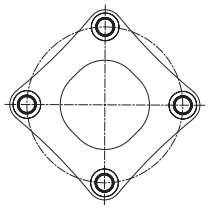
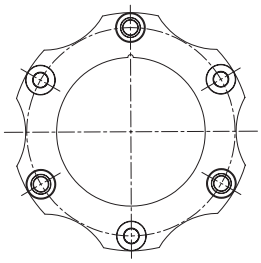
Technical data

The following lamina types are distinguished with RIGIFLEX®-N:

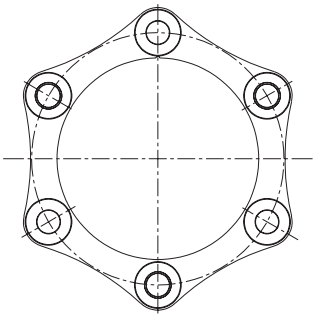
Size 35 – 65
(lamina with 4 holes)



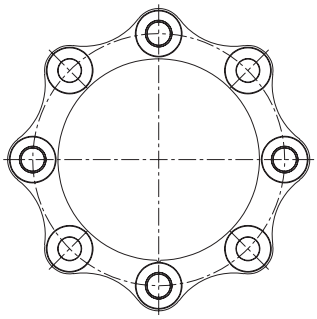
Size 75 – 160
(lamina with 6 holes)



Size 166 – 406
(lamina with 6 holes)



Size 168 – 408
(lamina with 8 holes)



Torques and displacements

Size	Lamina type	Torques [Nm]			Perm. displacements						
		T_{KN}	$T_{K\ max.}$	T_{KW}	Angular displacement ± Kw [1] [°]	Axial displacement ± Ka [mm]	Radial ± Kr [mm]				
							E=100	E=140	E=180	E=200	E=250
35		130	260	65	0,7	1,2	0,90	1,40	–	–	–
50	lam. w. 4 holes	270	540	135	0,7	1,4	0,77	1,26	–	–	–
65		550	1100	275	0,7	1,5	0,75	1,23	1,72	–	–
75		1100	2200	550	0,7	1,8	0,73	1,22	1,71	–	–
85		1900	3800	950	0,7	2,1	–	1,14	1,62	1,87	2,48
110		3500	7000	1750	0,7	2,4	–	1,05	1,54	1,78	2,39
120		5750	11500	2875	0,7	2,6	–	1,00	1,49	1,73	2,35
140		10500	21000	5250	0,7	3,3	–	–	–	1,55	2,16
160		16000	32000	8000	0,7	3,8	–	–	–	–	1,99
166	lamina with	19000	38000	9500	0,7	3,7					
196	l6 holes	22500	45000	11250	0,7	4,2					
216		32000	64000	16000	0,7	4,5					
256		52500	105000	26250	0,7	5,2					
306		86000	172000	43000	0,7	6,0					
346		135000	270000	67500	0,7	6,7					
406		210000	420000	105000	0,7	7,5	Mounting dimension E as indicated by the customer				
168		25000	50000	12500	0,5	2,6					
198		30000	60000	15000	0,5	2,8					
218		42500	85000	21500	0,5	3,0					
258	lamina with	70000	140000	35000	0,5	3,5					
308	8 holes	115000	230000	57500	0,5	4,0					
348		180000	360000	90000	0,5	4,5					
408		280000	560000	140000	0,5	5,0					

[1] Angular displacement each lamina set

If axial, angular and radial shaft displacement arises in parallel please note the following table:

Size	Permissible angular displacement							
	0	0,1	0,2	0,3	0,4	0,5	0,6	0,7
	Permissible axial displacement							
35	1,20	1,00	0,85	0,74	0,60	0,40	0,20	0,00
50	1,40	1,20	1,00	0,80	0,60	0,40	0,20	0,00
65	1,50	1,29	1,07	0,86	0,64	0,43	0,22	0,00
75	1,80	1,54	1,29	1,03	0,77	0,52	0,26	0,00
85	2,10	1,80	1,50	1,20	0,90	0,60	0,30	0,00
110	2,40	2,06	1,71	1,37	1,03	0,69	0,34	0,00
120	2,60	2,23	1,86	1,48	1,11	0,74	0,37	0,00
140	3,30	2,83	2,36	1,88	1,41	0,94	0,47	0,00
160	3,80	3,26	2,71	2,17	1,63	1,09	0,54	0,00
166	3,70	3,17	2,64	2,12	1,59	1,06	0,53	0,00
196	4,20	3,60	3,00	2,40	1,80	1,20	0,60	0,00
216	4,50	3,86	3,21	2,57	1,93	1,29	0,64	0,00
256	5,20	4,46	3,71	2,97	2,23	1,49	0,74	0,00
306	6,00	5,14	4,29	3,43	2,57	1,72	0,86	0,00
346	6,75	5,79	4,82	3,86	2,89	1,93	0,96	0,00
406	7,50	6,43	5,36	4,28	3,21	2,14	1,07	0,00
168	2,60	2,08	1,56	1,04	0,52	0,00	–	–
198	2,80	2,24	1,68	1,12	0,56	0,00	–	–
218	3,00	2,40	1,80	1,20	0,60	0,00	–	–
258	3,50	2,80	2,10	1,40	0,70	0,00	–	–
308	4,00	3,20	2,40	1,60	0,80	0,00	–	–
348	4,50	3,60	2,70	1,80	0,90	0,00	–	–
408	5,00	4,00	3,00	2,00	1,00	0,00	–	–

Technical data

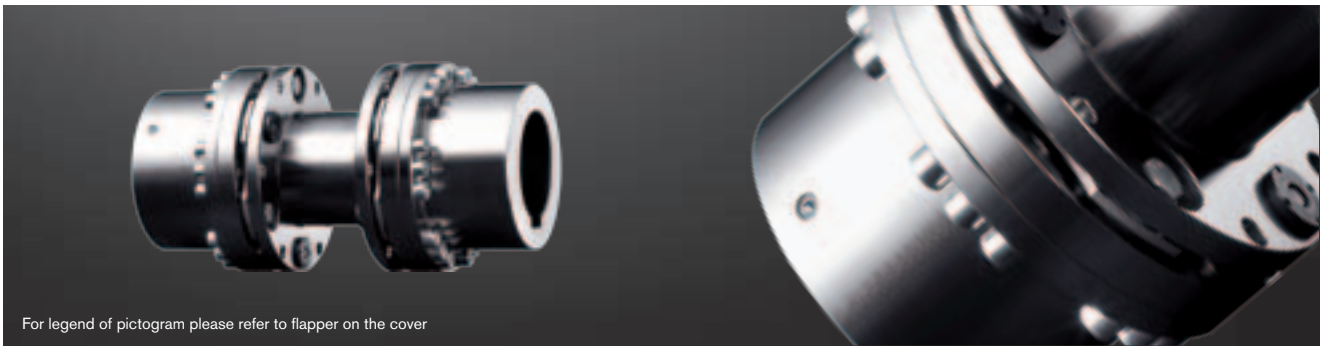
Permissible speeds and stiffness								
Size	Max. speed [rpm]	Each lamina set		ct [Nm/rad] for complete coupling with mounting length E				
		cw [Nm/rad]	ct x 10^6 [Nm/rad]	E=100	E=140	E=180	E=200	E=250
35	23000	170	0,056	65020	56700	–	–	–
50	18000	490	0,27	73953	63990	–	–	–
65	13600	260	0,5	146022	129938	117046	–	–
75	12400	1000	0,67	306145	278381	255234	–	–
85	11000	1500	0,9	–	406641	369429	353265	318433
110	9000	1500	1,5	–	664284	637587	625028	595693
120	8000	3000	2,0	–	1798018	1637553	1567602	1416348
140	6400	10000	3,5	–	–	–	2363340	2226630
160	5600	10350	6,9	–	–	–	–	2654894
166	5600	26800	13,0					
196	5200	35800	17,0					
216	4600	41500	19,0					
256	3900	65000	31,0					
306	3300	112000	55,0					
346	2900	205000	79,0					
406	2500	276000	125,0	Mounting dimension E as indicated by the customer				
168	5600	44300	20,0					
198	5200	82200	26,0					
218	4600	90000	30,0					
258	3900	138000	49,0					
308	3300	234000	83,0					
348	2900	416000	125,0					
408	2500	562000	200,0					

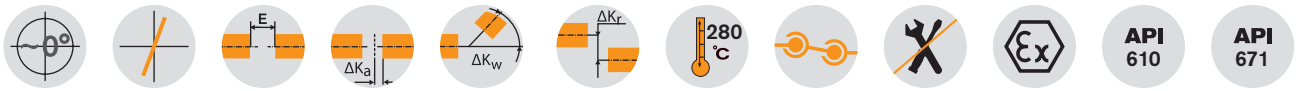
cw = angular stiffness
ct = torsion spring stiffness

Weights and mass moments of inertia												
Size	Hub (max. bore)		Spacer complete [kg]					Spacer complete [x10^3 kgm^2]				
	[kg]	[kgm^2]	E=100	E=140	E=180	E=200	E=250	E=100	E=140	E=180	E=200	E=250
35	0,60	0,0007	1,030	1,120	–	–	–	0,00040	0,00050	–	–	–
50	0,92	0,001019	2,262	2,442	–	–	–	0,00256	0,00263	–	–	–
65	2,7	0,00541	3,922	4,183	4,445	–	–	0,00810	0,00830	0,00828	–	–
75	2,4	0,00566	4,482	4,842	5,202	–	–	0,01143	0,01191	0,01239	–	–
85	3,7	0,01135	–	7,154	7,548	7,746	8,239	–	0,02364	0,02427	0,02459	0,02538
110	6,7	0,03222	–	12,492	13,478	13,972	15,205	–	0,06291	0,06540	0,06665	0,06976
120	9,2	0,05238	–	–	17,324	17,842	19,137	–	–	0,10314	0,10458	0,10818
140	18,2	0,15175	–	–	–	32,530	34,325	–	–	–	0,31901	0,32845
160	29,9	0,33890	–	–	–	–	52,458	–	–	–	–	0,68640
166	28,0	0,32										
196	37,0	0,554										
216	50,0	0,85										
256	95,0	2,35										
306	138,0	4,55										
346	215,0	9,75										
406	310,0	18,95	Mounting dimension E as indicated by the customer									
168	30,0	0,33										
198	40,0	0,56										
218	52,0	0,88										
258	99,0	2,43										
308	142,0	4,78										
348	222,0	9,83										
408	325,0	19,22										

RIGIFLEX®-N
Steel lamina coupling

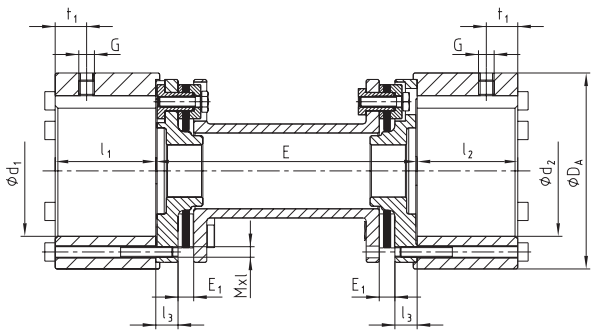
Standard type A



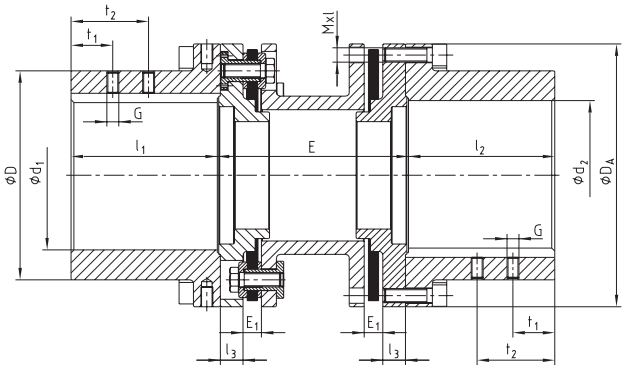


Components

Size 35



Size 50 - 408



RIGIFLEX®-N Type A																			
Size	Torques [Nm]			Max. finish bore	Dimensions [mm]													Screws DIN EN ISO 4762	
	T_{KN}	$T_{K\,max.}$	T_{KW}	d_1/d_2	D	D_A	$l_1/l2$	l_3	G	t_1	t_2	E_1	E [1]					Mxl	T_A [Nm]
35	130	260	65	50	–	75	38,5	8,5	M6	15	–	6	100	140	–	–	–	M4x45	4,1
50	270	540	135	50	70	95	50	12	M6	10	–	9	100	140	–	–	–	M6x22	14
65	550	1100	275	65	100	126	63	12	M8	20	–	11	100	140	180	–	–	M6x25	14
75	1100	2200	550	75	105	138	62,5	12	M8	20	–	11	100	140	180	–	–	M8x30	35
85	1900	3800	950	85	120	156	72,5	15	M10	20	–	12	–	140	180	200	250	M8x30	35
110	3500	7000	1750	110	152	191	87	18	M10	25	–	12	–	140	180	200	250	M10x35	69
120	5750	11500	2875	120	165	213	102	20	M12	25	–	12	–	–	180	200	250	M12x40	120
140	10500	21000	5250	140	200	265	126	25	M12	30	–	15	–	–	–	200	250	M16x50	295
160	16000	32000	8000	160	230	305	145	31	M12	30	–	15	–	–	–	–	250	M16x55	295
166	19000	32000	9500	160	230	305	155	31	M16	30	70	17						M20x50	560
196	22500	45000	11250	190	260	330	185	32	M16	40	90	24						M20x50	560
216	32000	64000	16000	210	285	370	205	32	M20	50	110	26						M20x65	560
256	52500	105000	26250	250	350	440	245	38	M20	70	130	31						M24x80	970
306	86000	172000	43000	300	400	515	295	43	M24	70	130	36						M27x100	1450
346	135000	270000	67500	340	460	590	335	55	M24	95	175	45						M30x110	1950
406	210000	420000	105000	400	530	675	395	58,5	M24	95	175	50	acc. to customer's specifications					M36x130	3300
168	25000	50000	12500	160	230	305	155	31	M16	30	70	17						M20x50	560
198	30000	60000	15000	190	260	330	185	32	M16	40	90	24						M20x50	560
218	42500	85000	21500	210	285	370	205	32	M20	50	110	26						M20x65	560
258	70000	140000	35000	250	350	440	245	38	M20	70	130	31						M24x80	970
308	115000	230000	57500	300	400	515	295	43	M24	70	130	36						M27x100	1450
348	180000	360000	90000	340	460	590	335	55	M24	95	175	45						M30x110	1950
408	280000	560000	140000	400	530	675	395	58,5	M24	95	175	50						M36x130	3300

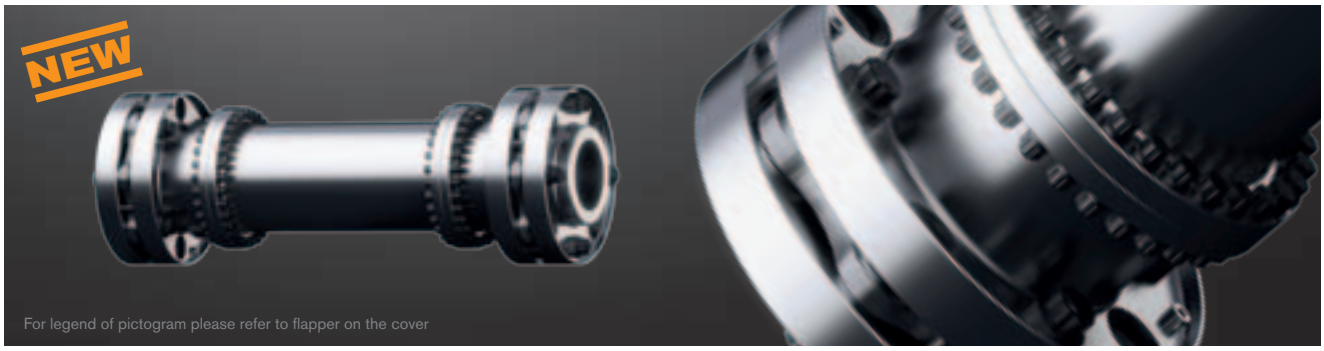
[1] Other shaft distance dimensions available on request.
For selection of coupling see page 14 et seqq. Mounting instructions No. 47410 available at www.ktr.com.

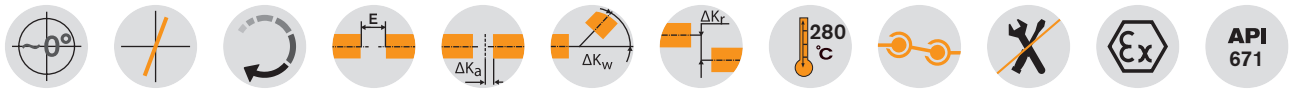
Ordering example:

RIGIFLEX®-N 120	A	Ø 100	Ø 120	200
Coupling size	Type	Bore d1	Bore d_2	Shaft distance dimension E

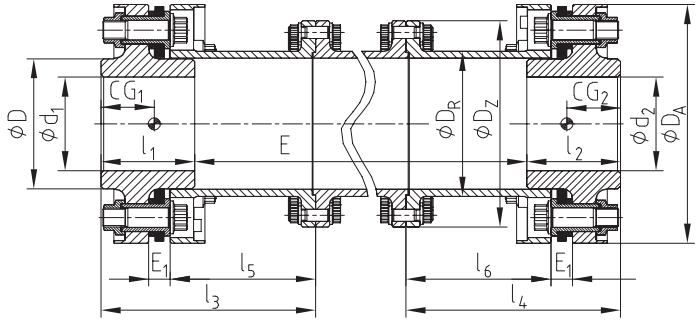
RIGIFLEX®-HP C
High Performance - steel lamina couplings

Flange connection





Components



RIGIFLEX®-HP Type C

Size	Torques [Nm]		Maximum finish bore	Dimensions [mm]											
	T_{KN}	$T_{K\,max.}$	d_1/d_2	D	DA	D_z	D_R	E_1	E	E_{min}	CG_1/CG_2[2]	l_1/l_2	l_3/l_4	l_5/l_6
158	20000	26000	85	119	220	195	135	17	acc. to customer's specifications	335	46	85	189	130
168	30000	39000	100	139	255	220	155	23		395	55	100	229	155
188	38000	49400	105	147	265	235	165	23		375	55	105	229	155
208	50000	65000	120	168	298	245	186	23		350	57	120	229	155
228	59000	76700	125	178	315	270	199	33		425	65	125	265	175
248	72000	93600	140	196	335	300	217	33		395	67	140	265	175
278	115000	149500	160	225	380	335	248	33		355	70	160	265	175
318	180000	234000	180	252	445	370	280	48		495	88	180	348	225
358	253000	328900	210	295	500	415	326	48		435	93	210	348	225
388	330000	429000	235	330	545	464	362	48		400	97	235	348	225

Technical data

Size	Max. speed [rpm]	Perm. Displacements			Stiffness figures		
		Angular displ.[1]	Axial	Radial displ.[1]	Each lamina set	Spacer	Coupling complete[2]
		± K_W [°]	± K_A [mm]	± K_r [mm]	c_t [Nm/rad]	c_{tR} [Nm·mm/rad]	$c_{tE = 457,2}$ [Nm/rad]
158	17300	0,25	3,0	2,30	13,0·10⁶	839·10⁶	1,04·10⁶
168	14900	0,25	3,0	2,32	18,0·10⁶	1535·10⁶	1,79·10⁶
188	14400	0,25	3,3	2,37	28,0·10⁶	1974·10⁶	2,23·10⁶
208	12800	0,25	3,8	2,50	35,0·10⁶	2876·10⁶	3,15·10⁶
228	12100	0,25	4,0	2,44	39,5·10⁶	4123·10⁶	5,06·10⁶
248	11400	0,25	4,2	2,58	60,0·10⁶	5410·10⁶	5,51·10⁶
278	10000	0,25	4,5	2,75	80,0·10⁶	8592·10⁶	7,94·10⁶
318	8500	0,25	5,2	2,70	105,0·10⁶	14724·10⁶	13,00·10⁶
358	7600	0,25	6,0	2,96	155,0·10⁶	26258·10⁶	20,30·10⁶
388	7000	0,25	6,5	3,18	225,0·10⁶	37596·10⁶	27,70·10⁶

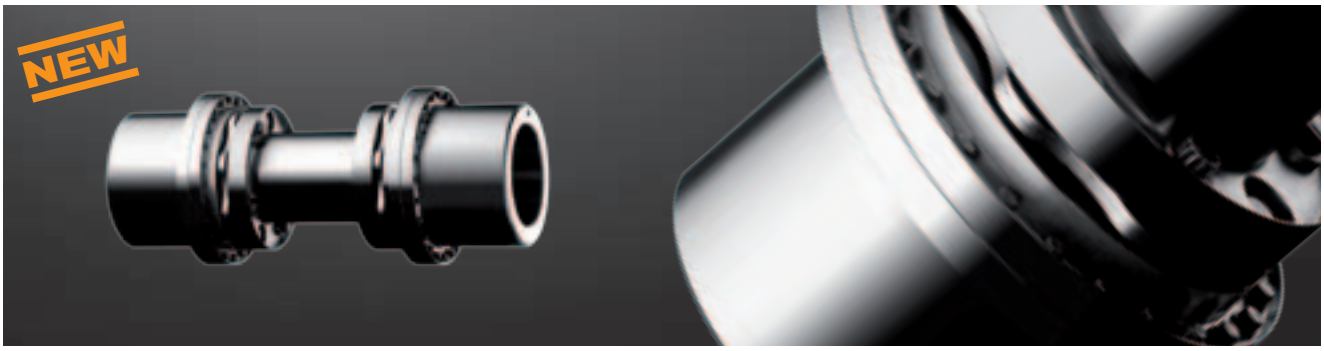
[1] Each lamina set [2] with E=457.2 mm and cylindrical maximum finish bore

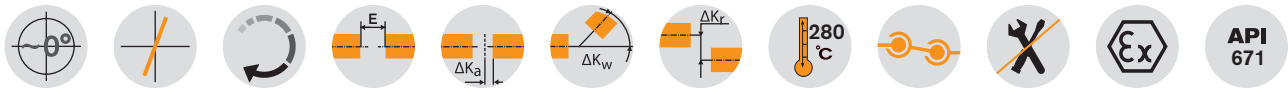
Size	Coupling[1]		Spacer	
	m [kg]	J [kgm²]	m_R [kg/mm]	J_R [kgm²/mm]
158	45	0,274	20,28·10⁻³	81·10⁻⁶
168	69	0,577	27,282·10⁻³	149·10⁻⁶
188	78	0,711	30,975·10⁻³	191·10⁻⁶
208	97	1,081	35,118·10⁻³	279·10⁻⁶
228	123	1,561	44,397·10⁻³	400·10⁻⁶
248	144	2,109	48,614·10⁻³	524·10⁻⁶
278	190	3,542	58,694·10⁻³	833·10⁻⁶
318	306	7,792	79,311·10⁻³	1427·10⁻⁶
358	405	12,869	104,041·10⁻³	2545·10⁻⁶
388	525	19,257	120,151·10⁻³	3644·10⁻⁶

$c_{t\ total} = 1 / ((1/c_{tE = 457,2}) + ((E - 457,2\ mm) / c_{tR}))$
$m_{total} = m + m_R \cdot (E - 457,2\ mm)$
$J_{total} = J + J_R \cdot (E - 457,2\ mm)$

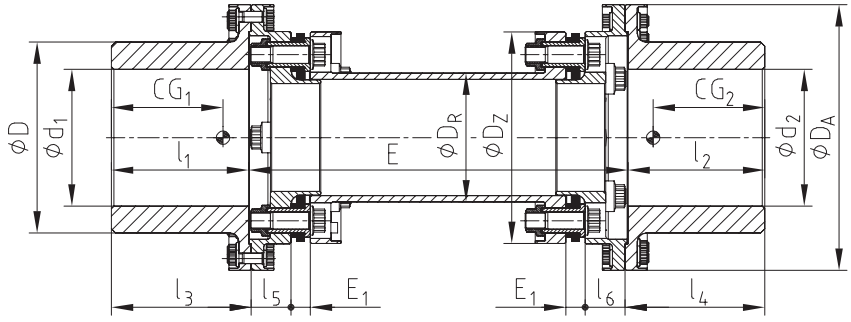
RIGIFLEX®-HP L
High Performance - steel lamina couplings

Type with flange hubs





Components



RIGIFLEX®-HP Type L

Size	Torques [Nm]		Maximum finish bore	Dimensions [mm]										
	T_{KN}	$T_{K\,max.}$	d_1/d_2	D	D_A	D_Z	D_R	E_1	E	E_{min}	CG_1/CG_2[2]	l_1/l_2	l_3/l_4	l_5/l_6
158	20000	26000	150	210	310	220	135	17	acc. to customer's spec.	265	140	150	163,5	37,5
168	30000	39000	165	230	320	255	155	23		340	148	165	168,5	48,0
188	38000	49400	180	250	335	265	165	23		340	156	180	183,5	48,0
208	50000	65000	200	280	362	298	186	23		340	165	200	203,5	48,0
228	59000	76700	220	310	390	315	199	33		390	179	220	223,5	54,5
248	72000	93600	240	340	420	334	217	33		390	185	235	238,5	54,5
278	115000	149500	270	380	455	380	248	33		390	202	270	273,5	54,5
318	180000	234000	315	445	550	445	280	48		510	246	315	318,5	71,5
358	253000	328900	350	490	600	500	326	48		510	263	350	353,5	71,5
388	330000	429000	380	535	650	545	362	48		510	277	380	383,5	71,5

Technical data

Size	Max. speed [rpm]	Perm. displacements			Stiffness figures		
		Angular displ.[1]	Axial displ.	Radial displ.[1]	Each lamina set	Spacer	Coupling complete[2]
		± K_W [°]	± K_A [mm]	± K_r [mm]	c_t [Nm/rad]	c_{tR} [Nm·mm/rad]	c_{tE} = 457,2 [Nm/rad]
158	13800	0,25	3,0	1,56	13,0·10⁶	839·10⁶	1,70·10⁶
168	12300	0,25	3,0	1,45	18,0·10⁶	1535·10⁶	3,00·10⁶
188	11400	0,25	3,3	1,45	28,0·10⁶	1974·10⁶	4,08·10⁶
208	10500	0,25	3,8	1,45	35,0·10⁶	2876·10⁶	5,61·10⁶
228	9700	0,25	4,0	1,34	39,5·10⁶	4123·10⁶	7,77·10⁶
248	9000	0,25	4,2	1,34	60,0·10⁶	5410·10⁶	10,70·10⁶
278	8300	0,25	4,5	1,34	80,0·10⁶	8592·10⁶	15,60·10⁶
318	6900	0,25	5,2	1,13	105,0·10⁶	14724·10⁶	26,90·10⁶
358	6300	0,25	6,0	1,13	155,0·10⁶	26258·10⁶	41,20·10⁶
388	5800	0,25	6,5	1,13	225,0·10⁶	37596·10⁶	61,30·10⁶

[1] Each lamina set [2] with E=457.2 mm and cylindrical maximum finish bore

Size	Coupling[1]		Spacer	
	m [kg]	J [kgm²]	m_R [kg/mm]	J_R [kgm²/mm]
158	80	0,717	20,28·10⁻³	81·10⁻⁶
168	115	1,327	27,282·10⁻³	149·10⁻⁶
188	135	1,759	30,975·10⁻³	191·10⁻⁶
208	175	2,771	35,118·10⁻³	279·10⁻⁶
228	235	4,525	44,397·10⁻³	400·10⁻⁶
248	285	6,417	48,614·10⁻³	524·10⁻⁶
278	375	10,381	58,694·10⁻³	833·10⁻⁶
318	642	24,810	79,311·10⁻³	1427·10⁻⁶
358	812	38,404	104,041·10⁻³	2545·10⁻⁶
388	1016	57,062	120,151·10⁻³	3644·10⁻⁶

Ordering example:

RIGIFLEX®-HP 188	L	Ø 160	Ø 180	457,2
Coupling size	Type	Bore d1	Bore d_2	Shaft distance dimension E

Technical data of RIGIFLEX®-HP

Balancing:

Usually RIGIFLEX®-HP-couplings are balanced according to the balancing methods recommended by API 671. The usual methods are as follows:

- Balancing of individual components
- Summation balancing for verifying the balancing of individual components. It has to be made sure that adjustments may be performed on individual components only.
- Summation balancing with amendment of the balancing quality on the complete coupling.
- It goes without saying that different balancing methods as defined by the customer are possible.

Axial natural frequency:

With the coupling selection the axial natural frequency has to be reviewed (critical speed). According to API 671 the critical speed should be +_ 10 % beyond one time and two times the operating speed of the drive.

Screwing during transport and mounting:

With balancing, transporting and mounting of the coupling the lamina sets are firmly clamped axially via transport screws and distance washers (to protect the lamina sets from damaging). Please note: Before start-up of the coupling it is absolutely necessary to remove the screwings!

Axial pre-stress of lamina sets:

If modifications of the shaft distance dimension (e. g. caused by thermal expansion) have to be expected, the lamina sets can be axially prestressed. As a result the coupling operates in neutral position (zero position) of the lamina sets with normal operation.

Spacer disks for couplings with taper bores:

With the use of taper shafts the shaft distance dimension may lightly vary due to displacement. To compensate for spacer disks are added to the coupling on request. The disks are mounted on site, if necessary.

Shaft-hub-connections:

Usually RIGIFLEX®-HP is supplied with taper bores for an oil press fit. As an alternative feather key connections, flange connections or mechanical clamping connections, e. g. via KTR CLAMPEX® clamping sets, are available.

Delivery condition:

Depending on the customer's request, the RIGIFLEX®-HP couplings can be delivered either fully assembled or as individual assemblies. The lamina sets are basically assembled and may only be disassembled on consultation with the manufacturer.

Mounting instructions:

See: www.ktr.com