8.39	.015	-1	.06	.03	3.75	.003
153	89	.32	3.05	23100	15.1	.045	0	.16	.12	6.79	.011
154	89	.49	4.75	23100	15.6	.046	0	.19	.12	6.79	.011
203	102	.59	5.65	20200	21.7	.088	4	.26	.21	7.68	.020
204	102	.89	8.48	20200	22.0	.089	4	.29	.21	7.68	.020
253	127	.91	8.70	16900	33.8	.196	7	.49	.37	9.82	.036
254	127	1.4	13.4	16900	34.2	.199	6	.53	.37	9.82	.036
303	152	4.5	14.0	14800	49.4	.378	8	.89	.72	13.8	.070
304	152	2.2	21.2	14800	50.4	.387	7	.99	.72	13.8	.070
353	165	2.3	22.0	12800	73.9	.759	7	1.5	1.31	18.9	.127
354	165	3.5	33.2	12800	75.3	.774	6	1.6	1.31	18.9	.127
403	191	3.4	32.1	11300	106	1.39	6	2.1	2.21	25.2	.212
404	191	5.0	48.1	11300	107	1.41	5	2.4	2.21	25.2	.212
453	216	4.4	42.4	10100	142	2.33	11	3.1	3.41	31.8	.329
454	216	6.9	65.3	10100	144	2.36	10	3.5	3.41	31.8	.329
504	229	8.7	82.7	9400	178	3.37	14	4.2	4.48	34.6	.429
505	229	11	103	9400	181	3.43	13	4.5	4.48	34.6	.429
554	254	12	110	8400	251	5.89	10	5.5	6.46	42.3	.622
555	254	14	138	8400	251	6.01	9	6.0	6.46	42.3	.622
604	279	15	140	7900	297	8.12	16	7.9	9.07	50.7	.872
605	279	18	175	7900	302	8.26	14	8.6	9.07	50.7	.872
704	330	28	265	6500	513	20.3	17	17	20.4	74.8	1.97
705	330	35	331	6500	522	20.8	14	18	20.4	74.8	1.97
804	359	41	392	6100	721	41.0	15	24	31.9	92.1	3.07
805	359	51	490	5900	748	42.5	11	28	38.6	113	3.74
905	381	69	663	5200	930	54.2	19	34	58.0	154	5.58

MP Dimensional Data

Size	A	No	Ni	Typical Bore	② E Std	MAX O	MIN C	Size
103	138	62	57	51	61	102	102	**103**
153/154	173	86	79	64	77	133	127	**153/154**
203/204	198	105	99	76	91	152	152	**203/204**
253/254	236	124	117	89	106	181	178	**253/254**
303/304	270	146	138	102	121	229	203	**303/304**
353/354	312	168	159	114	135	248	203	**353/354**
403/404	354	189	178	127	153	286	254	**403/404**
453/454	395	210	197	140	171	324	279	**453/454**
504/505	424	229	216	152	188	343	205	**504/505**
554/555	475	249	235	165	202	381	330	**554/555**
604/605	508	270	254	178	217	419	356	**604/605**
704/705	610	333	314	216	264	495	432	**704/705**
804/805	683	375	354	241	294	552	483	**804/805**
905	762	396	363	254	305	572	508	**905**

① Based on 1.5 hub O.D./ bore ratio; larger bores are possible, consult KOP-FLEX for specific applications
② Can be reduced for smaller bores with shorter bore lengths
③ Minimum shaft separation for standard (E) bore lengths and installation without disturbing connected equipment
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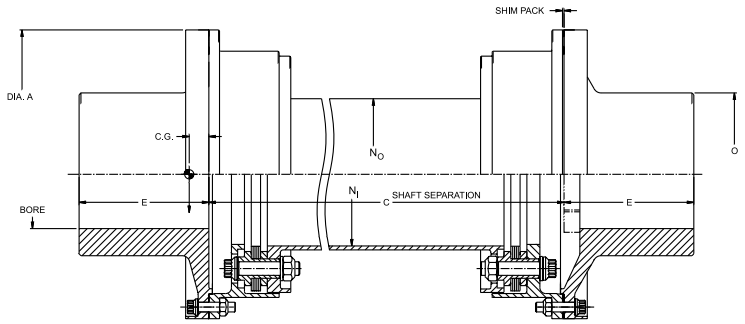
⑦ KOP-FLEX torsional stiffness calculation method
⑧ Max Momentary (short circuit) Rating is 1.76 x Max. Continuous rating



Conversion Factors

(U.S. Customary to Metric)

1 lb (mass)	=	0.4536kg
1 inch	=	25.4 mm
1 in-lb	=	0.113Nm
1 HP	=	0.7457 kW
1 lb-in²	=	0.000293kgm²

AXIAL DATA

3 Bolt Series Axial Displacement

Size	Axial Displacement Max Continuous (mm) ①	Max Force (N)	Floating Weights (kg) .46 meter Shaft Separation			
			RM	RZ	MS	MP
103	±2.0	534	3.95	4.04	2.49	2.27
153	±3.9	1201	5.90	5.90	4.54	4.54
203	±3.6	1601	9.07	8.62	5.90	5.44
253	±4.3	1913	13.6	12.2	8.62	7.71
303	±5.1	2713	19.5	18.1	12.7	11.3
353	±5.8	3870	28.6	26.8	18.6	16.3
403	±6.6	4891	40.8	37.2	26.3	23.1
453	±7.2	5782	54.4	49.9	32.2	28.1

ANGULAR DATA

3 Bolt Series

Size	Maximum Misalignment (degrees)	Bending Stiffness (Nm/deg)
103	0.33	16.9
153	0.33	38.4
203	0.33	74.6
253	0.33	105
303	0.33	159
353	0.33	270
403	0.33	417
453	0.33	530

4 Bolt Series Axial Displacement

Size	Axial Displacement Max Continuous (mm) ①	Max Force (N)	Floating Weights (kg) .46 meter Shaft Separation			
			RM	RZ	MS	MP
154	±2.0	1779	6.80	6.35	4.99	4.45
204	±2.5	2535	10.4	8.62	5.90	5.44
254	±3.0	2847	14.5	12.2	9.07	7.71
304	±5.6	4003	21.8	18.6	13.6	11.3
354	±4.1	5782	33.1	27.2	20.0	16.8
404	±4.6	7562	45.4	38.1	28.1	24.0
454	±5.1	8451	63.5	49.9	34.9	29.0
504	±5.8	11120	72.6	59.0	43.5	35.4
554	±6.4	13344	109	81.6	59.0	45.4
604	±6.9	14678	122	99.8	72.6	54.4
704	±8.1	21792	—	168	—	99.8
804	±9.3	31581	—	231	—	133

4 Bolt Series

Size	Maximum Misalignment (degrees)	Bending Stiffness (Nm/deg)
154	0.25	73.4
204	0.25	143
254	0.25	203
304	0.25	308
354	0.25	520
404	0.25	802
454	0.25	1020
504	0.25	1330
554	0.25	1810
604	0.25	2110
704	0.25	4080
804	0.25	6670

5 Bolt Series Axial Displacement

Size	Axial Displacement Max Continuous (mm) ②	Max Force (N)	Floating Weights (kg) .46 meter Shaft Separation			
			RM	RZ	MS	MP
505	±2.8	8451	77.1	68.0	45.4	37.2
555	±3.1	10675	113	90.7	63.5	49.9
605	±3.3	12454	132	109	72.6	59.0
705	±3.9	18682	—	181	—	104
805	±4.6	22685	—	—	—	149
905	±6.6	48928	—	—	—	189

5 Bolt Series

Size	Maximum Misalignment (degrees)	Bending Stiffness (Nm/deg)
505	0.2	2350
555	0.2	3110
605	0.2	3720
705	0.2	6670
805	0.2	10100
905	0.2	13700

① For transient conditions 133% Axial Deflection is allowed for 3 and 4 bolt designs
② For transient conditions 150% Axial Deflection is allowed for 5 bolt designs.

Balancing

KOP-FLEX High Performance disc couplings are designed with balancing in mind.

KOP-FLEX disc couplings are balanced to low levels of residual unbalance and, in contrast to other types of couplings, are built to retain their balance quality.

There are no clearances between mating parts and no parts to wear (like gear teeth in gear couplings); the connections between major components have light interference fits. There is no relative movement possible, even after reassembly.

KOP-FLEX High Performance disc couplings can be balanced to any of the API Standard 671 options. A component balance permits the interchange of duplicate coupling components. The assembly can then be subsequently check balanced without balance corrections. A final balance correction can be made on the assembly after the assembly check. However, this prohibits the later interchange of coupling components. If specified, residual unbalance or balance repeatability tests can be performed in accordance with API 671.

Balancing is done on precision hard-bearing balance machines. A minimal amount of ancillary tooling is used in order to reduce the associated clearance and runout errors.

Major components are match-marked to assure proper reassembly of balanced couplings.

Bolts and nuts are individually weigh balanced, which allows the interchanging of any bolt or any nut.

Field balance holes can also be provided at the request of the customer.

Windage

When couplings rotate at high speeds in enclosures, the resulting air movement generates heat and pressure differentials. This “windage” should be considered in the design of couplings and enclosures, especially when replacing a gear coupling with a dry one.

KOP-FLEX has authored a paper, “Design of Coupling Enclosures,” which is available along with a computer disc containing a program for predicting coupling and guard temperatures. Contact KOP-FLEX for this “Windage” package or for enclosure design recommendations.

Installation

Factory assembled disc pack units greatly simplify the installation of KOP-FLEX High Performance disc couplings.

For reduced moment style couplings, installation consists of mounting the preassembled hub/sleeve/disc pack assemblies onto the equipment shafts. The spacer is then bolted to the sleeve flanges.

For marine style couplings, rigid hubs are mounted on the equipment shafts, then a factory assembled center section is bolted to the rigid hub flanges.

Installation instructions and a general arrangement drawing are supplied with each coupling.

SHIMMING

Two identical steel shim packs are provided with each KOP-FLEX High Performance disc coupling. These packs consist of individual shims of various thicknesses.

The coupling is designed to use one full shim pack if the actual installation shaft or flange separation matches the design start-up separation. This allows for a total spacing adjustment of plus or minus the thickness of one pack.

SHIPPING SCREWS

Shipping screws lock and stabilize the flexing subassembly during machining, balancing and shipping. They also provide built-in tooling to collapse the disc packs during the installation procedure.

PRESTRETCH

Prestretch is the axial stretch of the disc packs established at coupling installation to accommodate changes in shaft separation, such as thermal growth.

Prestretching of the packs ensures that they will run in the neutral position at normal operating conditions. Thus, axial misalignment related stresses will be minimized.

SOLO PLATES

Two types of solo plates are available. These are a moment simulator plate and a solo adapter plate.

A moment simulator plate simulates the connected coupling bending moment on the shaft when required for testing.

A solo adapter plate is used to lock together a coupling subassembly for uncoupled equipment operation, and is an option in API 671. Consult KOP-FLEX if a coupling needs to be soloed without a plate; shipping screws alone can be used to rigidize the coupling subassemblies, but certain conditions must be met.