TYPE HSME/HLME/HTME

H SERIES HIGH PERFORMANCE COPLANAR COUPLINGS

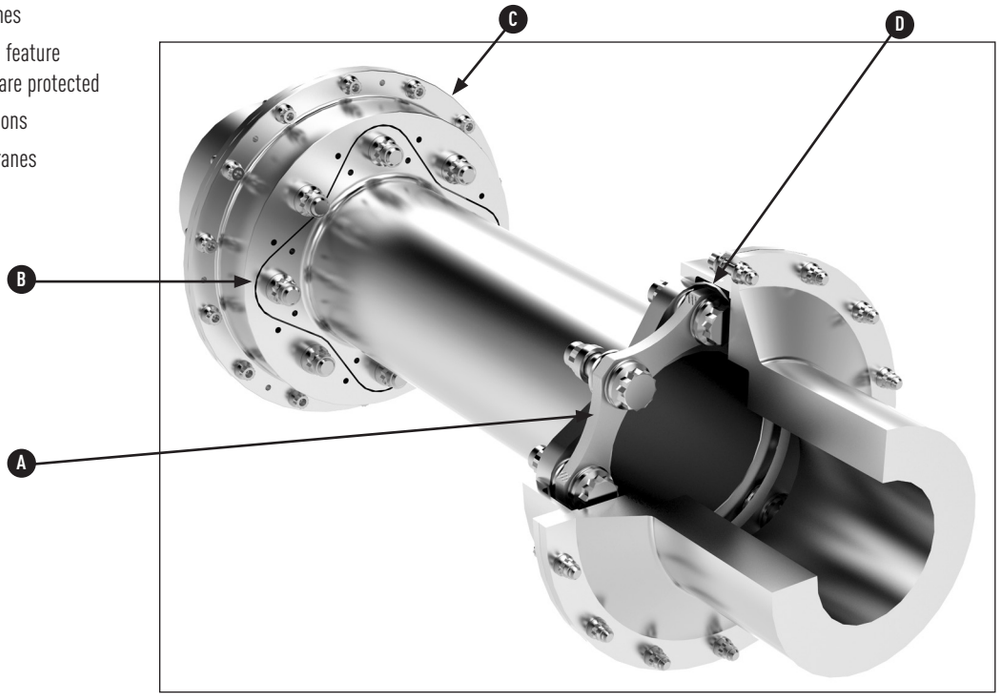
Technical Specification

A – High-strength stainless steel flexible membranes

B – Flanged overload feature
- Drive bolts are protected

C – Flanged connections

D – Shrouded membranes



Product Description

John Crane's HSME/HLME/HTME Couplings feature a factory-assembled transmission unit, providing high torque capacity with low weight and low overhung moment. The hub bores possible with these designs make this range particularly suitable for use on electric motor or generator drive applications, where larger shaft sizes are generally in use.

- The flanged HSME/HLME/HTME transmission unit can be readily adapted to match the integral shaft flanges used on many large gas and steam turbines.
- The HSME/HLME/HTME design is a reduced-moment arrangement ideal for use with compressors.
- The transmission unit is simple to install and remove for rapid separation of the two machines, providing easy access for alignment and equipment maintenance.
- The HSME/HLME/HTME torque-overload feature protects the flexible membranes without loading the drive bolts.

Design Features

- Large hub-bore capacity
- Factory-assembled transmission unit
- High-reliability stainless steel flexible membrane design
- Torque-overload feature protects membranes and drive bolts
- Low mass and low overhung moment
- Optional shrouded bolts
- Axial shims for length adjustment, when required
- API 671 (ISO 10441) compliant
- ATEX compliant
- Operating temperatures; -55°C to 200°C (-67°F to 392°F)

TYPE HSME/HLME/HTME

H SERIES HIGH PERFORMANCE COPLANAR COUPLINGS

Technical Specification

HSME/HLME/HTME Technical Data (metric)

						Note 3										*Note 5*	
			Note 1	*Note 2*		Mass		Moment of Inertia MR²		*Note 4*				Axial Misalignment		Angular Misalignment	
	Coupling Rating	Continuous Torque Rating	Peak Torque Rating	Overload Torque Rating	Max. Speed	Trans-mission Unit only	Additional Spacer Length	Trans-mission Unit only	Additional Spacer Length	Membrane Pack	Trans-mission Unit	Spacer Tube Per metre	Spacer Tube	Max. Per Coupling	Equivalent Axial Force	Max Angle	Restoring Moment
										q1	q2	q3	T				
Coupling Designation	kW/1000 rpm	Nm	Nm	Nm	rpm	kg	kg/m	kgm²	kgm²/m	MNm/rad	MNm/rad	MNm/rad	mm	± mm	N	Deg	Nm/Deg
HSME-0074	129	1,229	2,089	2,458	26,000	3.7	4.2	0.01	0.002	0.14	0.03	0.02	49	1.4	650	0.375	18
HSME-0096	271	2,586	4,396	5,172	21,600	5.4	5.4	0.01	0.005	0.28	0.07	0.05	58	1.9	970	0.375	34
HSME-0115	466	4,453	7,570	8,906	18,400	7.2	6.7	0.02	0.010	0.5	0.13	0.10	67	2.3	1,310	0.375	55
HSME-0139	795	7,590	12,903	15,180	15,900	10.1	8.2	0.05	0.019	0.9	0.24	0.19	76	2.7	1,830	0.375	90
HSME-0159	1,188	11,350	19,295	22,700	13,700	13.8	9.7	0.09	0.031	1.4	0.38	0.31	88	3.1	2,340	0.375	135
HSME-0179	1,694	16,182	27,509	32,364	12,100	17.8	11.0	0.15	0.045	2.0	0.56	0.45	99	3.5	2,930	0.375	190
HSME-0200	2,350	22,447	38,160	44,894	10,700	22.1	12.5	0.22	0.065	2.8	0.8	0.66	106	3.9	3,620	0.375	265
HSME-0220	3,128	29,877	50,791	59,754	9,600	30.0	15.6	0.38	0.097	3.7	1.1	0.98	117	4.3	4,350	0.375	345
HSME-0240	4,062	38,788	65,940	77,576	8,100	36.3	17.1	0.54	0.128	4.9	1.5	1.29	128	4.6	5,160	0.375	450
HSME-0262	5,244	50,077	85,131	100,154	7,000	46.0	20.6	0.79	0.177	6.3	2.0	1.79	142	5.1	6,120	0.375	580
HSME-0283	6,589	62,921	106,966	125,842	6,500	55.5	24.9	1.11	0.254	8.0	2.7	2.57	149	5.5	7,120	0.375	725
HSME-0320	9,627	91,942	156,301	183,884	5,800	75.5	31.4	1.97	0.421	11.6	4.2	4.25	167	6.3	9,080	0.375	1,040
HSME-0357	13,480	128,737	218,853	257,474	4,800	108	37.7	3.56	0.614	16.5	6.1	6.20	190	6.8	11,270	0.375	1,480
HLME-0115	663	6,335	10,710	12,600	18,400	7.3	6.7	0.02	0.010	0.73	0.15	0.10	67	1.5	1,730	0.25	105
HLME-0139	1,131	10,797	18,700	22,000	15,900	10.6	9.4	0.05	0.021	1.3	0.30	0.21	76	1.9	2,490	0.25	180
HLME-0159	1,691	16,146	27,200	32,000	13,700	15.0	12.4	0.09	0.039	2.0	0.51	0.39	86	2.1	3,210	0.25	265
HLME-0179	2,411	23,022	39,100	46,000	12,100	19.3	14.0	0.15	0.056	2.9	0.75	0.57	97	2.4	4,030	0.25	380
HLME-0200	3,344	31,933	54,400	64,000	11,000	25.3	17.6	0.25	0.090	4.0	1.1	0.91	104	2.6	4,980	0.25	525
HLME-0220	4,451	42,503	73,100	86,000	9,800	33.7	21.2	0.42	0.130	5.4	1.6	1.31	115	2.9	5,970	0.25	680
HLME-0240	5,778	55,181	74,000	87,059	9,000	39.0	19.1	0.59	0.143	6.9	1.9	1.44	124	3.1	7,050	0.25	890
HLME-0262	7,460	71,241	107,000	125,882	6,700	51.3	27.2	0.89	0.231	9.0	2.8	2.33	138	3.5	8,330	0.25	1,130
HLME-0283	9,373	89,513	119,000	140,000	6,000	58.9	27.3	1.21	0.278	11.4	3.5	2.80	145	3.8	9,650	0.25	1,415
HLME-0320	13,696	130,799	178,000	209,412	5,600	83.2	34.2	2.35	0.456	16.6	5.4	4.61	163	4.3	12,200	0.25	2,000
HLME-0357	19,177	183,145	233,000	274,118	4,300	114	40.8	3.85	0.661	23.5	7.9	6.68	186	4.6	15,030	0.25	2,875
HTME-0179	3,101	29,618	50,351	59,236	12,100	23.2	18.5	0.19	0.072	3.6	1.0	0.73	95	1.7	5,070	0.2	660
HTME-0200	4,302	41,083	69,841	82,166	11,000	29.5	22.7	0.30	0.114	5.0	1.4	1.15	102	1.9	6,280	0.2	920
HTME-0220	5,726	54,682	92,959	109,364	9,800	36.9	26.8	0.45	0.161	6.7	2.0	1.63	113	2.1	7,540	0.2	1,185
HTME-0240	7,434	70,992	120,686	141,984	9,000	45.0	31.4	0.64	0.226	8.7	2.6	2.28	122	2.2	8,910	0.2	1,575
HTME-0262	9,597	91,654	155,812	183,308	8,200	57.8	38.0	0.97	0.314	11.3	3.6	3.17	136	2.5	10,550	0.2	1,985
HTME-0283	12,059	115,161	195,774	230,322	7,700	71.1	43.9	1.48	0.432	14.3	4.7	4.36	143	2.7	12,230	0.2	2,490
HTME-0320	17,621	168,277	286,071	336,554	7,000	96.7	56.2	2.60	0.732	20.8	7.3	7.40	161	3.1	15,490	0.2	3,495
HTME-0357	24,672	235,621	400,556	471,242	6,200	132	73.7	4.27	1.145	29.4	10.9	11.6	182	3.2	19,110	0.2	5,135

1. This limit applies to a maximum of 5,000 cycles in the life of the coupling
2. The overload torque capacity applies to extreme conditions, such as generator short circuit torque. Following such an overload, the coupling must be inspected.
3. All technical data based on 460 mm DBSE.
4. To calculate transmission unit torsional stiffness: 1/Qt = 2/q1 + 1/q3 MNm/rad

Where: Qt = Torsional stiffness of transmission unit
q1 = Torsional stiffness of one membrane pack
q3 = Torsional stiffness of spacer tube per m
L = (D.B.S.E - "T") / 1,000 m

To calculate coupling torsional stiffness: 1/Qc = 2/q1 + 1/q3 + 1/q4 + 1/q5 MNm/rad

Where: Qc = Torsional stiffness of coupling
q4 = Torsional stiffness of driver shaft penetration
q5 = Torsional stiffness of driven shaft penetration

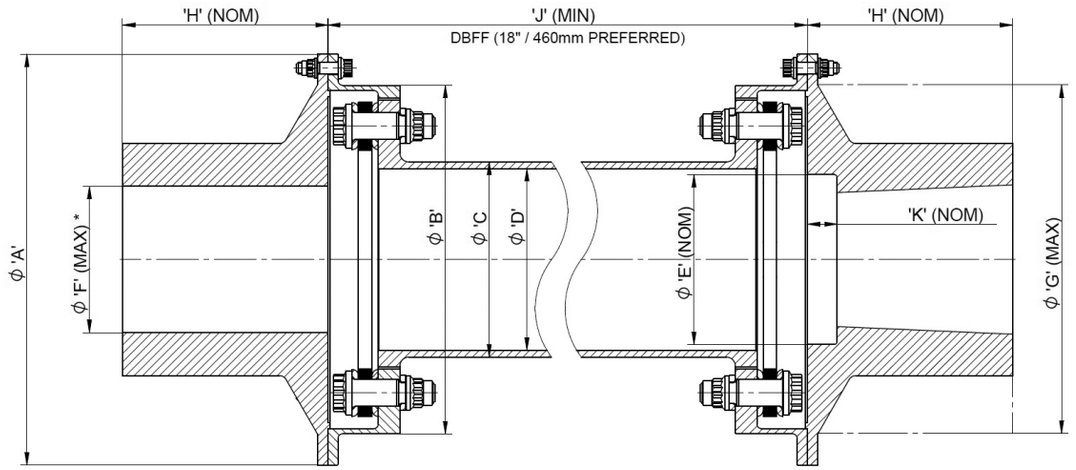
5. Maximum angular misalignment per disc pack (see misalignments capacities).
6. A minimum service factor of 1.5 is recommended (see selection procedure).

TYPE HSME/HLME/HTME

H SERIES HIGH PERFORMANCE COPLANAR COUPLINGS

Technical Specification

Typical Arrangement



HSME/HLME/HTME Dimensional Data (metric)

Coupling Designation	A	B	C	D	E (Nom)	F* (Max)	G	H (Nom)	J (Min)	K (Nom)
HSME-0074	141	105	52	45	92	80	105	73	110	10
HSME-0096	167	131	66	59	118	100	131	91	124	13
HSME-0115	190	154	81	74	138	115	154	105	133	13
HSME-0139	219	183	99	92	167	140	183	128	161	15
HSME-0159	250	208	116	109	191	155	208	141	177	15
HSME-0179	274	232	131	124	214	175	232	160	194	20
HSME-0200	300	258	148	141	238	195	258	178	205	25
HSME-0220	338	284	162	154	262	215	284	196	226	25
HSME-0240	363	309	177	169	287	235	309	214	241	25
HSME-0262	391	337	190	181	315	255	337	232	286	25
HSME-0283	419	365	207	197	343	275	365	250	294	25
HSME-0320	468	412	237	226	388	310	412	282	317	30
HSME-0357	530	460	261	249	432	345	460	314	368	35
HLME-0115	190	154	81	74	138	115	154	115	133	13
HLME-0139	219	183	99	91	167	140	183	140	161	15
HLME-0159	250	208	116	107	191	155	208	155	175	15
HLME-0179	276	234	131	122	216	175	234	175	192	20
HLME-0200	304	262	148	138	242	200	262	200	203	25
HLME-0220	342	288	162	151	266	220	288	220	224	25
HLME-0240	367	313	177	168	291	235	313	235	237	25
HLME-0262	397	341	190	178	319	260	341	260	282	25
HLME-0283	425	369	207	196	347	280	369	280	290	25
HLME-0320	485	417	237	225	393	315	417	315	313	30
HLME-0357	535	465	261	248	437	350	465	350	364	35
HTME-0179	287	233	131	119	215	175	233	195	190	20
HTME-0200	314	260	148	135	240	195	260	217	201	25
HTME-0220	340	286	162	148	264	215	286	239	222	25
HTME-0240	365	311	177	162	289	235	311	262	235	25
HTME-0262	396	340	190	173	318	255	340	284	280	25
HTME-0283	436	368	207	189	346	280	368	312	288	25
HTME-0320	485	417	238	218	393	315	417	350	311	30
HTME-0357	535	465	261	237	437	350	465	389	360	35

*Maximum bore "F" is for guidance only and assumes a rectangular keyway. Does not apply to hydraulically fitted hubs.

TYPE HSME/HLME/HTME

H SERIES HIGH PERFORMANCE COPLANAR COUPLINGS

Technical Specification

HSME/HLME/HTME Technical Data (imperial)

						Note 3										*Note 5*	
			Note 1	*Note 2*		Mass		Moment of Inertia MR^2		*Note 4*				Axial Misalignment		Angular Misalignment	
	Coupling Rating	Continuous Torque Rating	Peak Torque Rating	Overload Torque Rating	Max. Speed	Trans-mission Unit only	Additional Spacer Length	Trans-mission Unit only	Additional Spacer Length	Membrane Pack	Trans-mission Unit	Spacer Tube Per metre	Spacer Tube	Max. Per Coupling	Equivalent Axial Force	Max Angle	Restoring Moment
										q1	q2	q3	T				
Coupling Designation	HP/100 rpm	lbf in x10^3	lbf in x10^3	lbf in x10^3	rpm	lb	lb /in	lb /in^2	lb /in^2/in	lbf in/rad x10^6	lbf in/ rad x10^6	lbf in/rad x10^6	in	± in	lbf	Deg	lbf in/Deg
HSME-0074	17.3	10.9	18.5	21.8	26,000	8.09	0.23	19.0	0.2	1.24	0.29	0.01	1.93	0.06	146	0.375	159
HSME-0096	36.3	22.9	38.9	45.8	21,600	11.8	0.30	42.8	0.5	2.48	0.60	0.01	2.28	0.07	218	0.375	301
HSME-0115	62.4	39.4	67.0	78.8	18,400	15.9	0.37	80.9	0.9	4.51	1.14	0.02	2.64	0.09	295	0.375	487
HSME-0139	107	67	114	134	15,900	22.1	0.46	162	1.6	8.14	2.11	0.04	2.99	0.11	412	0.375	797
HSME-0159	159	100	171	201	13,700	30.4	0.54	314	2.7	12.3	3.36	0.07	3.46	0.12	527	0.375	1,195
HSME-0179	227	143	243	286	12,100	39.1	0.61	505	3.9	18.0	4.96	0.10	3.90	0.14	659	0.375	1,682
HSME-0200	315	199	338	397	10,700	48.7	0.70	743	5.7	25.0	7.10	0.15	4.17	0.15	815	0.375	2,345
HSME-0220	419	264	449	529	9,600	66.1	0.87	1,287	8.4	33.1	10.0	0.22	4.61	0.17	979	0.375	3,053
HSME-0240	544	343	584	687	8,100	79.9	0.95	1,836	11.1	42.9	13.2	0.29	5.04	0.18	1161	0.375	3,983
HSME-0262	703	443	753	886	7,000	101.1	1.15	2,715	15.4	56.0	17.9	0.40	5.59	0.20	1377	0.375	5,133
HSME-0283	883	557	947	1,114	6,500	122	1.39	3,792	22.1	70.7	23.8	0.58	5.87	0.22	1602	0.375	6,416
HSME-0320	1,290	814	1,383	1,627	5,800	166	1.75	6,725	36.5	103	36.8	0.96	6.57	0.25	2043	0.375	9,204
HSME-0357	1,806	1,139	1,937	2,279	4,800	237	2.11	12,153	53.3	146	53.6	1.4	7.48	0.27	2536	0.375	13,098
HLME-0115	88.8	94.8	94.8	111.5	18,400	16.0	0.37	79.8	0.9	6.46	1.34	0.02	2.64	0.06	389	0.25	929
HLME-0139	152	165	165	195	15,900	23.3	0.52	162	1.8	11.7	2.67	0.05	2.99	0.07	560	0.25	1,593
HLME-0159	227	241	241	283	13,700	33.0	0.69	319	3.3	17.5	4.49	0.09	3.39	0.08	722	0.25	2,345
HLME-0179	323	346	346	407	12,100	42.4	0.78	520	4.9	25.7	6.66	0.13	3.82	0.09	907	0.25	3,363
HLME-0200	448	481	481	566	11,000	55.7	0.99	844	7.8	35.7	9.98	0.20	4.09	0.10	1,121	0.25	4,646
HLME-0220	596	647	647	761	9,800	74.1	1.19	1,441	11.3	47.3	13.9	0.30	4.53	0.11	1,343	0.25	6,018
HLME-0240	774	655	655	770	9,000	85.8	1.07	2,015	12.4	61.3	17.0	0.32	4.88	0.12	1,586	0.25	7,877
HLME-0262	1,000	947	947	1,114	6,700	113	1.52	3,049	20.0	80.0	24.6	0.52	5.43	0.14	1,874	0.25	10,001
HLME-0283	1,256	1,053	1,053	1,239	6,000	130	1.53	4,148	24.1	101	30.8	0.63	5.71	0.15	2,171	0.25	12,523
HLME-0320	1,835	1,575	1,575	1,853	5,600	183	1.91	8,025	39.6	147	47.9	1.0	6.42	0.17	2,745	0.25	17,700
HLME-0357	2,570	2,062	2,062	2,426	4,300	250	2.28	13,143	57.4	208	70.2	1.5	7.32	0.18	3,382	0.25	25,444
HTME-0179	416	262	446	524	12,100	50.9	1.03	653	6.3	32.1	8.43	0.16	3.74	0.07	1,141	0.2	5,841
HTME-0200	576	364	618	727	11,000	64.9	1.27	1,020	9.9	44.5	12.5	0.26	4.02	0.07	1,413	0.2	8,142
HTME-0220	767	484	823	968	9,800	81.1	1.50	1,526	14.0	59.1	17.3	0.37	4.45	0.08	1,697	0.2	10,487
HTME-0240	996	628	1,068	1,257	9,000	99.0	1.75	2,195	19.6	76.6	23.3	0.51	4.80	0.09	2,005	0.2	13,939
HTME-0262	1,286	811	1,379	1,622	8,200	127	2.13	3,314	27.3	100.0	31.7	0.71	5.35	0.10	2,374	0.2	17,567
HTME-0283	1,616	1,019	1,733	2,038	7,700	156	2.46	5,072	37.5	126	41.6	0.98	5.63	0.11	2,752	0.2	22,037
HTME-0320	2,361	1,489	2,532	2,979	7,000	213	3.14	8,883	63.5	184	64.8	1.7	6.34	0.12	3,485	0.2	30,931
HTME-0357	3,306	2,085	3,545	4,170	6,200	290	4.12	14,584	99.4	260	96.1	2.6	7.17	0.13	4,300	0.2	45,445

1. This limit applies to a maximum of 5,000 cycles in the life of the coupling
2. The overload torque capacity applies to extreme conditions, such as generator short circuit torque. Following such an overload, the coupling must be inspected.
3. All technical data based on 18" DBSE.
4. To calculate transmission unit torsional stiffness: $1/Qt = 2/q1 + 1/q3$ lbf in/radx10^6

Where: Qt = Torsional stiffness of transmission unit
q1 = Torsional stiffness of one membrane pack
q3 = Torsional stiffness of spacer tube per m
L = (D.B.S.E - "T") in

To calculate coupling torsional stiffness: $1/Qc = 2/q1 + 1/q3 + 1/q4 + 1/q5$ lbf in/radx10^6

Where: Qc = Torsional stiffness of coupling
q4 = Torsional stiffness of driver shaft penetration
q5 = Torsional stiffness of driven shaft penetration

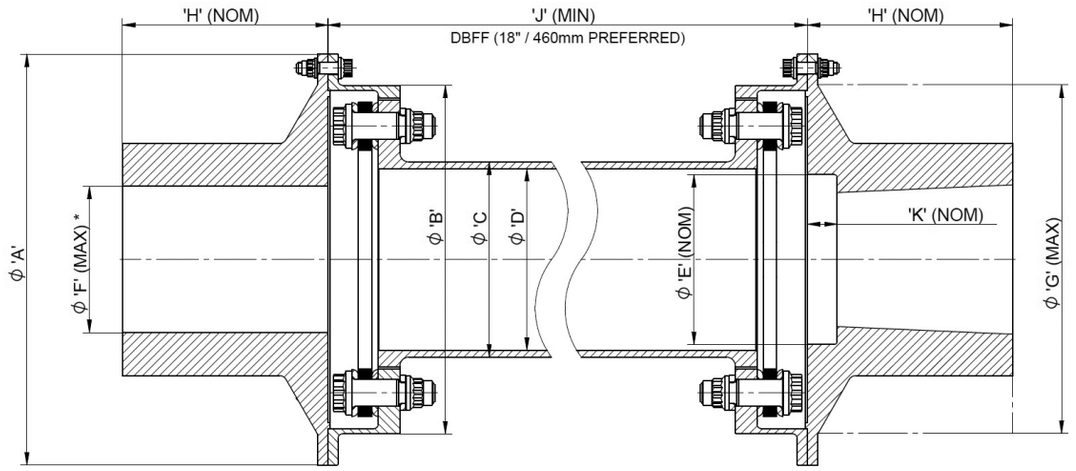
5. Maximum angular misalignment per disc pack (see misalignments capacities).
6. A minimum service factor of 1.5 is recommended (see selection procedure).

TYPE HSME/HLME/HTME

H SERIES HIGH PERFORMANCE COPLANAR COUPLINGS

Technical Specification

Typical Arrangement



HSME/HLME/HTME Dimensional Data (imperial)

Coupling Designation	A	B	C	D	E (Nom)	F* (Max)	G	H (Nom)	J (Min)	K (Nom)
HSME-0074	5.6	4.1	2.05	1.77	3.62	3.15	4.13	2.87	4.33	0.39
HSME-0096	6.6	5.2	2.60	2.32	4.65	3.94	5.16	3.58	4.88	0.51
HSME-0115	7.5	6.1	3.19	2.91	5.43	4.53	6.06	4.13	5.24	0.51
HSME-0139	8.6	7.2	3.90	3.62	6.57	5.51	7.20	5.04	6.34	0.59
HSME-0159	9.8	8.2	4.57	4.29	7.52	6.10	8.19	5.55	6.97	0.59
HSME-0179	10.8	9.1	5.16	4.88	8.43	6.89	9.13	6.30	7.64	0.79
HSME-0200	11.8	10.2	5.83	5.55	9.37	7.68	10.16	7.01	8.07	0.98
HSME-0220	13.3	11.2	6.38	6.06	10.31	8.46	11.18	7.72	8.90	0.98
HSME-0240	14.3	12.2	6.97	6.65	11.30	9.25	12.17	8.43	9.49	0.98
HSME-0262	15.4	13.3	7.48	7.13	12.40	10.04	13.27	9.13	11.26	0.98
HSME-0283	16.5	14.4	8.15	7.76	13.50	10.83	14.37	9.84	11.57	0.98
HSME-0320	18.4	16.2	9.33	8.90	15.28	12.20	16.22	11.10	12.48	1.18
HSME-0357	20.9	18.1	10.28	9.80	17.01	13.58	18.11	12.36	14.49	1.38
HLME-0115	7.5	6.1	3.19	2.91	5.43	4.53	6.06	4.53	5.24	0.51
HLME-0139	8.6	7.2	3.90	3.58	6.57	5.51	7.20	5.51	6.34	0.59
HLME-0159	9.8	8.2	4.57	4.21	7.52	6.10	8.19	6.10	6.89	0.59
HLME-0179	10.9	9.2	5.16	4.80	8.50	6.89	9.21	6.89	7.56	0.79
HLME-0200	12.0	10.3	5.83	5.43	9.53	7.87	10.31	7.87	7.99	0.98
HLME-0220	13.5	11.3	6.38	5.94	10.47	8.66	11.34	8.66	8.82	0.98
HLME-0240	14.4	12.3	6.97	6.61	11.46	9.25	12.32	9.25	9.33	0.98
HLME-0262	15.6	13.4	7.48	7.01	12.56	10.24	13.43	10.24	11.10	0.98
HLME-0283	16.7	14.5	8.15	7.72	13.66	11.02	14.53	11.02	11.42	0.98
HLME-0320	19.1	16.4	9.33	8.86	15.47	12.40	16.42	12.40	12.32	1.18
HLME-0357	21.1	18.3	10.28	9.76	17.20	13.78	18.31	13.78	14.33	1.38
HTME-0179	11.3	9.2	5.16	4.69	8.46	6.89	9.17	7.68	7.48	0.79
HTME-0200	12.4	10.2	5.83	5.31	9.45	7.68	10.24	8.54	7.91	0.98
HTME-0220	13.4	11.3	6.38	5.83	10.39	8.46	11.26	9.41	8.74	0.98
HTME-0240	14.4	12.2	6.97	6.38	11.38	9.25	12.24	10.31	9.25	0.98
HTME-0262	15.6	13.4	7.48	6.81	12.52	10.04	13.39	11.18	11.02	0.98
HTME-0283	17.2	14.5	8.15	7.44	13.62	11.02	14.49	12.28	11.34	0.98
HTME-0320	19.1	16.4	9.37	8.58	15.47	12.40	16.42	13.78	12.24	1.18
HTME-0357	21.1	18.3	10.28	9.33	17.20	13.78	18.31	15.31	14.17	1.38

*Maximum bore ¨F¨ is for guidance only and assumes a rectangular keyway. Does not apply to hydraulically fitted hubs.

Selection procedure

1. For proper selection, the following data should be obtained:
   - Maximum continuous power (kW or HP)
   - Speed (N rpm)
   - Peak torque (short circuit/overload) (Nm or lb-in)
   - Maximum speed
   - Distance between shaft ends (DBSE)
   - Driver shaft diameter
   - Driven shaft diameter
   - Maximum axial displacements
   - Maximum parallel shaft offset or angular alignment
2. Calculate (Tm) the machine continuous rated torque

$Tm = \frac{kW}{N}$ = kW per rpm **$Tm = \frac{100xHP}{N}$ = HP per 100 rpm**

3. Calculate minimum coupling rating required using the appropriate application factor K_a

Note: API 671 application factor 1.5 minimum

$T_c = T_m . K_a$

Where T_c is the coupling continuous rated torque

T_m is the machine continuous rated torque

K_a is the application factor

K_e is the experience factor consult John Crane

4. Select coupling size from tables provided
5. Check maximum hub bores will accommodate shaft sizes
6. Check maximum speed, misalignment and peak torque capacities are adequate

Application Factor

Driving Machine	Driven Machine	Value of K_a
Turbine or electric motor	Generator	1.5
	Centrifugal pump or compressor < 3,800 rpm	1.5
	Centrifugal pump or compressor > 3,800 rpm	1.5 .K_e
	Fan or screw compressor	2.25
	Reciprocating pump or compressor with 4 or more cylinders	4
	Reciprocating pump or compressor with less than 4 cylinders	5
Reciprocating engine	All	To be agreed, preferably based on torsional analysis

TYPE HSME/HLME/HTME

H SERIES HIGH PERFORMANCE COPLANAR COUPLINGS

Technical Specification

Ke- Experience Factor

John Crane recommends an experience factor (Ke) to reduce the service factor below 1.5.

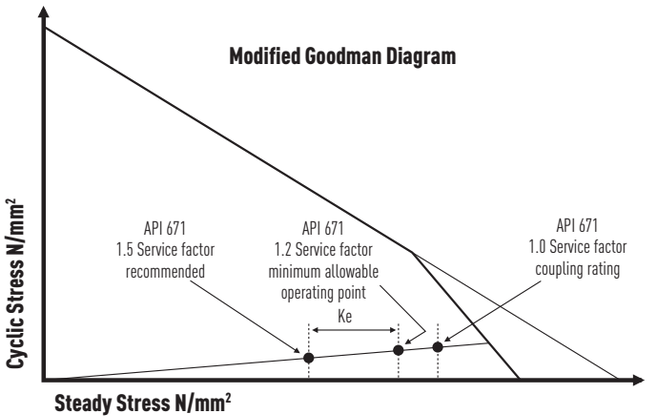
In accordance with API 671:

A lower service factor (1.2 minimum) can be used by mutual consent should weight and or overhung moment of the selected coupling fail to be commensurate to the rotor dynamics.

Refer to:

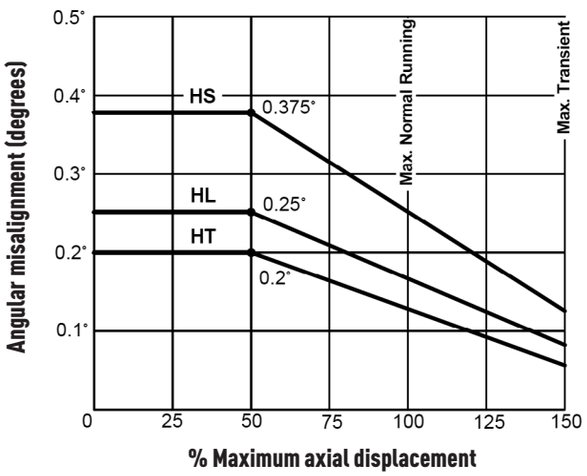
API 671

EN ISO 10441



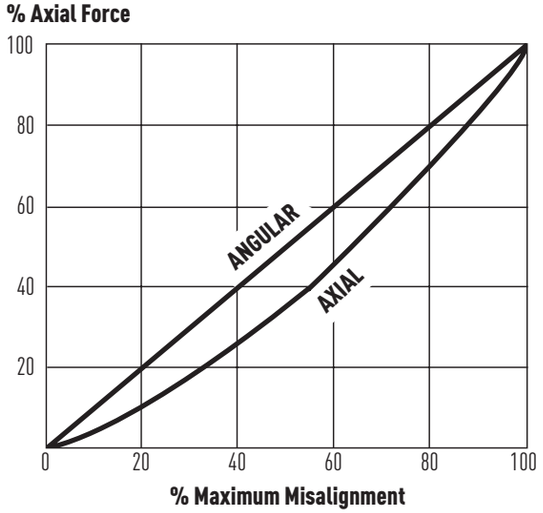
Angular Misalignment vs. Axial displacement

Axial and angular misalignment have a combined effect on the flexible membrane stresses. Therefore, a reduction in one permits an increase in the other. The trade-off is shown in the graph below. Transient or short-term misalignment limits are also shown in this graph, and are usually applicable to the high thermal growths often caused during start up and shut down of turbine drives. A detailed review of a coupling selection may require consideration of the relative casing and shaft expansions on such applications. Couplings can be installed with initial axial pre-stretch to allow their continuous operation at lower displacements.



Restoring Force vs. Displacement

The axial and angular restoring forces can be calculated from the data given in the tables and the graph opposite. The axial load characteristic makes the coupling resistant to axial resonance. The nonlinear characteristic detunes the system, preventing high amplitudes of vibration. John Crane can provide full details of the axial response curves upon request.



TYPE HSME/HLME/HTME

H SERIES HIGH PERFORMANCE COPLANAR COUPLINGS

Technical Specification

North America
United States of America
Tel: 1-847-967-2400
Fax: 1-847-967-3915

Europe
United Kingdom
Tel: 44-1753-224000
Fax: 44-1753-224224

Latin America
Brazil
Tel: 55-11-3371-2500
Fax: 55-11-3371-2599

Middle East & Africa
United Arab Emirates
Tel: 971-481-27800
Fax: 971-488-62830

Asia Pacific
Singapore
Tel: 65-6518-1800
Fax: 65-6518-1803