

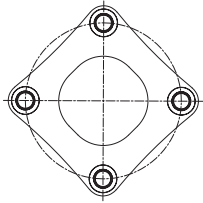
RIGIFLEX®-N

Steel laminae couplings

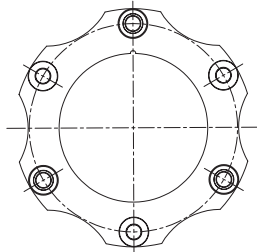
Technical data

The following laminae types are to be distinguished with RIGIFLEX®-N:

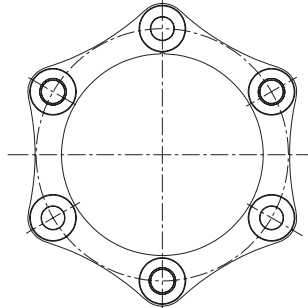
Size 35 – 65
(laminae with 4 holes)



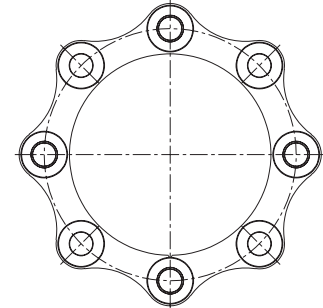
Size 75 – 160
(laminae with 6 holes)



Size 166 – 406
(laminae with 6 holes)



Size 168 – 408
(laminae with 8 holes)



RADEX®-N

Laminae couplings

RIGIFLEX®-N

RIGIFLEX®-HP

Torques and displacements											
Size	Laminae type	Torques [Nm]					Perm. displacements				
		TKN	TK max	TKW	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	laminae with 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	laminae with 6 holes	19000	38000	9500	0.7	3.7					
196		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					
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	laminae with 8 holes	70000	140000	35000	0.5	3.5					
308		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 laminae 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	–	–

RIGIFLEX®-N

Steel laminae couplings

Technical data

Permissible speeds and stiffness figures									
Size	Max. speed [rpm]	each laminae 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	Mounting dimension E as indicated by the customer					
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						
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						

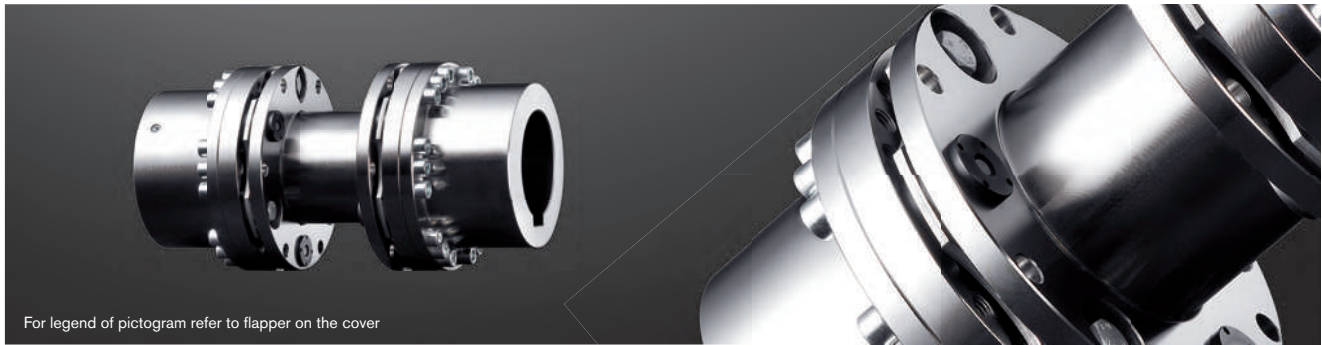
cw = angular stiffness
ct = torsion spring stiffness

Weights and mass moments of inertia													
Size	Hub (max. bore)		Spacer complete [kg]					Spacer complete [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	Mounting dimension E as indicated by the customer										
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											
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											

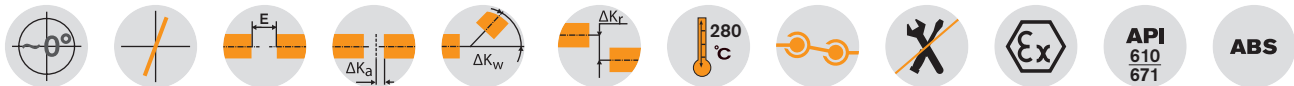
RIGIFLEX®-N

Steel laminae couplings

Standard type A

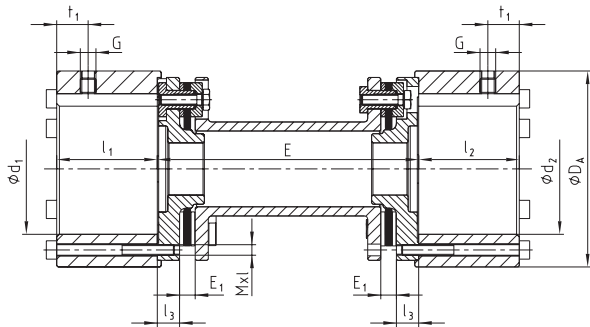


For legend of pictogram refer to flapper on the cover

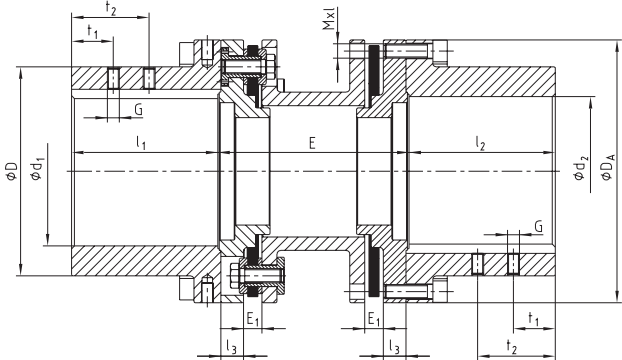


Components

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 , l ₂	l ₃	G	t ₁	t ₂	E ₁	E ¹⁾				MxI	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	70	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	90	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	150	200	265	126	25	M12	30	-	15	-	-	-	200	250	M16x50	295
160	16000	32000	8000	165	230	305	145	31	M12	30	-	15	-	-	-	-	250	M16x55	295
166	19000	38000	9500	165	230	305	155	31	M16	30	70	17					M20x50	560	
196	22500	45000	11250	195	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	260	350	440	245	38	M20	70	130	31					M24x80	970	
306	86000	172000	43000	305	400	515	295	43	M24	70	130	36					M27x100	1450	
346	135000	270000	67500	350	460	590	335	55	M24	95	175	45					M30x110	1950	
406	210000	420000	105000	405	530	675	395	58.5	M24	95	175	50	According to customer specification				M36x130	3300	
168	25000	50000	12500	165	230	305	155	31	M16	30	70	17					M20x50	560	
198	30000	60000	15000	195	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	260	350	440	245	38	M20	70	130	31					M24x80	970	
308	115000	230000	57500	305	400	515	295	43	M24	70	130	36					M27x100	1450	
348	180000	360000	90000	350	460	590	335	55	M24	95	175	45					M30x110	1950	
408	280000	560000	140000	405	530	675	395	58.5	M24	95	175	50					M36x130	3300	

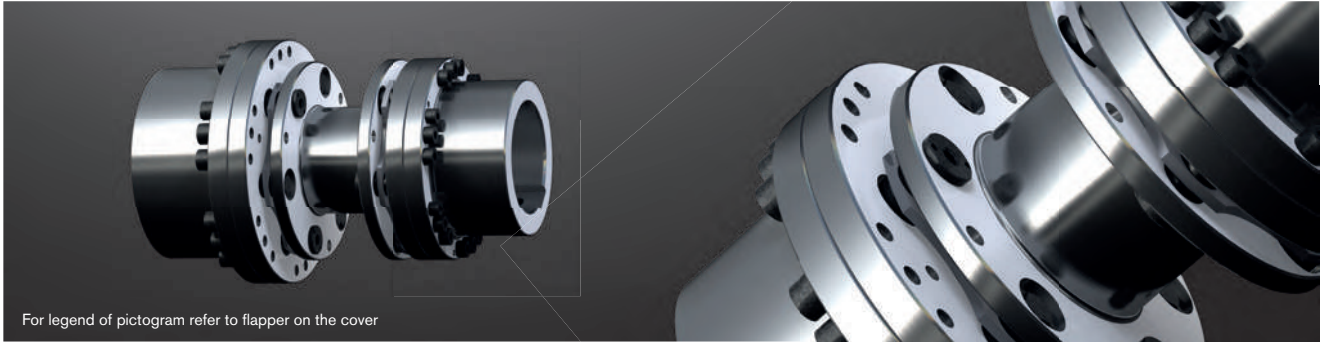
¹⁾ Other shaft distance dimensions available on request.
For selection of coupling see page 18 et seqq. Assembly instructions of KTR standard 47410 available at www.ktr.com.

Ordering example:	RIGIFLEX®-N 120	A	Ø 100	Ø 120	200
	Coupling size	Type	Bore d ₁	Bore d ₂	Shaft distance dimension E

RIGIFLEX®-N

Steel laminae couplings

Standard type A-J

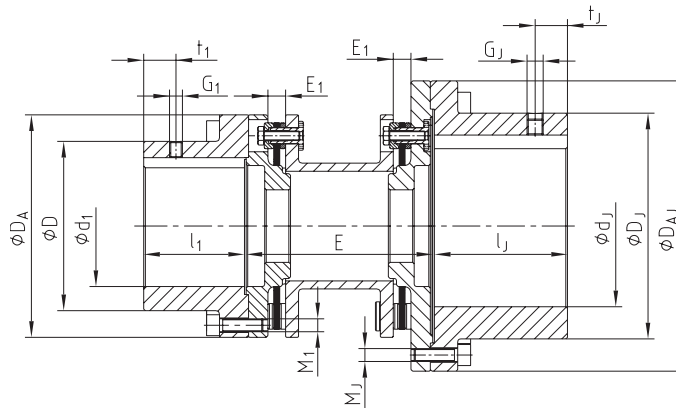


For legend of pictogram refer to flapper on the cover



Components

Size 50 - 140

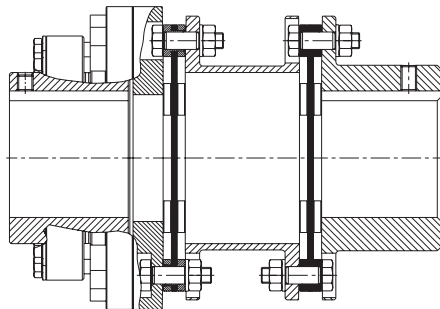


RIGIFLEX®-N type A-J																										
Size	Torques [Nm]			Max. finish bore		Dimensions [mm]														Screws DIN EN ISO 4762						
	T _{KN}	T _{K max}	T _{KW}	d ₁	d _j	D	D _A	l ₁	D _J	D _{AJ}	l _J	G ₁	t ₁	G _J	t _J	E ₁	E ¹⁾				M ₁	T _A [Nm]	M _J	T _{AJ} [Nm]		
50	270	540	135	50	70	70	95	50	100	126	63	M6	10	M8	20	9	100	140	180	-	-	-	M6	14	M6	14
65	550	1100	275	70	90	100	126	63	120	156	72.5	M8	20	M10	20	11	100	140	180	-	-	-	M6	14	M8	35
75	1100	2200	550	75	100	105	138	62.5	140	180	83	M8	20	M10	20	11	100	140	180	-	-	-	M8	35	M8	35
85	1900	3800	950	90	110	120	156	72.5	152	191	87.5	M10	20	M10	25	12	-	140	180	200	250	M8	35	M10	69	
110	3500	7000	1750	110	150	152	191	87	200	265	127	M10	25	M12	30	12	-	140	180	200	250	M10	69	M16	295	
120	5750	11500	2875	120	165	165	213	102	230	305	147	M12	25	M12	30	12	-	180	200	250	M12	120	M16	295		
140	10500	21000	5250	150	195	200	265	126	260	330	186	M12	30	M16	40/90	15	-	-	-	200	250	M16	295	M20	560	
160	16000	32000	8000	165	210	230	305	145	285	370	205	M12	30	M20	50/60	15	-	-	-	200	250	M16	295	M20	560	

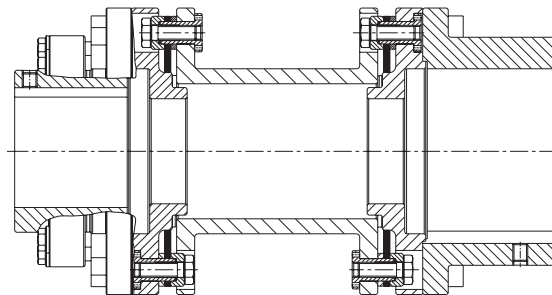
¹⁾ Other shaft distance dimensions available on request.

For selection of coupling see page 18 et seqq. Assembly instructions of KTR standard 47410 available at www.ktr.com.

Other types:



For RADEX®-N with integrated slipping unit see dimension sheet 699206



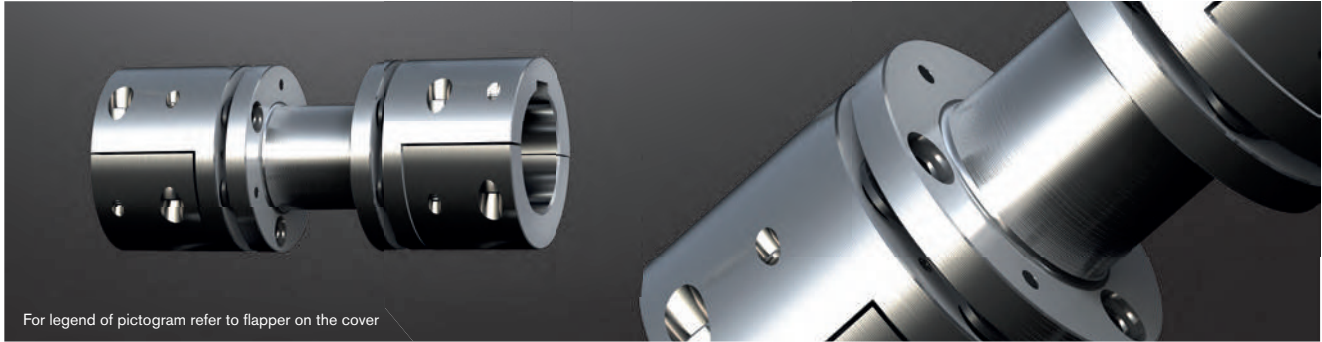
For RIGIFLEX®-N with integrated slipping unit see dimension sheet 698869

Ordering example:	RIGIFLEX®-N 85	A-J	Ø 80	Ø 120	200
	Coupling size	Type	Bore d ₁	Bore d _j	Shaft distance dimension E

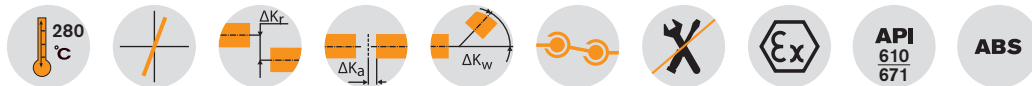
RIGIFLEX®-N

Steel laminae couplings

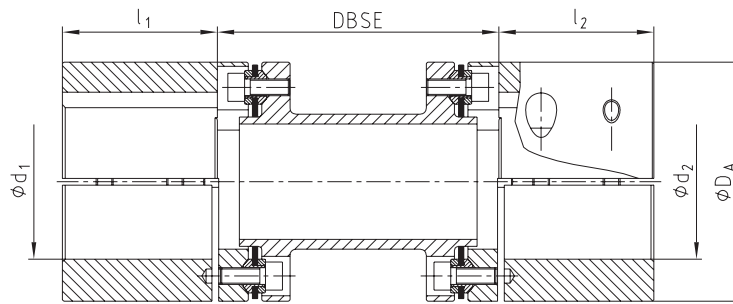
Standard type A-H



For legend of pictogram refer to flapper on the cover



Components



RIGIFLEX®-N type A-H											
Size	Torques [Nm]		Max. finish bore [mm]		Dimensions [mm]						
	T _{KN}	T _{K max}	d ₁ , d ₂	D _A	l ₁ , l ₂	Standard shaft distance dimension DBSE ¹⁾			Perm. axial displacement	Perm. angular displacement (per laminae set [°])	
46	90	180	42	69	45					+/- 1.4	1.0
56	255	510	55	85	55	100				+/- 1.2	0.7
66	450	900	65	105	65		140	180	250	+/- 1.6	0.7
76	975	1950	75	124	75					+/- 1.8	0.7
86	1500	3000	85	145	85	-				+/- 2.2	0.7
106	2400	4800	105	168	105		-			+/- 2.4	0.7

¹⁾ Other shaft distance dimensions (DBSE) available on request

Benefits of type A-H:

- Hub type 7.6 - half shell hub
- Easy and quick radial assembly and disassembly
- Type according to API 610 and 671 (see exceptions)
- Drop-out protection of spacer with fracture of laminae following API 671



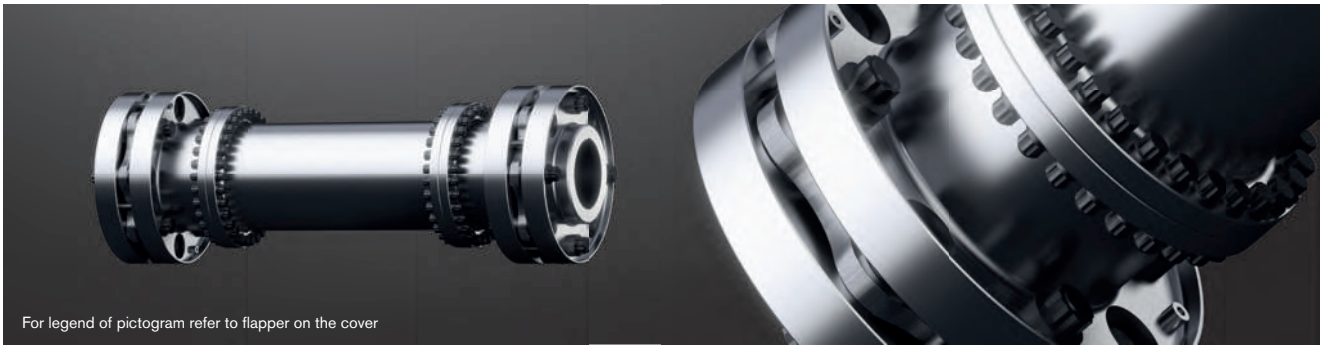
Ordering example:

RIGIFLEX®-N 66	A-H	Ø 42	Ø 48	140
Coupling size	Type	Bore d ₁	Bore d ₂	Shaft distance dimension DBSE

RIGIFLEX®-HP C

High-performance steel laminae couplings

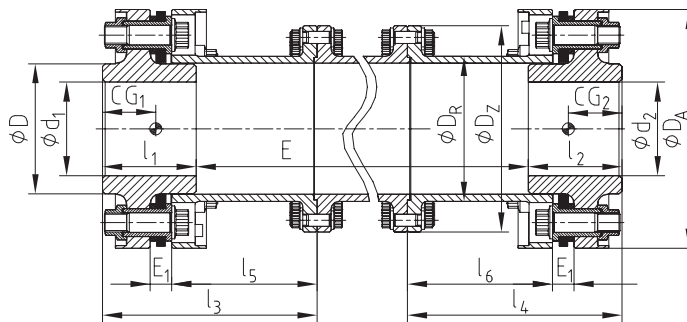
Flange connection



For legend of pictogram refer to flapper on the cover



Components



RIGIFLEX®-HP type C														
Size	Torques [Nm]		Max. 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
158	20000	26000	85	119	220	195	135	17	According to customer specification	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 ¹⁾ ± K _w [°]	Axial ± K _a [mm]	Radial ²⁾ ± K _r [mm]	each laminae set c _l [Nm/rad]	Spacer c _{lR} [Nm · mm/rad]	Coupling complete ²⁾ c _{lE} = 457.2 [Nm/rad]
158	17300	0.25	3.0	2.30	13.0 · 10 ⁶	839 · 10 ⁶	1.04 · 10 ⁶
168	14900	0.25	3.0	2.32	18.0 · 10 ⁶	1535 · 10 ⁶	1.79 · 10 ⁶
188	14400	0.25	3.3	2.37	28.0 · 10 ⁶	1974 · 10 ⁶	2.23 · 10 ⁶
208	12800	0.25	3.8	2.50	35.0 · 10 ⁶	2876 · 10 ⁶	3.15 · 10 ⁶
228	12100	0.25	4.0	2.44	39.5 · 10 ⁶	4123 · 10 ⁶	5.06 · 10 ⁶
248	11400	0.25	4.2	2.58	60.0 · 10 ⁶	5410 · 10 ⁶	5.51 · 10 ⁶
278	10000	0.25	4.5	2.75	80.0 · 10 ⁶	8592 · 10 ⁶	7.94 · 10 ⁶
318	8500	0.25	5.2	2.70	105.0 · 10 ⁶	14724 · 10 ⁶	13.00 · 10 ⁶
358	7600	0.25	6.0	2.96	155.0 · 10 ⁶	26258 · 10 ⁶	20.30 · 10 ⁶
388	7000	0.25	6.5	3.18	225.0 · 10 ⁶	37596 · 10 ⁶	27.70 · 10 ⁶

¹⁾ Per laminae set ²⁾ with E=457.2 mm and cylindrical maximum finish bore

Size	Coupling ²⁾		Spacer	
	m [kg]	J [kgm ²]	m _R [kg/mm]	J _R [kgm ² /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

$c_t \text{ total} = 1 / ((1/c_lE = 457.2) + ((E - 457.2 \text{ mm}) / c_{lR}))$
 $m_{\text{total}} = m + m_R \cdot (E - 457.2 \text{ mm})$
 $J_{\text{total}} = J + J_R \cdot (E - 457.2 \text{ mm})$

RIGIFLEX®-HP L

High-performance steel laminae couplings

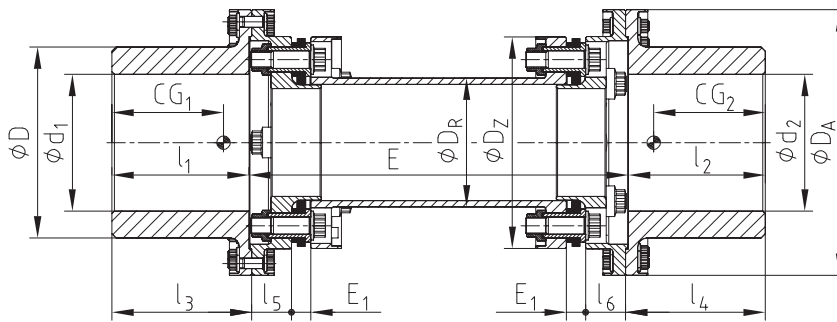
Type with flange hubs



For legend of pictogram refer to flapper on the cover



Components



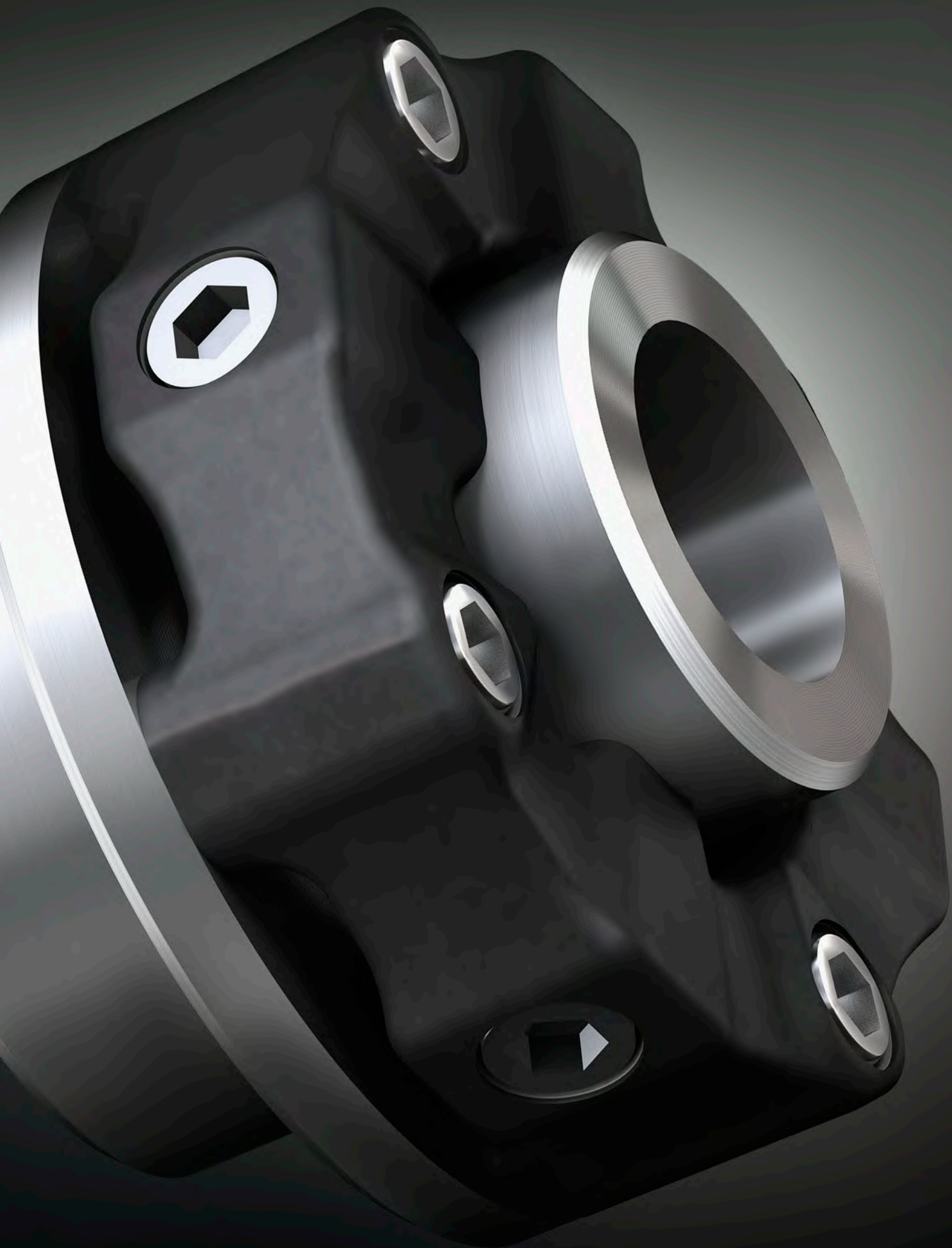
RIGIFLEX®-HP type L														
Size	Torques [Nm]		Max. finish bore	Dimensions [mm]										
	T _{KN}	T _{K max}		d ₁ , d ₂	D	D _A	D _Z	D _R	E ₁	E	E _{min}	CG ₁ , CG ₂ ²⁾	l ₁ , l ₂	l ₃ , l ₄
158	20000	26000	150	210	310	220	135	17	According to customer specification	265	140	150	163.5	37.5
168	30000	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 ¹⁾ ± K _w [°]	Axial ± K _a [mm]	Radial ²⁾ ± K _r [mm]	each laminae set		Spacer	
158	13800	0.25	3.0	1.56	c _t [Nm/rad]	c _{tR} [Nm · mm/rad]	Coupling complete ²⁾ c _{tE} = 457.2 [Nm/rad]	
168	12300	0.25	3.0	1.45	13.0 · 10 ⁶	839 · 10 ⁶	1.70 · 10 ⁶	
188	11400	0.25	3.3	1.45	18.0 · 10 ⁶	1535 · 10 ⁶	3.00 · 10 ⁶	
208	10500	0.25	3.8	1.45	28.0 · 10 ⁶	1974 · 10 ⁶	4.08 · 10 ⁶	
228	9700	0.25	4.0	1.34	35.0 · 10 ⁶	2876 · 10 ⁶	5.61 · 10 ⁶	
248	9000	0.25	4.2	1.34	39.5 · 10 ⁶	4123 · 10 ⁶	7.77 · 10 ⁶	
278	8300	0.25	4.5	1.34	60.0 · 10 ⁶	5410 · 10 ⁶	10.70 · 10 ⁶	
318	6900	0.25	5.2	1.13	80.0 · 10 ⁶	8592 · 10 ⁶	15.60 · 10 ⁶	
358	6300	0.25	6.0	1.13	105.0 · 10 ⁶	14724 · 10 ⁶	26.90 · 10 ⁶	
388	5800	0.25	6.5	1.13	155.0 · 10 ⁶	26258 · 10 ⁶	41.20 · 10 ⁶	
					225.0 · 10 ⁶	37596 · 10 ⁶	61.30 · 10 ⁶	

¹⁾ Per laminae set ²⁾ with E=457.2 mm and cylindrical maximum finish bore

Size	Coupling ²⁾		Spacer	
	m [kg]	J [kgm ²]	m _R [kg/mm]	J _R [kgm ² /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 d ₁	Bore d ₂	Shaft distance dimension E



highly flexible shaft couplings

Types and operating description 196

EVOLASTIC® **NEW**

Description of product and application	198
Type E	200
Type EH	201
Type E2H	202
Type EFH	203
Type EP	204
Type EHP	205
Type E2HP	206
Type EFHP	207
Type D2H	208
Type DFH	209

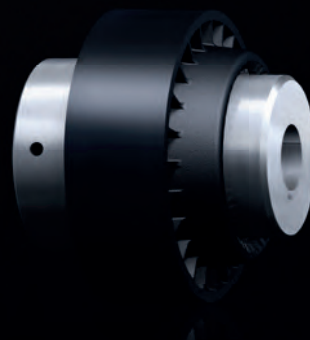
BoWex-ELASTIC®

Type HEW Compact 218

EVOLASTIC® **NEW**



BoWex-ELASTIC® HEW Compact



HIGHLY FLEXIBLE SHAFT COUPLINGS TYPES AND OPERATING DESCRIPTION

Properties of highly flexible shaft couplings

		
Product	EVOLASTIC*	BoWex* HEW Compact
Type	Highly flexible jaw coupling	Highly flexible gear coupling
Properties		
Highly flexible	●	●
Damping vibrations	●	
Maintenance-free	●	●
Axial plug-in	●	●
Shear type		●
Fail-safe	●	
Compensating for misalignment	●	●
Types		
Variant diversity	very high	medium
Special features	reducing torsional vibrations and compensating for misalignment above average with compact dimensions, extremely flexible for individual drives	this type combines a compact design, ability for axial plug-in and low restoring forces
Applications / core industries	flexible all-rounder coupling for wide applications in mechanical and plant engineering	applications critical to rotation such as screw compressors, piston compressors or transfer pumps
Torque range T_{KN} [Nm]		
Min.	100	200
Max.	5,600	8,400
Max. circumferential speed v [m/s]		
Steel + cast EN-GJS (dynamic balancing)	60	50
Hub materials available		
Steel (semi-finished product) » customised solutions available	●	●
Stainless steel	○	○
Corrosion-protected types	○	○
Spiders / elastomers		
Material	NR + EPDM	NR + EPDM
Degree of hardness	highly flexible compounds W, S, M	40 - 70 Shore A
Temperature range in °C, min. / max. (standard)	-40 / +80	-40 / +100
Temperature range in °C, min. / max. (special)	-30 / +100	-30 / +120

● ≈ Standard
○ ≈ On request

HIGHLY FLEXIBLE SHAFT COUPLINGS TYPES AND OPERATING DESCRIPTION

Product finder for highly flexible shaft couplings

		
Product	EVOLASTIC®	BoWex® HEW Compact
Type	Highly flexible jaw coupling	Highly flexible gear coupling
Geometries		
Design	short	short
Mass moment of inertia	low	low
Shaft distance dimension	low	low
Types (extract)		
Elastomers can be radially disassembled » without displacing driving/driven side	D2H, DFH	–
Intermediate shaft types » bridging larger shaft distances	D2H, DFH	–
shaft-to-shaft connection	EH, E2H, EHP, E2HP	Standard
flange-to-shaft connection	EFH, EFHP	–
Flange-to-flange connection » particularly short mounting length	customised	–
Double-cardanic » compensating for big displacements, lower restoring forces	D2H, DFH	–
Certifications / type examinations		
ATEX 	○	●
GOST R / GOST TR 	○	●
DNV/GL 	○	●
Bureau Veritas 	○	●

● ≈ Standard
○ ≈ On request

EVOLASTIC®

Highly flexible couplings

Description of product and application

The EVOLASTIC® is a highly flexible, non-slip and backlash-free shaft and flange coupling for versatile use in a large number of main and auxiliary drives in mechanical and plant engineering.

Subject to the elastomer element pre-stressed to pressure, the coupling is able to reduce torsional vibrations in the drive train and absorb overload shocks smoothly. Structure-borne noise is efficiently damped. At the same time it offsets misalignment above average in three dimensions (axially, radially and angularly).

The key component of this series is a vulcanised, circularly closed elastomer element made of natural rubber (WN, SN, MN, up to 80 °C) or for higher temperatures made of synthetical EPDM material (WE, SE, ME, up to 100 °C). The various kinds of rubber hardness cover one application and torque range per size.

The basic variants distinguish between directly screwed types and plug-gable types. They cover all convenient mounting conditions ranging from a finished individual component through hub/hub and flange/hub applications to the driving shaft. Apart from that the product portfolio allows for highly individual and flexible mounting options, tailor-made for the special application.



NEW

Technical data													
Size	Elastomer type ²⁾	Torque [Nm] ¹⁾				Dynamic torsion spring stiffness C _{dyn.} [Nm/rad]		Relative damping ψ [-]		Perm. damping power P _{KW} [W]		Operating speed [rpm]	
		TKN	TKmax	TKmax1	TKW	30 °C	60 °C	30 °C	60 °C	30 °C	60 °C	n	n _{max.}
12	SN	100	200	300	40	900	720	0.80	0.64	25	15	4,500	5,000
	MN	120	240	360	48	1,500	1,200	1.10	0.88			5,400	6,000
24	SN	200	400	600	80	2,000	1,600	0.80	0.64	40	24	3,780	4,200
	MN	240	480	720	96	3,600	2,880	1.10	0.88			4,500	5,000
32	SN	280	560	840	112	6,500	5,200	0.80	0.64	50	30	3,800	4,200
	MN	320	640	960	128	9,500	7,600	1.10	0.88			4,500	5,000
48	SN	420	840	1,260	168	6,800	5,440	0.80	0.64	75	45	3,780	4,200
	MN	480	960	1,440	192	13,500	10,800	1.10	0.88			4,500	5,000
60	SN	500	1,000	1,500	200	4,600	3,680	0.80	0.64	80	48	3,240	3,600
	MN	600	1,200	1,800	240	7,750	6,200	1.10	0.88			3,600	4,000
86	SN	760	1,520	2,280	304	12,500	10,000	0.90	0.72	90	54	3,600	4,000
	MN	860	1,720	2,580	344	21,000	16,800	1.10	0.88			4,050	4,500
125	SN	1,100	2,200	3,300	440	8,800	7,040	0.80	0.64	120	72	2,880	3,200
	MN	1,250	2,500	3,750	500	16,000	13,600	1.10	0.88			3,240	3,600
200	SN	1,700	3,400	5,100	680	29,000	23,200	0.90	0.72	150	90	3,060	3,400
	MN	2,000	4,000	6,000	800	44,000	35,200	1.10	0.88			3,240	3,600
280	WN	2,400	4,800	7,200	960	38,000	30,400	0.70	0.56	170	102	2,700	3,000
	MN	2,800	5,600	8,400	1,120	78,000	62,400	1.10	0.88			3,060	3,400
360	WN	3,200	6,400	9,600	1,280	48,500	38,800	0.70	0.56	200	120	2,700	3,000
	SN	3,400	6,800	10,200	1,360	67,000	53,600	0.90	0.72			3,060	3,400
560	MN	3,600	7,200	10,800	1,440	115,000	92,000	1.10	0.88			3,060	3,400
	WN	5,000	10,000	14,000	2,000	73,500	58,800	0.80	0.64	240	144	2,250	2,500
560	SN	5,200	10,400	14,000	2,080	105,000	84,000	1.00	0.80			2,520	2,800
	MN	5,600	11,200	14,000	2,240	138,000	110,400	1.10	0.88			2,700	3,000

¹⁾ TKN Torque that can be constantly transmitted over the entire speed range.
TKmax Transient torque peaks (e. g. resonance passage), max. 100,000 load alternation pulsating / 50,000 load alternation vibratory
TKmax1 Impact loads rarely, max. 1,000 load alternation
For selection consider DIN 740 part II (operating factor, temperature factor), parameters for an ambient temperature of 30 °C.

²⁾ Higher strength on request.

Types

Types axially screwed+	
E	Elastomer + set of screws
EH	Elastomer + hub
E2H	Elastomer + two hubs
EFH	Elastomer + flange + hub
D2H	Two elastomers + intermediate shaft + two hubs
DFH	Two elastomers + intermediate shaft + flange and hub



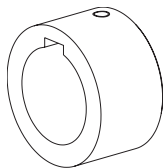
Types plugged in axially	
EP	Elastomer + locking pin
EHP	Elastomer + pluggable hub
E2HP	Elastomer + two pluggable hubs
EFHP	Elastomer + flange + pluggable hub



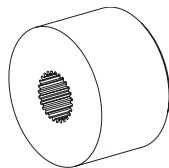
EVOLASTIC®

Highly flexible couplings

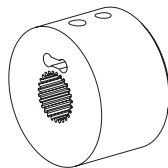
Types of hubs



Type 1.0
with feather keyway
and setscrew



Type 1.3
spline toothing



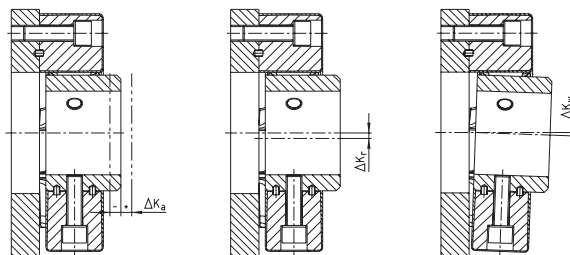
Type 3.1
spline/clamping hub N

Other hub types on request.

Examples:

- slotted clamping hub
- clamping ring hub
- taper or cylindrical press fit

Displacements / Displacement stiffness



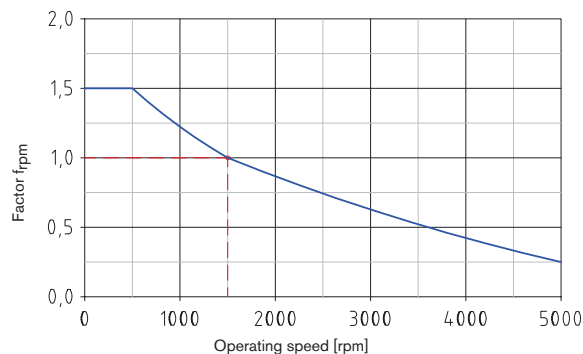
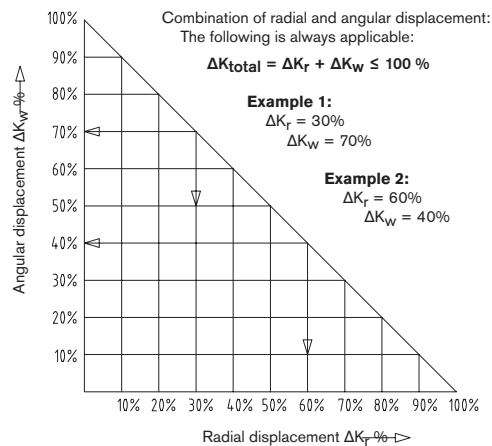
Displacements																									
Size	12		24		32		48		60		86		125		200		280		360		560				
Elastomer type	SN	MN	SN	MN	SN	MN	SN	MN	SN	MN	SN	MN	SN	MN	SN	MN	SN	MN	WN	SN	MN	WN	SN	MN	
Perm. radial displacement ΔK_r [mm]	1,500 rpm	3.6	3.6	3.6	3.6	4.5	3.6	4.5	4.5	4.5	5.4	5.4	1.3	2.5	2.0	1.8	1.4	2.5	1.4	2.3	1.8	1.6	2.3	1.8	1.6
	Max. ¹⁾	3.0	3.0	2.0	2.0	3.0	2.0	3.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Perm. angular displacement ΔK_w [°]	1,500 rpm	6.0	6.0	6.0	6.0	4.0	4.0	4.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Max. ^{1) 2)}	±2.5	±3.0	±3.0	±3.0	±3.0	±2.5	±3.0	±3.0	±3.0	±3.0	±3.0	±3.5	±3.0	±3.0	±3.5	±3.0	±3.5	±4.0	±4.0	±4.0	±4.0	±4.0	±4.0	±4.0
Perm. axial displacement ΔK_a [mm]		±2.5	±3.0	±3.0	±3.0	±3.0	±2.5	±3.0	±3.0	±3.0	±3.0	±3.5	±3.0	±3.0	±3.5	±3.0	±3.5	±4.0	±4.0	±4.0	±4.0	±4.0	±4.0	±4.0	±4.0

¹⁾ For short-term start-up operation
²⁾ Check for cardanic free movement

The radial and angular displacement of a coupling element refers to an operating speed of 1,500 rpm. Following the graph the permissible operating displacement increases with lower speed or reduces with rising speed by the factor f_{rpm} . The combination of radial and angular displacement in an application is divided up as a percentage. The permissible displacement refers to the total of alignment and operating displacement.

Stiffnesses							
Size	Elastomer hardness	Axial stiffness C_a [N/mm]		Radial stiffness C_r [N/mm]		Angular stiffness C_w [Nm/°]	
		30 °C	60 °C	30 °C	60 °C	30 °C	60 °C
12	S	50	40	280	224	2.0	1.6
	M	70	56	400	320	3.0	2.4
24	S	70	56	400	320	4.0	3.2
	M	100	80	550	440	5.0	4.0
32	S	200	160	1,100	880	12	9.6
	M	450	360	1,700	1,360	25	20
48	S	270	216	1,000	800	10	8.0
	M	420	336	1,500	1,200	15	12
60	S	100	80	440	352	10	8.0
	M	120	96	650	520	14	11
86	S	390	312	1,300	1,040	24	19
	M	490	392	1,625	1,300	30	24
125	S	150	120	650	520	15	12
	M	200	160	920	736	22	18
200	S	420	336	1,700	1,360	45	36
	M	525	420	2,125	1,700	56	45
280	W	460	368	1,150	920	58	46
	M	800	640	2,800	2,240	95	76
360	W	450	360	1,800	1,440	66	53
	S	550	440	2,200	1,760	80	64
560	M	710	568	2,500	2,000	100	80
	W	380	304	1,950	1,560	95	76
560	S	480	384	2,500	2,000	120	96
	M	620	496	3,000	2,400	150	120

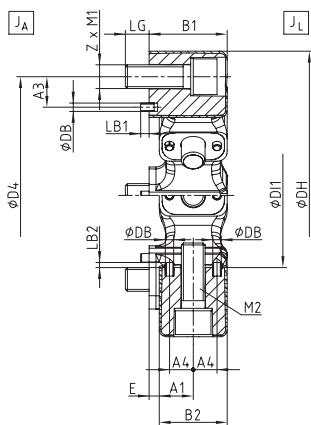
NEW



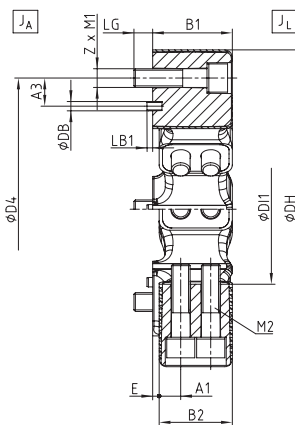
EVOLASTIC® E

Highly flexible couplings

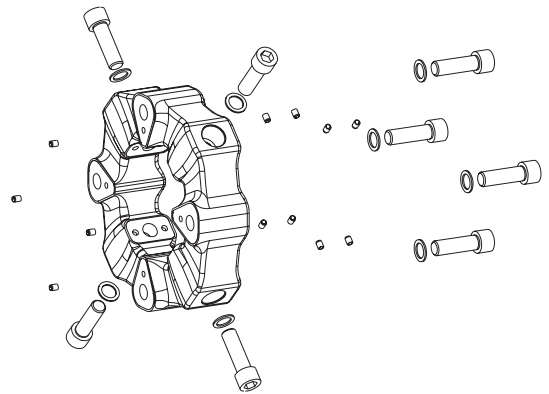
Individual element - available in various kinds of Shore hardness



Size 12 - 280



Size 360 - 560



NEW

EVOLASTIC® type E																		
Size	Dimensions [mm]														Mass moment of inertia [kgm ²]		Weight [kg]	
	DH	DI1	B1	B2	E	D4	Z x Pitch	A3	LG	LB1	DB	A1	A4	LB2	JA	JL		
	12	122	60	32	28	4	100	3 x 120°	12	10	4	4	14.0	10.0	-	0.0005		0.0005
24	150	70	42	36	6	125	3 x 120°	18	12	4	5	18.0	13.5	5	0.0010	0.0010	0.93	
32	150	70	42	36	6	125	4 x 90°	18	12	4	5	18.0	13.5	5	0.0020	0.0020	1.13	
48	170	85	46	40	6	140	4 x 90°	18	14	5	5	20.0	14.0	5	0.0040	0.0030	1.55	
60	200	100	58	50	8	165	3 x 120°	20	16	5	5	25.0	18.0	5	0.0070	0.0070	2.28	
86	200	100	58	50	8	165	4 x 90°	20	16	5	5	25.0	18.0	5	0.0090	0.0080	2.76	
125	260	125	70	63	7	215	3 x 120°	25	20	5	8	31.5	22.5	5	0.0240	0.0220	4.74	
200	260	125	70	63	7	215	4 x 90°	25	20	5	8	31.5	22.5	5	0.0300	0.0280	5.79	
280	300	145	80	72	8	250	4 x 90°	25	20	5	8	36.0	22.5	5	0.0550	0.0500	7.89	
360	340	160	85	78	7	280	4 x 90°	30	20	6	10	2 x 23.0	-	-	0.0960	0.0950	11.50	
560	363	170	105	95	10	300	4 x 90°	40	24	6	10	2 x 28.5	-	-	0.1510	0.1450	15.38	

Delivery condition:

EVOLASTIC® couplings type E are supplied with a mounting kit consisting of cap screws, screw locking washers and positioning sleeves. With the connection design make sure sufficient screw-in depth.

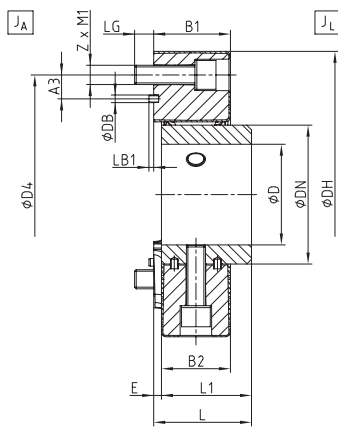
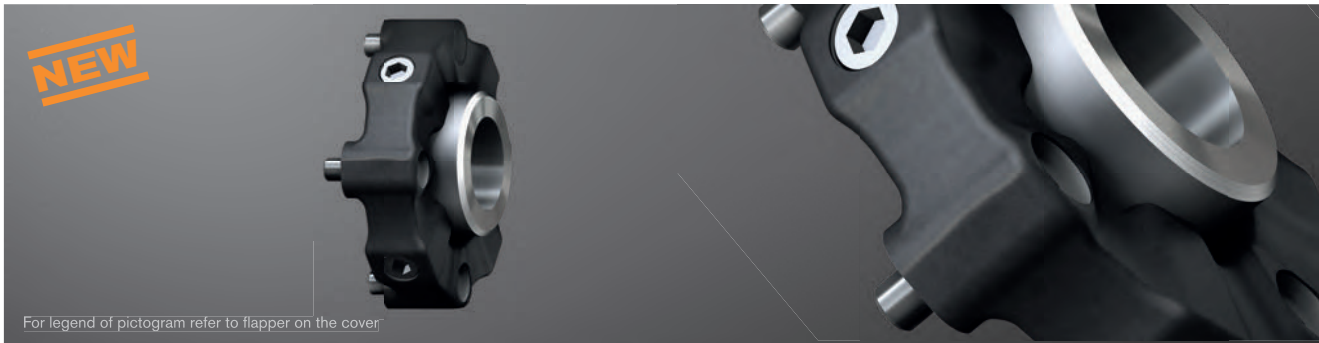
Size	Cap screw DIN EN ISO 4762 - 12.9		Tightening torque TA [Nm]
	M1 / axial	M2 / radial	
12	M10 x 30	M10 x 30	71
24	M12 x 35	M12 x 35	123
32	M12 x 35	M12 x 35	123
48	M14 x 40	M14 x 40	195
60	M16 x 50	M16 x 50	302
86	M16 x 50	M16 x 50	302
125	M20 x 65	M20 x 65	592
200	M20 x 65	M20 x 65	592
280	M20 x 65	M20 x 65	592
360	M20 x 80	M20 x 80	592
560	M24 x 90	M20 x 90	1,017 / 592

Ordering example:	EVOLASTIC® 48	E	S
	Coupling size	Type	Elastomer hardness

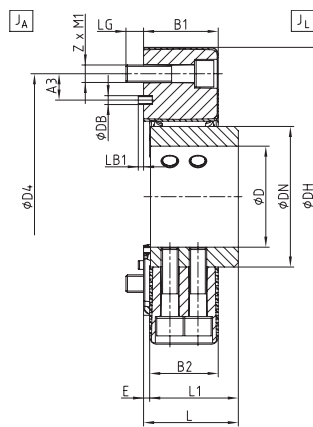
EVOLASTIC® EH

Highly flexible couplings

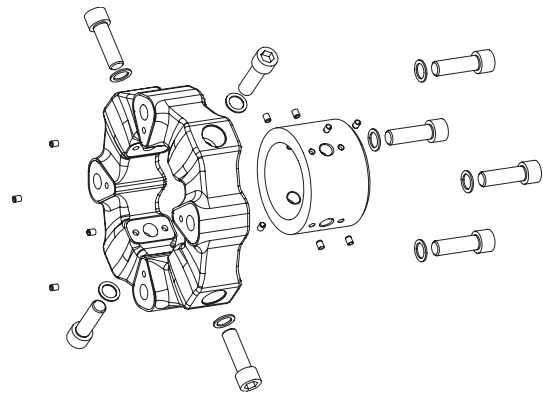
Individual element + shaft connection



Size 12 - 280



Size 360 - 560



EVOLASTIC®

Highly flexible shaft couplings

EVOLASTIC® type EH																		
Size	Dimensions [mm]															Mass moment of inertia [kgm ²] ¹⁾		Weight [kg] ¹⁾
	Max. finish bore D	DH	DN	B1	B2	E	L	L1	D4	Z x Pitch	M1	A3	LG	LB1	DB	J _A	J _L	
12	38	122	60	32	28	4	46	42	100	3 x 120°	M10	12	10	4	4	0.0006	0.0009	1.04
24	46	150	70	42	36	6	56	50	125	3 x 120°	M12	18	12	4	5	0.0016	0.0021	1.76
32	46	150	70	42	36	6	56	50	125	4 x 90°	M12	18	12	4	5	0.0020	0.0030	1.95
48	55	170	85	46	40	6	61	55	140	4 x 90°	M14	18	14	5	5	0.0040	0.0050	2.90
60	65	200	100	58	50	8	74	66	165	3 x 120°	M16	20	16	5	5	0.0070	0.0110	4.55
86	65	200	100	58	50	8	74	66	165	4 x 90°	M16	20	16	5	5	0.0090	0.0120	5.03
125	85	257	125	70	63	7	88	80	215	3 x 120°	M20	25	20	5	8	0.0240	0.0340	8.77
200	85	257	125	70	63	7	88	80	215	4 x 90°	M20	25	20	5	8	0.0300	0.0400	9.80
280	105	299	145	80	72	8	102	94	250	4 x 90°	M20	25	20	5	8	0.0560	0.0730	13.54
360	115	340	160	85	78	7	108	100	280	4 x 90°	M20	30	20	6	10	0.0960	0.1320	18.85
560	120	363	170	105	95	10	135	125	300	4 x 90°	M24	40	24	6	10	0.1530	0.2080	26.34

¹⁾ With max. bore

NEW

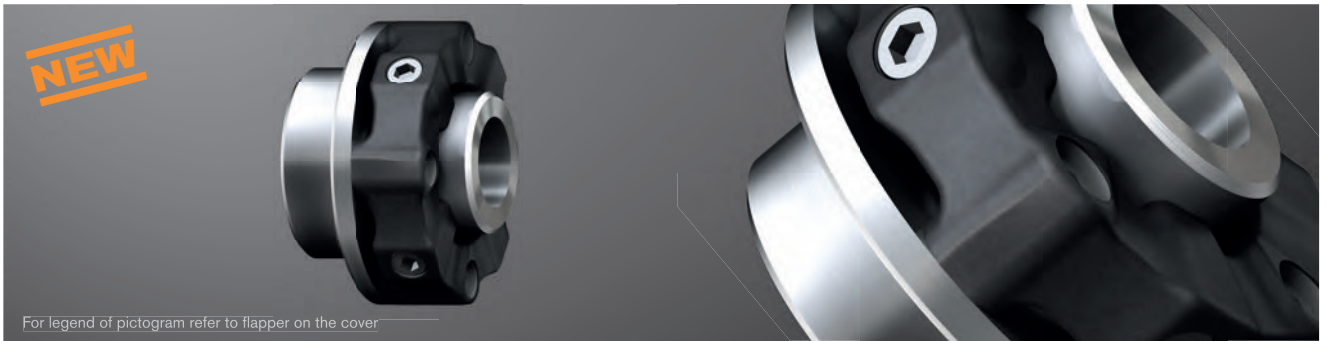
BoWex-ELASTIC® HEW Compact

Ordering example:	EVOLASTIC® 48	EH	S	1.0	Ø52
	Coupling size	Type	Elastomer hardness	Hub type	Finish bore

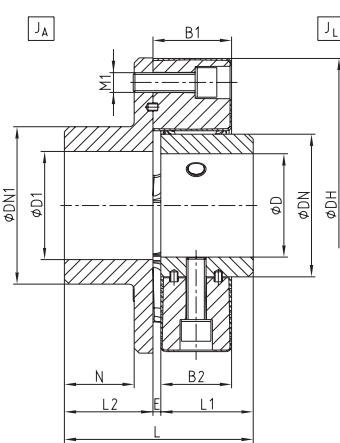
EVOLASTIC® E2H

Highly flexible couplings

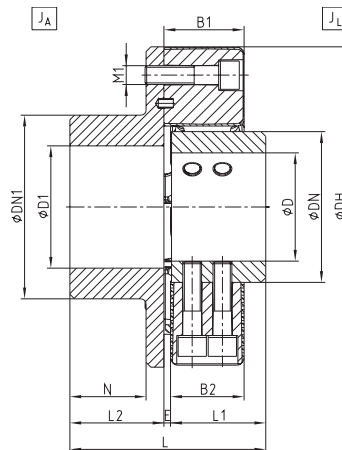
shaft-to-shaft connection



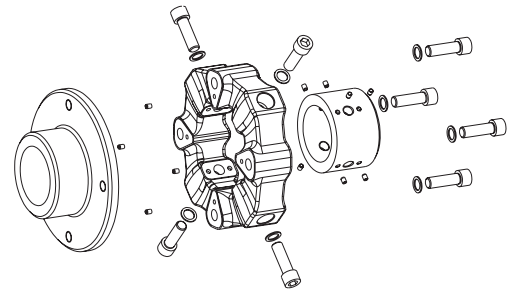
For legend of pictogram refer to flapper on the cover



Size 12 - 280



Size 360 - 560



EVOLASTIC® type E2H

Size	Dimensions [mm]													Mass moment of inertia [kgm ²] ¹⁾		Weight [kg] ¹⁾
	Max. finish bore		DH	DN	DN1	B1	B2	E	N	L	L1	L2	M1	JA	JL	
	D	D1														
12	38	55	122	60	80	32	28	4	32	88	42	42	M10	0.0030	0.0010	2.38
24	46	70	150	70	100	42	36	6	38	106	50	50	M12	0.0081	0.0021	4.22
NEW 32	46	70	150	70	100	42	36	6	38	106	50	50	M12	0.0090	0.0030	4.40
48	55	85	170	85	115	46	40	6	41	116	55	55	M14	0.0160	0.0050	6.21
60	65	100	200	100	140	58	50	8	50	140	66	66	M16	0.0360	0.0110	10.39
86	65	100	200	100	140	58	50	8	50	140	66	66	M16	0.0370	0.0120	10.83
125	85	110	260	125	160	70	63	7	60	168	80	80	M20	0.1110	0.0340	20.17
200	85	110	260	125	160	70	63	7	60	168	80	80	M20	0.1160	0.0400	21.15
280	105	110	300	145	160	80	72	8	70	192	94	90	M20	0.1960	0.0730	28.30
360	115	130	340	160	195	85	78	7	80	208	100	100	M20	0.3540	0.1320	40.66
560	120	140	370	170	200	105	95	10	100	260	125	125	M24	0.5890	0.2080	56.56

¹⁾ With max. bore

Ordering example:	EVOLASTIC® 48	E2H	S	1.0	Ø52	1.0	Ø52
	Coupling size	Type	Elastomer hardness	Hub type	Finish bore	Hub type	Finish bore

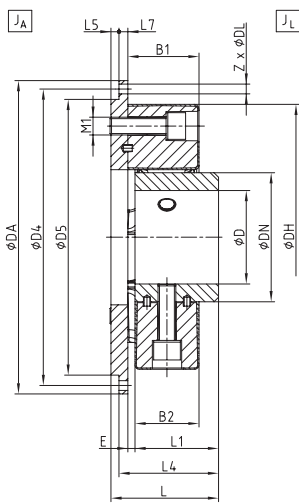
EVOLASTIC® EFH

Highly flexible couplings

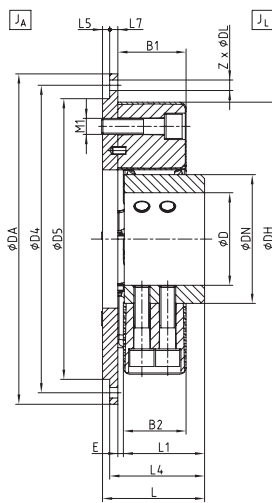
flange-to-shaft connection



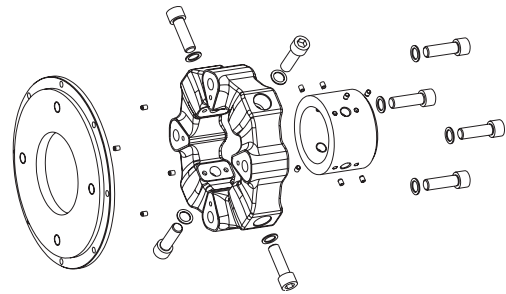
For legend of pictogram refer to flapper on the cover



Size 12 - 280



Size 360 - 560



Flange dimensions according to SAE J620 [mm]				
Size	DA	D4	Z	DL
6 1/2"	215.90	200.02	6	9
7 1/2"	241.30	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13

EVOLASTIC® type EFH																							
Size	Flange connection acc. to SAE - J620						Dimensions [mm]														Mass moment of inertia [kgm ²] ¹⁾		Weight [kg] ¹⁾
	6.5"	7.5"	8"	10"	11.5"	14"	Max. finish bore D	DH	DN	B1	B2	E	L	L1	L4	L5	L7	M1	D5	J			
																				JA	JL		
12	●						38	122	60	32	28	4	56	42	52	4	6	M10	180	0.013	0.001	3.26	
		●																	190	0.020	0.001	3.78	
24	●						46	150	70	42	36	6	68	50	62	6	6	M12	180	0.016	0.002	4.26	
		●																	190	0.023	0.002	4.82	
32	●						46	150	70	42	36	6	68	50	62	6	6	M12	180	0.016	0.003	4.44	
		●																	190	0.023	0.003	5.00	
48			●				55	170	85	46	40	6	75	55	67	8	6	M14	190	0.026	0.005	6.03	
				●											71	4	10		200	0.034	0.005	6.62	
					●														260	0.091	0.005	9.91	
60				●			65	200	100	58	50	8	90	66	84	6	10	M16	270	0.103	0.011	12.07	
					●														310	0.165	0.011	14.49	
						●													270	0.105	0.012	12.52	
86					●		65	200	100	58	50	8	90	66	84	6	10	M16	360	0.166	0.012	14.94	
						●													270	0.129	0.034	16.72	
																			310	0.199	0.034	19.57	
125						●	85	260	125	70	63	7	107	80	98	9	10	M16	270	0.135	0.039	17.64	
																			310	0.205	0.039	20.50	
																			405	0.572	0.039	30.01	
280						●	105	300	145	80	72	8	121	94	112	9	10	M20	310	0.226	0.072	23.54	
																			405	0.593	0.072	33.05	
																			405	0.628	0.130	37.55	
560						●	120	363	170	105	95	10	160	125	145	15	10	M24	405	0.794	0.203	49.06	

¹⁾ With max. bore

Ordering example:	EVOLASTIC® 48	EFH	S	8	1.0	Ø52
	Coupling size	Type	Elastomer hardness	Flange ØDA acc. to SAE or special	Hub type	Finish bore

EVOLASTIC®

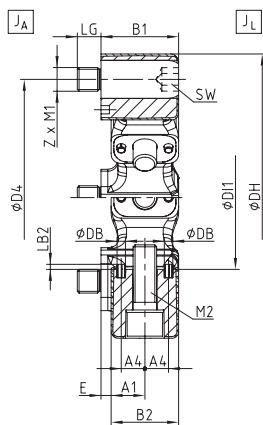
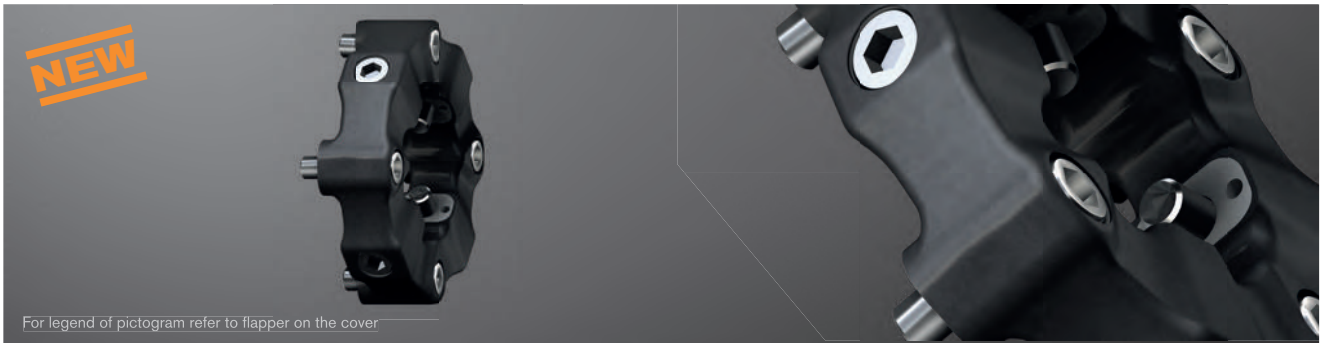
Highly flexible shaft couplings

BoWex-ELASTIC® HEW Compact

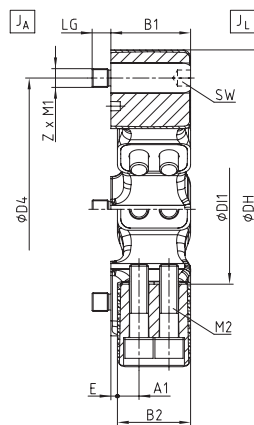
EVOLASTIC® EP

Highly flexible couplings

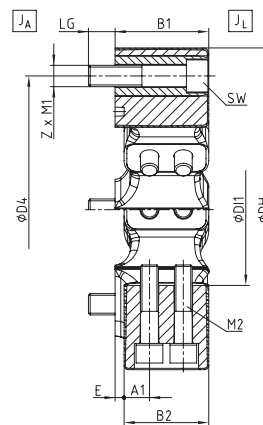
Pluggable elastomer - available in various kinds of Shore hardness



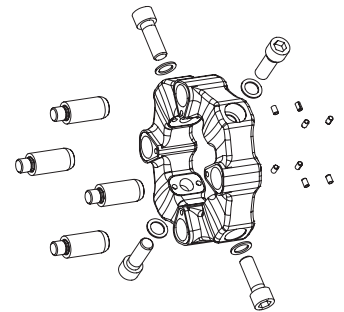
Size 12 - 280



Size 360



Size 560



EVOLASTIC® type EP															
Size	Dimensions [mm]												Mass moment of inertia [kgm ²]		Weight [kg]
	DH	DI1	B1	B2	E	D4	Z x Pitch	LG	DB	A1	A4	LB2	JA	JL	
12	122	60	32	28	4	100	3 x 120°	10	4	14.0	10.0	-	0.001	0.001	0.55
24	150	70	42	36	6	125	3 x 120°	12	5	18.0	13.5	5	0.002	0.001	1.03
NEW 32	150	70	42	36	6	125	4 x 90°	12	5	18.0	13.5	5	0.003	0.002	1.26
48	170	85	46	40	6	140	4 x 90°	14	5	20.0	14.0	5	0.005	0.003	1.74
60	200	100	58	50	8	165	3 x 120°	16	5	25.0	18.0	5	0.009	0.007	1.52
86	200	100	58	50	8	165	4 x 90°	16	5	25.0	18.0	5	0.010	0.008	3.08
125	260	125	70	63	7	215	3 x 120°	20	8	31.5	22.5	5	0.028	0.022	5.16
200	260	125	70	63	7	215	4 x 90°	20	8	31.5	22.5	5	0.036	0.028	6.35
NEW 280	300	145	80	72	8	250	4 x 90°	20	8	36.0	22.5	5	0.068	0.050	8.71
NEW 360	340	160	85	78	7	280	4 x 90°	20	-	2 x 23.0	-	-	0.110	0.096	12.21
NEW 560	363	170	105	95	10	300	4 x 90°	30	-	2 x 28.5	-	-	0.203	0.145	17.67

Delivery condition:

EVOLASTIC® couplings type EP are supplied with a mounting kit consisting of cap screws, screw locking washers, locking pins and positioning sleeves. With the connection design make sure sufficient screw-in depth. For the locking pin provide for an adhesive (e. g. Loctite® 243).

Size	Pin			Cap screw radial DIN EN ISO 4762 - 12.9	
	M1 / axial	SW	Tightening torque [Nm]	M2 / radial	Tightening torque [Nm]
12	M10	8	71	M10 x 30	71
24	M12	10	123	M12 x 35	123
32	M12	10	123	M12 x 35	123
48	M14	12	195	M14 x 40	195
60	M16	14	302	M16 x 50	302
86	M16	14	302	M16 x 50	302
125	M20	17	592	M20 x 65	592
200	M20	17	592	M20 x 65	592
280	M20	17	592	M20 x 65	592
360	M20	17	592	M20 x 80	592
560	M24	19	1017	M20 x 90	592

Ordering example:	EVOLASTIC® 48	EP	S
	Coupling size	Type	Elastomer hardness

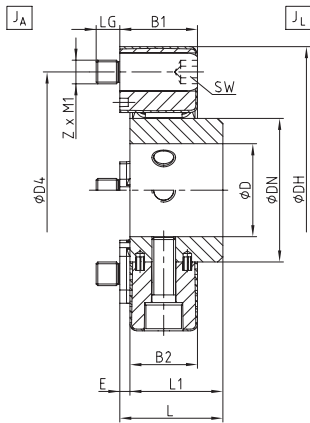
EVOLASTIC® EHP

Highly flexible couplings

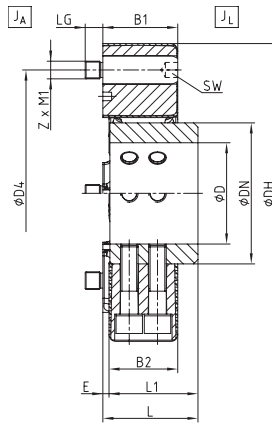
Pluggable elastomer + shaft connection



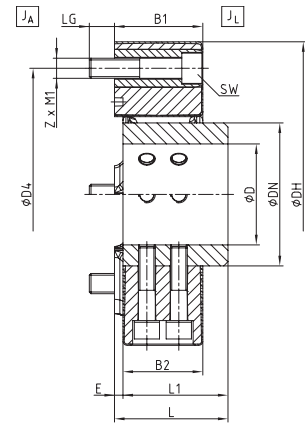
For legend of pictogram refer to flapper on the cover



Size 12 - 280



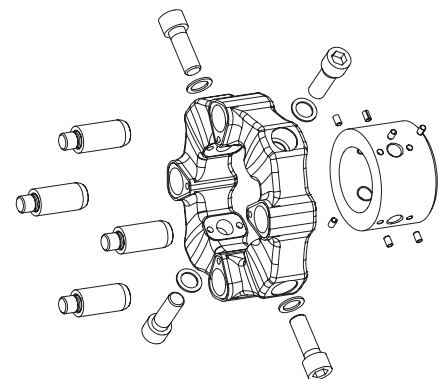
Size 360



Size 560

EVOLASTIC® type EHP																
Size	Dimensions [mm]												Mass moment of inertia [kgm ² ¹⁾		Weight [kg] ¹⁾	
	Max. finish bore D	DH	DN	B1	B2	E	L	L1	D4	Z x Pitch	LG	M1	SW	JA		JL
12	38	122	60	32	28	4	46	42	100	3 x 120°	10	M10	8	0.001	0.001	1.09
24	46	150	70	42	36	6	56	50	125	3 x 120°	12	M12	10	0.002	0.002	1.85
NEW 32	46	150	70	42	36	6	56	50	125	4 x 90°	12	M12	10	0.003	0.003	2.08
48	55	170	85	46	40	6	61	55	140	4 x 90°	14	M14	12	0.004	0.005	3.07
60	65	200	100	58	50	8	74	66	165	3 x 120°	16	M16	14	0.009	0.010	4.79
86	65	200	100	58	50	8	74	66	165	4 x 90°	16	M16	14	0.010	0.012	5.32
125	85	260	125	70	63	7	88	80	215	3 x 120°	20	M20	17	0.028	0.024	9.15
200	85	260	125	70	63	7	88	80	215	4 x 90°	20	M20	17	0.036	0.039	10.30
NEW 280	105	300	145	80	72	8	102	94	250	4 x 90°	20	M20	17	0.068	0.076	14.29
NEW 360	115	340	160	85	78	7	108	100	280	4 x 90°	20	M20	17	0.110	0.131	19.44
NEW 560	120	363	170	105	95	10	135	125	300	4 x 90°	30	M24	19	0.203	0.203	28.41

¹⁾ With max. bore



Ordering example:	EVOLASTIC® 48	EHP	S	1.0	Ø52
	Coupling size	Type	Elastomer hardness	Hub type	Finish bore

EVOLASTIC®

Highly flexible shaft couplings

BoWex-ELASTIC® HEW Compact

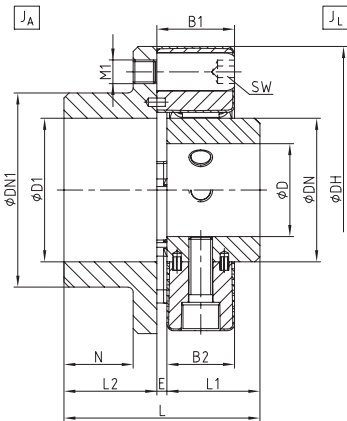
EVOLASTIC® E2HP

Highly flexible couplings

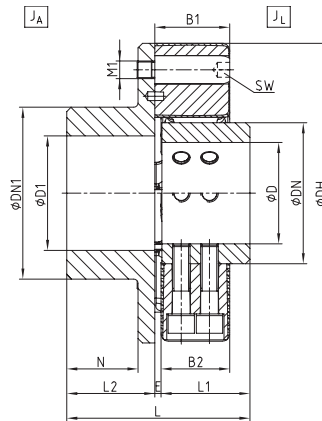
Shaft-to-shaft connection, plug-in



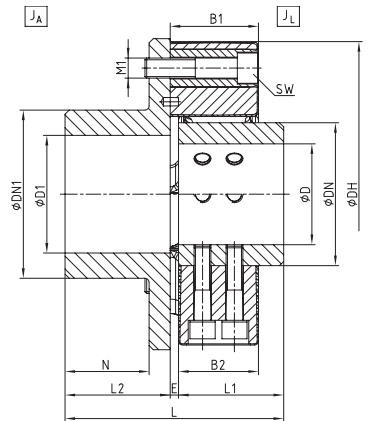
For legend of pictogram refer to flapper on the cover—



Size 12 - 280



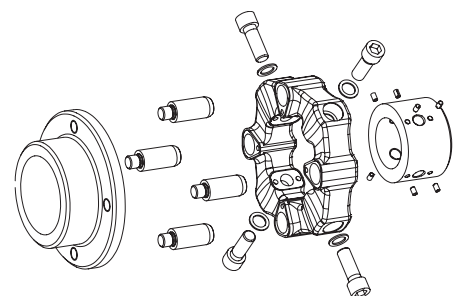
Size 360



Size 560

EVOLASTIC® type E2HP																			
Size	Max. finish bore		Dimensions [mm]													Mass moment of inertia [kgm ²] ¹⁾		Weight [kg] ¹⁾	
	D	D1	DH	DN	DN1	B1	B2	E	N	L	L1	L2	M1	SW	JA	JL			
12	38	55	122	60	80	32	28	4	32	88	42	42	M10	8	0.003	0.001	2.44		
24	46	70	150	70	100	42	36	6	38	106	50	50	M12	10	0.009	0.002	4.26		
NEW	32	46	70	150	70	100	42	36	6	38	105	50	M12	10	0.009	0.003	4.53		
48	55	85	170	85	115	46	40	6	41	116	55	55	M14	12	0.016	0.005	6.41		
60	65	100	200	100	140	58	50	8	50	140	66	66	M16	14	0.038	0.010	10.62		
86	65	100	200	100	140	58	50	8	50	140	66	66	M16	14	0.039	0.012	11.13		
125	85	110	260	125	160	70	63	7	60	168	80	80	M20	17	0.115	0.034	20.55		
200	85	110	260	125	160	70	63	7	60	168	80	80	M20	17	0.123	0.039	21.65		
NEW	280	105	110	300	145	160	80	72	8	70	192	94	M20	17	0.208	0.073	29.05		
NEW	360	115	130	340	160	195	85	78	7	80	208	100	M20	17	0.368	0.104	41.25		
NEW	560	120	140	363	170	200	105	95	10	100	260	125	M24	19	0.640	0.203	58.62		

¹⁾ With max. bore



Ordering example:	EVOLASTIC® 48	E2HP	S	1.0	Ø52	1.0	Ø52
	Coupling size	Type	Elastomer hardness	Hub type	Finish bore	Hub type	Finish bore

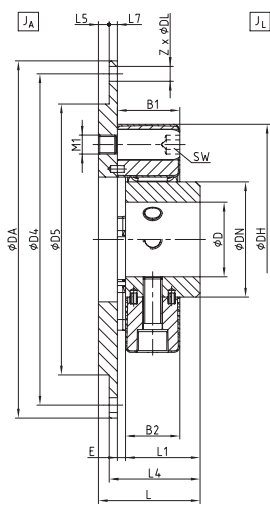
EVOLASTIC® EFHP

Highly flexible couplings

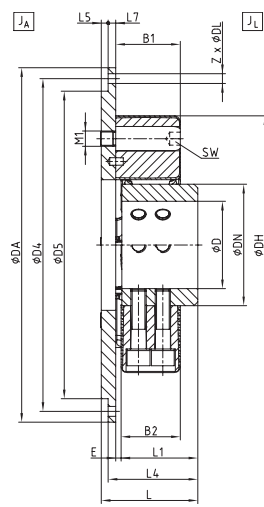
Flange-to-shaft connection, pluggable



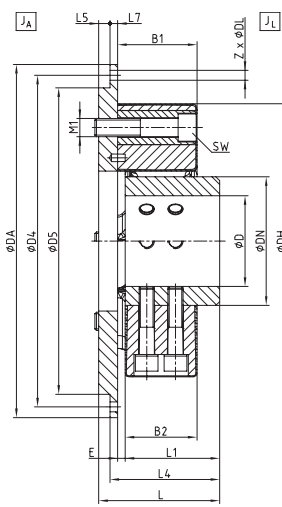
For legend of pictogram refer to flapper on the cover



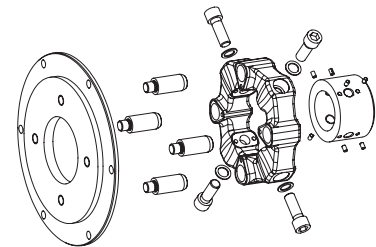
Size 12 - 280



Size 360



Size 560



Flange dimensions according to SAE J620 [mm]				
Size	DA	D4	Z	DL
6 1/2"	215.90	200.02	6	9
7 1/2"	241.30	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13

EVOLASTIC® type EFHP																							
Size	Flange connection acc. to SAE - J620						Dimensions [mm]													Mass moment of inertia [kgm ²] ¹⁾		Weight [kg] ¹⁾	
	6.5"	7.5"	8"	10"	11.5"	14"	Max. finish bore D	DH	DN	B1	B2	E	L	L1	L4	L5	L7	M1	SW	D5	J _A		J _L
	12	●						38	122	60	32	28	4	56	42	52	4	6	M10	8	180		0.014
		●																		190	0.020	0.001	3.84
24	●						46	150	70	42	36	6	68	50	62	6	6	M12	10	180	0.016	0.002	4.30
		●																		190	0.249	0.002	4.86
NEW 32	●						46	150	70	42	36	6	68	50	62	6	6	M12	10	180	0.017	0.003	4.57
		●																		190	0.024	0.003	5.13
			●																	190	0.027	0.005	6.20
				●			55	170	85	46	40	6	75	55	67	8	6	M14	12	200	0.035	0.005	6.80
					●										71	4	10			260	0.091	0.005	10.09
						●														270	0.105	0.011	12.30
60							65	200	100	58	50	8	90	66	84	6	10	M16	14	310	0.166	0.011	14.73
																				270	0.107	0.012	12.82
																				310	0.168	0.012	15.24
86							65	200	100	58	50	8	90	66	84	6	10	M16	14	270	0.134	0.034	17.10
																				310	0.204	0.034	19.95
125							85	260	125	70	63	7	107	80	98	9	10	M20	17	270	0.141	0.039	18.20
																				310	0.204	0.034	19.95
200							85	260	125	70	63	7	107	80	98	9	10	M20	17	270	0.141	0.039	18.20
																				405	0.578	0.039	30.57
NEW 280							105	300	145	80	72	8	121	94	112	9	10	M20	17	310	0.239	0.072	24.35
																				405	0.606	0.072	33.87
NEW 360							115	340	160	85	78	7	127	100	118	9	10	M20	17	405	0.642	0.130	38.25
NEW 560							120	363	170	105	95	10	160	125	145	15	10	M24	19	405	0.847	0.203	51.35

¹⁾ With max. bore

Ordering example:	EVOLASTIC® 48	EFHP	S	8	1.0	Ø55
	Coupling size	Type	Elastomer hardness	Flange ØDA acc. to SAE or special	Hub type	Finish bore

EVOLASTIC®

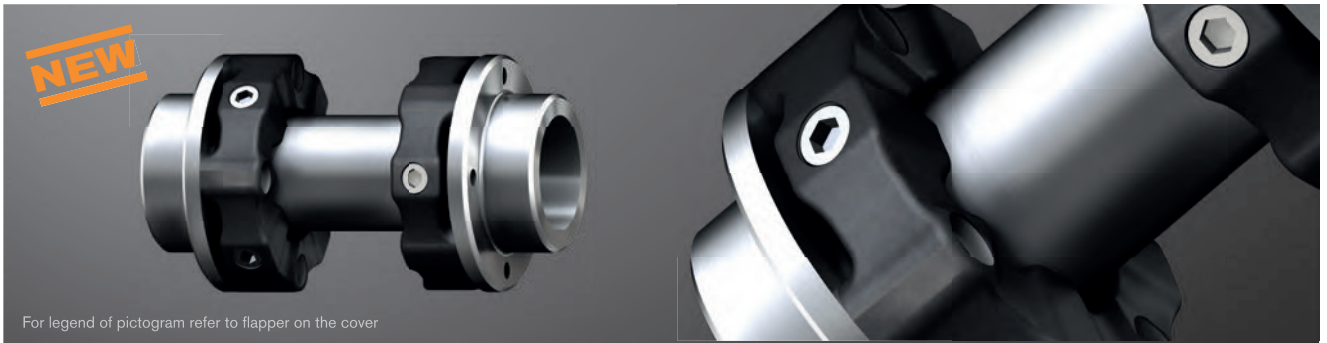
Highly flexible shaft couplings

BoWex-ELASTIC® HEW Compact

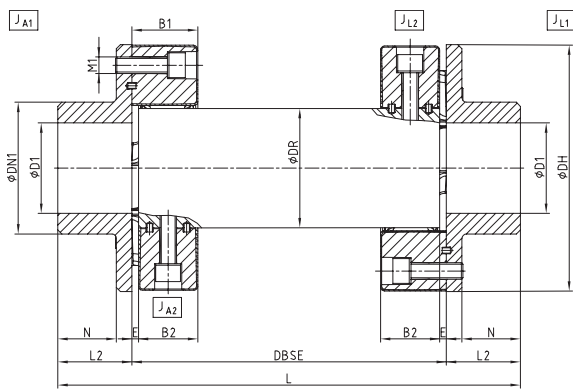
EVOLASTIC® D2H

Highly flexible couplings

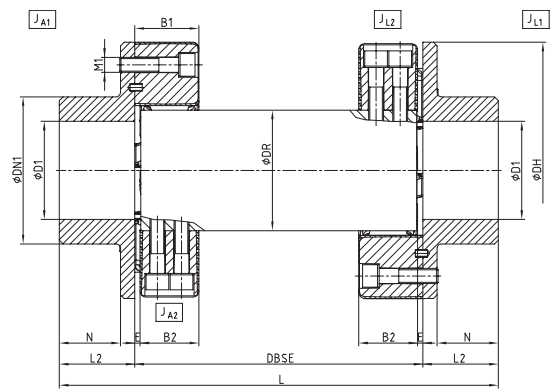
Double-cardanic shaft-to-shaft connection



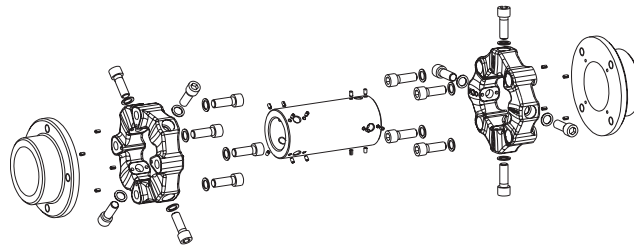
For legend of pictogram refer to flapper on the cover



Size 12 - 280



Size 360 - 560



EVOLASTIC® type D2H

Size	Dimensions [mm]										Mass moment of inertia [kgm ²] ¹⁾	
	Max. finish bore D1	DH	DN1	DR	B1	B2	E	L2	N	M1	JA1	JL1
	12	55	122	80	60	32	28	4	42	32	M10	0.003
24	70	150	100	70	42	36	6	50	38	M12	0.008	0.008
32	70	150	100	70	42	36	6	50	38	M12	0.009	0.009
48	85	170	115	85	46	40	6	55	41	M14	0.016	0.016
60	100	200	140	100	58	50	8	66	50	M16	0.036	0.036
86	100	200	140	100	58	50	8	66	50	M16	0.037	0.037
125	110	260	160	125	70	63	7	80	60	M20	0.111	0.111
200	110	260	160	125	70	63	7	80	60	M20	0.116	0.116
280	110	300	160	145	80	72	8	94	70	M20	0.196	0.196
360	130	340	195	160	85	78	7	100	80	M20	0.354	0.354
560	140	370	200	170	105	95	10	125	100	M24	0.589	0.589

¹⁾ With max. bore
Dimension L and DBSE as well as total weight depend on the mounting length
Mass moments JA2 and JL2 depend on the mounting length and are available on request

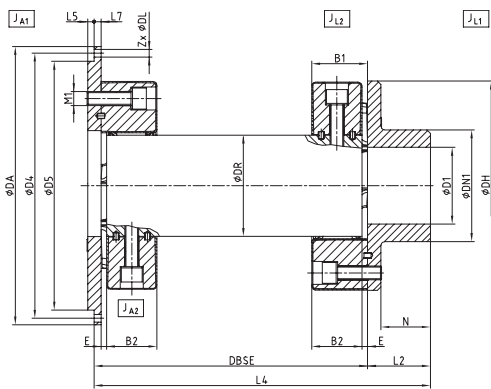
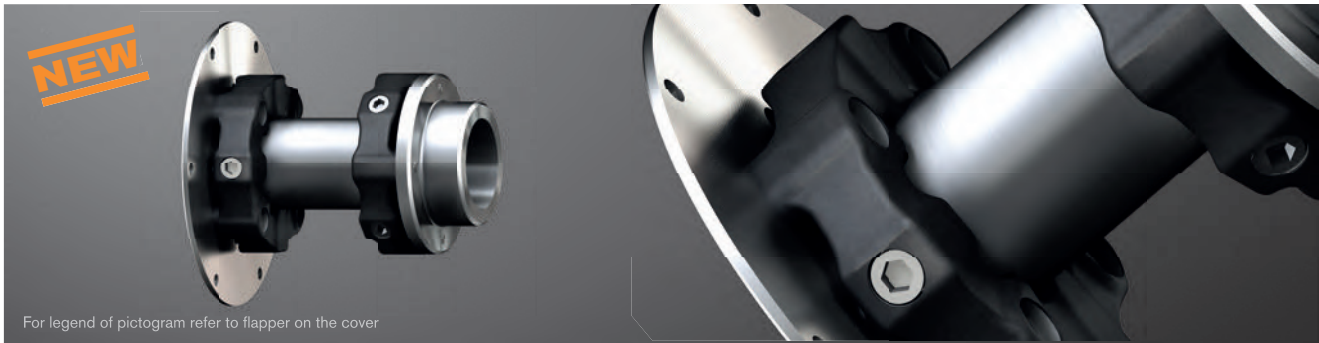
Ordering example:

EVOLASTIC® 48	D2H	140	S	1.0	Ø52	1.0	Ø52
Coupling size	Type	Shaft distance DBSE	Elastomer hardness	Hub type	Finish bore	Hub type	Finish bore

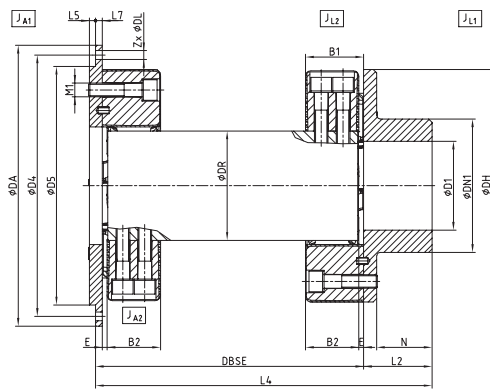
EVOLASTIC® DFH

Highly flexible couplings

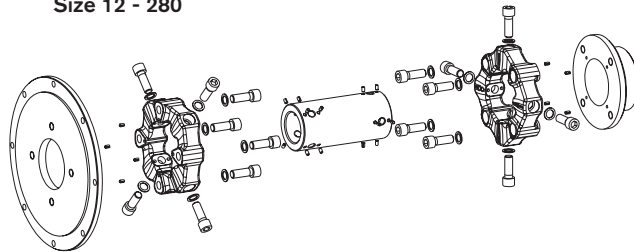
Double-cardanic flange-to-shaft connection



Size 12 - 280



Size 360 - 560



Flange dimensions according to SAE J620 [mm]				
Size	DA	D4	Z	DL
6 1/2"	215.90	200.02	6	9
7 1/2"	241.30	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13

EVOLASTIC® type DFH																					
Size	Flange connection acc. to SAE - J620						Dimensions [mm]											Mass moment of inertia [kgm ²] ¹⁾			
	6.5"	7.5"	8"	10"	11.5"	14"	Max. finish bore D1	DH	DN1	DR	B1	B2	E	L5	L7	L2	N	M1	D5	JA1	JL1
12	●						55	122	80	60	32	28	4	4	6	42	32	M10	180	0.013	0.003
24	●						70	150	100	70	42	36	6	6	6	50	38	M12	180	0.016	0.008
32	●	●					70	150	100	70	42	36	6	6	6	50	38	M12	180	0.016	0.009
	●																		190	0.023	
		●																	190	0.026	
48			●				85	170	115	85	46	40	6	8	6	55	41	M14	200	0.034	0.016
				●										4	10				260	0.091	
60				●			100	200	140	100	58	50	8	6	10	66	50	M16	270	0.103	0.036
					●														310	0.165	
86					●		100	200	140	100	58	50	8	6	10	66	50	M16	270	0.105	0.037
						●													310	0.166	
125						●	110	260	160	125	70	63	7	9	10	80	60	M20	270	0.129	0.111
																			310	0.199	
200						●	110	260	160	125	70	63	7	9	10	80	60	M20	270	0.135	0.116
																			310	0.205	
																			405	0.572	
280						●	110	300	160	145	80	72	8	9	10	94	70	M20	310	0.226	0.196
																			405	0.593	
360						●	130	340	195	160	85	78	7	9	10	100	80	M20	405	0.628	0.354
560						●	140	370	200	170	105	95	10	15	10	125	100	M24	405	0.794	0.589

¹⁾ With max. bore
Dimension L4 and DBSE as well as total weight depend on the mounting length
Mass moments JA2 and JL2 depend on the mounting length and are available on request

Ordering example:	EVOLASTIC® 48	DFH	140	S	8	1.0	Ø52
	Coupling size	Type	Shaft distance DBSE	Elastomer hardness	Flange ØDA acc. to SAE or special	Hub type	Finish bore

EVOLASTIC®

Highly flexible shaft couplings

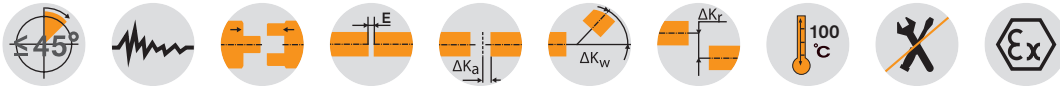
BoWex-ELASTIC® HEW Compact

BoWex-ELASTIC® HEW Compact Curved-tooth gear coupling®

Compensating for large displacements, very compact design



For legend of pictogram refer to flapper on the cover

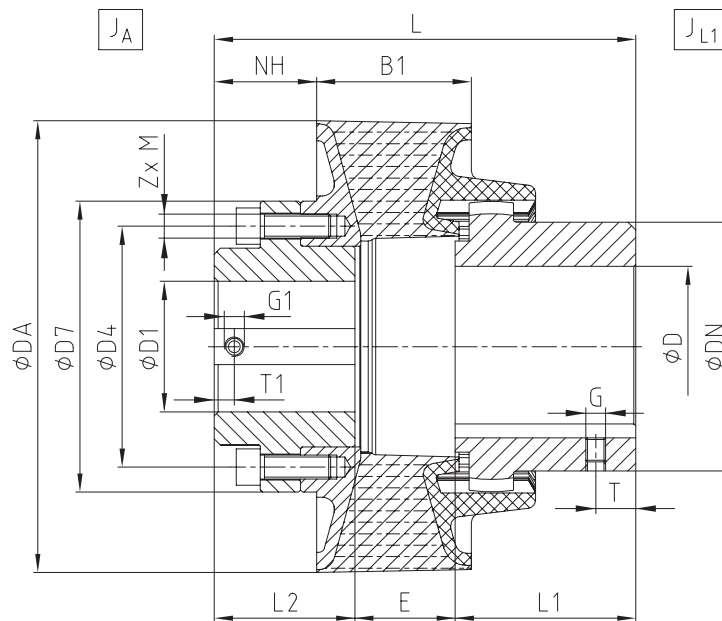


BoWex-ELASTIC® type HEW Compact																							
Size	Dimensions [mm]																		Weight with pilot bored coupling [kg]	Mass moment of inertia with pilot bored coupling [kgm²]			
	Max. finish bore		L		L1		L2	E		DA	DN	DN1	D4	D7	B1	NH	Z	M		JA	JL1	JL2	
	D	D1	HEW1	HEW2	HEW1	HEW2		HEW1	HEW2														
42-130	42	42	118	98	42	42	42	34	14	131	65	65	78	90	45	37	6	M6	3.4	0.003	0.001	0.001	
60-180	65	60	145	122	55	55	60	30	7	180	98	85	110	130	44	47	8	M10	9.0	0.014	0.006	0.006	
80-225	90	75	210	158	90	70	70	50	18	225	124	100	120	145	77	51	10	M12	18.9	0.035	0.029	0.021	
100-305	100	100	258	187	110	70	90	58	17	305	152	170	175	200	90	73	16	M12	40.2	0.152	0.087	0.068	
125-365	125	125	328	240	140	100	120	68	20	365	192	170	205	230	105	90	12	M16	75.0	0.360	0.260	0.192	

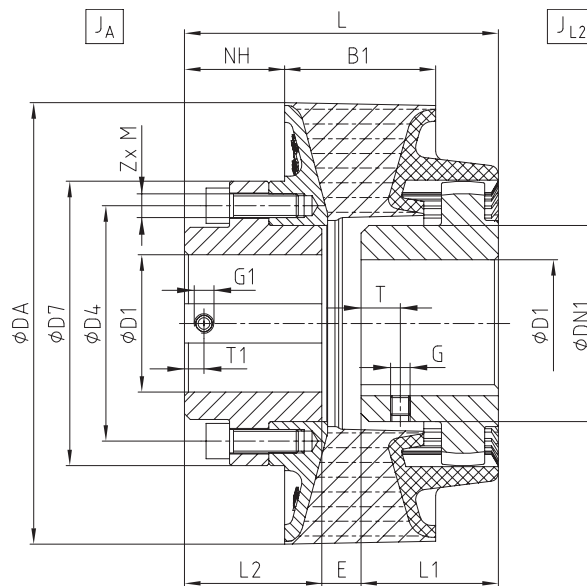
Technical data															
Coupling size	Elastomer hardness [Shore A]	Torque [Nm]			Perm. speed n _{max} [rpm]	Perm. damping power			Dynamic torsion spring stiffness C _{dyn} [Nm/rad]	Relative damping ψ	Resonance factor V _R =2·Π/ψ	Radial spring stiffness C _r [N/mm]			
		TK	TK max.	with 10 Hz TKW		PKW									
						60 °C	80 °C	90 °C							
42 HEW Compact	T50	200	400	50	7300	30	18	12	780	0.8	7.9	178			
	T65	270	540	68					2400				1.2	5.2	600
	T70	320	640	80					2900						
65 HEW Compact	T50	550	1100	138	5500	55	33	22	2850	0.8	7.9	379			
	T65	740	1500	185					7800				1.2	5.2	955
	T70	860	1700	215					9500						
80 HEW Compact	T50	1250	2500	313	4400	90	54	36	5000	0.8	7.9	420			
	T65	1600	3200	400					13000				1.2	5.2	1090
	T70	1900	3800	475					16500						
100 HEW Compact	T50	2750	5500	688	3200	150	90	60	17000	0.8	7.9	760			
	T65	3900	7800	975					44000				1.2	5.2	1850
	T70	4500	9000	1125					50000						
125 HEW Compact	T50	5500	11000	1375	2900	220	132	88	25000	0.8	7.9	750			
	T65	7500	15000	1875					62000				1.2	5.2	1930
	T70	8400	16800	2100					70000						

Ordering example:	BoWex® 65 HEW Compact	T50	d ₁ Ø40	d ₂ Ø65
	Size and type of coupling	Elastomer hardness	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)

BoWex-ELASTIC® HEW1 Compact



BoWex-ELASTIC® HEW2 Compact (with reduced hub)



Displacements – type HEW Compact															
BoWex-ELASTIC® size	42-130			65-180			80-225			100-305			125-365		
Elastomer hardness [Shore A]	T50	T65	T70	T50	T65	T70	T50	T65	T70	T50	T65	T70	T50	T65	T70
Max. axial displacement ΔK_a [mm]	± 2			± 2			± 2			± 2			± 2		
Max. radial displacement with $n=1500$ rpm ΔK_r [mm]	± 1.1	± 1	± 0.5	± 1.6	± 1.5	± 0.7	± 1.8	± 1.7	± 0.8	± 2.2	± 2	± 1	± 2.5	± 2.3	± 1.1
Max. radial displacement with $n=3000$ rpm ΔK_r [mm]	± 0.55	± 0.5	± 0.25	± 0.8	± 0.75	± 0.35	± 0.9	± 0.85	± 0.5	± 1.1	± 1	± 0.5	± 1.25	± 1.15	± 0.55
Max. angular displacement with $n=1500$ rpm ΔK_w [degree]	± 1	± 0.75	± 0.5	± 1	± 0.75	± 0.5	± 1	± 0.75	± 0.4	± 1	± 0.75	± 0.5	± 1	± 0.75	± 0.5
Max. angular displacement with $n=3000$ rpm ΔK_w [degree]	± 0.5	± 0.4	± 0.25	± 0.5	± 0.4	± 0.25	± 0.5	± 0.4	± 0.5	± 0.5	± 0.25	± 0.25	± 0.5	± 0.4	± 0.25

EVOLASTIC®

Highly flexible shaft couplings

BoWex-ELASTIC® HEW Compact



flange couplings

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BoWex®

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BoWex-ELASTIC®

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SINULASTIC®

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BoWex® FLE-PAC



MONOLASTIC®



BoWex-ELASTIC®







SINULASTIC®



FLANGE COUPLINGS

TYPES AND OPERATING DESCRIPTION

Properties of flange couplings

				
Product	BoWex® FLE-PA/-PAC	MONOLASTIC®	BoWex-ELASTIC®	SINULASTIC®
Type	Torsionally stiff flange coupling	Flexible flange coupling	Highly flexible flange coupling	Highly flexible flange coupling
Properties				
Torsionally stiff	●			
Torsionally flexible		●		
Highly flexible			●	●
Damping vibrations		●	●	●
Maintenance-free	●	●	●	●
Axial plug-in	●	●	●	●
Special features/applications				
Variant diversity	very high	high	very high	very high (type A, B, T, V)
Flange dimension	SAE standard and special dimensions	type 3/4 hole, SAE standard and special dimensions	SAE standard and special dimensions	SAE standard and special dimensions
internal spline	see standard programme of BoWex® hubs	for SAE or DIN pump shafts	see standard programme of BoWex® hubs	Type B
Applications	hydrostatic drives of construction machines, agricultural machines, ...	hydrostatic drives of construction machines, agricultural machines, ...	generators, splitterboxes, water pumps, piston compressors, agricultural machines, gensets, mill drives, separator drives, ...	generators, gensets, splitterboxes, traction drives, hydraulic pumps, piston compressors, ...
Performance data				
Max. rated torque T_{KN} [Nm]	6,600	1,850	70,000	25,000
Max. speed n [rpm]	6,000	6,000	6,200	3,800
Flange (standard and special)				
Material	fibre-glass reinforced polyamide (PA)	natural rubber	natural rubber	natural rubber, EPDM, silicone
	combination of polyamide with carbon fibre share and steel flange (PAC)			
Elastomer hardness	torsionally stiff	65, 70 Shore A	various kinds of hardness for vibration adaptation of drives	miscellaneous: S, M, H, U
Flange (standard)				
Temperature range [°C] min./max.	-25 / +130 (PA)	-40 / +100	-40 / +100	-40 / +120
	-25 / +130 (PAC)			
Engine power [kW]				
Max.	800	250	5,000	3,500

● ≈ Standard

○ ≈ On request

* ≈ Depending on size

FLANGE COUPLINGS

TYPES AND OPERATING DESCRIPTION

Product finder of flange couplings

Product	BoWex® FLE-PA/-PAC	MONOLASTIC®	BoWex-ELASTIC®	SINULASTIC®
Type	Torsionally stiff flange coupling	Flexible flange coupling	Highly flexible flange coupling	Highly flexible flange coupling
Geometries				
Design	extremely short	short	short	short
max. radial displacement	0.5 mm	1 mm	9.5 mm	3 mm
shaft diameter min./max. [mm]	20 / 125	20 / 60	21 / 275	20 / 240
Types (extract)				
Intermediate shaft types » bridging larger shaft distances	–	–	HE-ZS	Type B and V
shaft-to-shaft connection		–	HEW1 and HEW2, HEW-ZS	○
flange-to-shaft connection	Standard	Standard	HE1, HE2, HE3 and HE4, HE-ZS	●
For cardan shafts » connecting couplings for I. C.-engines	–	–	HEG1 and HEG2	
Combination with pump mounting flange	●	●	●	●
Certifications / type examinations				
ATEX 			●	○
Bureau Veritas 	●		●	○
DNV/GL 			●	○
GOST R / GOST TR 	●	●	●	○

● ≈ Standard

Please note: Pump mounting flanges



For connecting hydraulic pumps to the diesel engine, KTR supplies mounting flanges according to SAE connection dimensions sizes SAE 6 to SAE 1. These flanges are made of steel and EN-GJL-250 for hydraulic pumps with flange connections according to SAE-A, -B, -C, -D and -E as types with 2 and 4 holes.
Pump connection housings made of EN-GJL-250 to be mounted directly to the back plate of the engine.

Miscellaneous pump mounting flange designs



Electrogalvanized and (white) passivated

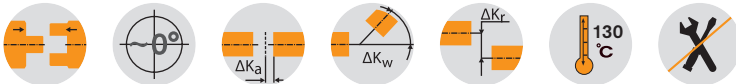
Primed
(machined surfaces bright)

CDP

BoWex® FLE-PA

Torsionally stiff flange couplings

Axial plug-in, maintenance-free, torsionally stiff



BoWex® FLE-PA – Dimensions/nominal dimension acc. to SAE																			
Size	Pilot bore	Finish bore d		Dimensions [mm]								Special length l1 max.	Nominal size acc. to SAE (Dg)						Max. axial displacement [mm]
		min.	Max.	D	D1	I1	I3	I7	I8	I10	I11		6 1/2"	7 1/2"	8"	10"	11 1/2"	14"	
48	-	20	48	68	100	50	41	50	20	13	48	up to 60	●	●	●	●			± 2
T 48	13	15	48	68	100	50	38	45	20	13	46	-	●	●	●	●			± 1
T 55	17	20	55	85	115	50	37	48	24	13	48	-	●	●	●	●			± 2
65 / T 65	21	30	65	96	132	55	45	54	27	21	51	up to 70			●	●	●		± 2
T 70	26	30	70	100	153	60	48	56	30	21	57	-				●			± 2
80 / T 80	31	35	90	124	170	90	78	87	30	21	87	-				●	●		± 2
100 / T 100	38	40	100	152	265	110	78	108	35	21	110	-					●	●	± 2
125 / T 125	45	50	125	192	250	140	113	140	50	28	97	-					●	●	± 2

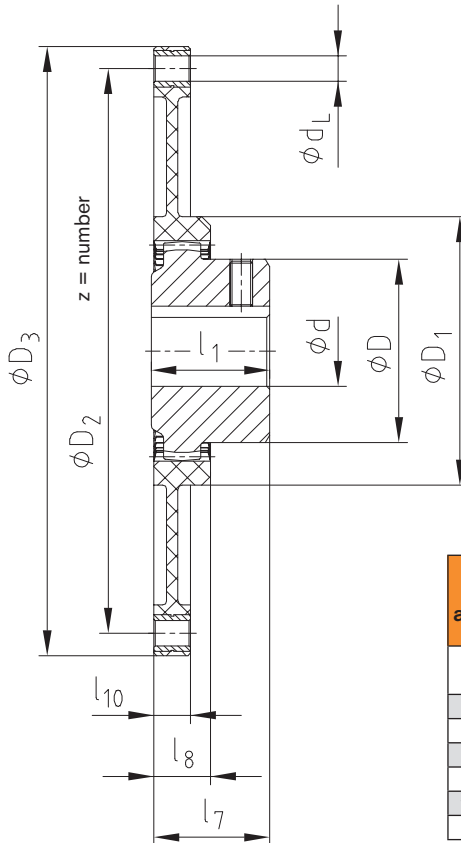
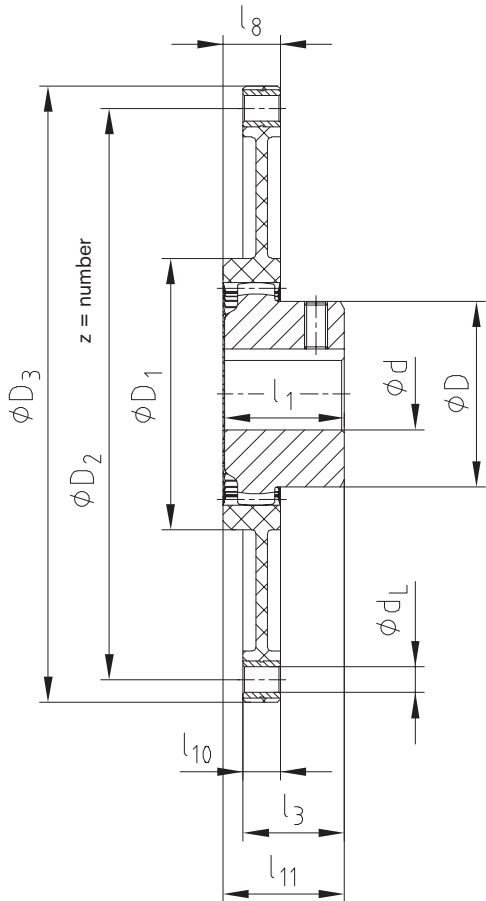
Special flange dimensions see page 222 et seqq. and on request

Technical data of BoWex® FLE-PA – Torques/weights/mass moments of inertia/torsion spring stiffness																
Size	Torque TK [Nm]			Weight/mass moment of inertia J	Hub with max. bore	FLE-PA flanges according to SAE						Dynamic torsion spring stiffness with +60 °C/ψ = 0.4 [Nm/rad]				
	TKN	TK max.	TKW			6 1/2"	7 1/2"	8"	10"	11 1/2"	14"	0.30 TKN	0.50 TKN	0.75 TKN	1.00 TKN	
48	240	600	120	[kg]	0.79	0.32	0.43	0.51	0.64	-	-	35 x 10³	75 x 10³	105 x 10³	125 x 10³	
				[kgm²]	0.0007	0.0021	0.0035	0.0049	0.0085							
T 48	300	750	150	[kg]	0.79	0.32	0.43	0.51	0.64	-	-	40 x 10³	86 x 10³	120 x 10³	143 x 10³	
				[kgm²]	0.0007	0.0021	0.0035	0.0049	0.0085							
T 55	450	1125	225	[kg]	1.20	0.34	0.62	0.45	0.646	-	-	90 x 10³	140 x 10³	170 x 10³	195 x 10³	
				[kgm²]	0.0016	0.0022	0.0053	0.0044	0.0086							
65	650	1600	325	[kg]	1.50	-	-	0.63	0.64	0.89	-	110 x 10³	160 x 10³	200 x 10³	230 x 10³	
				[kgm²]	0.0027			0.0064	0.0065	0.012						
T 65	800	2000	400	[kg]	1.60	-	-	0.63	0.64	0.89	-	130 x 10³	190 x 10³	240 x 10³	280 x 10³	
				[kgm²]	0.0035			0.0064	0.0065	0.012						
T 70	1000	2500	500	[kg]	2.60	-	-	-	0.941	-	-	165 x 10³	315 x 10³	345 x 10³	368 x 10³	
				[kgm²]	0.0059				0.0132							
80	1200	3000	600	[kg]	5.20	-	-	-	1.05	1.12	-	200 x 10³	410 x 10³	580 x 10³	700 x 10³	
				[kgm²]	0.0151				0.015	0.022						
T 80	1500	3750	750	[kg]	5.20	-	-	-	1.05	1.12	-	240 x 10³	450 x 10³	638 x 10³	770 x 10³	
				[kgm²]	0.0151				0.015	0.022						
100	2050	5150	1025	[kg]	9.37	-	-	-	-	1.16	8.45	500 x 10³	700 x 10³	856 x 10³	950 x 10³	
				[kgm²]	0.0401					0.021	0.234					
T 100	2500	6250	1250	[kg]	9.37	-	-	-	-	1.16	8.45	600 x 10³	830 x 10³	960 x 10³	1070 x 10³	
				[kgm²]	0.0401					0.021	0.234					
125	4250	10700	2125	[kg]	19.73	-	-	-	-	2.09	9.85	1280 x 10³	1885 x 10³	2280 x 10³	2665 x 10³	
				[kgm²]	0.1359					0.043	0.306					
T 125	5300	13250	2650	[kg]	19.73	-	-	-	-	2.09	9.85	1600 x 10³	2250 x 10³	2700 x 10³	3200 x 10³	
				[kgm²]	0.1359					0.043	0.306					

Mounting procedure, screw type with property class, tightening torques as per KTR assembly instructions (see www.ktr.com).

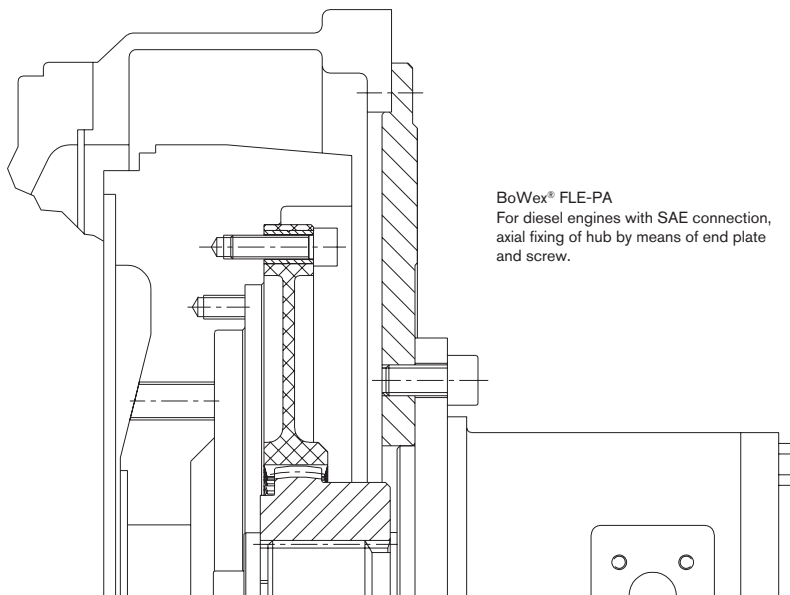
Short mounting version

Long mounting version



Flange dimensions according to SAE J620 [mm]				
Size	D ₃	D ₂	z	d _L
6 1/2"	215.9	200.02	6	9
7 1/2"	241.3	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13

Example of installation

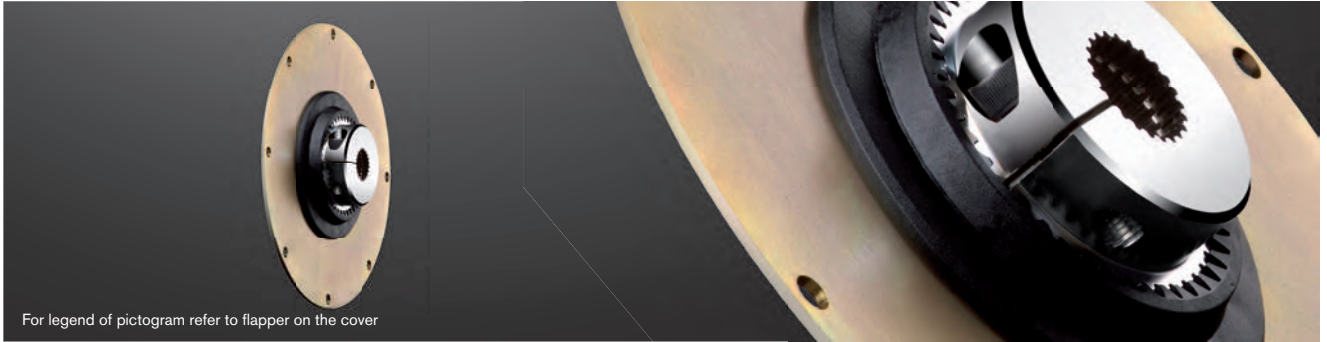


BoWex® FLE-PA
For diesel engines with SAE connection,
axial fixing of hub by means of end plate
and screw.

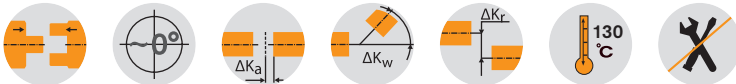
BoWex® FLE-PAC

Torsionally stiff flange couplings

Axial plug-in, extremely short design, carbon-fibre reinforced material



For legend of pictogram refer to flapper on the cover



BoWex® FLE-PAC – Dimensions/nominal dimension to SAE

Size	Pilot bore	Finish bore d		Dimensions [mm]							Special length l ₁ max.	Nominal size acc. to SAE (D ₃)						Max. axial displacement [mm]
		min.	Max.	D	D ₁	l1	l3	l7	l8	l10		6 1/2"	7 1/2"	8"	10"	11 1/2"	14"	
48 / T 48	13	15	48	68	110	50	35	46	25	3	up to 60	●	●	●	●			± 3
T 55	17	20	55	85	148	50	32	42	28	3	-	●	●	●	●			± 3
65 / T 65	21	30	65	96	165	55	36	46	32	4	up to 70	●	●	●	●	●		± 3
80 / T 80	31	35	90	124	220	90	72	76	35	4	-				●	●	●	± 3
100 / T 100	38	40	100	152	280	110	85	102	47	5	-					●	●	± 3
125 / T 125	45	50	125	192	250	140	113	140	50	28	-					●	●	± 3

Special flange dimensions deviating from SAE standard are also available.

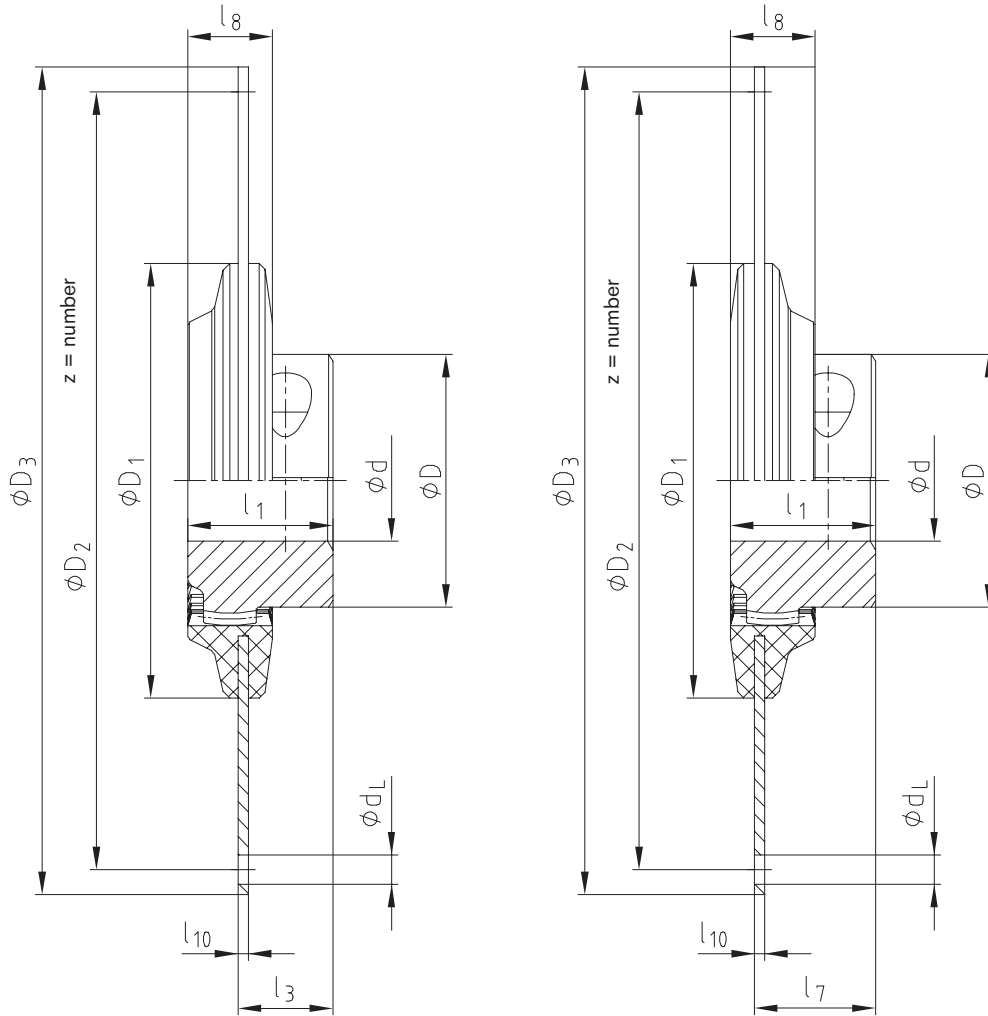
Technical data of BoWex® FLE-PAC – Torques/weights/mass moments of inertia/torsion spring stiffness

Size	Torque T _K [Nm]			Weight/mass moment of inertia J	Hub with max. bore	FLE-PAC flanges according to SAE						Dynamic torsion spring stiffness with +60 °C/ψ = 0.45 [Nm/rad]						
	T _{KN}	T _{K max.}	T _{KW}			6 1/2"	7 1/2"	8"	10"	11 1/2"	14"	0.30 T _{KN}	0.50 T _{KN}	0.75 T _{KN}	1.00 T _{KN}			
48	300	600	150	[kg]	0.79	0.77	0.98	1.19	1.73									
				[kgm ²]	0.0007	0.0049	0.0077	0.0109	0.0221									
T 48	370	740	185	[kg]	0.79	0.77	0.98	1.19	1.73									
				[kgm ²]	0.0007	0.0049	0.0077	0.0109	0.0221									
T 55	550	1100	275	[kg]	1.20	0.74	0.95	1.16	1.7									
				[kgm ²]	0.0016	0.0049	0.0077	0.0109	0.0222									
65	800	1600	400	[kg]	1.50	0.93	1.2	1.48	2.20	2.83								
				[kgm ²]	0.0027	0.0065	0.0101	0.0145	0.0294	0.0467								
T 65	1000	2000	500	[kg]	1.60	0.93	1.2	1.48	2.20	2.83								
				[kgm ²]	0.0035	0.0065	0.0101	0.0145	0.0294	0.0467								
80	1500	3000	750	[kg]	5.20				2.27	2.90	5.20							
				[kgm ²]	0.0151				0.0312	0.0485	0.1462							
T 80	1850	3700	925	[kg]	5.20				2.27	2.90	5.20							
				[kgm ²]	0.0151				0.0312	0.0485	0.1462							
100	2550	5100	1275	[kg]	9.37							3.35	6.22					
				[kgm ²]	0.0401										0.0606	0.1828		
T 100	3100	6200	1550	[kg]	9.37							3.35	6.22					
				[kgm ²]	0.0401										0.0606	0.1828		
125	5350	10700	2675	[kg]	19.73							2.09	9.85					
				[kgm ²]	0.1359										0.0606	0.1828		
T 125	6600	13200	3300	[kg]	19.73							2.09	9.85					
				[kgm ²]	0.1359										0.0606	0.1828		

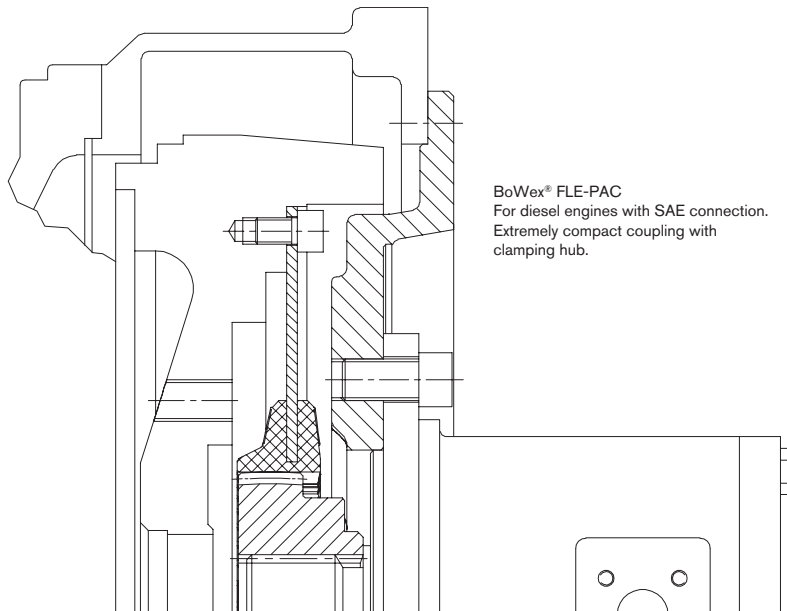
Mounting procedure, screw type with property class, tightening torques as per KTR assembly instructions (see www.ktr.com).

Short mounting version

Long mounting version



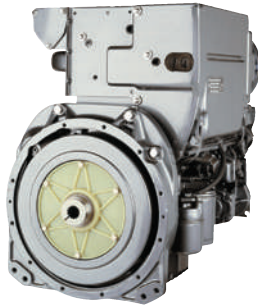
Flange dimensions according to SAE J620 [mm]				
Size	D ₃	D ₂	z	d _L
6 1/2"	215.9	200.02	6	9
7 1/2"	241.3	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	14



BoWex® FLE-PA / FLE-PAC

Torsionally stiff flange couplings

Selection according to SAE standard



Determination of coupling

- Determination of coupling size
- Connection dimension of coupling
- Hub type/mounting length

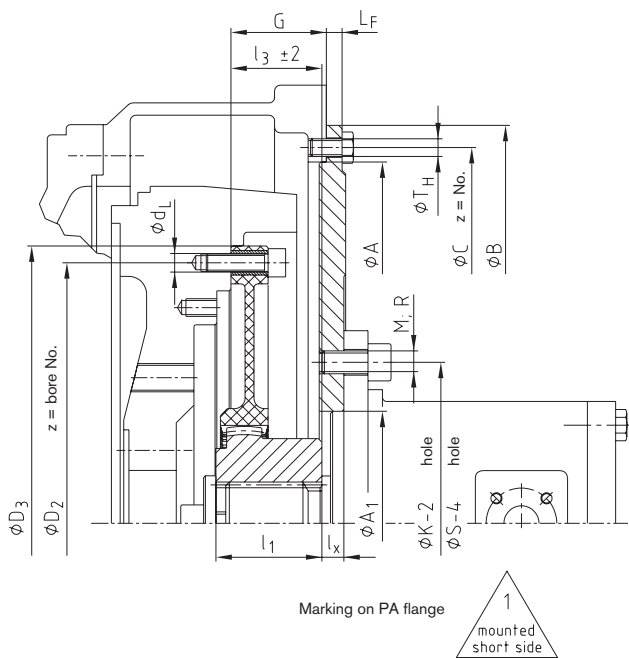
- Table 1
- Table 2
- Table 3

SAE pump mounting flange

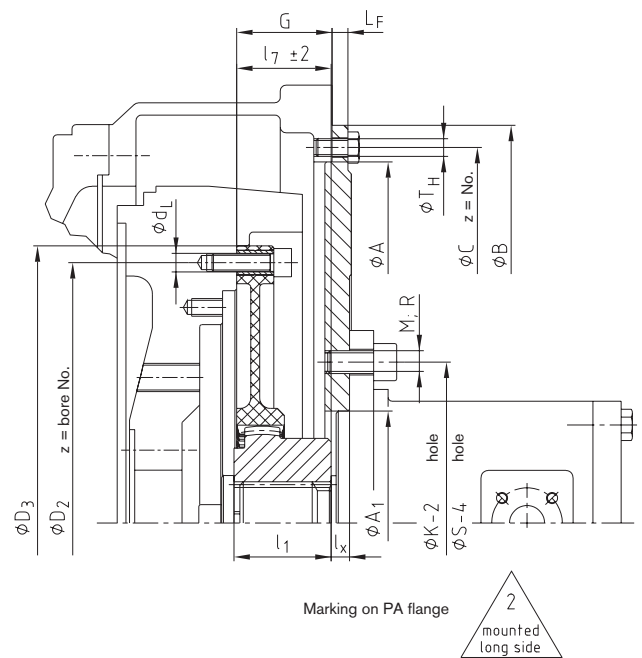
- Flange size according to SAE 617
- Connection flange of hydraulic pump

- Table 4
- Table 5

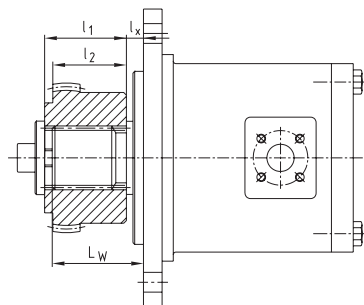
Short mounting version of coupling (l₃)



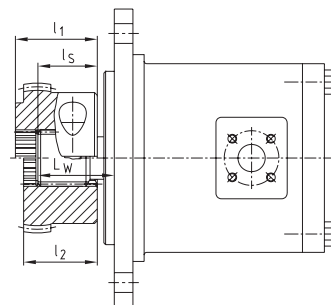
Long mounting version of coupling (l₇)



Spline hub



Clamping hub



Determination of mounting length l₃ or l₇

SAE shaft	$l_3 / l_7 = G + LF - LW + l_S$
DIN shaft	$l_3 / l_7 = G + LF - l_X$

If axial fixing of the hub by means of an end plate and a screw is not possible for a pump shaft with involute spline, a clamping hub should be used.

Mounting instructions:

The flange can be fastened to the engine flywheel by means of socket head cap screws according to DIN EN ISO 4762 strength class 8.8 or by hexagon head screws strength class 8.8. We recommend screws are loctited in position.

Screw tightening torque of FLE-PA flange on the flywheel

M8	25 Nm
M10	49 Nm
M12	86 Nm

Screw tightening torque of spline clamping hubs DIN EN ISO 4762

42/48	M10	49 Nm
T55/65/T70	M12	86 Nm
80/100/125	M16	210 Nm

BoWex® FLE-PA / FLE-PAC

Torsionally stiff flange couplings

Mounting dimensions according to SAE standard

1. Selection of coupling for diesel engine											
Diesel engine power		Coupling size	Flywheel acc. to SAE			Pump mounting flange		Driving shaft of pump	For dimensions to SAE see tables 3 and 4		
kW	PS		G			LF					
up to 40	up to 55	48 FLE-PA	6 1/2"	30.15	1.19"	9.5	0.375"	See Table 3 hub type SAE J 498/DIN 5480			
			7 1/2"	30.15	1.19"						
			8	62	2.44"						
			10	54	2.12"						
up to 75	up to 100	T55 FLE-PA	6 1/2"	30.15	1.19"	9.5	0.375"				
			7 1/2"	30.15	1.19"						
			8	62	2.44"						
			10	54	2.12"						
up to 90	up to 120	65 FLE-PA	8	62	2.44"	9.5	0.375"				
			10	54	2.12"						
			11 1/2"	39.6	1.56"						
up to 150	up to 200	T70 FLE-PA	10	54	2.12"	9.5	0.375"				
			10	54	2.12"						
up to 180	up to 240	80 FLE-PA	11 1/2"	39.6	1.56"	9.5	0.375"				
			11 1/2"	39.6	1.56"						
up to 285	380	100 FLE-PA	14	25.4	1"	12.7	0.5"				
			11 1/2"	39.6	1.56"						
up to 540	720	125 FLE-PA	14	25.4	1"						

2. Dimensions of coupling flange according to SAE J620 [mm]				
Nominal size	D ₃	D ₂	z = number	d _L
6 1/2"	215.90	200.02	6	9
7 1/2"	241.30	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	14

3. Selection of coupling hubs - Determination of mounting length l ₃ or l ₇																
BoWex® coupling size	Pump shaft to SAE J 498 and DIN 5480	Splines hub	Splines clamping hub	Dimensions of coupling hub [mm]			Mounting length of coupling l ₃ or l ₇								Code to order coupling hub Specify coupling size	
							Flange size 6 1/2" and 7 1/2"		Flange size 8"		Flange size 10"		Flange size 11 1/2"			
				l ₁	l ₂	l ₃	K	L	K	L	K	L	K	L		K
42	SAE-16/32 DP PI-S 3/4" z = 11	x	x	42	-	33	33	42								P559101
42	SAE-16/32 DP PB-S 1/8" z = 13	x	x	42	-	-	33	42								P567101
42	SAE-16/32 DP PB-BS 1" z = 15	x	x	42	-	27	33	42								P660201
48	SAE-16/32 DP PA-S 1 3/8" z = 21	x	x	50	-	45	41	50	50	41	50					P663301
65	SAE-12/24 DP PC-S 1 1/4" z = 14	x	x	55	-	44			54	45	54	41				P656201
65	SAE-16/32 DP PD-S 1 1/2" z = 23	x	x	-	49	45					53	41				P664301
80	SAE-16/32 DP PE-S 1 3/4" z = 27	x	x	55	-	-						33	44			P665402
42	25 x 1.25 x 18	x	x	42	-	-	33	42								P000205
42	DIN 5480	x	x	42	-	-	33	42								P500202
42	30 x 2 x 14	x	x	42	-	-	33	42								P500203
48	DIN 5480	x	x	50	-	-	41	50								P000206
48	35 x 2 x 16	x	x	50	-	-	41	50	50		50					P500203
48	DIN 5480	x	x	46	-	-	37	46								P000303
65	45 x 2 x 21	x	x	55	-	-					54	39				P000303
65	DIN 5480	x	x	60	-	-			50	59	50	59	39			P500301
65	40 x 2 x 18	x	x	55	-	-					54	39				P000304
65	DIN 5480	x	x	55	-	-				54	45	54	39			P500302
65	50 x 2 x 24	x	x	-	64	-			60	69	60	69	39			P000403
65	DIN 5480	x	x	55	-	-			54	45	54	39				P500401
80	50 x 2 x 24 DIN 5480	x	x	55	-	-						37	42			P500405

Shown above is a small overview of splines available, other SAE or DIN splines are also available. KTR splines are designed for shaft tolerances SAE class 5 resp. DIN 5480 9g.

4. Housing dimensions according to SAE 617 [mm]						
SAE size	A	B	C	Z	TH	
SAE-1	511.18	552	530.2	12	M10	3/8"
SAE-2	447.68	489	466.7	12	M10	3/8"
SAE-3	409.58	451	428.6	12	M10	3/8"
SAE-4	361.95	403	381.0	12	M10	3/8"
SAE-5	314.33	356	333.4	8	M10	3/8"
SAE-6	266.7	308	285.7	8	M10	3/8"

5. Mounting flange for hydraulic pump acc. to SAE [mm]									
SAE size	SAE flange with 2 holes					SAE flange with 4 holes			
	A ₁	K-2	M	Z		A ₁	S-4	R	Z
A	82.55	106.4	M10 3/8"	2		82.55	104.6	M10 3/8"	4
B	101.6	146.0	M12 1/2"	2		101.6	127.0	M12 1/2"	4
C	127.0	181.0	M16 5/8"	2		127.0	162.0	M16 5/8"	4
D	152.4	228.6	M16 5/8"	2		152.4	228.6	M16 5/8"	4
E	-	-	-	-		165.1	317.5	M20 3/4"	4

Ordering example: Coupling FLE-PA/FLE-PAC			SAE pump mounting flange	
BoWex® 48 FLE-PA	7 1/2"	P663301	SAE-4	B-2L
Coupling size	SAE connection of coupling	Code of coupling hub	Pump mounting flange for engine housing	Pump flange acc. to SAE 2 holes/4 holes standard metric fastening thread
Table 1	Table 2	Table 3	Table 4	Table 5

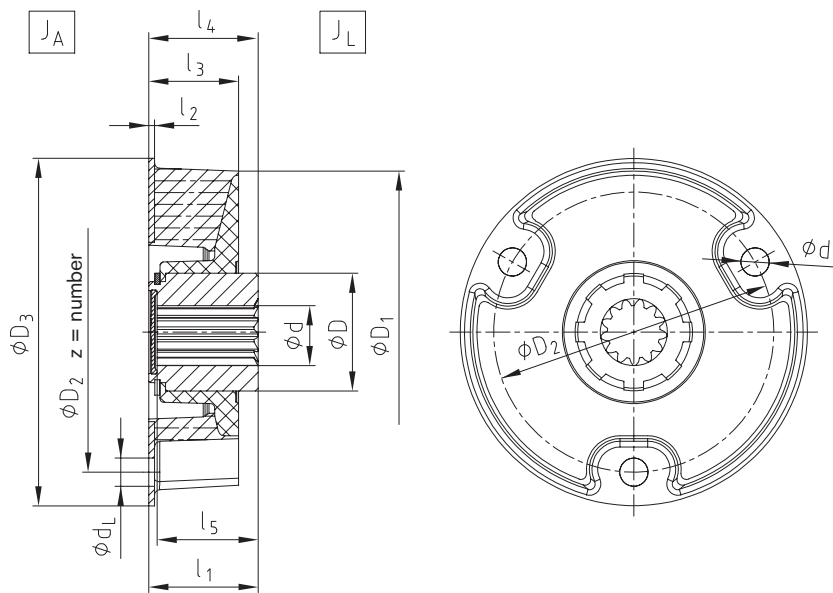
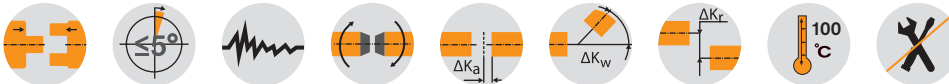
MONOLASTIC®

One-piece, flexible flange couplings

Type with 3 holes (EP 0853203/U.S. Patent 6,117,017)



For legend of pictogram refer to flapper on the cover



MONOLASTIC®																
Size	Elastomer hardness [Shore A]	Torque [Nm]			Dimensions [mm]											
		T _{KN}	T _{K max.}	T _{KW}	d	D	D ₁	D ₂	z	d _L	D ₃	l ₁	l ₂	l ₃	l ₄	l ₅
22	T65	40	100	20	20	34	93	80	3	8.10	100	33	1.5	32	34	30
	T65	70	175	35	25	42	115	100	3	10.10	124	40	2	32	40	38
28	T70	100	250	50	32	50	140	125	3	12.10	150	42	2	42	43	38
	T65	160	400	80	32	50	140	125	3	12.10	150	42	2	42	43	38
32	T70	225	562	112	32	50	140	125	3	12.10	150	42	2	42	43	38
50-140	T70	260	650	130	32	50	167	140	3	14.10	175	46	3	35	46	43
50-165	T70	300	750	150	32	50	175	165	3	16.15	200	46	3	35	46	43
50-170	T70	300	750	150	32	50	175	170	3	16.15	200	46	3	35	46	43
60-165	T70	400	1000	200	48	68	191	165	3	16.15	205	50	3	40	55	46

Technical data									
Size	Elastomer hardness [Shore A]	C _{dyn.} with 60 °C [Nm/rad]	Perm. damping power with 60 °C P _{KW} [W]	Max. displacement with 2200 rpm ΔK _r [mm]	Perm. angular displacement with 2200 rpm ΔK _w [°]	Radial spring stiffness C _r [N/mm]	Mass moment of inertia [kgm ²]		Perm. operating speed n _{max.} [rpm]
							J _A	J _L	
22	T65	600	10	0.6		200	0.00017	0.00010	6000
28	T65	900	15	0.5		400	0.00054	0.00033	6000
32	T65	1800	25	0.5	1	500	0.00120	0.00081	6000
50-140		4200	35	0.5		1365	0.00210	0.00130	6000
50-165	T70	5600	40	0.5		1550	0.00250	0.00130	6000
50-170									
60-165	T70	7800	40	0.5		1500	0.00599	0.00358	6000

T = Temperature-stable rubber compound. The technical data specified apply for an ambient temperature of T = 60 °C.

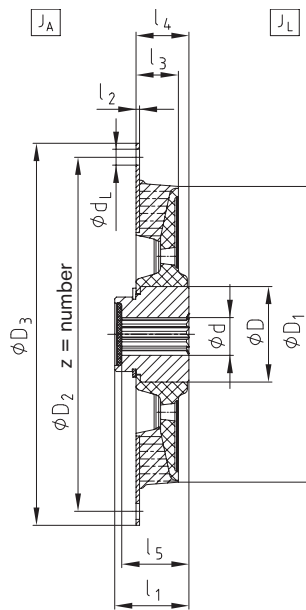
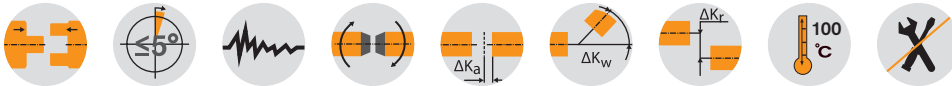
MONOLASTIC®

One-piece, flexible flange couplings

Type SAE (EP 0853203/U.S. Patent 6,117,017)



For legend of pictogram refer to flapper on the cover



Flange dimensions according to SAE J620 [mm]

Size	D ₃	D ₂	z	d _L
6 1/2"	215.9	200.02	6	9
7 1/2"	241.3	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11

MONOLASTIC®																		
Size	Elastomer hardness [Shore A]	Torque [Nm]			Dimensions [mm]									MONOLASTIC® flanges according to SAE				
		T _{KN}	T _{K max.}	T _{KW}	d _{max.}	D	D ₁	l ₁	l ₂	l ₃	l ₄	l ₅	6 1/2"	7 1/2"	8"	10"	11 1/2"	
30	T65	200	400	100	25	42	120	39	2	21	30	36	X	X				
	T70	250	500	125														
50	T65	350	700	175	32	50	167	42	2	24	30	38	X	X	X	X		
	T70	450	900	225														
G50	T70	600	1200	300	32	50	178	42	2	24	36	38		X	X	X		
65	T65	750	1500	375	48	68	200	45	3	32	45	42				X	X	
	T70	1000	2000	500														
75	T65	1500	3000	750	60	90	265	58	3	35	50	54				X	X	
	T70	1850	3700	925														

Technical data										
Size	Elastomer hardness [Shore A]	C _{dyn.} with 60 °C [Nm/rad]	Perm. damping power with 60 °C PKW [W]	Max. displacement with 2200 rpm ΔK _r [mm]	Perm. angular displacement with 2200 rpm ΔK _w [°]	Radial spring stiffness C _r [N/mm]	Mass moment of inertia [kgm ²]			Perm. operating speed n _{max.} [rpm]
							JA		JL	
30	T65	3750	25	0.5	1	1150	6 1/2"	0.0038	0.00030	6000
	T70	4875				1500	7 1/2"	0.0057		
50	T65	9000	35	0.5	1	1300	8"	0.0078	0.00120	6000
	T70	12000				1700	10"	0.0153		
G50	T70	17500	40	0.5	1	1910	7 1/2"	0.0060	0.00120	6000
							8"	0.0080		
65	T65	14000	45	0.5	1	1900	10"	0.0238	0.00380	6000
	T70	18000				2450	11 1/2"	0.0368		
75	T65	34000	80	0.5	1	1850	10"	0.0272	0.01450	6000
	T70	42000				2400	11 1/2"	0.0402		

T = Temperature-stable rubber compound. The technical data specified apply for an ambient temperature of T = 60 °C.

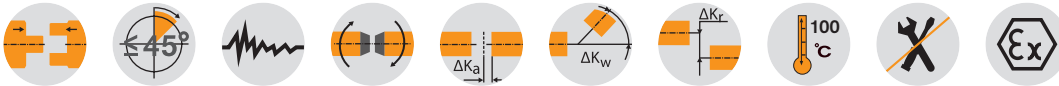
BoWex-ELASTIC® HE1 - HE4

Highly flexible flange couplings

Axial plug-in, available in different kinds of hardness



For legend of pictogram refer to flapper on the cover



BoWex-ELASTIC® Type HE1 - HE4

Size	Bore d [mm]		Flange connection acc. to SAE - J620						Dimensions [mm]										Type HE1 / HE2			Type HE3 / HE4					
	Pilot bored	Max.	6 1/2"	7 1/2"	8"	10"	11 1/2"	14"	l ₃ HE1/HE2	l ₃ HE3/HE4	D ₅	l ₂ HE1/HE2	l ₂ HE3/HE4	D ₄	D	l ₁	L _{HE1}	L _{HE2}	L _{HE3}	L _{HE4}	Weight with max. bore [kg]	Mass moment of inertia with max. bore [kgm ²]		Weight with max. bore [kg]	Mass moment of inertia with max. bore [kgm ²]		
																						JA	JL		JA	JL	
42 HE	-	42	•	•					4	2	180	44.5	37	145	65	42	70	50	55	40	1.8	0.0074	0.0016	1.8	0.0071	0.0021	
																						2.8	0.0172	0.0016	-	-	-
48 HE	-	48	•	•	•				4	2	198	45	37	163	68	50	78	50	68	42	2.3	0.0119	0.0021	1.9	0.0070	0.0022	
																						2.6	0.0170	0.0021	2.1	0.0103	0.0022
																							3.4	0.0342	0.0021	2.5	0.0201
65 HE	21	65				•			5	-	244	55.5	-	205	96	55	85	62	-	-	4.9	0.0424	0.0069	-	-	-	
																						5.7	0.0647	0.0069	-	-	-
G 65 HE	21	65			•				-	3	-	-	45	205	96	55	-	-	73	50	-	-	-	3.9	0.0147	0.0075	
																						-	-	-	4.1	0.0281	0.0075
GG 65 HE	21	65			•				-	3	-	-	45	220	96	55	-	-	73	50	-	-	-	4.6	0.0423	0.0075	
																						-	-	-	3.8	0.0163	0.0093
80 HE	31	90				•			-	4	316	70	56	265	124	90	126	74	112	60	8.1	0.0239	0.0307	9.1	0.0414	0.0305	
																						10.2	0.0765	0.0307	-	-	-
G 80 HE	31	90				•			-	4	356	80	66	300	124	90	136	80	122	70	9.7	0.0426	0.0471	11.1	0.0713	0.0472	
																						14.7	0.2851	0.0471	-	-	-
GG 80 HE	31	90				•			-	4	-	-	71	302	124	90	-	-	130	80	-	-	-	11.9	0.0768	0.0498	
																						-	-	-	18.3	0.2028	0.1104
100 HE	38	100				•			-	4	-	-	76	350	152	110	142	90	150	82	-	-	-	16	0.2172	0.1013	
G 100 HE	38	100				•			-	4	-	-	76	350	152	65	-	-	102	85	-	-	-	16	0.2172	0.1013	

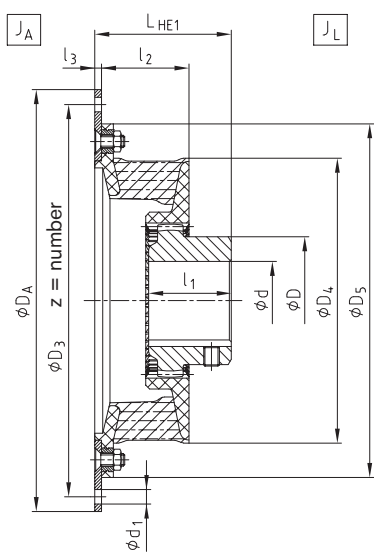
Other flange connections on request

Technical data

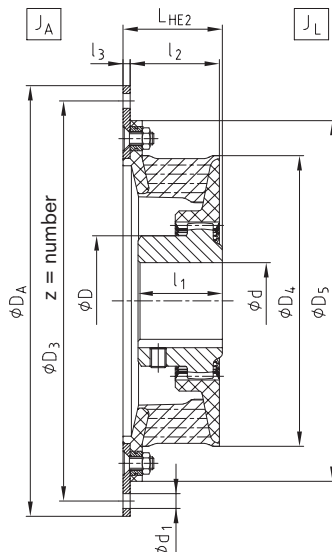
Size	Elastomer hardness [Shore A]	Torque [Nm]					Perm. damping power P _{KW} [W]			Perm. operating speed n _{max} [rpm]	Dynamic torsion spring stiffness C _{dyn} [Nm/rad]	Relative damping ψ	Resonance factor V _R ≈ 2 • π / ψ	Radial spring stiffness C _r [N/mm]			
		TKN	TK max. 10,000 LA [Nm]	TK max. 50,000 LA [Nm]	with 10 Hz TKW	60 °C	80 °C	90 °C									
42 HE	T40	165	395	330	41	26.0	15.6	10.4	6200	550	0.6	10.5	142				
	T50	205	490	410	51									850	0.8	7.9	219
	T65	260	625	520	65												
48 HE	T40	250	600	500	63	36.0	21.6	14.4	5600	850	0.6	10.5	176				
	T50	315	755	630	79									1300	0.8	7.9	269
	T65	400	960	800	100												
65 HE	T40	440	1050	880	110	60.0	36.0	24.0	4500	1600	0.6	10.5	209				
	T50	550	1320	1100	138									2200	0.8	7.9	288
	T65	720	1730	1440	180												
G65 HE	T40	540	1300	1080	135	68.0	40.8	27.2	4300	2350	0.6	10.5	294				
	T50	700	1700	1400	175									3000	0.8	7.9	375
	T65	890	2140	1780	223												
GG 65 HE	T40	750	1800	1500	188	76.0	45.6	30.4	4000	3650	0.6	10.5	420				
	T50	960	2300	1920	240									4800	0.8	7.9	550
	T65	1250	3000	2500	313												
80 HE	T40	950	2280	1900	238	120.0	72.0	48.0	3600	4500	0.6	10.5	351				
	T50	1300	3120	2600	325									6500	0.8	7.9	507
	T65	1750	4200	3500	438												
G 80 HE	T40	1600	3850	3200	400	180.0	108.0	72.0	3000	7500	0.6	10.5	476				
	T50	2200	5280	4400	550									12000	0.8	7.9	762
	T65	2900	6960	5800	725												
GG 80 HE	T40	2000	4800	4000	500	196.0	117.6	78.4	3000	9200	0.6	10.5	660				
	T50	2750	6600	5500	688									14200	0.8	7.9	1020
	T65	3600	8650	7200	900												
100 HE	T40	2500	6000	5000	625	210.0	126.0	84.0	2700	12000	0.6	10.5	460				
	T50	3250	7800	6500	813									19000	0.8	7.9	730
	T65	4250	10200	8500	1063												
G 100 HE	T40	3000	7200	6000	750	215.0	129.0	86.0	2700	14200	0.6	10.5	584				
	T50	3800	9120	7600	950									22600	0.8	7.9	935
	T65	5000	12000	10000	1250												

Ordering example:

BoWex-ELASTIC® 42	HE1	T40	8	70	U
Coupling size	Type	Elastomer hardness	Flange Ø D _A according to SAE or special	Mounting length L _{HE}	Unbored or with finish bore

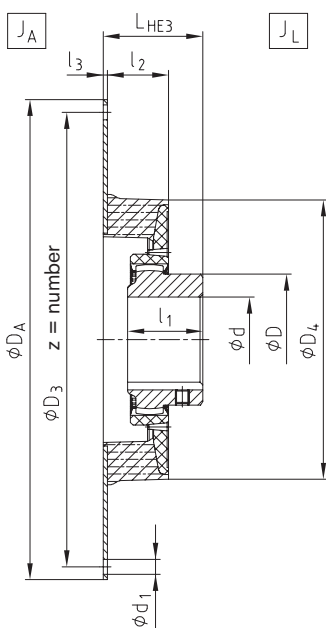


Type HE1

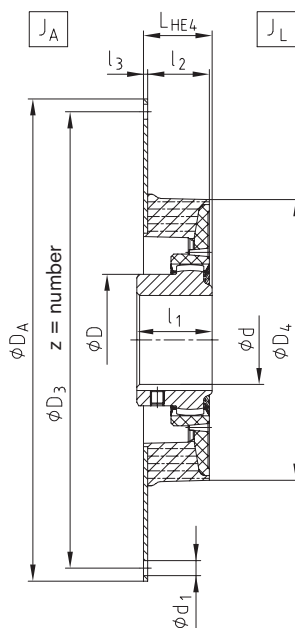


Type HE2

Flange dimensions according to SAE J620 [mm]				
Nominal size	DA	D3	z	d1
6 1/2"	215.90	200.02	6	9
7 1/2"	241.30	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13



Type HE3



Type HE4

Displacements																
Size	42 HE			48 HE			65 HE G65 HE GG65 HE			80 HE G80 HE GG80 HE			100 HE G100 HE			
	T40	T50	T65	T40	T50	T65	T40	T50	T65	T40	T50	T65	T40	T50	T65	
Elastomer hardness [Shore A]	T40	T50	T65	T40	T50	T65	T40	T50	T65	T40	T50	T65	T40	T50	T65	
Perm. radial displacement ΔK_r [mm]	n=1500 rpm	1.1	1.0	0.5	1.2	1.1	0.5	1.6	1.5	0.7	1.8	1.7	0.8	2.2	2.0	1.0
	max. ¹⁾	3.6	3.3	1.5	3.8	3.5	1.7	5.1	4.7	2.2	5.7	5.3	2.4	6.5	6.0	3.0
Perm. angular displacement ΔK_w [°]	n=1500 rpm	1.0	0.75	0.5	1.0	0.75	0.5	1.0	0.75	0.5	1.0	0.75	0.5	1.0	0.75	0.5
	n=3000 rpm	0.5	0.4	0.25	0.5	0.4	0.25	0.5	0.4	0.25	0.5	0.4	0.25	0.5	0.4	0.25
Perm. angular displacement ΔK_w [°]	max. ¹⁾ 1.5			1.5			1.5			1.5			1.5			
Perm. axial displacement ΔK_a [mm]	± 2			± 2			± 2			± 2			± 3			

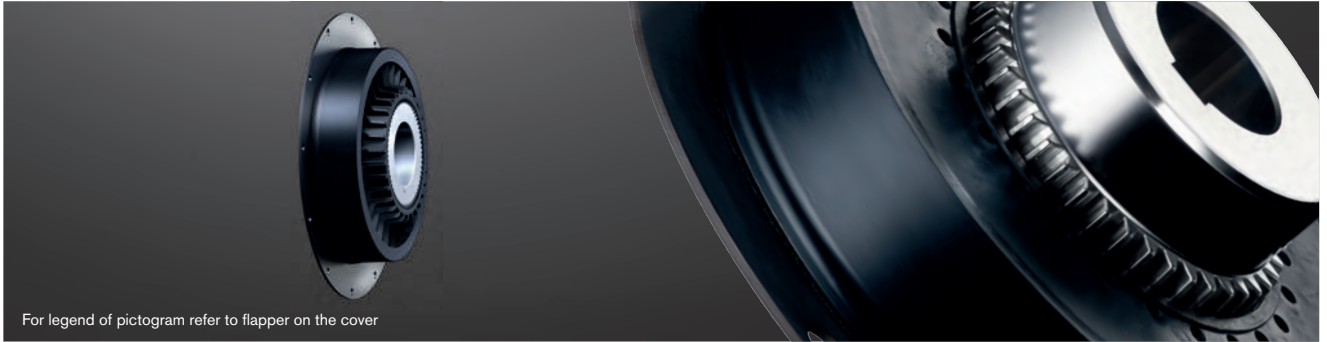
¹⁾ For short-term start-up operation

Mounting procedure, screw type with property class, tightening torques as per KTR assembly instructions (see www.ktr.com).

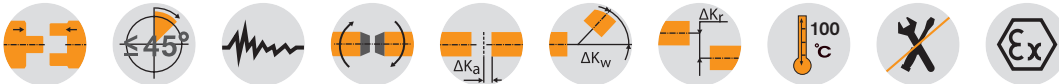
BoWex-ELASTIC® HE3 / HE4 / HE-D

Highly flexible flange couplings

Axial plug-in, available in different kinds of hardness



For legend of pictogram refer to flapper on the cover



BoWex-ELASTIC® Type HE3, HE4 and HE-D

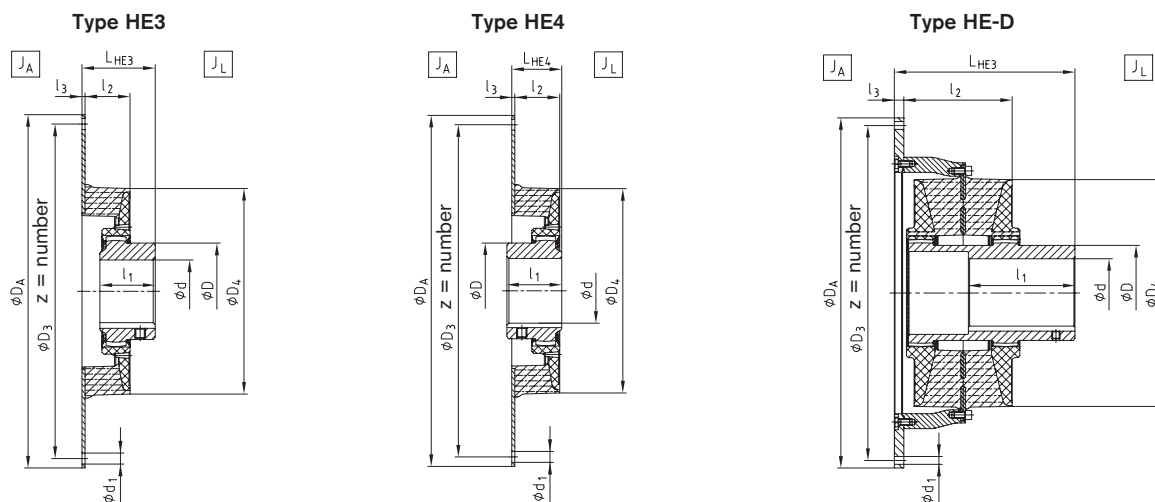
Size	Bore d [mm]		Flange connection acc. to SAE - J620						Dimensions [mm]						Weight with max. bore [kg]	Mass moment of inertia with max. bore [kgm²]			
	Pilot bored	Max.	14"	16"	18"	21"	24"	Ø800	Ø885	I3	I2	D4	D	I1		LHE3	LHE4	JA	JL
125 HE	45	125	•							6	92	416	192	140	186	103	33.1	0.3142	0.2750
G125 HE	45	125		•						6	89	440	192	140	192	109	34.8	0.4231	0.2750
150 HE	44	160			•					6	140	470	225	150	179	91	36.6	0.4634	0.3264
150 HE-D	44	160			•					-	286	470	225	275	205	160	39.5	0.6812	0.3264
G150 HE	44	160			•					6	140	504	225	150	205	160	46.8	0.7277	0.5414
G150 HE-D	44	160			•					-	286	504	225	275	291	-	51.5	1.2120	0.5414
200 HE	46	180				•				6	149	568	250	175	240	160	113	3.0045	1.0738
200 HE-D	46	180				•				-	325	568	250	298	310	-	155	6.4399	1.0738
G200 HE	46	180				•				6	149	600	250	175	240	160	51.9	0.8164	0.6500
G200 HE-D	46	180				•				-	325	600	250	298	310	-	56.6	1.3007	0.6500
240 HE	80	240					•			8	172	772	326	200	270	205	123	3.1820	1.291
275 HE	80	275						•		10	185	810	372	240	312	215	165	6.6173	1.291

Technical data

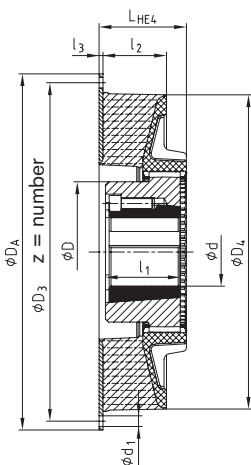
Size	Elastomer hardness [Shore A]	Torque [Nm]				Perm. damping power PKW [W]			Perm. operating speed n _{max.} [rpm]	Dynamic torsion spring stiffness C _{dyn.} [Nm/rad] 60 °C	Relative damping ψ	Resonance factor V _R ≈ 2 • π / ψ	Radial spring stiffness C _r [N/mm]
		TKN [Nm]	TK max. 10,000 LA [Nm]	TK max. 50,000 LA [Nm]	TKW [Nm]	60 °C	80 °C	90 °C					
125 HE	T40	3500	10500	7000	875	221	133	88	2300	20000	0.6	10.5	625
	T50	4800	11400	9600	1200								
	T70	6800	20400	13600	1700								
G125 HE	T40	4800	14400	7200	1200	240	144	96	2250	34000	0.6	10.5	890
	T50	6600	19800	9900	1650								
	T70	10000	30000	15000	2500								
150 HE	T50	8000	24000	12000	2000	262	157	105	2200	67500	0.8	7.9	714
	T70	14000	42000	21000	3500								
	T50	16000	48000	24000	4000								
150 HE-D	T70	28000	84000	42000	7000	524	314	210	2200	134000	0.8	7.9	1428
	T50	10000	30000	15000	2500								
	T70	18000	54000	27000	4500								
G150 HE	T50	20000	60000	30000	5000	278	167	111	2100	170000	1.2	5.2	5874
	T70	36000	108000	54000	9000								
	T50	14500	43500	21750	3625								
200 HE	T70	25000	75000	37500	6250	308	185	123	1900	119000	0.8	7.9	1720
	T50	29000	87000	43500	7250								
	T70	50000	150000	75000	12500								
200 HE-D	T50	17500	52500	26250	4375	324	194	130	1800	241000	1.2	5.2	6769
	T70	30000	90000	45000	7500								
	T50	35000	105000	52500	8750								
G200 HE-D	T70	60000	180000	90000	15000	648	388	260	1800	278000	0.8	7.9	3904
	T50	29000	87000	43500	7250								
	T70	49000	147000	73500	12250								
240 HE	T50	42000	126000	63000	10500	372	223	149	1500	563000	1.2	5.2	15416
	T70	29000	87000	43500	7250								
	T50	49000	147000	73500	12250								
275 HE	T70	70000	210000	105000	17500	410	246	164	1500	259000	0.8	7.9	2326
	T50	42000	126000	63000	10500								
	T70	70000	210000	105000	17500								

Ordering example:

BoWex-ELASTIC® 125	HE3	T40	14"	186	U
Coupling size	Type	Elastomer hardness	Flange Ø D _A according to SAE or special	Mounting length L _{HE}	Unbored or with finish bore



Type HE4 with taper clamping sleeve

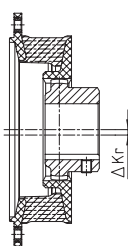


Flange dimensions according to SAE J620 [mm]				
Nominal size	DA	D3	z	d1
14"	466.72	438.15	8	13
16"	517.50	489.00	8	13
18"	571.50	542.90	6	17
21"	673.10	641.35	12	17
24"	733.42	692.15	12	21
Ø800 ¹⁾	800	770	32	17
Ø885 ¹⁾	885	855	36	17

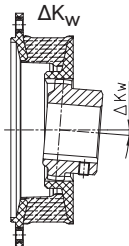
¹⁾ Flange connection differing from SAE standard, dimensions in mm.

Displacements

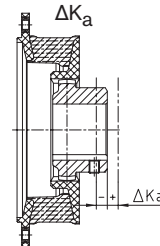
Radial displacement ΔK_r



Angular displacement ΔK_w



Axial displacement ΔK_a



Displacements																
Size	125 HE G125 HE			150 HE G150 HE			200 HE G200 HE			240 HE			275 HE			
Elastomer hardness [Shore A]	T40	T50	T70	T40	T50	T70	T40	T50	T70	T40 Sh	T50	T70	T40	T50	T70	
Perm. radial displacement ΔK_r [mm]	n=1500 rpm	2.5	2.3	1.1	2.8	2.5	1.3	3.0	2.7	1.5	3.2	2.9	1.6	3.4	3.1	1.8
	max. ²⁾	7.5	6.9	3.3	8.0	7.5	4.0	8.5	8.0	4.5	9.0	8.5	5.0	9.5	9.0	5.5
Perm. angular displacement ΔK_w [°]	n=1500 rpm	1.0	0.75	0.5	1.0	0.75	0.5	1.0	0.75	0.5	1.0	0.75	0.5	1.0	0.75	0.5
	n=3000 rpm	0.5	0.4	0.25	-	-	-	-	-	-	-	-	-	-	-	-
Perm. angular displacement ΔK_w [°]	max. ²⁾ 1.5			1.5			1.5			1.5			1.5			
Perm. axial displacement ΔK_a [mm]	± 3			± 4			± 4			± 4			± 4			

²⁾ For short-term start-up operation

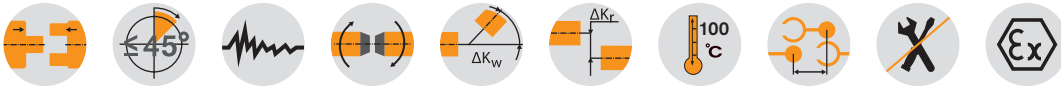
Mounting procedure, screw type with property class, tightening torques as per KTR assembly instructions (see www.ktr.com).

BoWex-ELASTIC® HE-ZS and HEW Highly flexible flange couplings

With drop-out center design piece for pump drives, highly flexible shaft-to-shaft coupling



For legend of pictogram refer to flapper on the cover

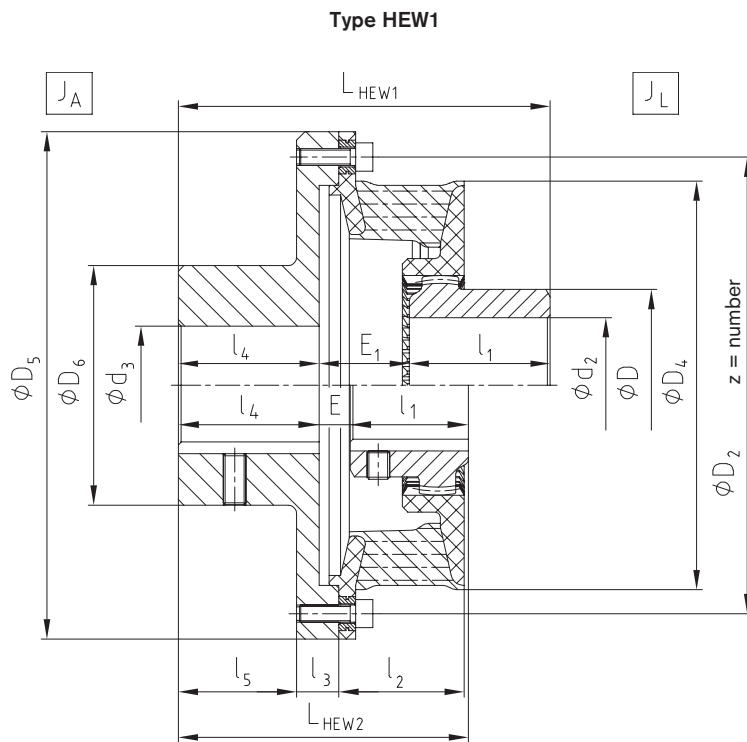
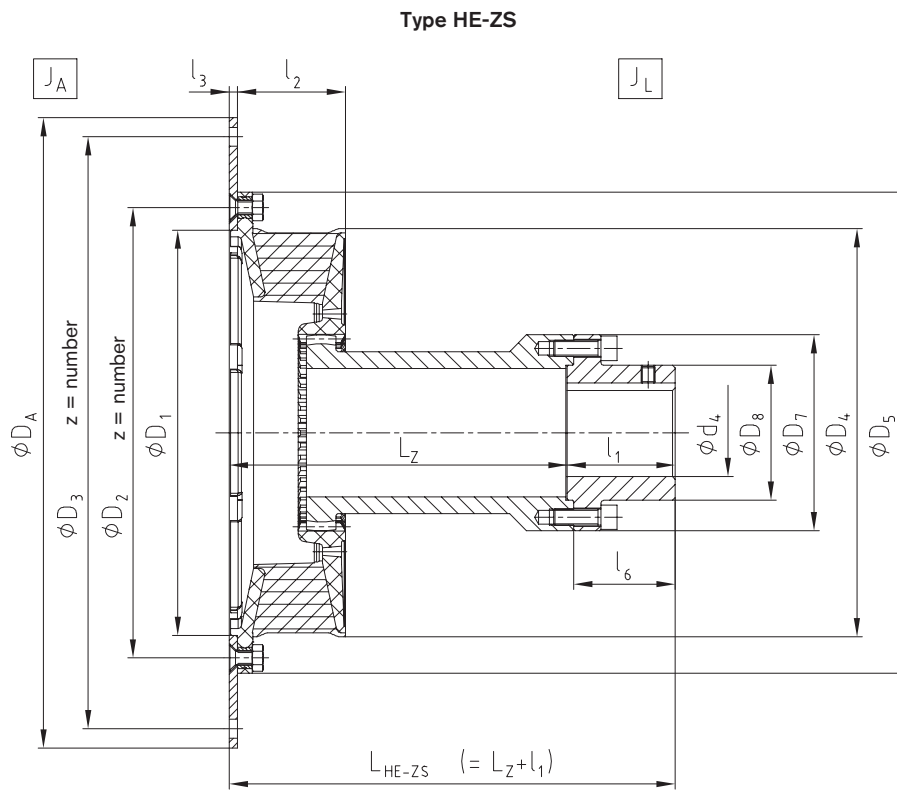


BoWex-ELASTIC® Type HE-ZS																																				
Size	Max. finish bore d4	Flange connection acc. to SAE - J620 D _A for HE-ZS										Dimensions [mm]								Drop-out center design piece HE-ZS L _Z [mm]					Weight with max. bore [kg]	Mass moment of inertia [kgm ²]										
		6 1/2"	7 1/2"	8"	10"	11 1/2"	14"	16"	18"	21"	24"	D1	D4	D5	D7	D8	I1	I2	I3	I6	100	120	140	180		250	J _A	J _L								
48 ³⁾	28	●																				●	●					2.9 ¹⁾	0.0026	0.0033						
			●																				●	●					3.6 ¹⁾	0.0106	0.0033					
				●																				●	●					3.9 ¹⁾	0.0148	0.0033				
					●																			●	●					4.6 ¹⁾	0.0298	0.0033				
G65 ³⁾	45				●																		●	●					7.3 ¹⁾	0.0242	0.0129					
						●																		●	●					8.9 ²⁾	0.0372	0.0150				
80 ³⁾	65					●																		●	●					13.7 ²⁾	0.0211	0.0497				
							●																		●	●					15.9 ²⁾	0.0726	0.0497			
G80 ³⁾	65						●																	●	●					14.6 ²⁾	0.0402	0.0634				
								●																	●	●					19.5 ²⁾	0.2251	0.0634			
100 ³⁾	95							●																●	●					29.8 ²⁾	0.1951	0.1779				
125 ⁴⁾	100								●																●	●					41.7 ²⁾	0.3013	0.3363			
										●																●	●					43.6 ²⁾	0.4123	0.3363		
G125 ⁴⁾	120									●															●	●					45.6 ²⁾	0.4781	0.3700			
											●															●	●					47.7 ²⁾	0.6380	0.3700		
150 ⁴⁾	135										●															●	●					63.2	0.6918	0.6647		
												●															●	●					67.9	1.1410	0.6647	
G150 ⁴⁾	135											●															●	●					73.0	1.2460	0.7677	
													●															●	●					98.7	1.5348	1.4109
200 ⁴⁾	150												●															●	●					101.7	1.9138	1.4109
														●														●	●					103.5	1.7270	1.6401
G200 ⁴⁾	150													●													●	●					106.6	2.1060	1.6401	

¹⁾ with L_Z 120
²⁾ with L_Z 100
³⁾ For technical data see page 224
⁴⁾ For technical data see page 226

BoWex-ELASTIC® Type HEW																					
Size	Max. finish bore		Dimensions [mm]														Weight with max. bore [kg]	Mass moment of inertia [kgm ²]			
	d ₂	d ₃	D	D ₂	z x M	D ₄	D ₅	D ₆	I1	I2	I3	I4	I5	E	E1	LHEW1		LHEW2	J _A	J _L	
42	48	50	68	162	6	M6	146	180	85	50	45	15	50	42	4	32	132	104	4.3	0.0121	0.0015
48 ³⁾	48	55	68	180	8	M6	164	200	92	50	45	17	55	45	4	32	137	109	5.5	0.0204	0.0019
65 ³⁾	65	75	96	224	8	M8	205	245	125	70	55	28	75	63	5	42	187	150	13.2	0.0752	0.0071
80 ³⁾	90	80	124	295.27	8	M10	266	318	130	90	70	17	80	70	5	45	215	160	19.7	0.1449	0.0285
G80 ³⁾	90	95	124	333.4	8	M10	302	358	145	90	80	22	90	78	5	55	235	185	25.9	0.2748	0.0422
100 ³⁾	100	110	152	438.15	8	M12	350	478	158	110	80	14	111.5	113	26	57	278	207	48.5	0.8356	0.1050
125 ⁴⁾	125	125	192	438.15	8	M12	416	478	175	140	99	14	170	158	-	45	355	-	67.2	0.9498	0.2617
G125 ⁴⁾	125	125	192	489	8	M12	440	530	175	140	95	14	170	158	-	45	355	-	76.6	1.4492	0.3034
150 ⁴⁾	160	160	225	542.9	6	M16	470	585	225	150	100	18	160	145	-	70	380	-	110	2.7206	0.5303
G150 ⁴⁾	160	160	225	542.9	6	M16	504	585	225	150	108	18	160	145	-	70	380	-	113.4	2.7809	0.5861
200 ⁴⁾	180	200	250	641.35	12	M16	568	683	280	175	149	26	220	214	-	85	480	-	195	6.6418	1.1406
G200 ⁴⁾	180	200	250	641.35	12	M16	600	683	280	175	149	26	220	214	-	85	480	-	200	6.6099	1.3419

³⁾ For technical data see page 224
⁴⁾ For technical data see page 226
 Other sizes available. Please consult with us.



Type HEW2

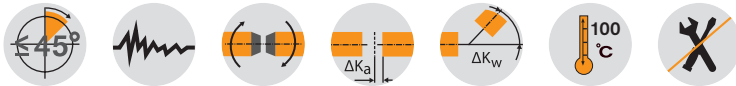
BoWex-ELASTIC® HEG

Highly flexible flange couplings

Cardan shaft connecting coupling



For legend of pictogram refer to flapper on the cover



BoWex-ELASTIC® Type HEG1 and type HEG2																															
Size	Flywheel connection acc. to SAE-J620					Metric flange connection HEG1 dimensions [mm]										MECHANICS cardan shaft connection HEG2 dimensions [mm]								Dimensions [mm]			Weight [kg]	Mass moment of inertia			
	8"	10"	11 1/2"	14"	16"	58	65	75	90	100	120	150	180	l4	L	2 C	4 C	5 C	6 C	7 C	8,5 C	8 C	L1	D4	l2	l3		JA [kgm²]	JL [kgm²]		
48 ¹⁾	●					●	●	●							8	58.5									163	43.5	8	7	0.03	0.006	
		●				●	●	●																			8	0.06	0.006		
G65 ¹⁾		●					●	●	●	●					8	66	●	●	●						71	205	48.0	10	12	0.07	0.02
			●				●	●	●	●	●						●	●	●								14	0.10	0.02		
80 ¹⁾		●					●	●	●	●	●				10	88.5		●	●	●					104	265	68.5	23	21	0.11	0.06
			●				●	●	●	●	●	●					●	●	●								12	23	0.17	0.06	
G80 ¹⁾			●				●	●	●	●	●	●			10	96		●	●	●	●				110	302	74.0	23	26	0.18	0.09
				●			●	●	●	●	●	●	●					●	●	●							12	33	0.48	0.09	
100 ¹⁾				●			●	●	●	●	●	●	●		12	98					●	●			128	350	78.0	16	41	0.63	0.19
125 ²⁾				●			●	●	●	●	●	●	●		12	111					●	●			135	416	96.0	18	56	0.74	0.42
					●		●	●	●	●	●	●	●								●	●				12	59	0.97	0.42		

¹⁾ For technical data see page 224

²⁾ For technical data see page 226

Flywheel connection acc. to SAE-J620				
Size	DA	D1	z1	d1
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	14
16"	517.50	489.00	8	14

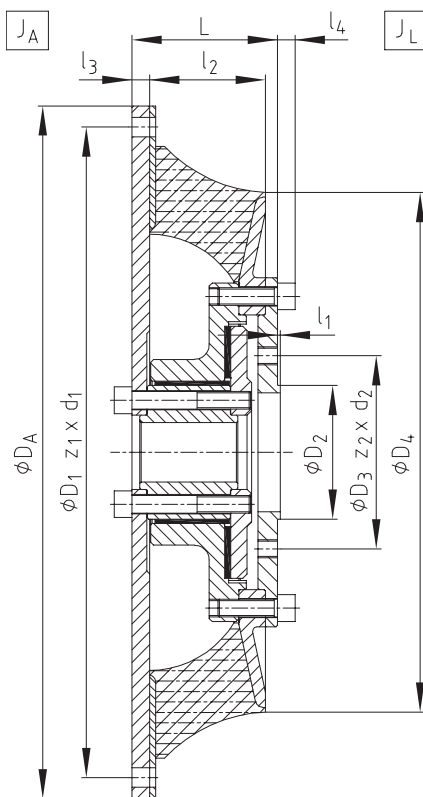
Metric flange connection HEG1 [mm]					
Size	D2	l1	D3	z2	d2
58	30	1.0	47.0	4	M5
65	35	1.0	52.0	4	M6
75	42	1.5	62.0	6	M6
90	47	2.0	74.5	4	M8
100	57	2.0	84.0	6	M8
120	75	2.0	101.5	8	M10
150	90	2.5	130.0	8	M12
180	110	3.0	155.5	8	M14

MECHANICS cardan shaft connection HEG2 [mm]						
Size	D5	l5	l6	l7	l8	z3
2 C	79.35	33.3	59.5	9.50	3.8	M8
4 C	107.92	36.5	87.3	9.50	3.8	M8
5 C	115.06	42.9	88.9	14.26	5.1	M10
6 C	140.46	42.9	114.3	14.26	5.1	M10
7 C	148.39	49.2	117.5	15.85	6.0	M12
8,5 C	165.08	71.4	123.8	15.85	6.0	M12
8 C	206.32	49.2	174.6	15.85	6.0	M12

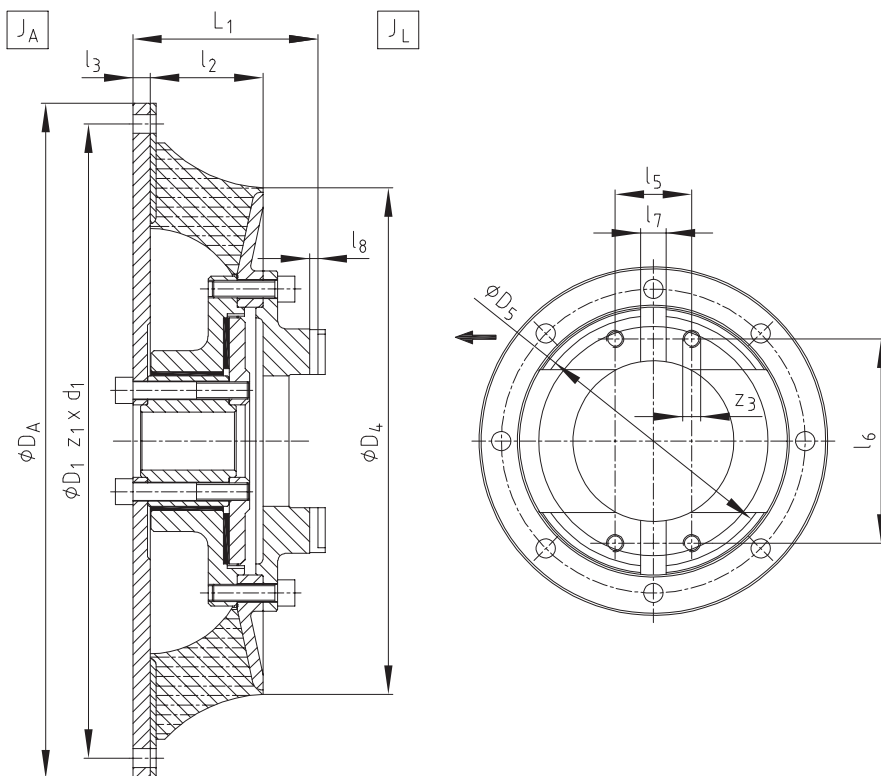
BoWex-ELASTIC® type HEG has a maintenance-free plain bearing compensating for the radial loads generated by the cardan shaft. Moreover, the coupling has a friction disk which is axially prestressed by the elastomer part. The elastomer part is made of natural rubber via vulcanizing.

The permanent friction provides the coupling with excellent damping properties considerably reducing the high vibratory torques generated in the coupling during the starting process and passing through resonance.

Type HEG1



Type HEG2



SINULASTIC®

Highly flexible flange coupling

Description of product and application

SINULASTIC® is a modularly structured series of highly flexible flange couplings based on a disk-shaped coupling body. Four practical basic versions with individual properties cover a wide range of applications primarily for diesel engine drives, but also general drive tasks.

The main task of the coupling is reducing torsional vibrations resulting from excitations of the I. C.-engine during standard operation and misfire operation as well as protecting the drive from overload. It is a good option both for variable speed and constant speed drives, while a supercritical selection of the drive train above resonance level is always made. Particularly for the series the coupling disk requires the smallest possible axial mounting space.

Depending on the type the coupling is pluggable and compensates for displacements resp. tolerances moderately to very well. It is a non-slip or shear type and radially mountable.

The elastomer element is available in various qualities for all types. It is composed of natural rubber compounds optimised over many years (SN, MN, HN, UN up to 80 °C) or upon request of synthetical EPDM material for higher temperatures (SE, ME, HE, UE up to 100 °C) as well as silicone rubber (SC, MC up to 120 °C). The various kinds of rubber hardness cover one application and torque range per size. The vibratory properties of the four types are compatible within one size.

A wide standard portfolio of hub connections covers a large variety of shaft configurations on the driven side while special connections can be implemented.



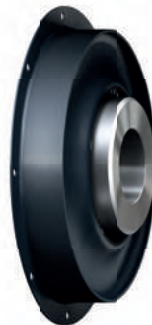
SINULASTIC® - The types



A



T



B



V

SINULASTIC® A is the evolution design of the renowned disk coupling with plug-in spline between elastomer and flange ring as well as hub vulcanized on. The tooth shape that is subject to high loads particularly with alternating loads in the contact area between engine flange and rubber was extensively optimized, the new sinusoidal tooth shape being eponymous for the series. For the first time the engine flange was executed by a deep-drawn sheet metal section creating a beneficial and smooth surface to the elastomer. Another benefit is the tight contact gap for easy mountability with simultaneously highly sound and defined form fit.

In contrast to type A a Taperlock shaft connection as a standard version with feather key is used with SINULASTIC® T. The modular concept makes use of the plug-in ability of type A on the flange side.

Type B and V make use of a deep-drawn and inherently stable flange ring that the elastomer part is externally vulcanized on. This results in a low-cost solution for high speeds and overloads.

In combination with the renowned BoWex® inner hub the SINULASTIC® B as an all-rounder of the overall series is formed. The so-called BoWex® hub defines a pluggable connection resistant to high loads as well as favourable adaptations on the driven side up to long driving shaft systems owing to the potentials for particularly high displacements. The hub and connection variants of BoWex®-ELASTIC are fully compatible with the elastomer elements of this series.

SINULASTIC® V is favourably used where the ability for axial plug-in is not required. A resulting radial assembly is realised by a split ring on the hub side.

The slim wasteline shape of the elastomer elements of this type allows for significant displacements in axial, radial and angular direction without any wear, while the coupling element is suitable both for not flange-mounted assembly, i. e. for system configurations set up freely and as a shaft coupling with cardanic misalignment.

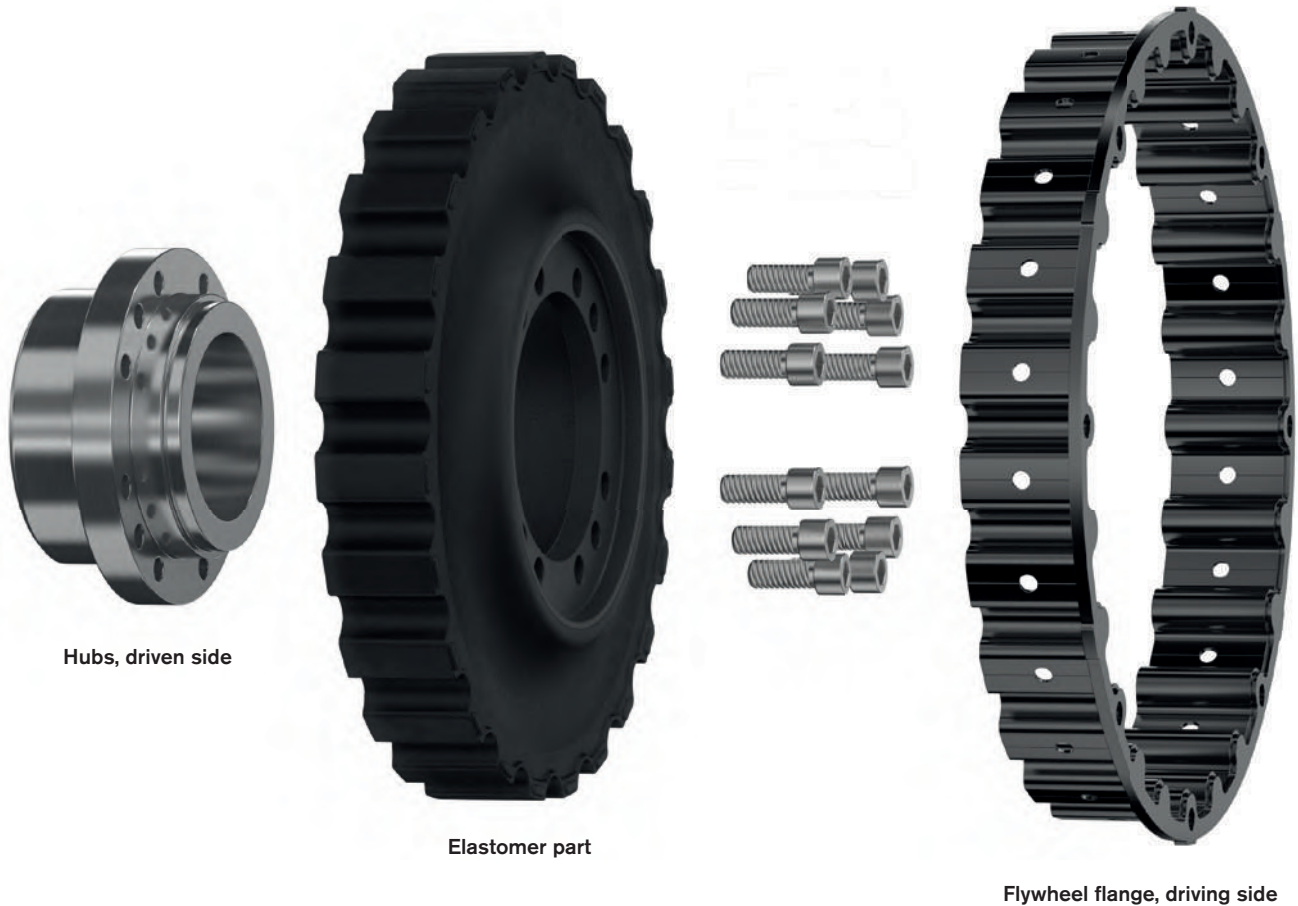
SINULASTIC®

Highly flexible couplings

Properties of types by comparison

Properties of types by comparison			
Properties	SINULASTIC® A SINULASTIC® T	SINULASTIC® V	SINULASTIC® B
Rated torque T_{KN}	Compatible within the series		
Maximum torque T_{Kmax}	$\geq 2x T_{KN}$	$3x T_{KN}$	$3x T_{KN}$
Vibratory properties, e. g. torsional stiffness	Compatible within the series		
Materials ¹⁾	Natural rubber compounds up to 80 °C for hardness ranges WN, SN, MN and HN, synthetical EPDM up to 100 °C for hardness ranges WE, SE, ME and HE, silicone rubber up to 120°C in the hardness ranges SC and MC.		
Plug-in	Yes	No	Yes
Radial assembly	Partially possible	Yes	No
Mounting length	++	Ø	++
Axial displacement	++	+	++
Radial displacement	Ø	+	+
Angular displacement	Ø	++	++
Standard	For flywheel flange and shaft connection (SAE J620, DIN 5480 et seqq., DIN 6281, etc.)		
special solutions	Bearing-mounted intermediate coupling, with failure protection, combination with shifting unit	Cardanic offset joint, failure protection, shaft systems	
	Application-specific shaft connections of elastomer elements		

¹⁾The standard materials and availabilities depend on the size and type, special compounds available on request



BoWex® FLE-PA/-PAC

MONOLASTIC®

BoWex-ELASTIC®

SINULASTIC®

Flange
couplings

SINULASTIC®

Highly flexible flange coupling

Technical data of natural rubber (NR)

Technical data														
Size	Elastomer type	Torque [Nm] ¹⁾				Dynamic torsion spring stiffness C _{dyn.} [Nm/rad] ²⁾		Relative damping ψ [-]		Perm. damping power [W] ³⁾			Operating speed [rpm]	
		T _{KN}	T _{Kmax}	T _{Kmax1}	T _{KW}	30 °C	60 °C	30 °C	60 °C to 80 °C	30 °C	60 °C	80 °C	n	n _{max.}
20	SN	1800	2700	3600	720	7500	6150	1.00	0.70	210	130	80	2700	3000
	MN	2000	3000	4000	800	11500	9430	1.10	0.77	240	149	91	2700	3000
	HN	2500	3750	7500	1000	18500	15170	1.30	0.91	270	167	103	3240	3600
	UN	2850	4275	8550	1140	22000	18040	1.40	0.98	290	180	110	3240	3600
28	WN	2000	3000	4000	800	9800	8036	0.90	0.63	240	149	91	2340	2600
	SN	2200	3300	4400	880	12500	10250	1.00	0.70	260	161	99	2340	2600
	MN	2800	4200	5600	1120	17000	13940	1.10	0.77	270	167	103	2340	2600
	HN	3400	5100	10200	1360	24000	19680	1.30	0.91	290	180	110	2520	2800
38	UN	3750	5625	11250	1500	30000	24600	1.40	0.98	310	192	118	2520	2800
	SN	3100	4650	6200	1240	15000	12300	1.00	0.70	275	171	105	2520	2800
	MN	3800	5700	7600	1520	22000	18040	1.10	0.77	300	186	114	2520	2800
	HN	4600	6900	13800	1840	35000	28700	1.30	0.91	330	205	125	2880	3200
53	UN	5100	7650	15300	2040	41000	33620	1.40	0.98	350	217	133	2880	3200
	SN	4200	6300	8400	1680	17000	13940	1.00	0.70	285	177	108	2340	2600
	MN	5300	7950	10600	2120	28000	22960	1.10	0.77	325	202	124	2340	2600
	HN	6200	9300	18600	2480	45500	37310	1.30	0.91	370	229	141	2700	3000
96	UN	7000	10500	21000	2800	52000	42640	1.40	0.98	400	248	152	2700	3000
	SN	8100	12150	16200	3240	75000	61500	1.00	0.70	480	298	182	2070	2300
	MN	10000	15000	20000	4000	100000	82000	1.10	0.77	500	310	190	2070	2300
	HN	11200	16800	33600	4480	135000	110700	1.30	0.91	510	316	194	2250	2500
114	UN	13200	19800	39600	5280	175000	143500	1.40	0.98	520	322	198	2250	2500
	SN	10000	15000	20000	4000	90000	73800	1.00	0.70	500	310	190	2070	2300
	MN	11400	17100	22800	4560	125000	102500	1.10	0.77	530	329	201	2070	2300
	HN	13400	20100	40200	5360	160000	131200	1.30	0.91	550	341	209	2250	2500
140	UN	15600	23400	46800	6240	190000	155800	1.40	0.98	560	347	213	2250	2500
	SN	13000	19500	26000	5200	106000	86920	1.00	0.70	540	335	205	1890	2100
	MN	14000	21000	28000	5600	149000	122180	1.10	0.77	550	341	209	1890	2100
	HN	16200	24300	48600	6480	235000	192700	1.30	0.91	570	353	217	2070	2300
180	UN	19000	28500	57000	7600	330000	270600	1.40	0.98	590	366	224	2070	2300
	SN	16000	24000	32000	6400	132000	108240	1.00	0.70	620	384	236	1890	2100
	MN	18000	27000	36000	7200	185000	151700	1.10	0.77	630	391	239	1890	2100
	HN	22000	33000	66000	8800	295000	241900	1.30	0.91	650	403	247	2070	2300
UN	25000	37500	75000	1000	380000	311600	1.40	0.98	670	415	255	2070	2300	

¹⁾ T_{KN} Torque that can be continuously transmitted over the full speed range
T_{Kmax} Transient torque peaks (e. g. resonance passage), max. 100,000 load alternations pulsating / 50,000 load alternations vibratory
T_{Kmax1} Impact loads rarely, max. 1,000 load alternations
For selection consider DIN 740 part II (operating factor, temperature factor), parameters for an ambient temperature of 20 °C.

²⁾ Referring to 0.5 T_{KW}

³⁾ Here permanent damping power. Twice the damping power figure is permissible for one hour.

Technical data of synthetical rubber (EPDM)

Technical data															
Size	Elastomer type	Torque [Nm] ¹⁾				Dynamic torsion spring stiffness C _{dyn.} [Nm/rad] ²⁾		Relative damping ψ [-]			Perm. damping power [W] ³⁾			Operating speed [rpm]	
		T _{KN}	T _{Kmax}	T _{Kmax1}	T _{KW}	60 °C - 100 °C		30 °C	80 °C	100 °C	30 °C	80 °C	100 °C	n	n _{max.}
20	SE	1800	2700	3600	720									2700	3000
	ME	2000	3000	4000	800									2700	3000
	HE	2500	3750	7500	1000									3240	3600
	UE	2850	4275	8550	1140									3240	3600
28	SE	2200	3300	4400	880									2340	2600
	ME	2800	4200	5600	1120									2340	2600
	HE	3400	5100	10200	1360									2520	2800
	UE	3750	5625	11250	1500									2520	2800
38	SE	3100	4650	6200	1240									2520	2800
	ME	3800	5700	7600	1520									2520	2800
	HE	4600	6900	13800	1840									2880	3200
	UE	5100	7650	15300	2040									2880	3200
53	SE	4200	6300	8400	1680									2340	2600
	ME	5300	7950	10600	2120									2340	2600
	HE	6200	9300	18600	2480									2700	3000
	UE	7000	10500	21000	2800									2700	3000
96	SE	8100	12150	16200	3240									2070	2300
	ME	10000	15000	20000	4000									2070	2300
	HE	11200	16800	33600	4480									2250	2500
	UE	13200	19800	39600	5280									2250	2500
114	SE	10000	15000	20000	4000									2070	2300
	ME	11400	17100	22800	4560									2070	2300
	HE	13400	20100	40200	5360									2250	2500
	UE	15600	23400	46800	6240									2250	2500
140	SE	13000	19500	26000	5200									1890	2100
	ME	14000	21000	28000	5600									1890	2100
	HE	16200	24300	48600	6480									2070	2300
	UE	19000	28500	57000	7600									2070	2300
180	SE	16000	24000	32000	6400									1890	2100
	ME	18000	27000	36000	7200									1890	2100
	HE	22000	33000	66000	8800									2070	2300
	UE	25000	37500	75000	1000									2070	2300

¹⁾ T_{KN} Torque that can be continuously transmitted over the full speed range
T_{Kmax} Transient torque peaks (e. g. resonance passage), max. 100,000 load alternations pulsating / 50,000 load alternations vibratory
T_{Kmax1} Impact loads rarely, max. 1,000 load alternations
For selection consider DIN 740 part II (operating factor, temperature factor), parameters for an ambient temperature of 20 °C.

²⁾ Referring to 0.5 T_{KW}

³⁾ Here permanent damping power. Twice the damping power figure is permissible for one hour.

SINULASTIC®

Highly flexible couplings

Technical data of silicone rubber (SI)

Technical data																			
Size	Elastomer type	TKN RT ³⁾	Torque [Nm] with an ambient temperature of +80 °C ¹⁾				Dynamic torsion spring stiffness C _{dyn.} [Nm/rad] ²⁾					Relative damping ψ [-]			Perm. damping power [W] ³⁾			Operating speed [rpm]	
			TKN	TK _{max}	TK _{max1}	TK _W	10%	25%	50%	75%	100%	30 °C	100 °C	120 °C	30 °C	80 °C	100 °C	120 °C	n
20	SC	1800	1385	2077	2769	554												2700	3000
	MC	2000	1538	2308	3077	615												2700	3000
28	SC	2200	1692	2538	3385	677												2340	2600
	MC	2800	2154	3231	4308	862												2340	2600
38	SC	3100	2385	3577	4769	954												2520	2800
	MC	3800	2923	4385	5846	1169												2520	2800
53	SC	4200	3231	4846	6462	1292												2340	2600
	MC	5300	4077	6115	8154	1631												2250	2500
96	SC	8100	6231	9346	12462	2492												2070	2300
	MC	9600	7385	11077	14769	2954												2070	2300
114	SC	9200	7077	10615	14154	2831												2070	2300
	MC	11400	8769	13154	17538	3508												2070	2300
140	SC	12500	9615	14423	19231	3846												1890	2100
	MC	14000	10769	16154	21538	4308												1890	2100
180	SC	16000	12308	18462	24615	4923												1890	2100
	MC	18000	13846	20769	27692	4800												1890	2100

¹⁾ TKN Torque that can be continuously transmitted over the full speed range
 TK_{max} Transient torque peaks (e. g. resonance passage), max. 100,000 load alternations pulsating / 50,000 load alternations vibratory
 TK_{max1} Impact loads rarely, max. 1,000 load alternations
 For selection consider DIN 740 part II (operating factor, temperature factor)
²⁾ Referring to 0.5 TK_W
³⁾ Reference value with an ambient temperature of +20 °C

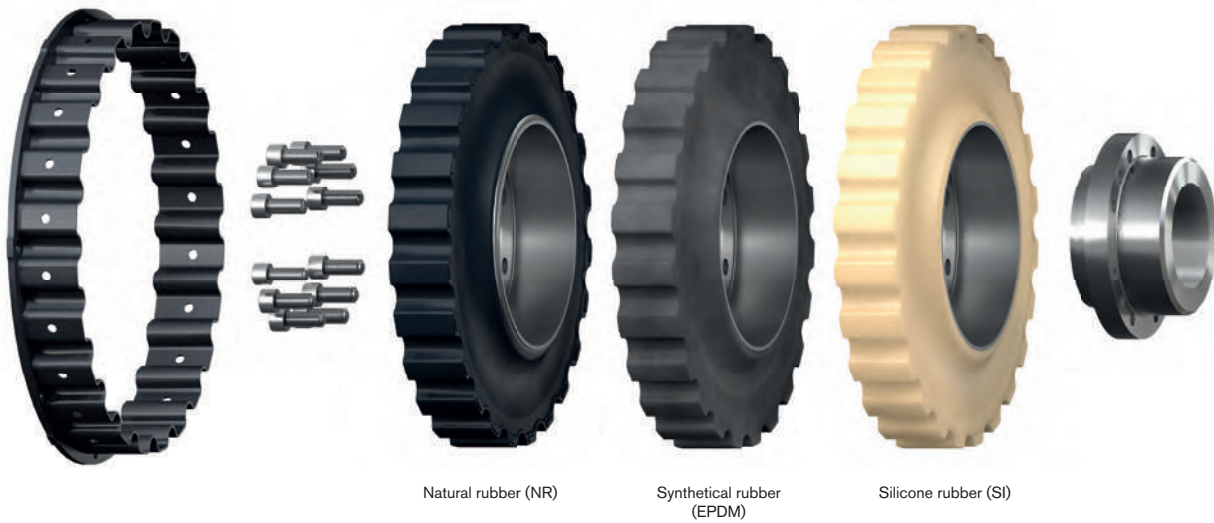
BoWex® FLE-PA/-PAC

MONOLASTIC®

BoWex-ELASTIC®

SINULASTIC®

Flange couplings

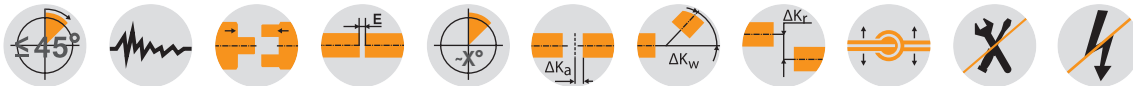


New materials	
Synthetical rubber (EPDM)	Silicone rubber (SI)
• Max. ambient temperature: +100 °C	• Max. ambient temperature: +120 °C
• Long service life	• Very good resistance to media with oils and greases
• Low decline of torsion spring stiffness	• Lightly progressive torsion spring stiffness
• High weather and aging resistance	• High weather and aging resistance
• Resuming high damping work	• Resuming very high damping work

SINULASTIC® A

Highly flexible flange coupling

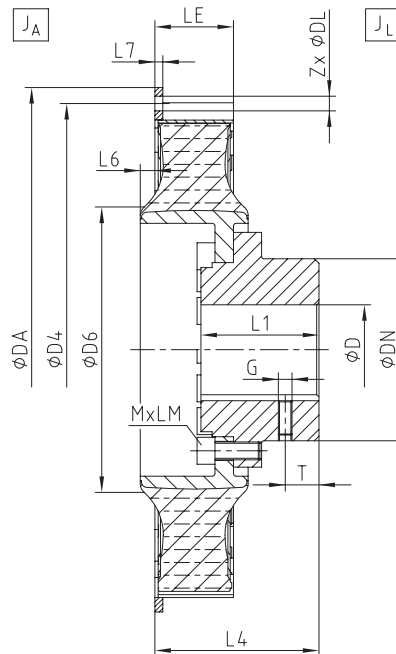
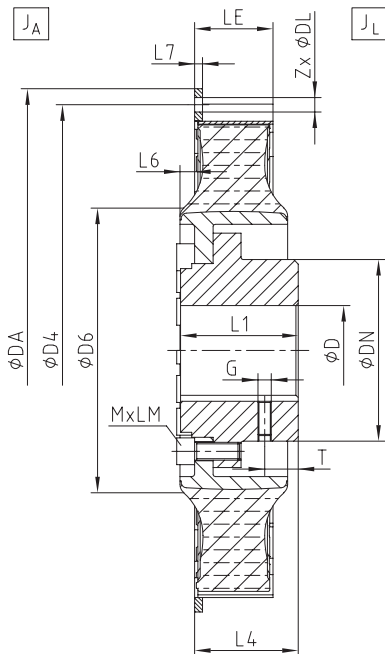
Pluggable disk coupling with optimal tooth contact



Type AK

Type AL

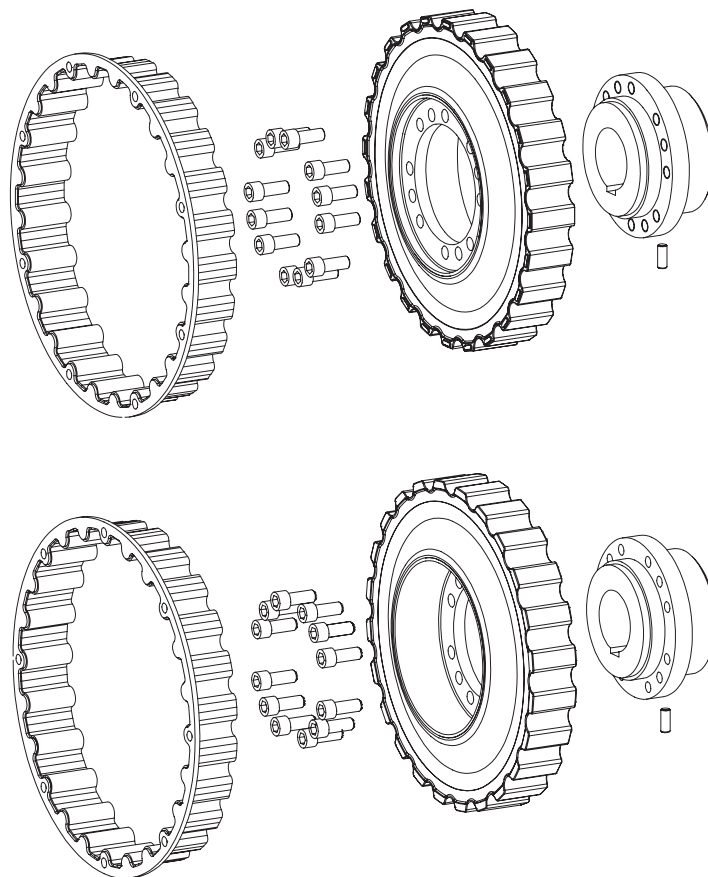
Types AK and AL specify the standard with variable hub connections as a short or long version



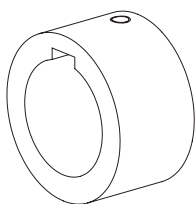
Flange dimensions according to SAE J620 [mm]				
Nominal size	DA	D4	Z	DL
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13
18"	571.50	542.90	6	17
21"	673.10	641.35	12	17
24"	733.42	692.15	12	21
Ø475	475	450	12	11

SINULASTIC® type AK / AL														Mass moment of inertia [kgm ²] ¹⁾		Weight [kg] ¹⁾					
Size	Flange connection acc. to SAE - J620						Dimensions [mm]										JA	JL			
	11 1/2"	14"	18"	21"	24"	Ø475	Max. finish bore D	DN	D6	LE	L1	L4		L6	L7				MxLM	G	T
	AK		AL																		
20	●						80	112	164	65	75	90.5 +3.5/-4.5	127.5 +3.5/-4.5	5.5	41.0 13.6	M12x30	M10	30	0.0947	0.0533	13.70
28		●					115	162	244	44	90	93.5 ±3	109 ±3	7.0	7.0	M16x40	M12	35	0.1353	0.0533	14.79
			●																		
38			●				115	162	244	58	100	93.5 ±3	123 ±3	7.0	7.0	M16x40	M12	35	0.4968	0.1667	26.54
				●																	
53				●			115	162	247	70	105	92.5 ±3	146 ±3	13.0	7.0	M16x40	M12	40	0.2444	0.1994	25.53
					●																
96					●		175	248	352	84	150	129 ±4	192 ±4	1.0	11.0	M20x50	-	-	0.2584	0.1994	25.79
114						●	175	248	352	98	150	129 ±4	206 ±4	1.0	11.0	M20x50	-	-	0.6000	0.2378	34.09
140						●	175	248	431	94	200	200 ±3.5	280 ±3.5	3.0	14.0	M20x60	-	-	0.7310	1.0321	63.86
180						●	175	248	431	114	200	200 ±3.5	300 ±3.5	3.0	14.0	M20x60	-	-	2.2186	1.0321	77.90
																			1.6464	1.1212	76.48
																			2.3243	1.1212	82.05
																			1.6664	2.1577	101.52
																			2.5280	2.1577	108.59
																			1.9539	2.4188	109.82
																			2.8167	2.4188	116.90

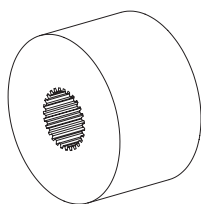
¹⁾ With max. bore



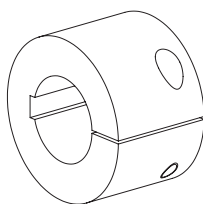
Types of hubs type AK / AL ¹⁾



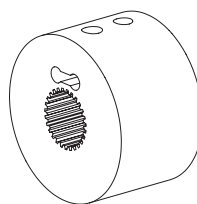
Type 1.0
with feather keyway
and setscrew
(acc. to standard AK, AL)



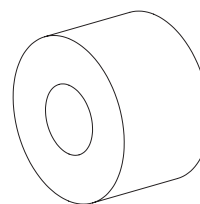
Type 1.3
spline toothing



Type 2.1
clamping hub
single slot with
feather keyway



Type 3.1
spline/clamping hub N



Type 8.0
taper interference fit

Type 8.1
cylindrical
interference fit

¹⁾Dimensions and type may differ depending on size, other types of hubs on request

SINULASTIC® A

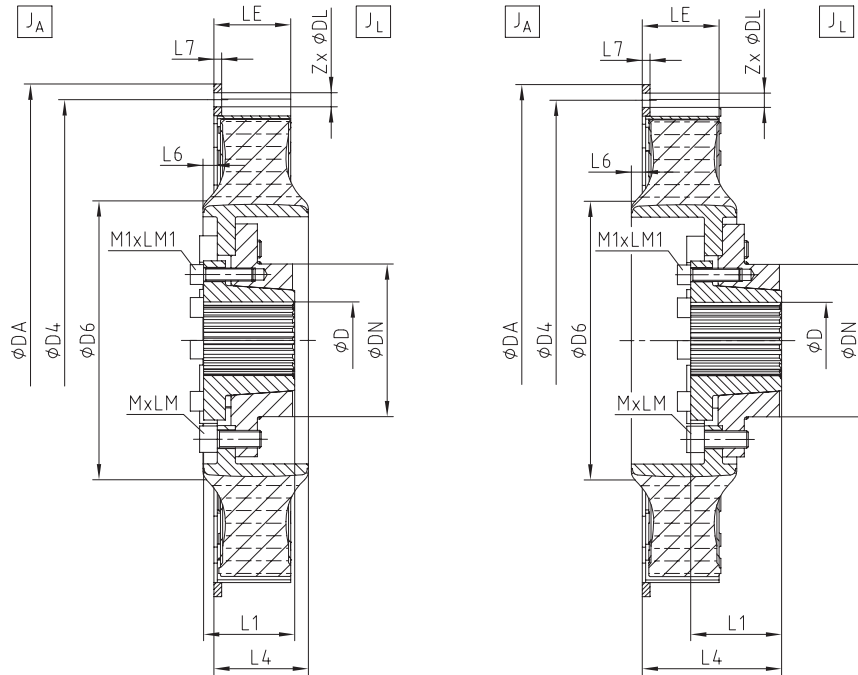
Highly flexible flange coupling

Type ALC / AKC

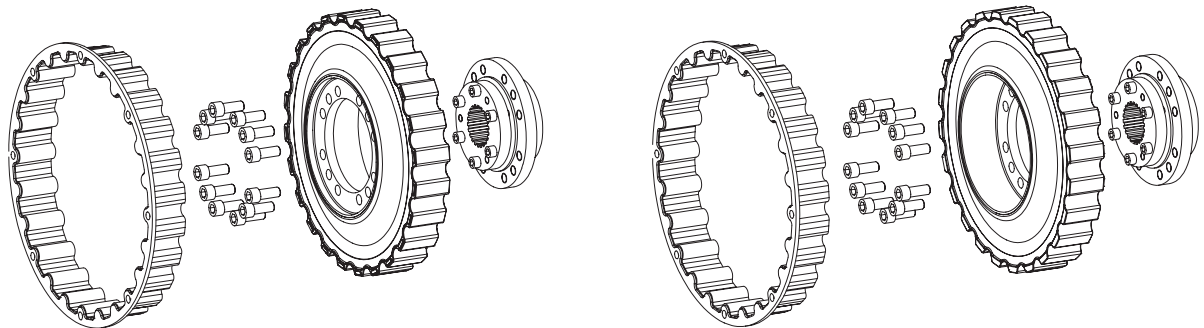
Type AKC

Type ALC

Types AKC and ALC specify the hub type as a spline clamping ring hub



Flange dimensions according to SAE J620 [mm]				
Nominal size	DA	D4	Z	DL
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13
18"	571.50	542.90	6	17
21"	673.10	641.35	12	17
24"	733.42	692.15	12	21
Ø475	475	450	12	11



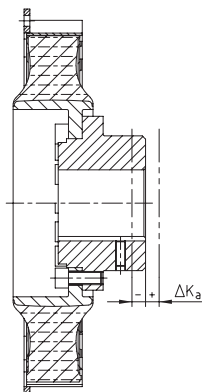
SINULASTIC® type AKC / ALC																						
Size	Flange connection acc. to SAE - J620						Finish bore D		Dimensions [mm]										Mass moment of inertia [kgm ²] ¹⁾		Weight [kg] ¹⁾	
	11 1/2"	14"	18"	21"	24"	Ø475	Pilot bored	Max.	DN	D6	LE	L1	L4		L6	L7	MxLM	M1xLM1	JA	JL		
	AK		AL																			
20	●						30	50	109	164	65	57	70.5 +3.5/-4.5	95.5 +3.5/-4.5	5.5	41.0	13.6	M12x30	M10x30	0.0947	0.0520	13.93
		●																		0.1353	0.0520	15.02
			●																		0.1873	0.1525
28			●				46	65	139	244	44	63	56.5 ±3	72 ±3	7.0	7.0		M16x40	M10x40	0.4968	0.1525	25.79
				●																0.2013	0.1525	21.40
					●															0.2444	0.1837	24.05
38				●			46	80	139	244	58	69	65 ±3	92 ±3	7.0	7.0		M16x40	M10x40	0.5539	0.1837	28.70
					●															0.2584	0.1837	24.31
						●														0.2906	0.2240	28.72
53					●		46	80	139	247	70	83	83 ±3	124 ±3	13.0	7.0		M16x40	M12x45	0.6000	0.2240	33.37
						●														0.3046	0.2240	28.98
96	On request																					
114	On request																					
140	On request																					
180	On request																					

¹⁾ With max. bore

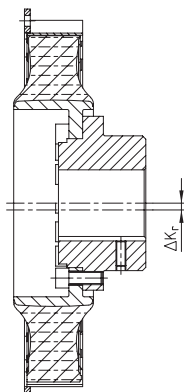
SINULASTIC® A

Highly flexible flange coupling

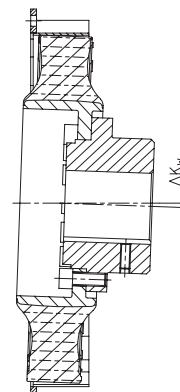
Displacements



Axial displacement



Radial displacement



Angular displacement

SINULASTIC® A size		20	28	38	53	96	114	140	180
Perm. axial displacement ΔK_a [mm] ²⁾		±2.0	±3.0	±3.0	±3.0	±3.0	±3.0	±3.0	±3.0
Perm. radial displacement ΔK_r [mm]	1500 rpm	0.8	1.1	1.1	1.1	1.25	1.25	1.5	1.5
	$n_{max.}$	0.6	0.8	0.8	0.8	0.9	0.9	1.1	1.1
	max. ¹⁾	1.6	2.2	2.2	2.2	2.5	2.5	3.0	3.0
Perm. angular displacement ΔK_w [degree]	1500 rpm	0.7	0.6	0.6	0.6	0.5	0.5	0.4	0.4
	$n_{max.}$	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3
	max. ¹⁾	1.1	0.9	0.9	0.9	0.8	0.8	0.6	0.6

¹⁾With assembly, for a short time resp. rarely with downtime or start-up operation as well as exceptional load conditions.

²⁾Plug-in fit in the tooth contact allows for alternative mounting lengths

BoWex® FLE-PA/-PAC

MONOLASTIC®

Flange couplings

BoWex-ELASTIC®

SINULASTIC®

Ordering example:

SINULASTIC® 53	ALC	M	14	1.3	DIN 5480 - 60x2x28
Coupling size	Type	Elastomer hardness	Flange ØDA acc. to SAE or special	Hub type	Finish bore

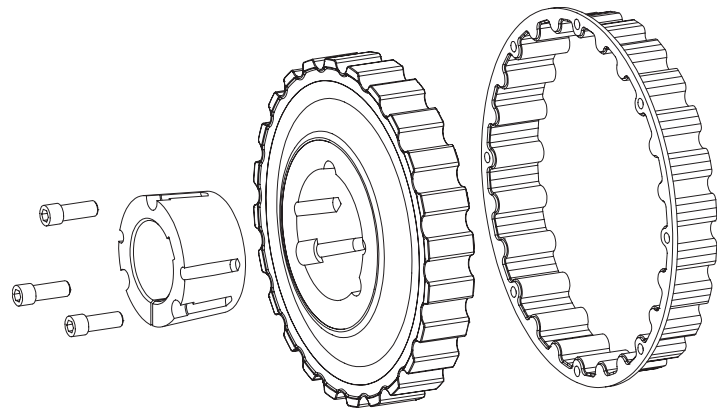
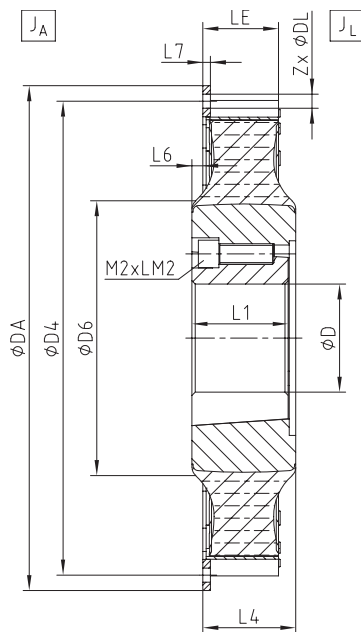
SINULASTIC® T

Highly flexible flange coupling

Pluggable disk coupling with optimal tooth contact



Type T specifies the hub type as Taperlock shaft connection

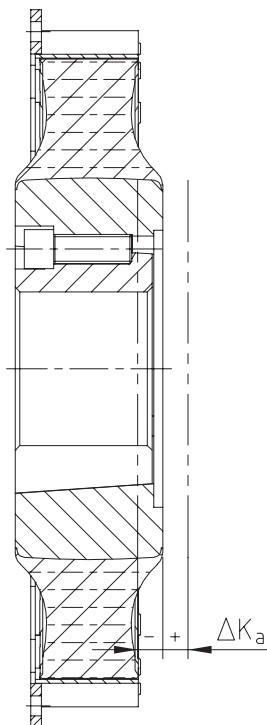


Flange dimensions according to SAE J620 [mm]				
Nominal size	DA	D4	Z	DL
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13
18"	571.50	542.90	6	17
21"	673.10	641.35	12	17
24"	733.42	692.15	12	21
Ø475	475	450	12	11

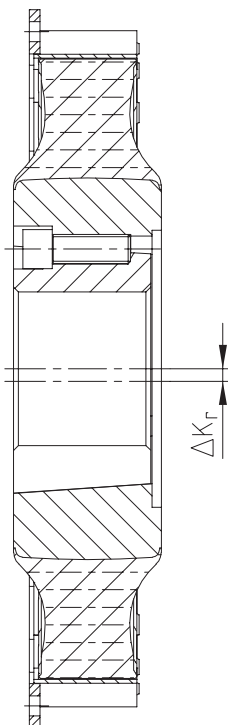
SINULASTIC® type T																					
Size	Flange connection acc. to SAE - J620						Dimensions [mm]						Taper clamping sleeve		Mass moment of inertia [kgm ²] ¹⁾		Weight [kg] ¹⁾				
	11 1/2"	14"	18"	21"	24"	Ø475	Pilot bored	Max.	D6	LE	L1	L4	L6	L7	M2xLM2	Type		JA	JL		
																			41.0	13.6	
20	●						35	90	164	60	63.5	70.5 +3.5/-4.5	5.5		41.0	13.6	1/2"x38	3525	0.0947	0.0568	13.75
		●																	0.1353	0.0568	14.83
28		●					35	90	244	44	63.5	57.0 ± 3	7.0	7.0			1/2"x38	3525	0.1873	0.1919	24.37
			●																0.4968	0.1919	29.02
						●													0.2013	0.1919	24.63
38		●					40	110	244	58	76.2	70.0 ± 3	7.0	7.0			5/8"x44	4030	0.2444	0.2404	28.68
			●																0.5539	0.2404	33.33
						●													0.2584	0.2404	28.93
53		●					55	125	247	70	89.0	83.0 ± 3	13.0	7.0			3/4"x50	4535	0.2906	0.2993	33.72
			●																0.6000	0.2993	38.36
						●													0.3046	0.2993	33.97

¹⁾ With max. bore

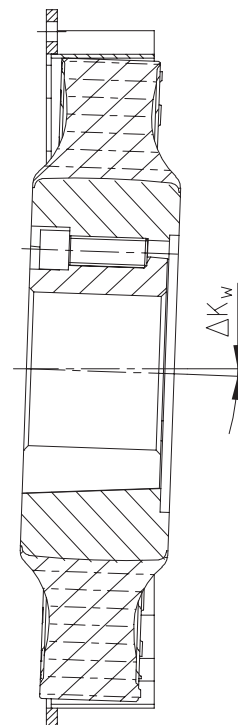
Displacements



Axial displacement



Radial displacement



Angular displacement

SINULASTIC® T size		20	28	38	53
Perm. axial displacement ΔK_a [mm] ²⁾		±2.0	±3.0	±3.0	±3.0
Perm. radial displacement ΔK_r [mm]	1500 rpm	0.8	1.1	1.1	1.1
	n_{max}	0.6	0.8	0.8	0.8
Perm. angular displacement ΔK_w [degree]	max. ¹⁾	1.6	2.2	2.2	2.2
	1500 rpm	0.7	0.6	0.6	0.6
Perm. angular displacement ΔK_w [degree]	n_{max}	0.5	0.4	0.4	0.4
	max. ¹⁾	1.1	0.9	0.9	0.9

¹⁾With assembly, for a short time resp. rarely with downtime or start-up operation as well as exceptional load conditions.

²⁾Plug-in fit in the tooth contact allows for alternative mounting lengths

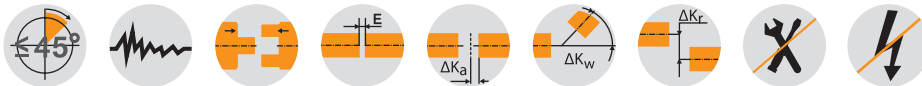
Ordering example:

SINULASTIC® 53	T	M	14	1.0	Ø75
Coupling size	Type	Elastomer hardness	Flange ØDA acc. to SAE or special	Hub type	Finish bore

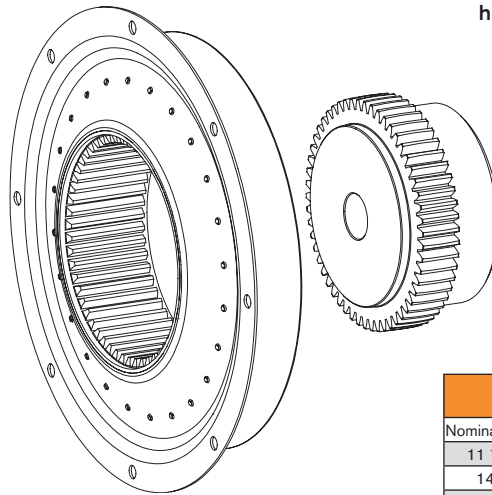
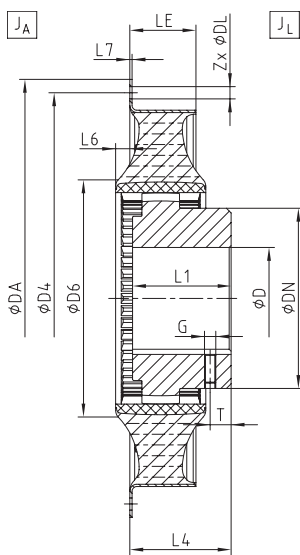
SINULASTIC® B

Highly flexible flange coupling

Disk coupling pluggable inside



Type B specifies a type pluggable in the hub for variable use and high potential for offset

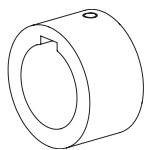


Flange dimensions according to SAE J620 [mm]				
Nominal size	DA	D4	Z	DL
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13
18"	571.50	542.90	6	17
21"	673.10	641.35	12	17
24"	733.42	692.15	12	21
Ø475	475	450	12	11

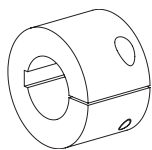
SINULASTIC® type B																				
Size	Flange connection acc. to SAE - J620						Dimensions [mm]											Mass moment of inertia [kgm ²] ¹⁾		Weight [kg] ¹⁾
	11 1/2"	14"	18"	21"	24"	Ø475	Max. finish bore D	DN	D6	LE	L1	L4	L6	L7	G	T	JA	JL		
20	●						80	124	169	60.0	75	80.5 ± 21	8.5	2.0	M10	20	0.0625	0.0336	9.67	
		●															0.1114	0.0336	10.82	
28		●					125	200	244	38.0	140	129 ± 7	10.0	2.5	M10	20	0.1159	0.1978	27.15	
			●			●											0.2291	0.1978	28.82	
38		●					125	200	245	52.0	140	136 ± 14	10.0	2.5	M16	40	0.1213	0.1978	27.24	
			●			●											0.1524	0.2121	28.95	
53		●					125	200	247	70.5	140	143 ± 20	15.0	2.5	M16	40	0.2655	0.2121	30.62	
			●			●											0.1578	0.2121	29.05	
96			●				160	225	352	69.0	150	131.5 ± 12	7.0	2.5	-	-	0.1944	0.2298	31.10	
				●		●											0.3075	0.2298	32.77	
114			●				160	225	352	83.0	150	138.5 ± 19	7.0	2.5	-	-	0.1998	0.2298	31.20	
				●		●											0.3857	0.5413	41.23	
140				●			240	326	431	81.0	200	175 ± 11	10.0	3.0	-	-	0.5741	0.5413	43.18	
					●	●											0.7318	0.5413	44.46	
180					●		240	326	431	101.0	200	185 ± 21	10.0	3.0	-	-	0.4591	0.5979	44.33	
						●											0.6475	0.5979	46.28	
																	0.8052	0.5979	47.56	
																	0.8816	1.8772	83.39	
																	1.0708	1.8772	84.93	
																	1.0905	2.0154	88.66	
																	1.2796	2.0154	90.19	

¹⁾ With max. bore

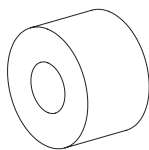
Types of hubs type B ¹⁾



Type 1.0
with feather keyway
and setscrew



Type 2.1
clamping hub
single slot with
feather keyway

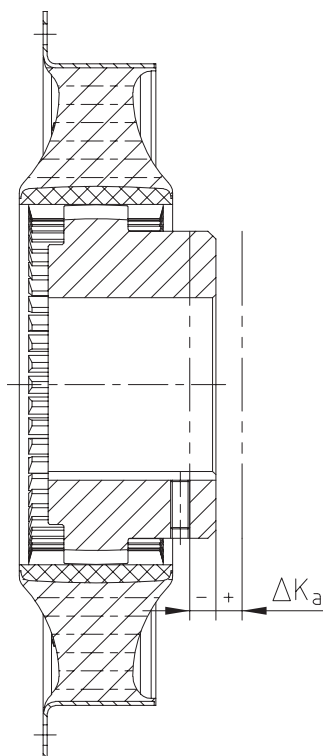


Type 8.0
taper interference fit

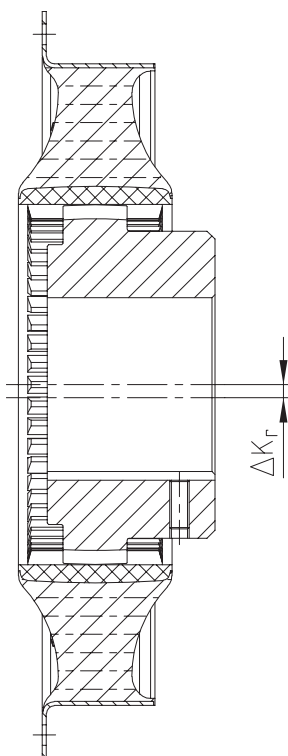
Type 8.1
cylindrical
interference fit

¹⁾Dimensions and type may differ depending on size, other types of hubs on request

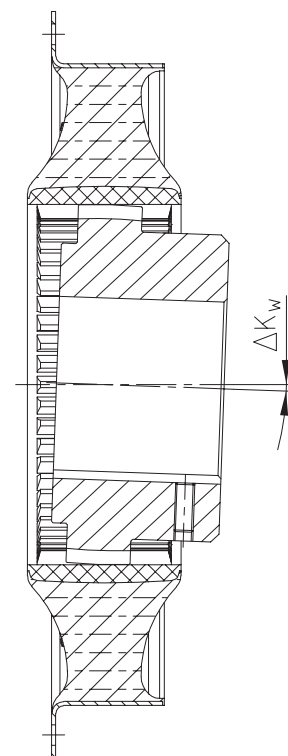
Displacements



Axial displacement



Radial displacement



Angular displacement

SINULASTIC® B size		20	28	38	53	96	114	140	180
Perm. axial displacement ΔK_a [mm]		±2	±3	±3.0	±3.0	±4.0	±4.0	±4.0	±4.0
Perm. radial displacement ΔK_r [mm]	1500 rpm	0.8	1.1	1.1	1.1	1.25	1.25	1.5	1.5
	n_{max}	0.6	0.8	0.8	0.8	0.9	0.9	1.1	1.1
	max. ¹⁾	1.6	2.2	2.2	2.2	2.5	2.5	3.0	3.0
Perm. angular displacement ΔK_w [degree]	1500 rpm	1.0	0.8	0.8	0.8	0.7	0.7	0.6	0.6
	n_{max}	0.7	0.6	0.6	0.6	0.5	0.5	0.4	0.4
	max. ¹⁾	2.0	1.6	1.6	1.6	1.4	1.4	1.2	1.2

¹⁾With assembly, for a short time resp. rarely with downtime or start-up operation as well as exceptional load conditions.

Ordering example:	SINULASTIC® 53	B	M	14	1.3	DIN 5480 - 60x2x28
	Coupling size	Type	Elastomer hardness	Flange ØDA acc. to SAE or special	Hub type	Finish bore

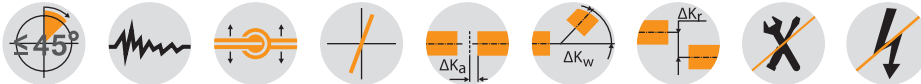
SINULASTIC® V

Highly flexible flange coupling

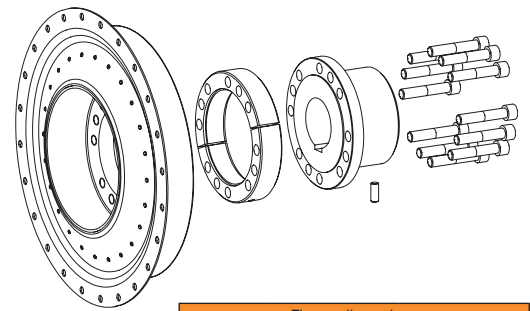
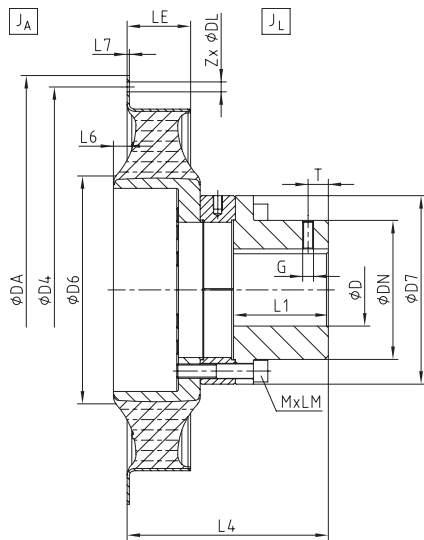
Radially mountable disk coupling



For legend of pictogram refer to flapper on the cover



Type V specifies a radially replaceable type for not flange-mounted drives set up freely

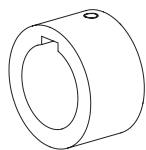


Flange dimensions according to SAE J620 [mm]				
Nominal size	DA	D4	Z	DL
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13
18"	571.50	542.90	6	17
21"	673.10	641.35	12	17
24"	733.42	692.15	12	21
Ø475	475	450	12	11

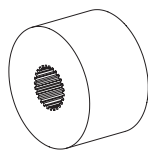
SINULASTIC® type V																						
Size	Flange connection acc. to SAE - J620						Dimensions [mm]											Mass moment of inertia [kgm ²] ¹⁾		Weight [kg] ¹⁾		
	11 1/2"	14"	18"	21"	24"	Ø475	Max. finish bore D	DN	D6	D7	LE	L1	L4	L6	L7	MxLM	G	T	J _A		J _L	
	20	•	•					70	100	145	145	60.0	75	196	8.5	2.0	M12x90	M10	20		0.0625	0.0650
													181						0.1114	0.0612	16.40	
													191						0.1159	0.2148	27.33	
28		•	•				110	154	244	209	38.0	100	181	10.0	2.5	M16x90	M10	20	0.2291	0.2053	27.85	
													181						0.1213	0.2053	26.28	
													205						0.1524	0.2379	29.77	
38		•	•			•	110	154	245	209	52.0	100	195	10.0	2.5	M16x90	M16	40	0.2655	0.2274	30.16	
													195						0.1578	0.2274	28.59	
													229						0.1944	0.2751	33.62	
53		•	•			•	110	154	247	209	70.5	105	223	15.0	2.5	M16x90	M16	40	0.3075	0.2690	34.55	
													223						0.1998	0.2690	32.97	
																			0.3857	1.1404	68.98	
96			•	•			160	235	352	300	69.0	150	249	7.0	2.5	M20x80	-	-	0.5741	0.1404	70.93	
																			0.7318	1.1404	72.21	
																			0.4591	1.2304	72.97	
114			•	•			160	235	352	300	83.0	150	263	7.0	2.5	M20x80	-	-	0.6475	1.2304	74.92	
																			0.8052	1.2304	76.20	
																			0.8816	2.1530	97.56	
140				•	•		165	235	431	300	81.0	200	314	10.0	3.0	M20x80	-	-	1.0708	2.1530	99.10	
																			1.0905	2.3954	104.94	
180				•	•		165	235	431	300	101.0	200	334	10.0	3.0	M20x80	-	-	1.2796	2.3954	106.47	

¹⁾ With max. bore

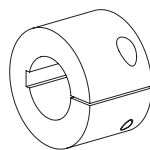
Types of hubs type V ¹⁾



Type 1.0
with feather keyway
and setscrew



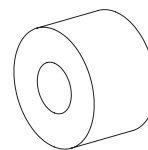
Type 1.3
spline toothing



Type 2.1
clamping hub
single slot with
feather keyway



Type 3.1
spline/clamping hub N

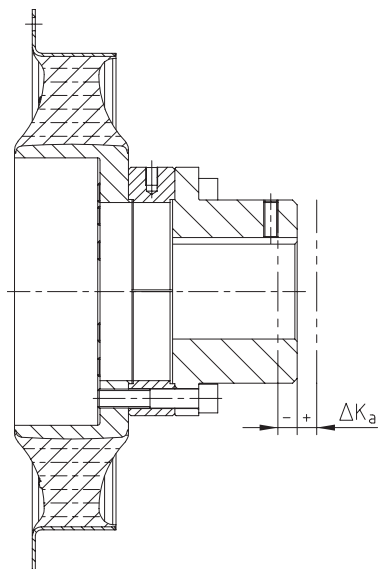


Type 8.0
taper interference fit

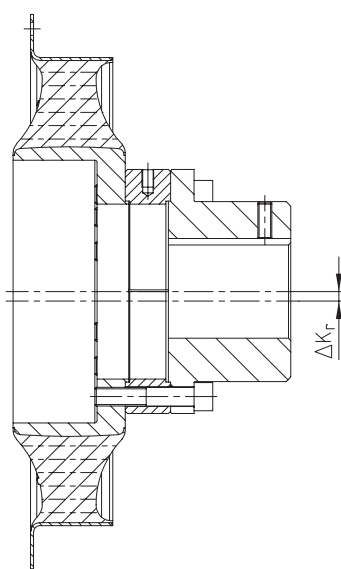
Type 8.1
cylindrical
interference fit

¹⁾Dimensions and type may differ depending on size, other types of hubs on request

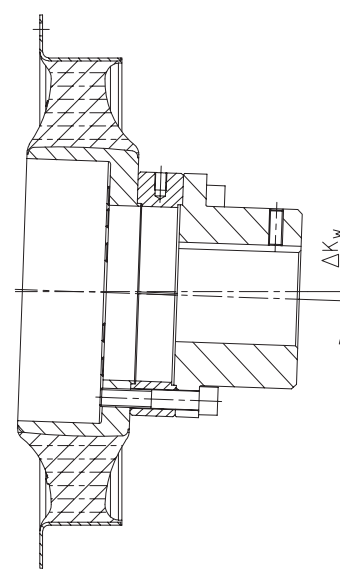
Displacements



Axial displacement



Radial displacement



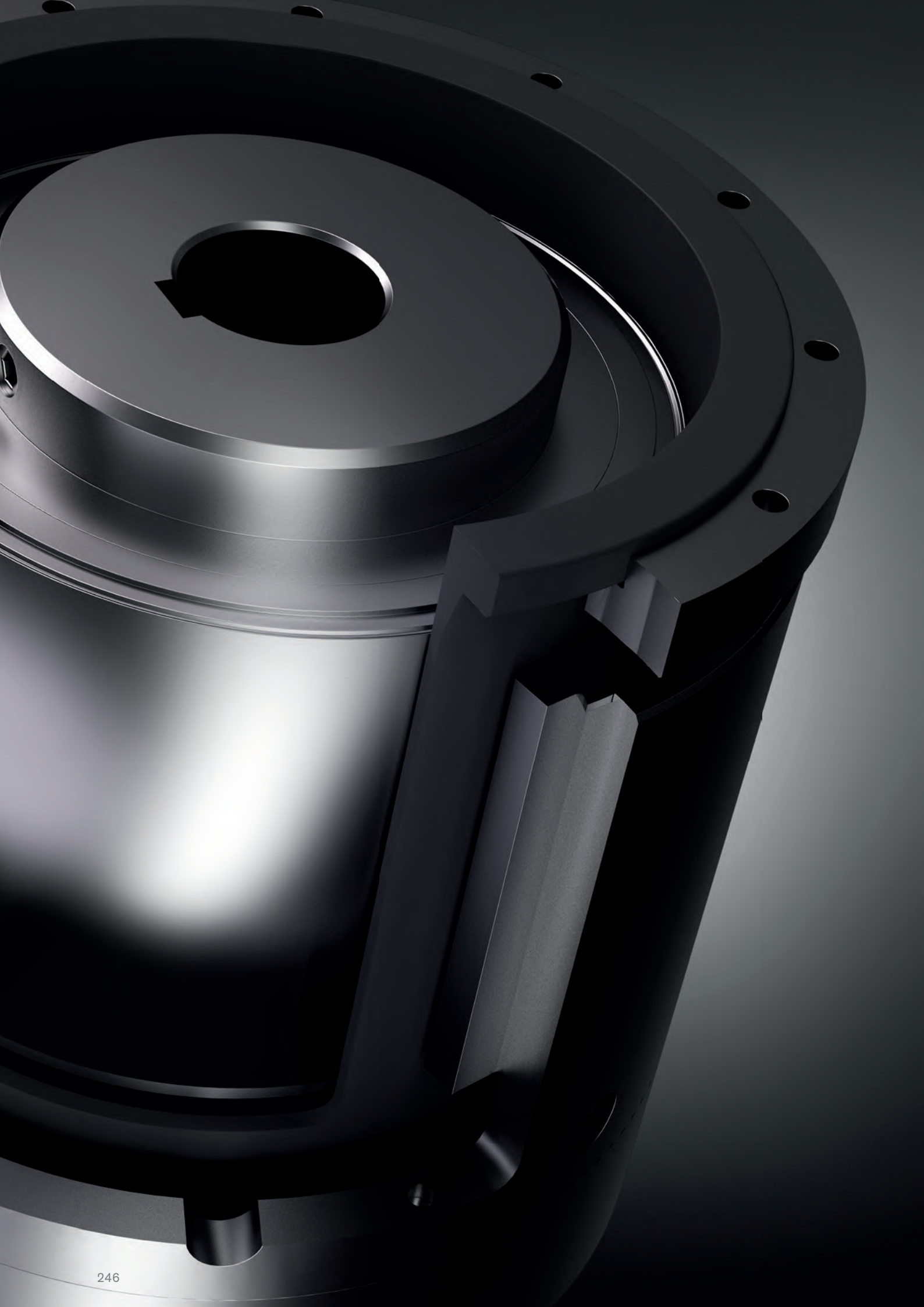
Angular displacement

SINULASTIC® V size		20	28	38	53	96	114	140	180
Perm. axial displacement ΔK_a [mm]		± 2	± 3	± 3.0	± 3.0	± 4.0	± 4.0	± 4.0	± 4.0
Perm. radial displacement ΔK_r [mm]	1500 rpm	0.8	1.1	1.1	1.1	1.25	1.25	1.5	1.5
	n_{max} max. ¹⁾	0.6	0.8	0.8	0.8	0.9	0.9	1.1	1.1
Perm. angular displacement ΔK_w [degree]	1500 rpm	1.0	0.8	0.8	0.8	0.7	0.7	0.6	0.6
	n_{max} max. ¹⁾	0.7	0.6	0.6	0.6	0.5	0.5	0.4	0.4
		2.0	1.6	1.6	1.6	1.4	1.4	1.2	1.2

¹⁾With assembly, for a short time resp. rarely with downtime or start-up operation as well as exceptional load conditions.

**Ordering
example:**

SINULASTIC® 53	V	M	14	1.0	Ø60
Coupling size	Type	Elastomer hardness	Flange ØDA acc. to SAE or special	Hub type	Finish bore



Magnetic couplings

Types and operating description 248

MINEX®-S

Containment shroud – material stainless steel	250
Containment shroud – material Hastelloy	252
Containment shroud – material PEEK	254
Containment shroud – material oxide ceramics	256
Conversion kits and customised subassemblies	258
Other types	259



MINEX®-H

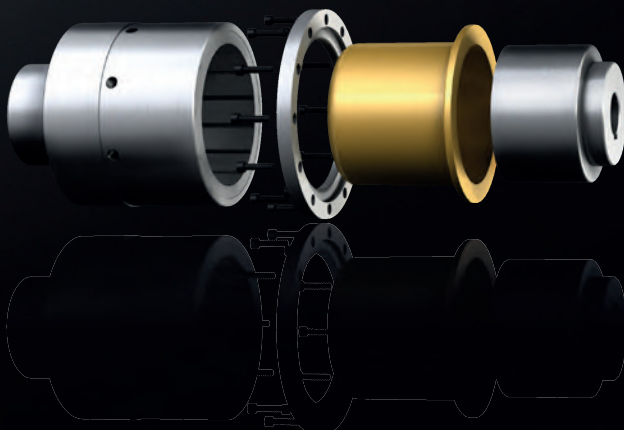
Hysteresis coupling 260

Please note: Higher pressure resistance



Years of experience with applications at customer sites and additional test series in the KTR test field in Rheine enabled us to determine potentials allowing for an increase of pressure resistance with some sizes of this series.

MINEX®-S



MINEX®-H



MAGNETIC COUPLINGS

TYPES AND OPERATING DESCRIPTION

General information



General description

MINEX[®]-S magnetic couplings transmit the torque without contact through magnetic forces between the internal and external rotor. They ensure hermetic separation between driving and driven side in pumps and agitators sealing hazardous liquids and gases reliably. As a result they prevent serious leakages operating as a reliable alternative to usual dynamic shaft seals.

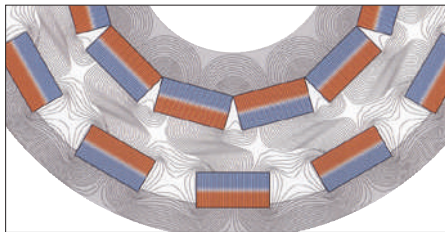
Internal rotor



External rotor



Run of flux lines



Operation/Design

The coupling consists of an external and an internal rotor. The external rotor has high-quality, permanent magnets of changing polarity on the inner side while the internal rotor has got them on the outside.

The external rotor is usually fixed on the drive side and the magnets are bonded in the keyways. The magnets of the internal rotor on the driven side are fully encapsulated.

Torque transmission

In their non-operative states the north and south poles of the rotors face each other and the magnetic field is completely symmetric. It is only when the rotors are twisted that the magnetic field lines are deflected, hence the torque is transmitted through the air gap. Then there is a synchronous operation under a constant torsion angle. If the maximum coupling torque and the maximum torsion angle are exceeded, the power transmission is interrupted.

Containment shroud



Sealing function

The containment shroud that is fixed on the housing separates internal and external rotor from each other.

It ensures a completely leak-proof separation of product space and atmosphere.

The sealing is made statically, e. g. with a flat gasket or an O-ring, thus eliminating the need to use dynamically loaded sealing elements.

As a standard KTR supplies both metallic and non-metallic containment shrouds. The metallic types cover the widest application range, yet causing eddy current losses which might require cooling measures. If eddy current losses can be entirely excluded, the energy-efficient alternative materials PEEK and ceramics are available.

Use in potentially explosive atmospheres

MINEX[®] couplings are suitable for power transmission in drives in potentially explosive atmospheres. The types with metallic, ceramic and PEEK containment shrouds are assessed and approved as components of category II according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 2G.


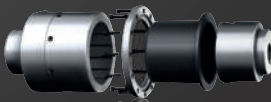
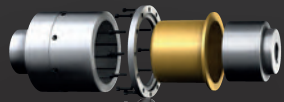



Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.

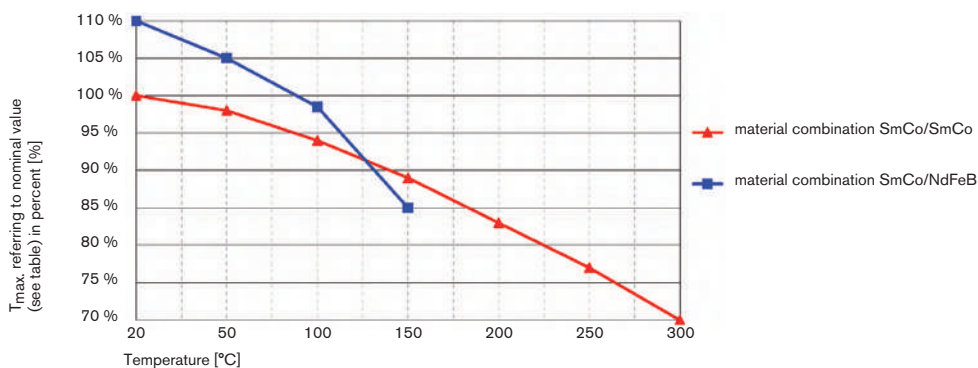
MAGNETIC COUPLINGS

TYPES AND OPERATING DESCRIPTION

Properties of magnetic couplings

			
Product	Type with metallic containment shroud	Type with containment shroud made of PEEK CFRP	Type with containment shroud made of oxide ceramics
Type	Permanent-magnetic synchronous coupling		
Properties			
Permanent-magnetic	●	●	●
Contactless	●	●	●
Maintenance-free	●	●	●
Torsionally flexible	●	●	●
Low-vibration	●	●	●
Special features/applications			
	most common type covering the widest performance range particularly suitable for pump drives/ applications with liquids high t_{max} [°C] and p_{max} [bar]	no eddy current losses energy-efficient and economic particularly suitable for dry running	
		for average requirements on t_{max} [°C] and p_{max} [bar]	high t_{max} [°C] and p_{max} [bar]
Torque range T_{KN} [Nm]			
Max.	1,000	600	600
Max. pressure resistance [bar]			
p_{max} .	up to 90 bars depending on size	up to 16 bars with 130 °C	up to 40 bars depending on size
Geometries			
shaft diameter min./max. [mm]	Ø5 pilot bored	Ø5 pilot bored	Ø5 pilot bored
Max. temperature resistance [°C]			
t_{max} .	150/300 depending on magnet material	130	300
Certifications/type examinations			
ATEX 	●	CFRP reinforcement ●	GRP reinforcement ●
	for further details see catalogue pages 250 - 253	for further details see catalogue pages 254 - 255	
			for further details see catalogue pages 256 - 257

Torque reduction with temperature increase



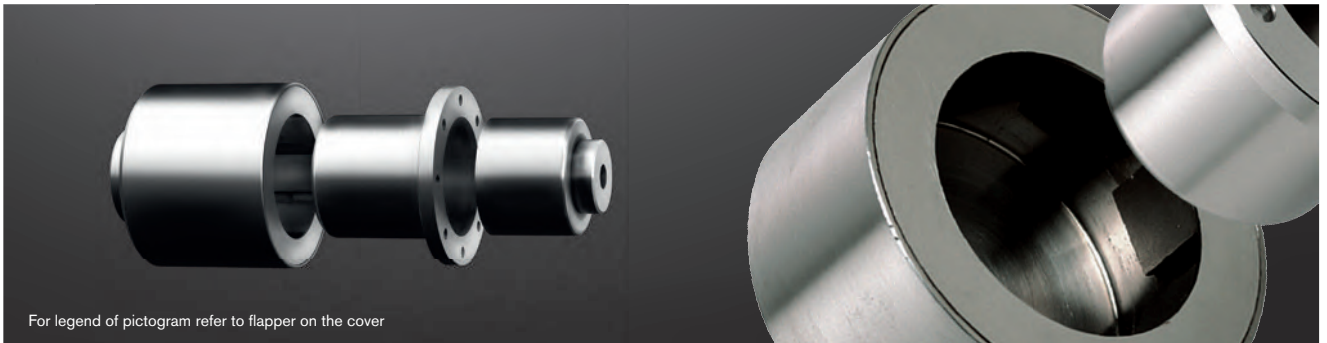
Temporary torque reduction with increased temperature for alternative material combinations [%].

Please note:

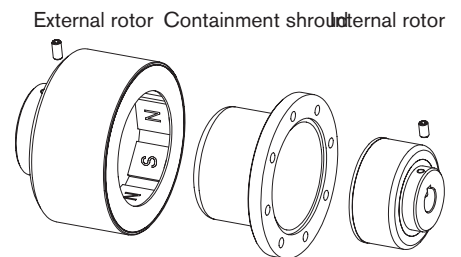
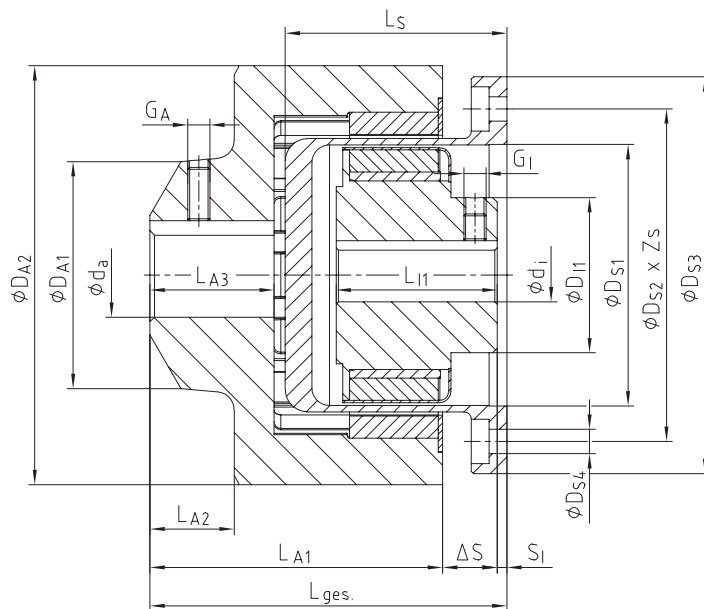
KTR recommends to use NdFeB magnets for the external rotor, provided that the operating temperature falls below 150 °C.

MINEX[®]-S Magnetic couplings

Containment shroud – material stainless steel



For legend of pictogram refer to flapper on the cover



Technical data – Internal rotor and containment shroud

Size	TK max [Nm] with 20 °C	Dimensions [mm]												
		Internal rotor						Containment shroud						
		Finish bore ¹⁾ d _i		D _{I1}	L _{I1}	G _I	S _I		D _{S1}	D _{S2}	D _{S3}	D _{S4}	Z _S	L _S
min.	Max.	min.	Max.											
SA 22/4	0.15	5	9	20	20	M3	2.0	2.0	21.5	38	46	4.5	8	29
SA 34/10	1	5	12	20	22	M3	2.0	5.5	34	46	55	4.5	4	30.5
SA 46/6	3	8	16	28	33	M4	6.5	7.0	46	64	78	4.5	8	45
SA 60/8	7	12	22	35	36.3	M5	1.7	5.5	59	75	83.5	5.5	8	50
SB 60/8	14			36	56	M5	0.0	4.0						

Technical data – External rotor and general

Size	Dimensions [mm]										
	External rotor									General	
	Finish bore ¹⁾ d _a		D _{A1}	D _{A2}	G _A	L _{A1}	L _{A2}	L _{A3}	ΔS	L _{total}	
min.	Max.	min.								Max.	
SA 22/4	5	11	18	38	M4	35	8.5	11	5	42	42
SA 34/10	5	14	22	53	M4	38.8	10.5	13	5.3	46	49.5
SA 46/6	5	24	40	69.5	M5	53	16	22	9	69	69.5
SA 60/8	9	32	50	94.5	M6	66	19	28	12	80	83.3
SB 60/8	9	38			M8	93.3	15	30			

¹⁾ Bores H7 with keyway to DIN 6885 sheet 1 [JS9]

Ordering example:	MINEX [®] SA 60/8	NdFeB	d _i Ø20 mm	d _a Ø24 mm
	Coupling size	NdFeB – t _{max.} = 150 °C Sm2Co17 – t _{max.} = 300 °C	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)	

Examples of application

MINEX® couplings with containment shroud made of stainless steel are the most common type for pump drives and other applications with liquids in the lower performance range. Subject to their high resistance to pressure and temperature they cover a wide application range. The magnetic rotors are available from stock in an unbored resp. pilot bored design. If requested, the parts can be finish bored according to ISO fit H7 and provided with a feather keyway to DIN 6885 sheet 1 [JS9].

Inside the rotating magnetic field metallic containment shrouds generally cause losses of eddy current which are converted into heat and which may require cooling measures. On applications with pumps the generated heat can usually be dissipated by the conveyed medium. If higher pressure resistance than covered by the KTR standard is required, KTR provides for customised special solutions.

Typical applications: gear pumps, centrifugal pumps, screw spindle pumps, agitators, PU foaming lines

Use in potentially explosive atmospheres

MINEX® couplings with containment shroud made of stainless steel are suitable for power transmission in drives used in potentially explosive atmospheres. They are assessed and approved as components of category II according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 2G.

If the couplings operate in potentially explosive atmospheres, the user has to provide for special measures. Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.



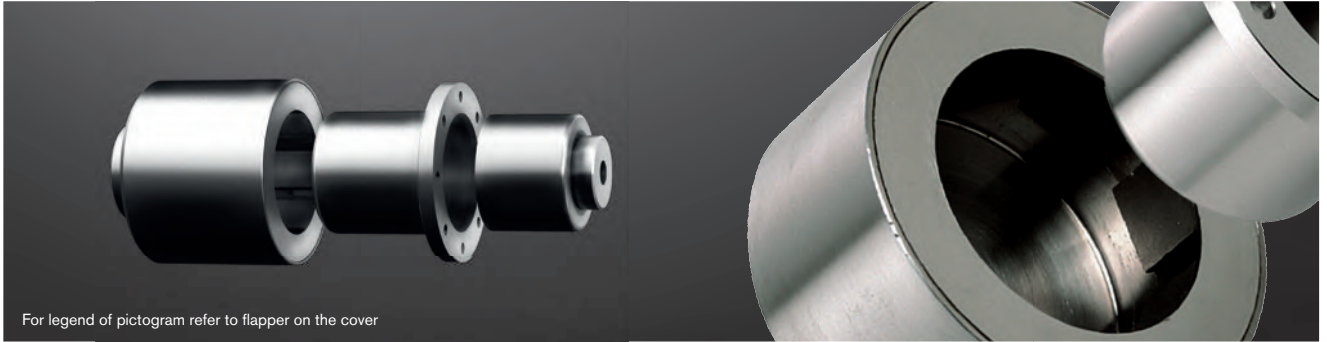
Technical data – Materials, temperature and pressure resistance

Size	TK max [Nm] with 20 °C	Internal rotor			Containment shroud			External rotor (+ flange hub optionally)		
		Standard material		Max. temperature	Standard material		Max. pressure	Standard material		Max. temperature
		Hub	Magnets	t _{max.} [°C]	Hub	Cont. shroud	P _N /P _{max.} [bar]	Hub	Magnets	t _{max.} [°C]
SA 22/4	0.15	1.4462	NdFeB	150	1.4571	1.4571	60/90	S355J2	NdFeB	150
SA 34/10	1	1.4462	NdFeB	150	1.4571	1.4571	16/24	S355J2	NdFeB	150
SA 46/6	3	1.4571	Sm2Co17	300	1.4571	1.4571	16/24	S355J2	Sm2Co17	300
SA 60/8	7	1.4571	Sm2Co17	300	1.4571	1.4571	40/60	S355J2	Sm2Co17*	300
SB 60/8	14	1.4571	Sm2Co17	300	1.4571	1.4571	40/60	S355J2	Sm2Co17*	300

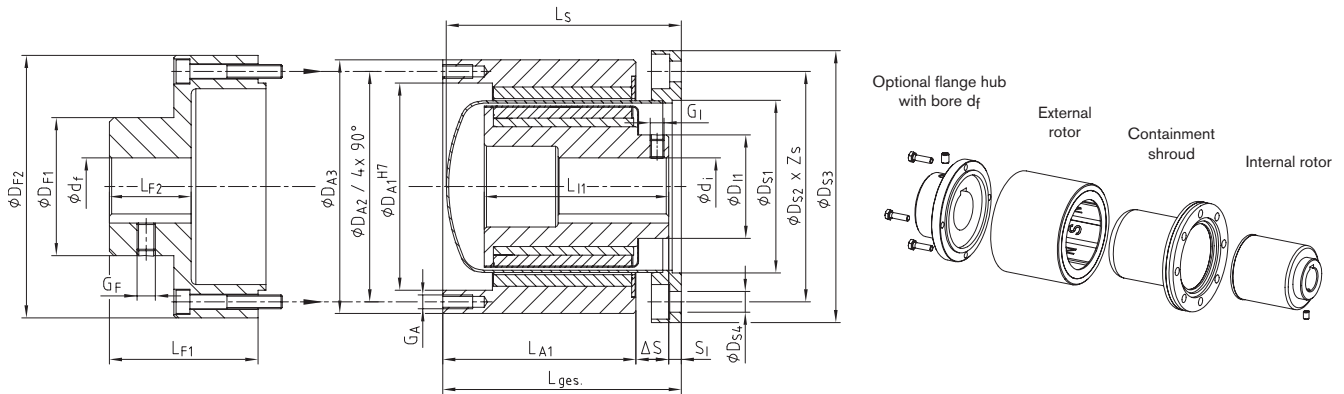
*) External rotor alternatively available with magnets made of NdFeB (t_{max.} = 150 °C)

MINEX®-S Magnetic couplings

Containment shroud – material Hastelloy



For legend of pictogram refer to flapper on the cover



Technical data – Materials, temperature and pressure resistance

Size	TK max [Nm] with 20 °C	Internal rotor		Containment shroud			External rotor (+ flange hub optionally)			
		Standard material		Max. temperature	Standard material		Max. pressure	Standard material		Max. temperature
		Hub	Magnets	t _{max.} [°C]	Hub	Cont. shroud	P _N /P _{max.} [bar]	Hub	Magnets	t _{max.} [°C]
SA 75/10	10	1.4571	Sm2Co17	300	1.4571	2.4602**	25/37.5	S355J2	Sm2Co17*	300
SB 75/10	24	1.4571	Sm2Co17	300	1.4571	2.4602**	25/37.5	S355J2	Sm2Co17*	300
SC 75/10	40	1.4571	Sm2Co17	300	1.4571	2.4602**	25/37.5	S355J2	Sm2Co17*	300
SB 110/16	60	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17*	300
SC 110/16	95	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17*	300
SB 135/20	100	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17*	300
SC 135/20	145	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17*	300
SD 135/20	200	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17*	300
SC 165/24	210	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17	300
SD 165/24	280	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17	300
SE 165/24	370	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17	300
SD 200/30	460	1.4571	Sm2Co17	300	1.4571	2.4856	16/24	S355J2	Sm2Co17	300
SE 200/30	600	1.4571	Sm2Co17	300	1.4571	2.4856	16/24	S355J2	Sm2Co17	300
SD 250/38	670	1.4571	Sm2Co17	300	1.4571	2.4856	16/24	S355J2	Sm2Co17	300
SE 250/38	820	1.4571	Sm2Co17	300	1.4571	2.4856	16/24	S355J2	Sm2Co17	300
SF 250/38	1000	1.4571	Sm2Co17	300	1.4571	2.4856	16/24	S355J2	Sm2Co17	300

*) External rotor alternatively available with magnets made of NdFeB (t_{max.} = 150 °C)

**) Containment shroud size 75 alternatively available made of stainless steel 1.4571 (P_N/P_{max.} = 16/24 bars)

Ordering example:	MINEX® SB 75/10	NdFeB	d _i Ø20 mm	d _a Ø24 mm	Hastelloy
	Coupling size	NdFeB – t _{max.} = 150 °C Sm2Co17 – t _{max.} = 300 °C	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)		Containment shroud type Stainless steel 1.4571 or Hastelloy

Examples of application

MINEX® couplings with containment shroud made of Hastelloy are the most common type for pump drives and other applications with liquids in the medium and higher performance range. Subject to their high resistance to pressure and temperature they cover a wide application range.

Inside the rotating magnetic field metallic containment shrouds generally cause losses of eddy current which are converted into heat and which may require cooling measures. On applications with pumps the generated heat can usually be dissipated by the conveyed medium. If higher pressure resistance than covered by the KTR standard is required, KTR provides for customised special solutions.

Typical applications: gear pumps, centrifugal pumps, screw spindle pumps, agitators, PU foaming lines

Use in potentially explosive atmospheres

MINEX® couplings with containment shroud made of Hastelloy are suitable for power transmission in drives used in potentially explosive atmospheres. They are assessed and approved as components of category II according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 2G.

If the couplings operate in potentially explosive atmospheres, the user has to provide for special measures. Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.



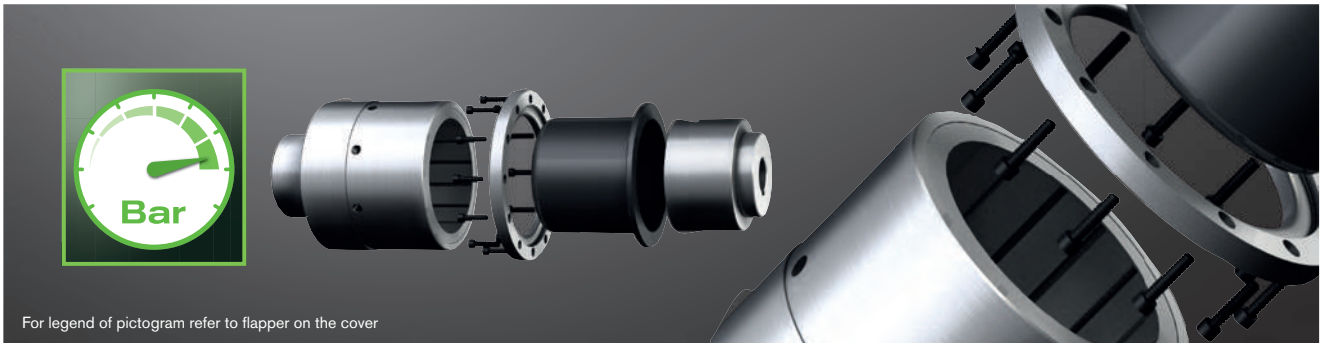
Technical data – External rotor and general																											
Size	Dimensions [mm]																										
	Internal rotor						Containment shroud						External rotor					Flange hub					General				
	Finish bore ¹⁾		D _{I1}	L _{I1}	G _I	S _I		D _{S1}	D _{S2}	D _{S3}	D _{S4}	Z _S	L _S	D _{A1}	D _{A2}	D _{A3}	L _{A1}	G _A	d _f max.	D _{F1}	D _{F2}	L _{F1}	L _{F2}	G _F	ΔS	Total length ²⁾ (with flange hub)	
	d _i min.	d _i max.				min.	Max.																			min.	Max.
SA 75/10			39.5			46.5										41.3									12.2	140	164.5
SB 75/10	12	32	45	58	M6	4	26.5	75	100	118	9	8	102	90	100	110	61.3	M6	42	60	114	64.5	35.5	M8	14.2	166.5	166.5
SC 75/10			80			4.0										83.8											
SB 110/16			65			35.0										61.3									18.7	183.5	214.5
SC 110/16	14	55	80	85	M8	4	15.0	110	133	153	9	12	115	126	135	145	81.3	M6	55	85	150	99.5	59.5	M10	18.7	203.5	
SB 135/20			65			50.5										70.3									18.2	190.5	204.5
SC 135/20	20	70	90	85	M10	4	30.5	135	158	178	9	16	139	150	160	170	90.3	M6	70	100	170	65.5	48.5	M12	20.7	200.5	
SD 135/20			110			8.0										110.3									20.7	233	247
SC 165/24			85			61.5										90.3									18.2	233	247
SD 165/24	24	80	110	110	M12	6	39.0	163.5	192	218	11	12	170	180	188	198	110.3	M6	75	110	198	77	60	M16	20.7	234	
SE 165/24			130			19.0										130.3											
SD 200/30			24.0			200	252	278	11	12	180	212	222	232	130.3	M6	80	120	232	120	98	M12	25.7	282	300		
SE 200/30	38	90	130	135	M16	6	24.0	200	252	278	11	12	180	212	222	232	130.3	M6	80	120	232	120	98	M12	25.7	282	300
SD 250/38			115			46.0										110.3										282	
SE 250/38	38	100	165	135	M16	6	26.0	255	285	315	13.5	12	182	272	282	292	130.3	M6	100	150	300	140	93	M16	25.7	302	322
SF 250/38			155			6.0										150.3										322	

¹⁾ Bores H7 with keyway to DIN 6885 sheet 1 [JS9]

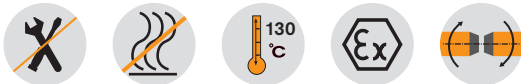
²⁾ Total length without flange hub = L_S

MINEX[®]-S Magnetic couplings

Containment shroud – material PEEK



For legend of pictogram refer to flapper on the cover



Technical data – Internal rotor and containment shroud													
Size	Dimensions [mm]												
	Internal rotor						Containment shroud						
	Finish bore ¹⁾ d _f		D _{I1}	L _{I1}	G _I	S _I		D _{S1}	D _{S2}	D _{S3}	D _{S4}	Z _S	L _S = L _{total}
	min.	Max.				min.	Max.						
SA 75/10			39.5			30.5	54.5						
SB 75/10	12	32	45	58	M6	8.5	35.5	-	100	118	9	8	108
SC 75/10				80		5.5	13.5						
SB 110/16				65		4	25						
SC 110/16	14	55	80	85	M8	2	5	140	151	168	9	12	115
SB 135/20				65		38.5	48						
SC 135/20	20	70	90	85	M10	18.5	28	157	167	180	6.6	12	144
SD 135/20				110		4	4						
SC 165/24				85			32						
SD 165/24	24	80	110	110	M12	4	8	196	210	228	9	12	156
SE 165/24				130		-6	-6						165
SD 200/30													
SE 200/30	38	100	130	135	M16	2	4	229	246	265	9	12	183

Technical data – External rotor, flange hub and general														
Size	Dimensions [mm]													
	External rotor					Flange hub						General		
	DA1	DA2	DA3	LA1	GA	Max. finish bore ¹⁾ d _f	DF1	DF2	LF1	LF2	GF	ΔS	Total length ²⁾ (with flange hub)	
													min.	Max.
SA 75/10				41.3										
SB 75/10	90	100	110	61.3	M6	42	60	114	64.5	35.5	M8	12.2	148.5	172.5
SC 75/10				83.8								14.2	168	172.5
SB 110/16				61.3	M6	55	85	153	87.5	45.5	M10	18.7	172.5	193.5
SC 110/16	130	138	150	81.3									191.5	193.5
SB 135/20				70.3									216	225.5
SC 135/20	158	167	176	90.3	M6	70	100	176	89	67	M12	18.2	216	225.5
SD 135/20				110.3								20.7	224	224
SC 165/24				90.3								18.5	231	234.8
SD 165/24	186	195	204	110.3	M6	75	110	204	94	70	M16	21	231	233.3
SE 165/24				130.3									254.3	254.3
SD 200/30														
SE 200/30	212	222	232	130	M6	90	120	232	133	98	M16	25.7	288	290

¹⁾ Bores H7 with keyway to DIN 6885 sheet 1 [JS9] ²⁾ Total length without flange hub = L_S

Technical data											
Size	T _K max [Nm] with 20 °C	Internal rotor				Containment shroud				External rotor (+ flange hub optionally)	
		Standard material		Standard material		Max. pressure		Max. temperature		Standard material	
		Hub	Magnets	Clamping ring	Cont. shroud	PN [bar]	t _{max.} [°C]	Hub	Magnets		
SA 75/10	10	1.4571	Sm2Co17	-	PEEK	16	130	S355J2	NdFeB		
SB 75/10	24	1.4571	Sm2Co17	-	PEEK	16	130	S355J2	NdFeB		
SC 75/10	40	1.4571	Sm2Co17	-	PEEK	16	130	S355J2	NdFeB		
SB 110/16	70	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SC 110/16	100	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SB 135/20	110	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SC 135/20	155	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SD 135/20	210	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SC 165/24	220	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SD 165/24	300	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SE 165/24	390	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SD 200/30	460	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		
SE 200/30	600	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB		

■ = Years of experience with applications at customer sites and additional test series in the KTR test field in Rheine enabled us to determine potentials allowing for an increase of the pressure resistance with some sizes of this series.

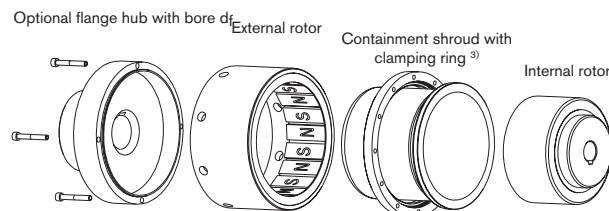
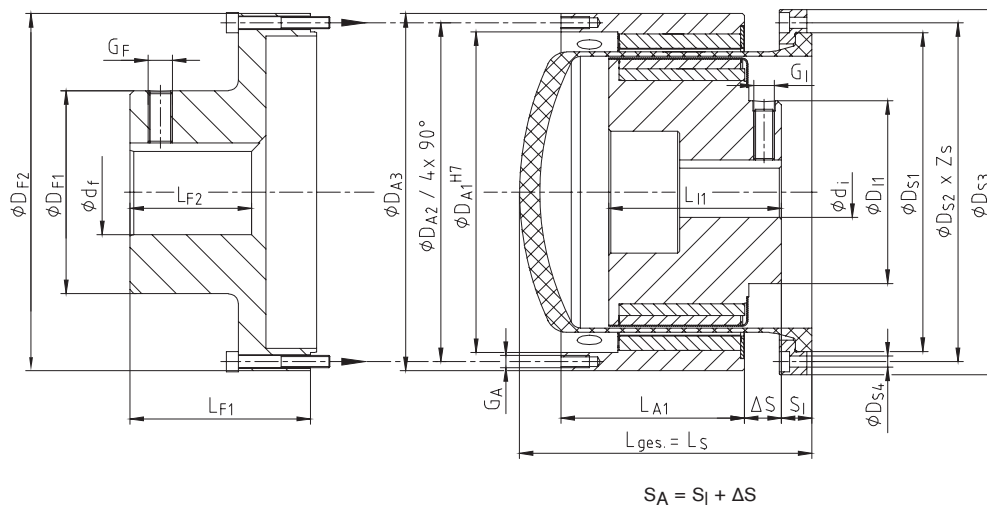
Ordering example:	MINEX [®] SB 75/10	NdFeB	d _i Ø20 mm	d _a Ø24 mm	PEEK
	Coupling size	NdFeB – t _{max.} = 150 °C	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)		Containment shroud type

Examples of application

MINEX® couplings with containment shroud made of PEEK are an economic, energy-efficient alternative to the metallic types. They do not generate any eddy current losses and as a result do not generate any heat so that usually expensive cooling measures can be done without. Moreover, they are characterized by low susceptibility to fracture, low weight and easy handling.

They are ideally suitable for applications with low demands on temperature and pressure resistance.

Typical applications: vacuum pumps, fan drives, compressors, agitators, PU foaming lines



³⁾ Containment shroud size 75 also available as a one-piece design!

Use in potentially explosive atmospheres

MINEX® couplings with containment shrouds made of carbon fibre reinforced PEEK are suitable for power transmission in drives in potentially explosive atmospheres. They are assessed and approved as components of category II according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 2G.

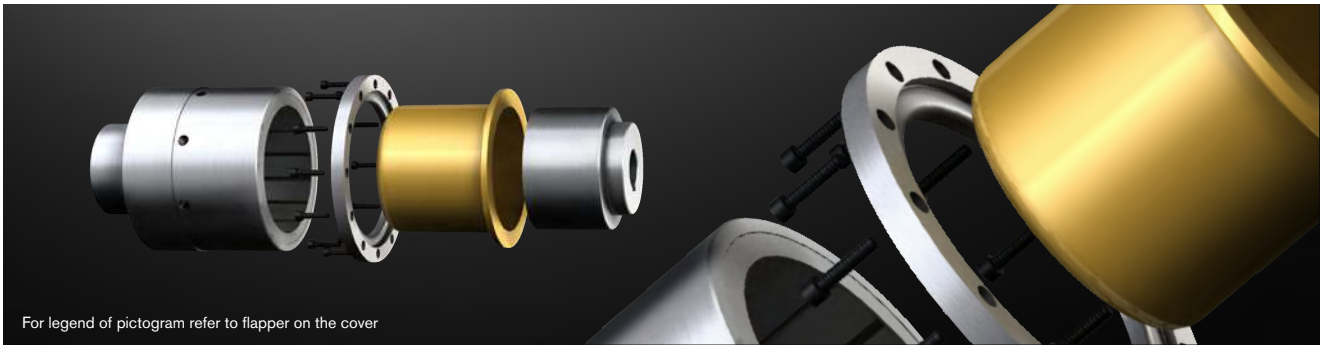
If the couplings operate in potentially explosive atmospheres, the user has to provide for special measures. Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.



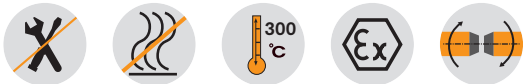
MINEX®-S

Magnetic couplings

Containment shroud – material oxide ceramics



For legend of pictogram refer to flapper on the cover



Technical data – Internal rotor and containment shroud

Size	Dimensions [mm]												
	Internal rotor						Containment shroud						
	Finish bore ¹⁾ d _f		D _{I1}	L _{I1}	G _I	S _I		D _{S1}	D _{S2}	D _{S3}	D _{S4}	Z _S	L _S = L _{total}
min.	Max.	min.				Max.							
SB 60/8	12	22	36	56	M5	1	21	75	82	99	5.5	6	92
SC 60/8				76			2						
SB 75/10	12	32	45	58	M6	6.5	30.5	89	100	118	9	8	108
SC 75/10				80			8.5						
SB 110/16	14	55	72	65	M8	4	28.0	132	151	168	9	12	115
SC 110/16				85			9.0						
SB 135/20				65			46.5						
SC 135/20	20	70	90	85	M10	4	26.5	157	167	180	6.6	12	143
SD 135/20				110			4.0						
SC 165/24				85			28.0						150
SD 165/24	24	90	110	110	M12	4	4.0	196	210	228	9	12	185
SE 165/24				130			17.0						185
SD 200/30				135			4.0						185
SE 200/30	38	90	130	135	M16	4	4.0	229	246	265	9	12	185

Technical data – External rotor, flange hub and general

Size	Dimensions [mm]											General		
	External rotor					Flange hub						Total length ²⁾ (with flange hub)		
	DA1	DA2	DA3	LA1	GA	Max. finish bore ¹⁾ d _f	DF1	DF2	LF1	LF2	GF	ΔS	min.	Max.
SB 60/8	76	84	94	79.5	M6	38	60	94	42	38	M6	12.5	135	156
SC 60/8														
SB 75/10	90	100	110	61.3	M6	42	80	114	84.5	35.5	M6	11.9	148.5	170.4
SC 75/10				83.8								13.9	170.5	
SB 110/16	130	138	150	61.3	M6	55	85	153	87.5	45.5	M10	18.7	171.5	195.5
SC 110/16				81.3									191.5	196.5
SB 135/20				70.3								18.2	215	224
SC 135/20	158	167	176	90.3	M6	70	100	176	89	67	M12		215	224
SD 135/20				110.3								20.7	220	220
SC 165/24				90.3								18.5	225	230.5
SD 165/24	186	195	204	110.3	M6	75	110	204	94	70	M16	20.7	229	229
SE 165/24				130.3									260	260
SD 200/30														
SE 200/30	212	222	232	130.3	M6	80	120	240	120	88	M16	25.7	280	280

¹⁾ Bores H7 with keyway to DIN 6885 sheet 1 [JS9]

²⁾ Total length without flange hub = L_S

Technical data

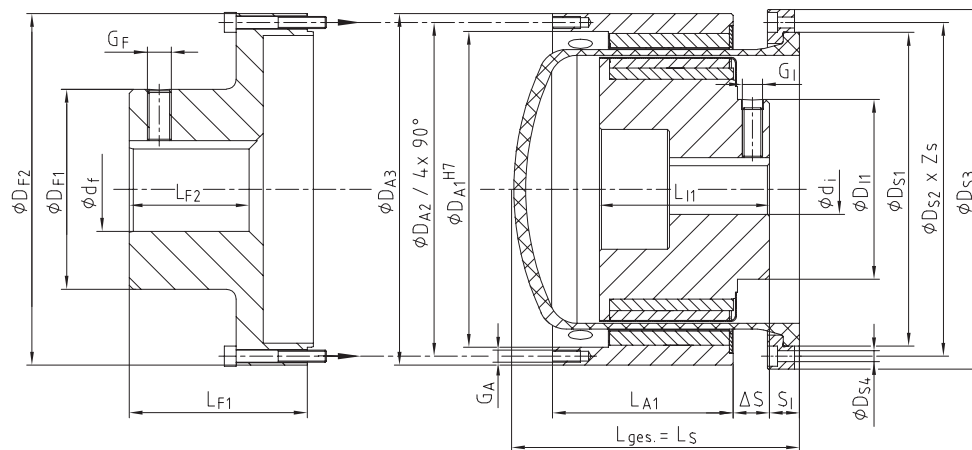
Size	T _K max [Nm] with 20 °C	Internal rotor		Containment shroud		External rotor (+ flange hub optionally)				
		Standard material		Max. temperature t _{max} [°C]	Standard material		Max. pressure P _N /P _{max} [bar]	Standard material		Max. temperature t _{max} [°C]
		Hub	Magnets		Hub	Cont. shroud		Hub	Magnets	
SB 60/8	14	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	40/60	S355J2	Sm2Co17	300
SC 60/8	22	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	40/60	S355J2	Sm2Co17	300
SB 75/10	24	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	40/60	S355J2	Sm2Co17	300
SC 75/10	40	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	40/60	S355J2	Sm2Co17	300
SB 110/16	70	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SC 110/16	100	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SB 135/20	110	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SC 135/20	155	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SD 135/20	210	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SC 165/24	220	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SD 165/24	300	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SE 165/24	390	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SD 200/30	460	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SE 200/30	600	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300

Ordering example:	MINEX® SB 135/20	NdFeB	d _i Ø20 mm	d _a Ø24 mm	Oxide ceramics ZrO ₂ MgO
	Coupling size	NdFeB – t _{max} . = 150 °C Sm2Co17 – t _{max} . = 300 °C	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)		Containment shroud type

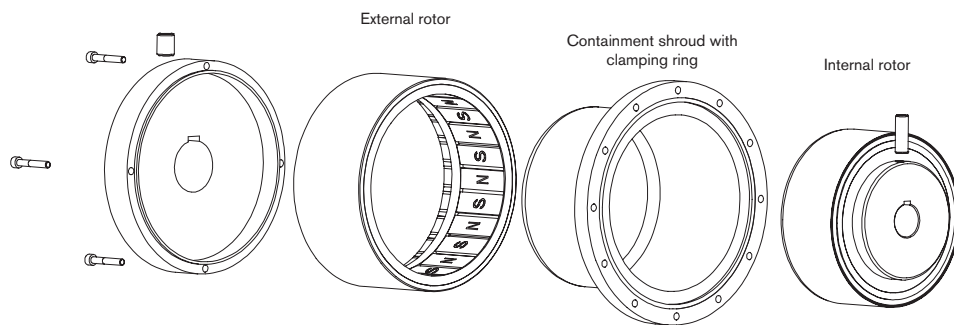
Examples of application

Like with the types with containment shroud made of PEEK, MINEX® couplings with containment shroud made of ceramics are an economic, energy-efficient alternative to the metallic types. Again they do not generate any eddy current losses and as a result do not generate any heat so that usually expensive cooling measures can be done without. Compared to PEEK, the containment shrouds made of ceramics are characterized by higher resistance to pressure and an excellent temperature resistance.

Typical applications: vacuum pumps, fan drives, compressors, agitators, PU foaming lines



Optional flange hub with bore d_f



Use in potentially explosive atmospheres

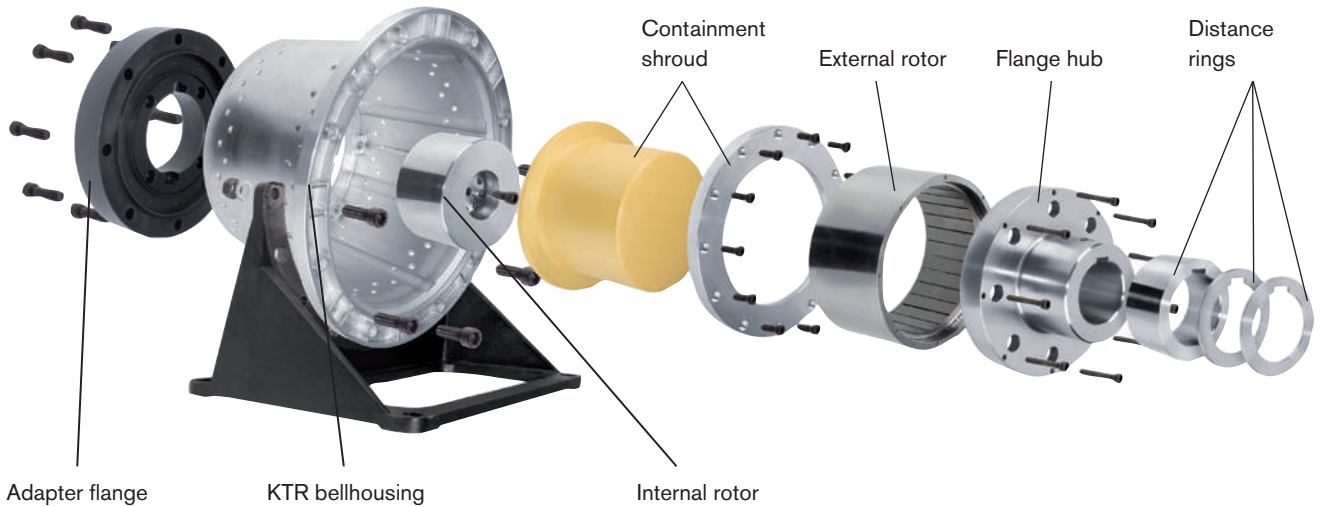
MINEX® couplings with containment shrouds made of oxide ceramics are suitable for power transmission in drives used in potentially explosive atmospheres. They are assessed and approved as components of category II according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 2G.

Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.



MINEX®-S Magnetic couplings

Conversion kits and customised subassemblies



On request KTR provides customised special solutions in combination with KTR hydraulic components, allowing to easily retrofit existing systems with MINEX®-S.

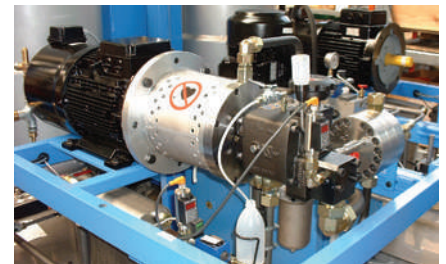
Conversion kits for PUR foaming processes

When conveying and proportioning the media polyol and isocyanate in the processing plants for PUR, ambient air has to be prevented from penetrating into the process, since otherwise adverse reactions may be generated.

For a reliable sealing of such drives KTR provides standard conversion kits, among others for axial piston pumps type REXROTH A2VK/A7VK and ROTARY POWER C series offering the following benefits:

- maintenance-free operation
- downtimes are considerably reduced
- no more problems with sealing
- better efficiency and process reliability

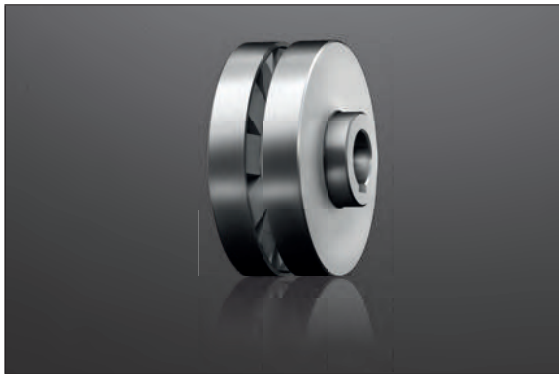
The subassemblies are available for all motor-pump-combinations and in various materials.



Maintenance-free sealing of proportioning pumps for polyol and isocyanate in high-pressure reaction moulding machines

Pump data		Motor data (4 poles, n=1500 rpm)			Coupling data			
Pump	Type	Motor	Power [kW]	Torque TN	Size	Max. torque TK max	Bellhousings	
REXROTH A2VK/A7VK	A2/A7VK-12	132 S	5.5	35 Nm	SB 110/16	60 Nm	PL 300/13/...	
		132 M	7.5	48 Nm	SC 110/16	95 Nm		
		160 M	11	70 Nm	SC 135/20	145 Nm		
	A2/A7VK-28	160 M	11	70 Nm	70 Nm	SC 135/20	145 Nm	PL 350/7/...
		160 L	15	96 Nm	96 Nm	SD 135/20	200 Nm	
		180 M	18.5	118 Nm	118 Nm	SD 135/20	200 Nm	
A2/A7VK-55	180 L	180 L	22	144 Nm	144 Nm	SD 165/24	210 Nm	PL 350/7/...
		200 L	30	196 Nm	196 Nm	SE 165/24	280 Nm	
	225 S/M	225 S/M	37/45	240/292 Nm	240/292 Nm	SE 165/24	370 Nm	PL 450/3/...
		225 S/M	37/45	240/292 Nm	240/292 Nm	SE 165/24	370 Nm	
	ROTARY POWER C-Range	C 01	100L	2.2	14 Nm	SB 75/10	24 Nm	PK 250/13/...
C 04		132 M	7.5	48 Nm	SC 110/16	95 Nm	PL300/13/...	
		132 S	5.5	35 Nm	SB 110/16	60 Nm	PL300/13/...	
C 07		132 M	7.5	48 Nm	48 Nm	SC 110/16	95 Nm	PL300/13/...
		160 L	15	96 Nm	96 Nm	SD 135/20	200 Nm	PL 350/7/...
C20	180 M	18.5	118 Nm	118 Nm	SD 135/20	200 Nm	PL 350/7/...	

Other types



Disk coupling

With this type the magnets are arranged opposite each other in axial direction. Thus this type is able to transmit the torque through plane walls. Furthermore it provides the following benefits:

- compact
- drive of applications in closed liquid containers
- torque setting via air gap

Applications: Pumps, agitators, compressors, fans, swivel drives

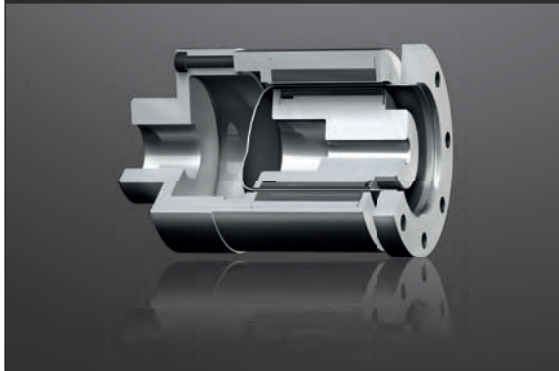
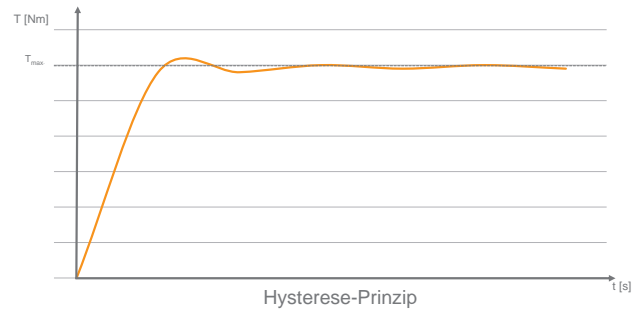


Hysteresis coupling MINEX[®]-H

Different from the MINEX[®]-S magnetic coupling this type switches to slipping operation once the maximum transmittable torque has been achieved, while it continues to transmit T_{max} as a holding torque.

- wear-free torque limitation
- maintenance-free & load-holding
- very good repeatability of torque
- applicable as a coupling or brake

Applications: roller conveyors, winder drives, capping machines, etc.



MINEX[®]-S fully made of stainless steel

If requested, KTR supplies MINEX[®]-S fully made of stainless steel. The magnets of the external rotor are encapsulated just like with the internal rotor.

Applications: offshore, marine, etc.



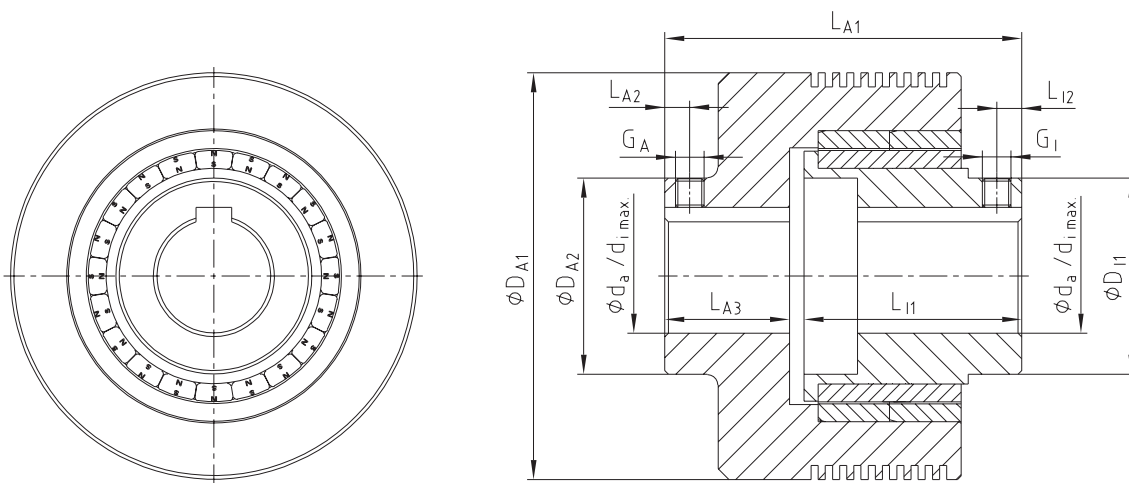
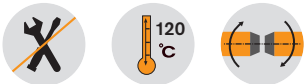
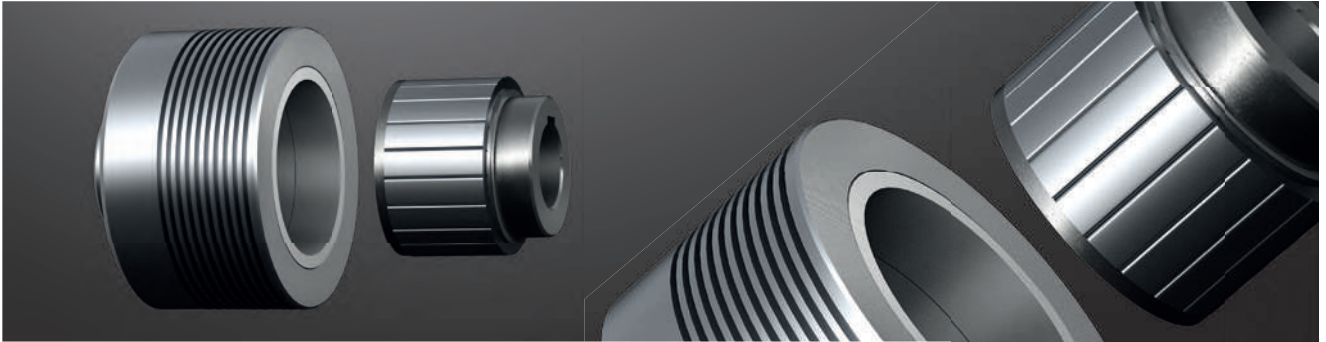
customised special solutions

If requested, KTR supplies MINEX[®]-S in combination with the plain bearing required for the driven shaft.

MINEX®-H

Magnetic couplings

Hysteresis coupling



Technical data															
Size	Overload torque $T_{\max, 20\text{ °C}}$ [Nm]	Finish bore d_a/d_i max. [mm]	Dimensions [mm]										permissible power loss PV perm. 20 °C [W]	Max. speed n_{\max} [rpm]	Max. temperature t_{\max} [°C]
			DA1	DA2	LA1	LA2	LA3	Dj1	Lj1	Lj2	GA	GI			
HA 48/12	1.2	16	82	35	80	7	35	35	41	7	M4	M4	80	1800	120
HB 48/12	2.4	16	82	35	100	7	35	35	61	7	M4	M4	88	1800	120
HA 60/16	2	22	94	45	80	7	35	45	41	7	M5	M5	87	1800	120
HB 60/16	4	22	94	45	100	7	35	45	61	7	M5	M5	96	1800	120
HA 71/20	3	32	114	55	80	7	35	55	41	7	M8	M8	98	1800	120
HB 71/20	6	32	114	55	100	7	35	55	61	7	M8	M8	110	1800	120

Technical selection:

$$PV = \frac{T_{\max, 20\text{ °C}} \cdot n_{\text{Slip}}}{9.55} \quad * Z \leq PV \text{ perm. } 20\text{ °C}$$

$$Z = \frac{t_{\text{Slip}}}{t_{\text{Cycle}}}$$

PV = Power loss [W]
 $T_{\max, 20\text{ °C}}$ = Transmittable torque [Nm]
 PV all. 20 °C = Permissible power loss [W]
 n_{Slip} = Slip speed [1/min]
 Z = Cycle factor (continuous slip operation Z=1)
 t_{Slip} = Slip time [s]
 t_{Cycle} = Cycle time [s]

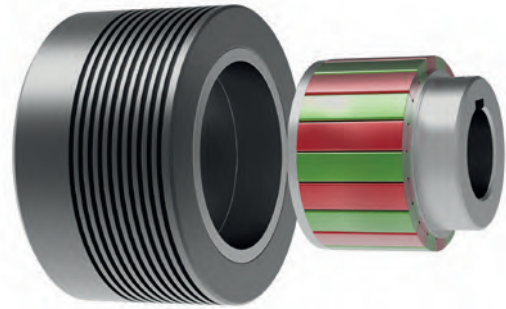
Ordering example:	MINEX® HB 60/16	d_i Ø18 mm	d_a Ø20 mm
	Coupling size	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)	

Torque curve with overload

The MINEX®-H transmits the torque contactlessly by means of magnetic forces and serves as a wear-free torque limiter in case of overload.

Function standard mode:

The torque is transmitted from the drive to the output element contactlessly by means of magnetic forces. The speed is synchronously transmitted as long as the operating torque is below the selection torque (slip torque).

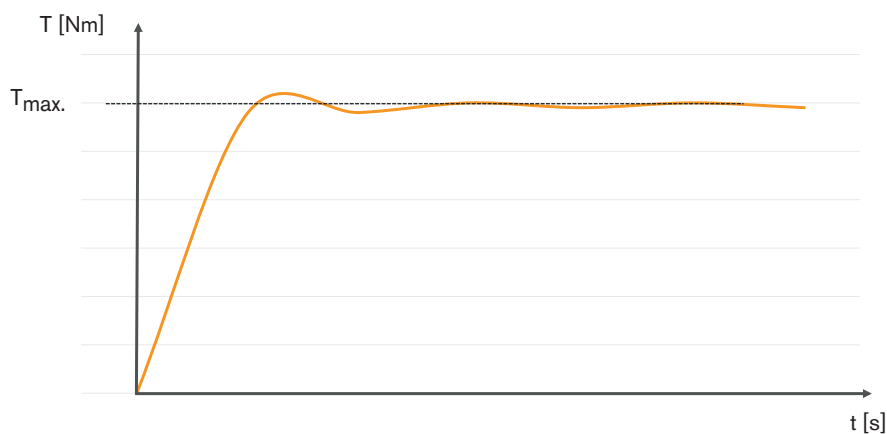


MINEX®-S

Function overload mode:

As soon as the operating torque exceeds the selection torque, the coupling slips and a relative speed sets in between the drive and output side. At this moment the polarity of the hysteresis material is continuously reversed and it heats up. The selection torque is almost constant in case of an overload. As the relative speed increases, the slip torque increases due to the eddy current effect.

Torque curve with overload



Characteristics:

- Contactless torque transmission by means of magnetic forces
- Wear-free torque limitation
- Maintenance-free
- Load-holding
- Very good repeatability of torque
- Applicable as a coupling or brake

Examples of application:



Filling systems



Film winder



Materials handling



Medical technology



Unwinding and winding equipment



Torque limiters

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SYNTEX®

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KTR-SI

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SYNTEX®-NC

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KTR-SI Compact

Flange type	297
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RUFLEX®



KTR-SI



KTR-SI FRA



SYNTEX®



SYNTEX®-NC



KTR-SI Compact



TORQUE LIMITERS

TYPES AND OPERATING DESCRIPTION

Properties of torque limiters

							
Product	RUFLEX®	KTR-SI	KTR-SI FRE	KTR-SI FRA	SYNTEX®	SYNTEX®-NC	KTR-SI Compact
Type	Torque limiter	Overload system	Overload system	Overload system	Backlash-free overload system		
Torque limitation							
Friction (load-retaining)	●						
Ratchet coupling		●	●	●	●	●	●
Synchronous ratcheting SK/SR (load-separating)		●			●	●	●
Ratcheting DK (load-separating)		●			●	●	●
Idle rotation FR/FRE/FRA (load-separating)		●	●	●			
Fail-safe SGR (no mechanical separation)		●					
Properties							
Backlash-free					●	●	●
High repeatability		●	●	●	●	●	●
Quick separation with overload						●	●
Signal by limit switch/sensor		●	●	●	●	●	●
Torque setting possible when in place	●	●	●	●	●	●	●
Torque range T_{KN} [Nm]							
min. - max.	0.5 - 12,000	2.5 - 8,200	1,000 - 60,000 (and above)	5 - 3,000	6 - 400	2 - 550	3 - 3,100
Max. bore [mm]							
	140	100	200 (and above)	80	50	60	80
Shaft-hub-connection							
Positive locking	●	●	●	●	●	●	●
Frictionally engaged			●		●	●	●
Speed n_{max} [rpm]							
	10,000	6,000	3,300	3,600	1,500	3,500	4,000
Special features							
	high power density, low price	hardened surfaces, solid design	modular design, for high torques	re-engagement by reversing the direction of rotation	for tailor-made solutions, low cost, ideally suitable for bigger quantities	high power density, light-weight design	hardened surfaces, solid design
Applications							
	slowly rotating drives such as sprocket or toothed belt drives, conveyors, rotary feeders, ...	rugged drive situations, e. g. crushers, ...	shredders, extruders, steel mills, test benches	shredders, extruders, materials handling, ...	customised design, packaging machines, linear drives, ...	dynamic drives, packaging machines, machine tools, linear drives, ...	packaging machines, special purpose machines, materials handling, ...

● ≈ Standard

TORQUE LIMITERS TYPES AND OPERATING DESCRIPTION

Product finder of torque limiters

Product	RUFLEX®	KTR-SI	KTR-SI FRE	KTR-SI FRA	SYNTEX®	SYNTEX®-NC	KTR-SI Compact
Type	Torque limiter	Overload system	Overload system	Overload system	Backlash-free overload system		
Types (extract)							
Combined with:							
» Sprocket/toothed belt pulley/flange	●	●	●	●	●	●	●
» ROTEX® torsionally flexible jaw coupling	●	●	●				
» BoWex® torsionally stiff curved-tooth gear coupling®	●						
» TOOLFLEX® torsionally stiff metal bellow-type coupling						●	
» ROTEX® GS backlash-free jaw coupling					●	●	●
» POLY-NORM® torsionally flexible jaw coupling				●			
» RADEX®-N torsionally stiff steel laminae coupling	○	○	○				
» RADEX®-NC torsionally stiff servo laminae coupling						○	
» GEARex® all-steel gear coupling			○				
Integrated ball bearing			●			●	●

● ≈ Standard
○ ≈ On request

Information on selection of torque limiters

To make sure that the torque limiter is not released with process-related torque peaks, the switching torque of the coupling should at least be 30 % above the maximum operating torque (see diagramme).

Torque limiters and overload systems that re-engage automatically should be used with reduced speed only after having applied higher release torques. Frequent or continuous slipping or ratcheting increases the wear on the torque limiter.

After the torque limiter separated driving from driven side in case of overload, it may take some time before the drive stops due to large inertias in the drive train. This may generate higher wear on the torque limiter and the overload system re-engaging automatically. That is why we recommend to use the overload system KTR-SI as an idle rotation type (page 272 et seqq.) for drives with larger inertias or higher speeds.

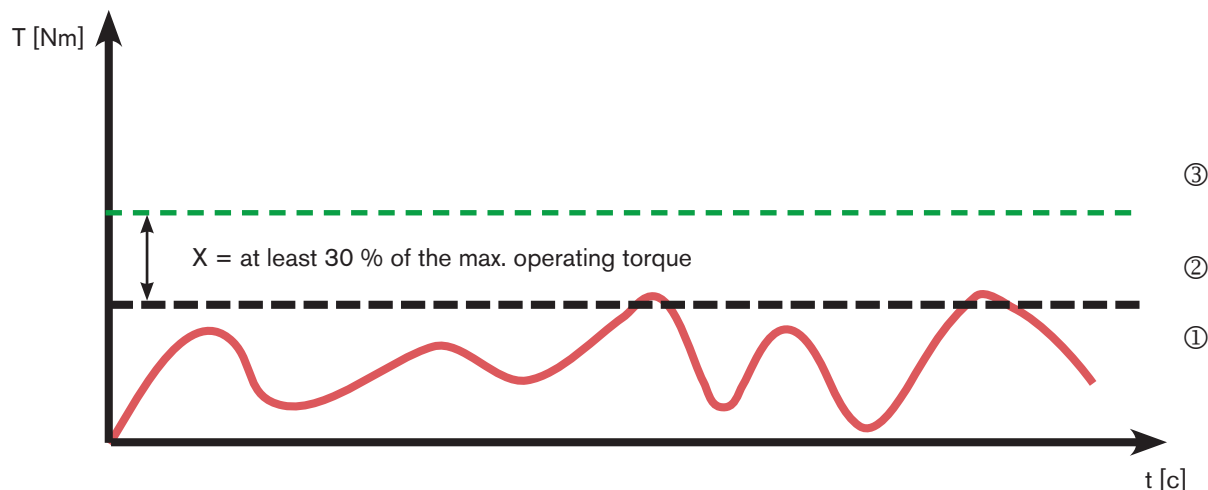
We basically recommend electronic monitoring of the torque limiters to disconnect the drive immediately in case of overload.

We will be pleased to assist you with any technical questions about the selection of torque limiters.

For that purpose we dispose of state-of-the-art simulation and calculation programs. Here the principle applies: The more detailed the data provided, the more accurate the calculation results.

Unless otherwise specified, our feather keyways are designed acc. to DIN 6885 sheet 1 [JS9]. The shaft-hub-connection needs to be verified by the customer.

A smooth operation is only ensured if the overload torque set exceeds the maximum operating torque of the machine (see diagramme).



- ① Torque curve of the machine
- ② Max. operating torque arising on the machine
- ③ Torque set on the coupling

RUFLEX®

Torque limiters

Design and operation

- Load-retaining overload protection up to 12.000 Nm (standard)
- Available with various drive components (e. g. sprocket) and combinations (e. g. ROTEX®)
- Asbestos-free and rust-proof friction lining for dry running
- High wear capacity, long service life
- High-quality plain bush with dry lubricant
- Torque setting possible when in place



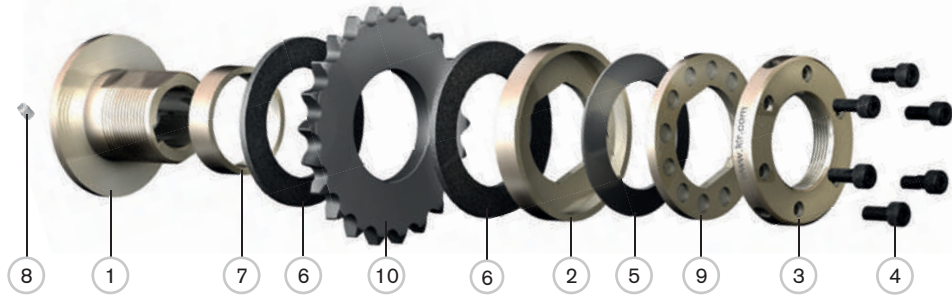
- Protection of the nut by locking in 12 different positions
- Easy assembly and torque setting
- Coupling components made of steel, large safety reserves
- Corrosion protection by zinc-coated and passivated surfaces
- Rust-proof and acid-proof type on request
- High power density due to high-quality disk springs and friction linings

The RUFLEX® modular system provides solutions for your drive, too.

The combination with the proven KTR couplings and the integration of customised drive components (e. g. sprockets) allows for an overload protection optimally adapted to the respective application.

Various disk spring layerings and high-quality friction linings ensure high power density even with only small mounting space.

RUFLEX® consists of the following components:



List of components:

- | | |
|-------------------------|------------------------------------|
| ① Hub | ⑥ Friction lining |
| ② Pressure ring | ⑦ Plain bush |
| ③ Setting nut | ⑧ Setscrew |
| ④ Torque setting screws | ⑨ Lock washer |
| ⑤ Disk spring | ⑩ Drive component (e. g. sprocket) |

Disk spring layerings:



- 1TF**
- Small specific load on friction linings
 - For small to medium torques
 - Long service life of friction linings



- 1TFD**
- Small specific load on friction linings
 - Torques like with type 1TF
 - Only small decrease of torque even with a longer period of friction
 - Precision torque adjustment due to double spring excursion



- 2TF**
- Standard specific load of friction linings
 - Medium wear and decrease of torque with longer slipping periods
 - Double torque due to double disk spring layering

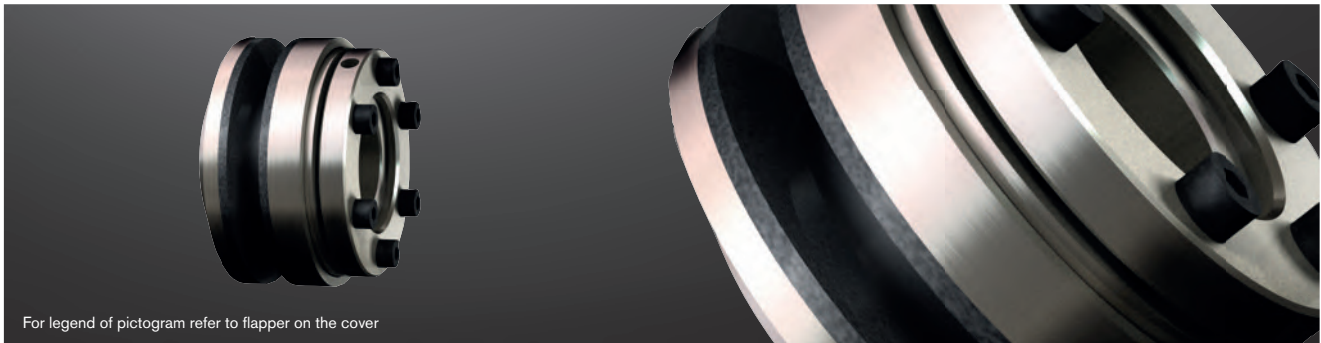


- 2TFD**
- Standard specific load of friction linings
 - Torques like with type 2TF
 - Only small decrease of torque even with a longer period of friction
 - Precision torque adjustment due to double spring excursion

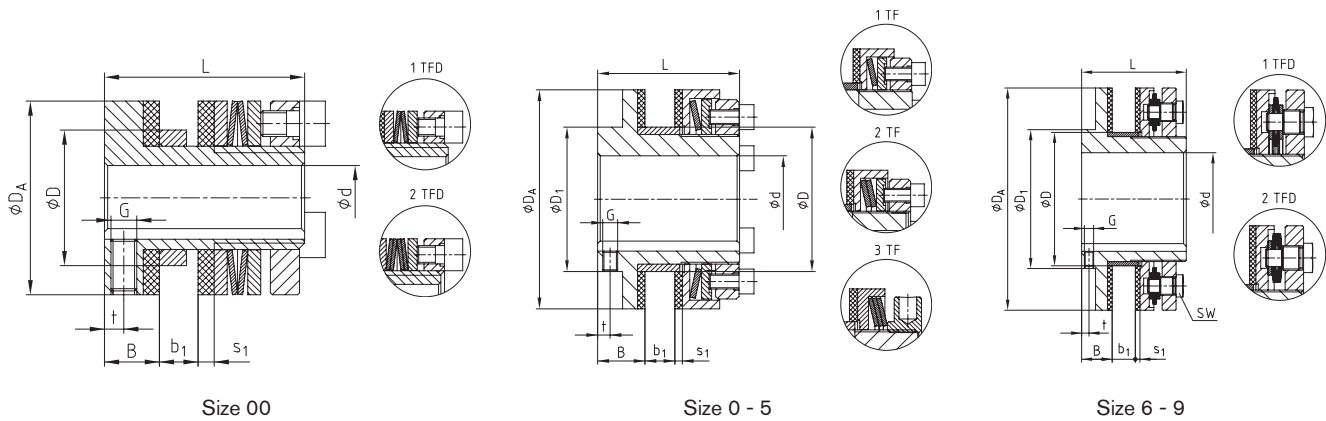


- 3TF**
- High specific load on friction linings
 - High wear and decrease of torque with longer slipping periods
 - Applicable only in special cases for designs with only limited dimensions

Standard width of drive component



For legend of pictogram refer to flapper on the cover



Technical data – dimensions																	
Size	Max. speed ⁴⁾ [rpm]	Torques [Nm]			Dimensions [mm]												
					Bore d		D ²⁾	D ₁	D _A	B	Drive component b ₁		s ₁	L	Setscrew		
		Pilot bore	Max.	min.	Max.	t					G						
00	10000	(0.5) ⁵⁾ 1-3	2-5	–	–	10	21	–	30	8.5	2	6	2.5	31	3	M4	
0	8500	2-10	4-20	–	–	19 (20) ¹⁾	35	45	45	8.5	2	6	2.5	33	3	M4	
01	6600	5-35	10-70	–	–	22	40	40	58	16	3	8	3	45	4	M5	
1	5600	20-75	40-150	130-200	–	25	44	45	68	17	3	10	3	52	5	M5	
2	4300	25-140	50-280	250-400	–	35	58	58	88	19	4	12	3	57	5	M6	
3	3300	50-300	100-600	550-800	–	45	72	75	115	21	5	15	4	68	5	M6	
4	2700	90-600	180-1200	1100-1600	–	55	85	90	140	23	6	18	4	78	5	M8	
5	2200	400-800	800-1600	1400-2100	–	65	98	102	170	29	8	20	5	92	8	M8	
6	1900	300-1200	600-2400	–	38	80	116	120	200	31	8	23	5	102	8	M8	
7	1600	600-2200	1200-4400	–	45	100	144	150	240	33	8	25	5	113	8	M10	
8	1300	900-3400	1800-6800	–	58	120	170	180	285	35	8	25	5	115	8	M10	
9	1000	2500-6000	6000-12000	–	65	140	237	225	350	53	16	28	6	162	11	M12	

¹⁾ The figure in brackets specifies the max. bore with keyway to DIN 6885 sheet 3 (low-rise design)

²⁾ Bore tolerance (drive component): F8 with size 0 - 4, H8 with size 5 - 9

³⁾ With clamping setting nut to be used on types limited in dimensions only

⁴⁾ See comments on page 265

⁵⁾ With special disk spring

On request:



- With clamping setting nut for size 0 - 5 (standard with 3TF)
- For radial torque setting

- With taper sleeve (hub type 4.5)
- Frictionally engaged shaft-hub-connection

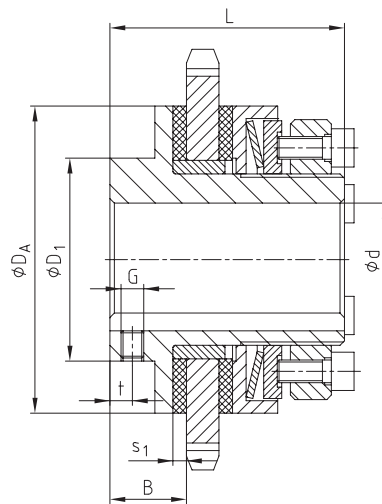
Ordering example:	RUFLEX® 1	2TF	b ₁ 10	d Ø20
	Type/size	Disk spring layering	Width of drive component b ₁	Finish bore

RUFLEX® Torque limiters

With sprocket



For legend of pictogram refer to flapper on the cover



Technical data – dimensions

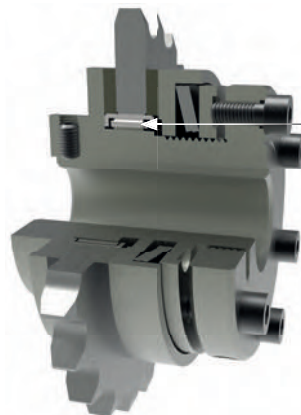
Size ⁴⁾	Max. speed ³⁾ [rpm]	Torques [Nm]			Dimensions [mm]								
					Max. bore d	D1	DA	B	s ₁	L	Setscrew		Standard sprocket ²⁾
		t	G										
01	6600	5-35	10-70	–	22	40	58	16	3	45	4	M5	06 B-1 (⁹ / ₈ x ⁷ / ₃₂) z = 23
1	5600	20-75	40-150	130-200	25	45	68	17	3	52	5	M5	08 B-1 (¹ / ₂ x ⁵ / ₁₆) z = 22
2	4300	25-140	50-280	250-400	35	58	88	19	3	57	5	M6	08 B-1 (¹ / ₂ x ⁵ / ₁₆) z = 27
3	3300	50-300	100-600	550-800	45	75	115	21	4	68	5	M6	12 B-1 (³ / ₄ x ⁷ / ₁₆) z = 22
4	2700	90-600	180-1200	1100-1600	55	90	140	23	4	78	5	M8	16 B-1 (1 x 17.02) z = 21

¹⁾ With clamping setting nut to be used on types limited in dimensions only

²⁾ Review minimum number of teeth required / Other sprockets available on request.

³⁾ See comments on page 265

⁴⁾ Other sizes on request



Special type:

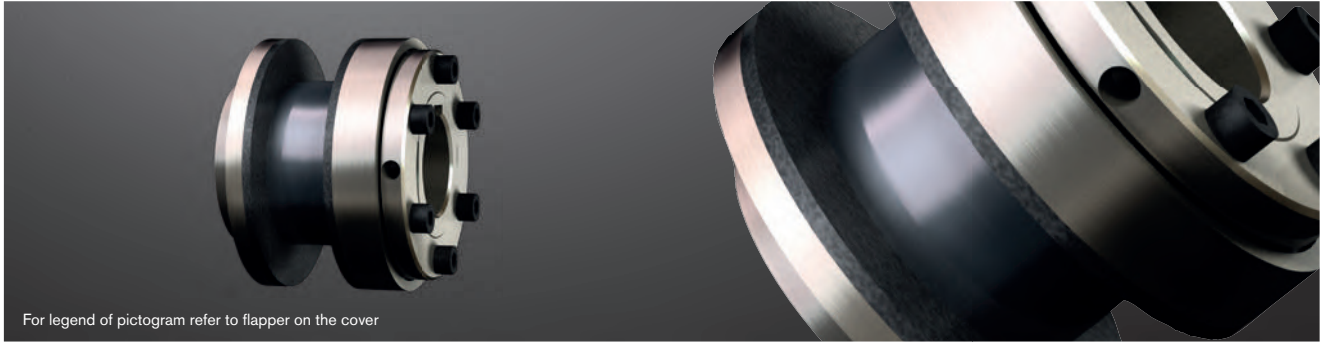
- If requested, available with needle bearing instead of slide bush
- For high radial loads on the sprocket
- With high speeds or long slipping periods

Ordering example:

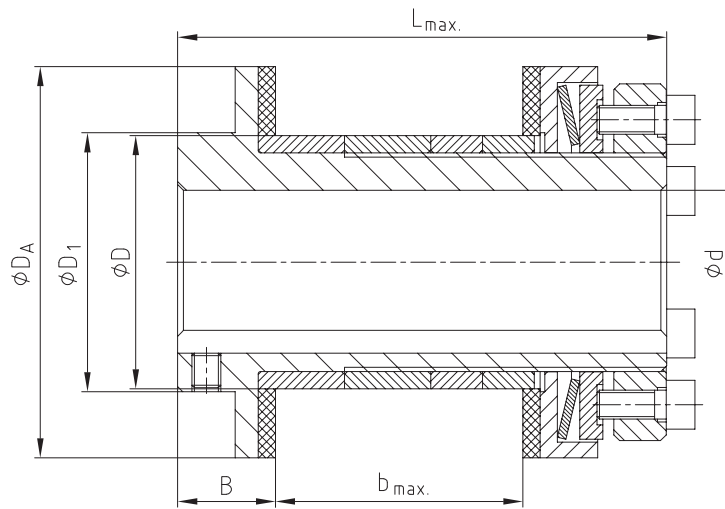
RUFLEX® 1	2TF	d Ø20	08 B -1 (¹ / ₂ x ⁵ / ₁₆), z = 29	100 Nm
Type/size	Disk spring layering	Finish bore	Sprocket	Torque set

RUFLEX® Torque limiters

Max. type



For legend of pictogram refer to flapper on the cover



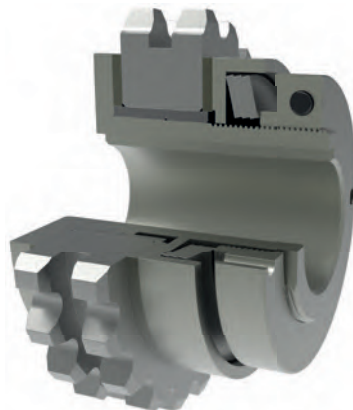
Technical data – dimensions

Size	Max. speed ³⁾ [rpm]	Torques [Nm]			Dimensions [mm]						
		1TF	2TF	3TF ²⁾	Max. bore d	D ₁	D _A	B	Max. b	D ¹⁾	Max. L
01	6600	5-35	10-70	–	22	40	58	16	33	40	70
1	5600	20-75	40-150	130-200	25	45	68	17	43	44	85
2	4300	25-140	50-280	250-400	35	58	88	19	54	58	100
3	3300	50-300	100-600	550-800	45	75	115	21	62	72	115
4	2700	90-600	180-1200	1100-1600	55	90	140	23	91.5	85	154

¹⁾ Bore tolerance (drive component): F8

²⁾ With clamping setting nut to be used on types limited in dimensions only

³⁾ See comments on page 265



Example:

- RUFLEX® max. with sprocket assembled
- Available as a complete subassembly with preset torque

Ordering example:

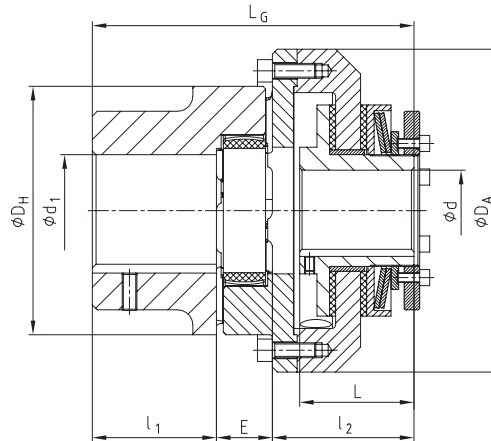
RUFLEX® max. 1	2TF	b 35	d Ø20
Type/size	Disk spring layering	Width of drive component b	Finish bore

RUFLEX® Torque limiters

With torsionally flexible ROTEX®



For legend of pictogram refer to flapper on the cover



Technical data – dimensions																
RUFLEX® size	ROTEX® size	RUFLEX® Torques [Nm]			ROTEX® ³⁾ Torques [Nm]		Dimensions [mm]									
					T _{KN}	T _{K max}	Bore d		Max. bore	D _H	D _A	l ₁	l ₂	E	L	L _G
		1TF	2TF	3TF ²⁾	Pilot bore	Max.	d ₁									
00	14	(0.5) ⁴⁾ 1-3	2-5	–	12.5	25	–	10	16	30	44	11	35	13	31	59.5
0	19	2-10	4-20	–	17	34	–	19 (20) ¹⁾	25	40	63	25	37	16	33	78
01	24	5-35	10-70	–	60	120	–	22	35	55	80	30	50	18	45	98
1	28	20-75	40-150	130-200	160	320	–	25	40	65	98	35	58	20	52	113
2	38	25-140	50-280	250-400	325	650	–	35	48	80	120	45	64	24	57	133
3	48	50-300	100-600	550-800	525	1050	–	45	62	105	162	56	82	28	68	166
4	75	90-600	180-1200	1100-1600	1920	3840	–	55	95	160	185	85	80	40	78	205
5	90	400-800	800-1600	1400-2100	3600	7200	–	65	110	200	260	100	114	45	92	259
6	100	300-1200	600-2400	–	4950	9900	38	80	115	225	285	110	130	50	102	290
7	110	600-2200	1200-4400	–	7200	14400	45	100	125	255	330	120	142	55	113	317
8	140	900-3400	1800-6800	–	12800	25600	58	120	160	320	410	155	152	65	115	372
9	160	2500-6000	6000-12000	–	19200	38400	65	140	185	370	460	175	199	75	161	449

¹⁾ The figure in brackets specifies the max. bore with keyway to DIN 6885 sheet 3 (low-rise design)

²⁾ With clamping setting nut to be used on types limited in dimensions only

³⁾ See selection of ROTEX® couplings on page 14 et seqq.

⁴⁾ With special disk spring

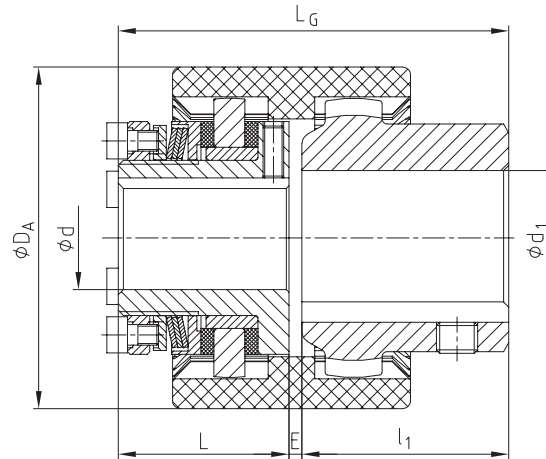
Ordering example:	RUFLEX® 1	2TF	d Ø20	ROTEX® 28	98 ShA	d ₁ Ø25	100 Nm
	Type/size	Disk spring layering	RUFLEX® bore	Type/size	Spider	ROTEX® bore	Torque set

RUFLEX® Torque limiters

With torsionally stiff BoWex®



For legend of pictogram refer to flapper on the cover



Technical data – dimensions													
RUFLEX® size	BoWex® size	RUFLEX® Torques [Nm]			BoWex® ³⁾ Torques [Nm]		Dimensions [mm]						
		1TF	2TF	3TF ²⁾	T _{KN}	T _{K max}	Max. bore		DA	l ₁	L	E	L _G
00	19	(0.5) ⁴⁾ 1-3	2-5	–	16	32	d	d ₁	48	25.0	31	2.5	58.5
0	28	2-10	4-20	–	45	90	19 (20) ¹⁾	28	66	40.0	33	2.5	75.5
01	38	5-35	10-70	–	80	160	22	38	83	35.5	45	1.0	81.5
1	48	20-75	40-150	130-200	140	280	25	48	95	45.5	52	1.0	98.5
2	65	25-140	50-280	250-400	380	760	35	65	132	64.0	57	1.0	122

¹⁾ The figure in brackets specifies the max. bore with keyway to DIN 6885 sheet 3 (low-rise design)

²⁾ With clamping setting nut to be used on types limited in dimensions only

³⁾ See selection of BoWex® couplings on page 14 et seqq.

⁴⁾ With special disk spring

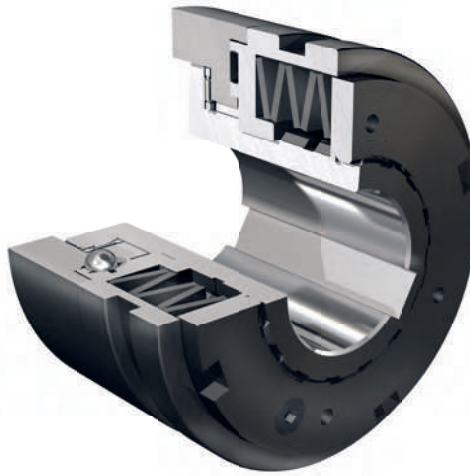
Ordering example:	RUFLEX® 1	1TF	d Ø20	BoWex® 48	d ₁ Ø25	50 Nm
	Type/size	Disk spring layering	RUFLEX® bore	Type/size	BoWex® bore	Torque set

KTR-SI

Overload systems

Design and operation

- Overload protection up to 8,200 Nm
- Available as a ratchet, synchronous, idle rotation and fail-safe design with the same dimensions
- Reduction of torque peaks
- High response accuracy, even after a long operating period
- Disconnection of the drive with overload by retrieving limit switch
- Automatically operative (DK, SR, SGR)

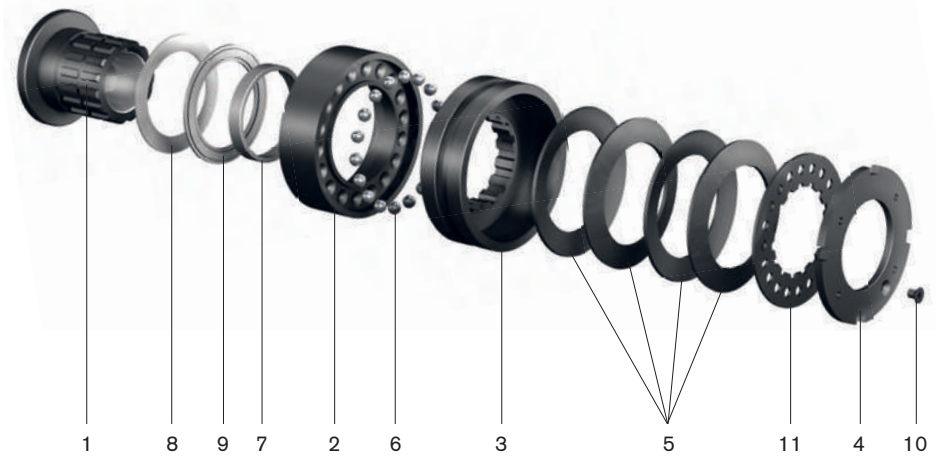


- Available in various types (e. g. with needle bearing) and combinations (e. g. with torsionally flexible ROTEX®)
- Easy assembly and torque setting
- Maintenance-free
- Insensitive to oil and grease
- Long service life due to high-quality materials

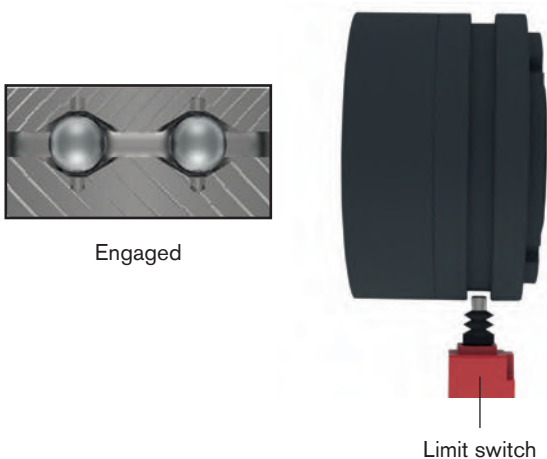
In case of overload the ratchet components (balls resp. rollers) leave their indentations, and a relative motion between the driving and driven side is generated. Damages caused by overload are reliably prevented in this way. The shift ring (3) makes an axial motion to the engagement travel „H“ activating the limit switch or proximity initiator. The signal can be used for controlling or disconnecting the drive. For restarting we would recommend to electrically bypass the limit switch or proximity switch for a short time.

Com- Description ponent

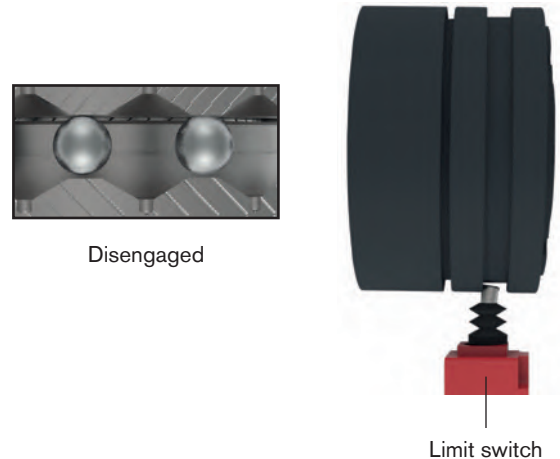
- 1 Hub
- 2 Flange ring
- 3 Shifting ring
- 4 Setting nut
- 5 Disk spring
- 6 Ball bearing cage
- 7 Plain bush
- 8 Axial disk
- 9 Axial needle bearing
- 10 Setscrew
- 11 Lock washer



No signal with normal operation



Signal with overload

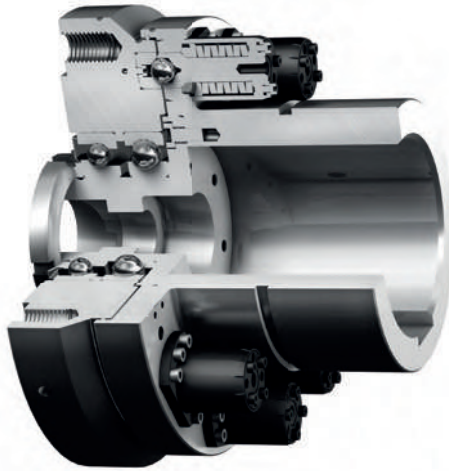


KTR-SI FRE

Idle rotation overload system

Design and operation

- Setting range up to 60,000 Nm (higher torques available on request)
- Idle rotation overload system (load-separating)
- High repeatability

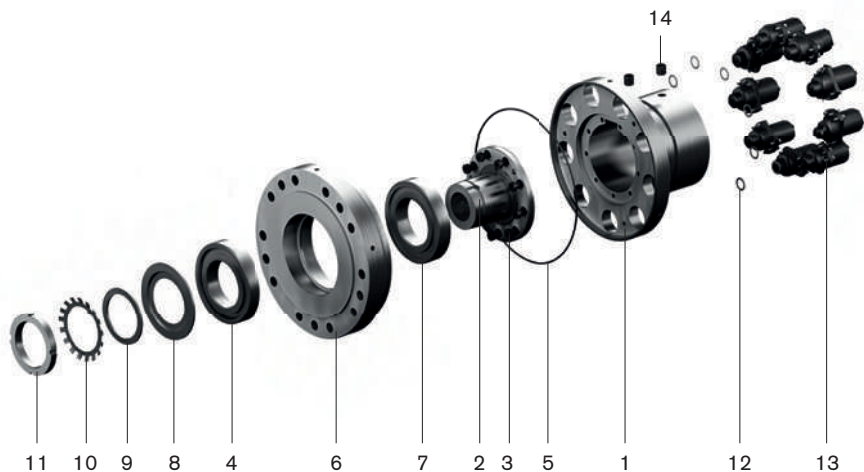


- flange type to connect toothed belt pulleys or sprockets
- Combination with ROTEX®, GEARex® or RADEX®-N as a shaft-to-shaft connection
- The intelligent further development of shear pin couplings and hydraulic clamping sets

The core of the overload system is formed by the idle rotation elements. They uncouple the driving and driven side in case of overload while protecting the drive train from damages. After eliminating the overload, the idle rotation segments are manually re-engaged so that the drive is released again. In order to set the coupling to the requested release torque, a defined pre-stress is generated on the disk springs in each idle rotation element via the setting nut. The number of idle rotation elements varies depending on the required release torque. If requested, the coupling can be preset by the manufacturer. It is also possible to individually adapt the coupling when in place.

Component Description

- 1 Hub
- 2 Bearing flange
- 3 Cap screw
- 4 Angular ball bearing
- 5 O-ring
- 6 KTR-SI FRE connection flange
- 7 Groove ball bearing
- 8 NILOS ring
- 9 Supporting disk
- 10 Safety plate
- 11 Groove nut
- 12 Shim ring
- 13 Idle rotation element
- 14 Setscrew



RUFLEX®

KTR-SI

SYNTEX®

SYNTEX®-NC

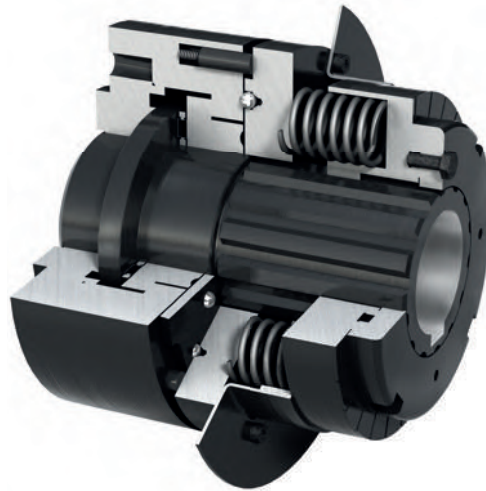
Torque limiters

KTR-SI Compact

Idle rotation overload system with automatic re-engagement when reversing the direction of rotation

Design and operation

- Overload protection up to 3,000 Nm
- Idle rotation overload system (load-separating)
- Re-engagement by reversing the direction of rotation, thus optimally suitable for positions difficult to access



- flange type to connect toothed belt pulleys or sprockets
- Combination with torsionally flexible POLY-NORM® as a shaft-to-shaft connection

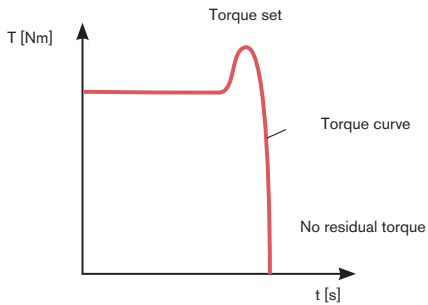
**Com- Description
ponent**

- 1 Connection flange
- 2 Plain bearing
- 3 Axial disk
- 4 Hub
- 5 Axial bearing
- 6 Bearing flange
- 7 Flange ring
- 8 Balls
- 9 Shifting ring
- 10 Disk springs
- 11 Pressure ring
- 12 Lock washer
- 13 Setting nut



Operating principles

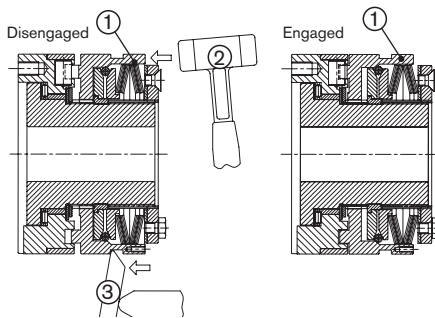
1. Idle rotation design FR/FRE/FRA



Operating principle of KTR-SI idle rotation couplings:

When achieving the torque set, the coupling rotates. Driving and driven side keep separated due to the idle rotation mechanism, the resulting flywheel mass can slow down in idle state. After eliminating the overload, the coupling can be re-engaged. The re-engagement is effected manually or via a device respectively automatically.

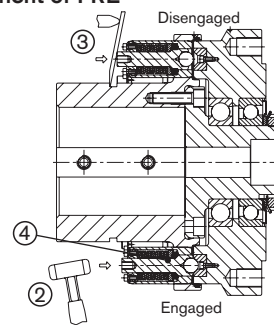
Re-engagement of FR



Re-engagement of the idle rotation coupling:

Re-engagement is generated by axial pressure on the shifting ring (1). Dependent on the existing resources, accessibility etc., re-engagement can be made in different ways: By several blows of a plastic hammer (2) axially on the shifting ring (see above), via assembly levers (3) or a pneumatic or hydraulic engagement device (automated engagement procedure).

Re-engagement of FRE



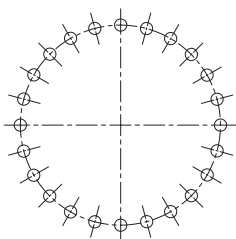
Re-engagement of idle rotation elements:

After eliminating the overload, driving and driven side are aligned to each other first. By means of a plastic hammer (2) or a tyre lever (3) the idle rotation elements (4) are manually re-engaged. Re-engagement can be loudly heard. The overload coupling is ready for use again.

Re-engagement of FRA

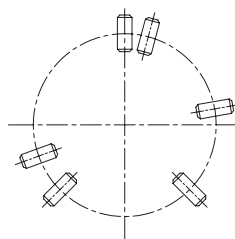
After eliminating the overload the KTR-SI FRA can be re-engaged by reversing the direction of rotation with slow speed (>50 rpm).

2. Ratchet design DK



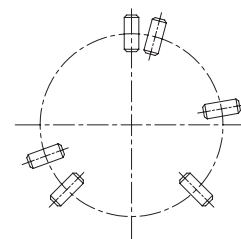
Any engagement after an overload. After eliminating the overload, the balls automatically re-engage with the next following ball indentation.

3. Synchronous design SR



Synchronous engagement after an overload. After eliminating the overload, the balls re-engage automatically after a rotation of 360°. Driving and driven side are always placed in the same position to each other. Other degrees of re-engagement, for example 180°, are also possible.

4. Fail-safe design SGR



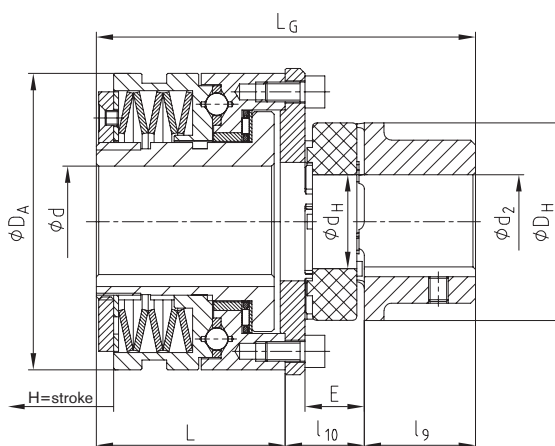
The fail-safe design is purely intended for torque measurement without any ratcheting operation. In case of overload a signal is generated by a limit switch along with mechanical separation of driving and driven side = ratcheting is not possible.

KTR-SI Overload systems

With torsionally flexible ROTEX®



For legend of pictogram refer to flapper on the cover



Technical data

KTR-SI size	Torques [Nm]										
	Type DK				Type SR and SGR				Type FR		
	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3
0	2.5-5	5-20	–	20-40	5-10	10-40	–	–	5-10	10-20	20-40
1	6-12	12-25	25-55	55-100	12-25	25-50	50-100	–	12-25	25-50	50-100
2	12-25	25-50	50-120	120-200	25-50	50-100	100-200	–	25-50	50-100	100-200
3	25-50	50-100	100-250	200-450	50-100	100-200	200-450	–	50-100	100-200	200-450
4	50-100	100-200	200-500	500-1000	100-200	200-400	400-800	800-2000	100-200	200-400	400-800
5	85-250	230-600	300-1000	600-2000	170-450	350-900	600-1800	1200-3400	170-450	350-900	600-1800
6	180-480	360-960	720-1950	1600-3300	300-750	600-1500	1200-3000	2900-5800	–	–	–
7	250-520	500-1050	1000-2100	2000-3600	550-1100	1100-2200	2200-4400	3000-8200	–	–	–

Technical data – dimensions

KTR-SI size	ROTEX® size	ROTEX® ¹⁾ Torque [Nm]		Max. bore	Dimensions [mm]									H=stroke			
		98 ShA			d	d2	dH	DH	DA	l9	l10	E	L	LG	Type		
		TkN	Tk max												DK	SR	FR
0	19	17	34	20	25	18	40	55	25	22	16	38.5	85.5	1.4	1.2	1.6	
	28	160	320		40	30	65		35	28.5	20		102				
1	24	60	120	25	35	27	55	82	30	24	18	52	106	2.3	1.8	2.3	
	38	325	650		48	38	80		45	32.5	24		129.5				
2	28	160	320	35	40	30	65	100	35	28	20	61	124	2.4	2.0	3.0	
	48	525	1050		62	51	105		56	38	28		155				
3	38	325	650	45	48	38	80	120	45	32	24	78	155	2.7	2.2	3.5	
	55	685	1370		74	60	120		65	43	30		186				
4	48	525	1050	55	62	51	105	146	56	38	28	100	194	3.7	2.5	3.8	
	75	1920	3840		95	80	160		85	56.5	40		241.5				
5	55	685	1370	65 (70) ²⁾	70	60	120	176	65	44	30	113.5	222.5	4.6	3.0	4.5	
	90	3600	7200		110	100	200		100	62	45		275.5				
6	100	4950	9900	80	115	113	225	200	110	72	50	119	301	5.0	3.5	–	
7	110	7200	14400	100 (110) ²⁾	125	127	255	240	120	78	55	141	339	5.5	4.0	–	

¹⁾ See selection of ROTEX® couplings on page 14 et seqq.

²⁾ The figure in brackets specifies the max. bore with keyway to DIN 6885 sheet 3 (low-rise design)

Ordering example:

KTR-SI 2	DK	T2	d Ø20	ROTEX® 28	98 ShA	d2 Ø25	40 Nm
Type/size	Type (DK/SR/SGR/FR)	Disk spring layering	KTR-SI bore	Type/size	Spider	ROTEX® bore	Torque set

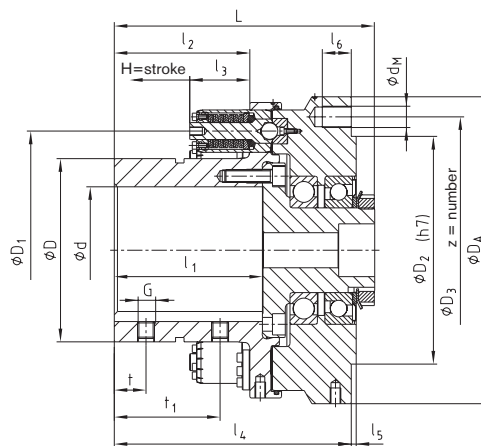
KTR-SI FRE

Idle rotation overload system

Flange type



For legend of pictogram refer to flapper on the cover



Torques [Nm]

Size	Type of element	3 idle rotation elements		6 idle rotation elements		9 idle rotation elements	
		min.	Max.	min.	Max.	min.	Max.
9	1T1	800	2600	-	-	-	-
	1T2	1000	4000	2000	8000	-	-
	1T3	2400	5500	4800	11000	-	-
12	1T2	1300	5000	2600	10000	3900	15000
	1T3	2900	6700	5800	13400	8700	20100
15	1T2	1700	6000	3400	12000	5100	18000
	1T3	3500	8200	7000	16400	10500	24600
20	2T2	5000	15000	10000	30000	15000	45000
	2T3	13100	20000	26300	40000	39400	60000

Technical data – dimensions

Size ¹⁾	Max. bore	Dimensions [mm]																	Max. permissible forces on the flange connection ²⁾ [kN]		Speed ³⁾ [rpm]	Weight with max. bore [kg]		
		d	D	D ₁	D ₂	D ₃	D _A	l ₁	l ₂	l ₃	l ₄	l ₅	l ₆	G	t	t ₁	L	d _M	z	pitch			H=stroke	Radial
9	90	135	185	200	225	260	120	110	56.7	197	2.5	17.5	M12	25	75	213.5	12	12	12x30°	5.2	18	13	3300	38
12	120	173	225	215	252	290	140	128	56.7	224	4.5	27.5	M16	30	100	246	20	15	20x18°	5.2	26	18	2300	57
15	150	215	270	245	282	324	170	160	56.7	258	4.5	27.5	M20	40	120	281	20	15	20x18°	5.2	30	20	2050	81
20	200	285	370	330	375	460	220	200	89.4	341	5	33.0	M20	50	150	366	24	18	24x15°	8.9	50	40	1550	211

¹⁾ Other sizes on request

²⁾ Larger forces on request

³⁾ Higher speeds on request, see comments on page 265



Special type:

- KTR-SI FRE with sprocket
- Available as a complete subassembly with preset torque

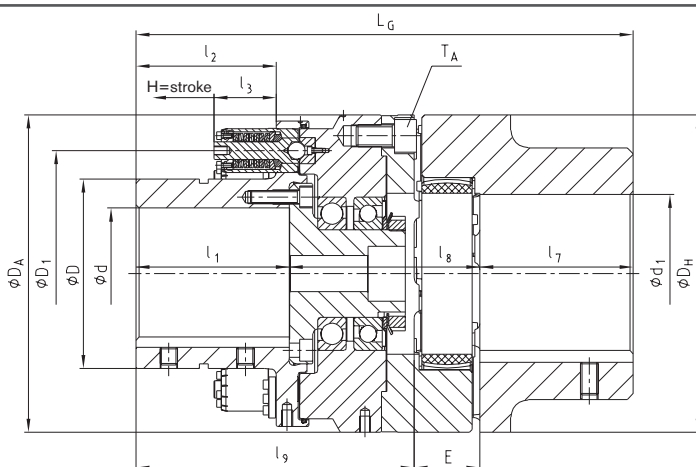
Ordering example:

KTR-SI FRE 12	1T2	9	d Ø85	7500 Nm
Type/size	Type of element	Number of idle rotation elements	KTR-SI FRE bore	Torque set

KTR-SI FRE

Idle rotation overload system

With torsionally flexible ROTEX®



Torques [Nm]

Size	Type of element	3 idle rotation elements		6 idle rotation elements		9 idle rotation elements	
		min.	Max.	min.	Max.	min.	Max.
9	1T1	800	2600	–	–	–	–
	1T2	1000	4000	2000	8000	–	–
	1T3	2400	5500	4800	11000	–	–
12	1T2	1300	5000	2600	10000	3900	15000
	1T3	2900	6700	5800	13400	8700	20100
15	1T2	1700	6000	3400	12000	5100	18000
	1T3	3500	8200	7000	16400	10500	24600
20	2T2	5000	15000	10000	30000	15000	45000
	2T3	13100	20000	26300	40000	39400	60000

Technical data – dimensions

Size ¹⁾	ROTEX®				Max. bore		Dimensions [mm]														TA [Nm]	Speed ²⁾ [rpm]	Weight with max. bore [kg]
	Size	Torque ³⁾ [Nm]		d	d1	D	D1	DH	DA	l1	l2	l3	l7	l8	l9	l17	E	LG	H=stroke				
		TKN	TK max																				
9	90	4500	9000	90	110	135	185	200	260	120	110	56.7	100	133	217	45	362	5.2	117	3300	59		
12	125	12500	25000	120	145	173	225	290	290	146	130	56.7	140	165	254	60	454	5.2	560	2300	106		
15	140	16000	32000	150	160	215	270	320	324	170	160	56.7	155	176	292	65	512	5.2	560	2050	147		
20	180	35000	70000	200	200	285	370	420	460	220	200	88.4	195	227	381	85	661	8.9	970	1550	349		

¹⁾ Other sizes on request

²⁾ Higher speeds on request, see comments on page 265

³⁾ See selection of ROTEX® couplings on page 14 et seqq.

Special type:



- KTR-SI FRE with torsionally flexible pin & bush coupling REVOLEX® KX-D and limitation of axial backlash
- KTR-SI FRE with torsionally stiff all-steel gear coupling GEARex® and integrated brake disk
- KTR-SI FRE with torsionally stiff laminae coupling RADEX®-N and integrated brake disk

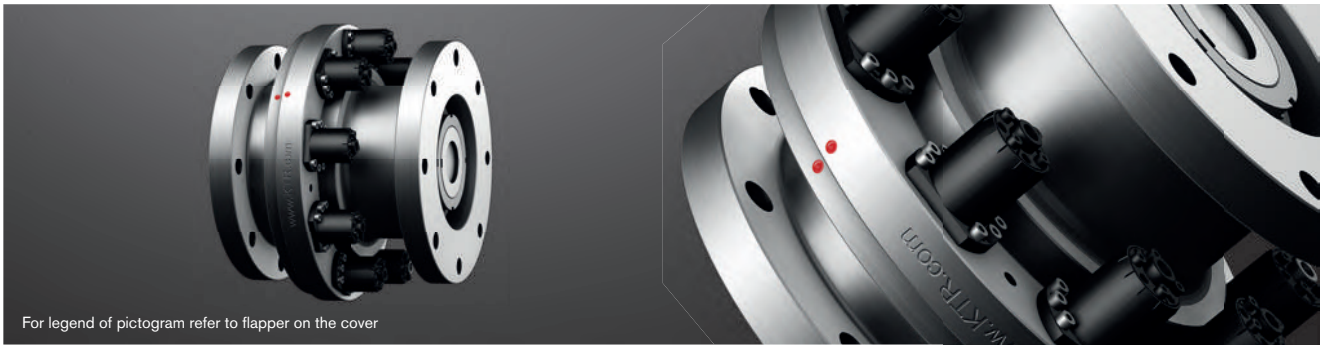
Ordering example:

KTR-SI FRE 12	1T3	9	d Ø85	ROTEX® 125	98 ShA	d1 Ø85	12000 Nm
Type/size	Type of element	Number of idle rotation elements	KTR-SI FRE bore	Type/size	Spider	ROTEX® bore	Torque set

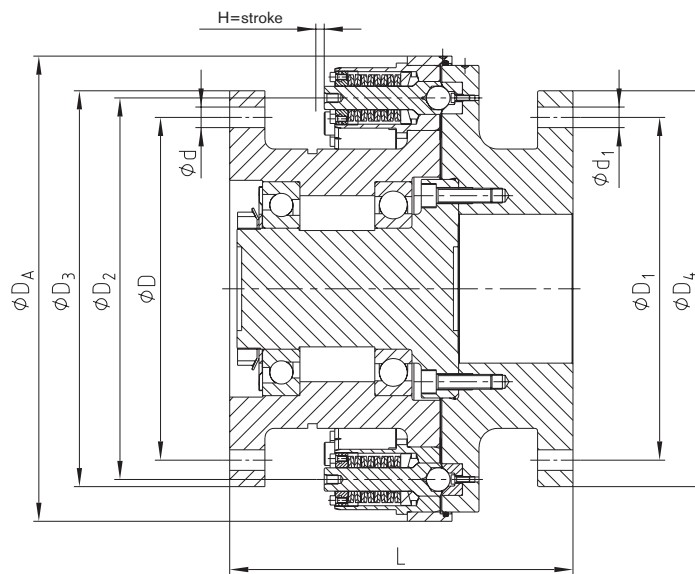
KTR-SI FRE

Idle rotation overload system

Customised type (on request)



For legend of pictogram refer to flapper on the cover



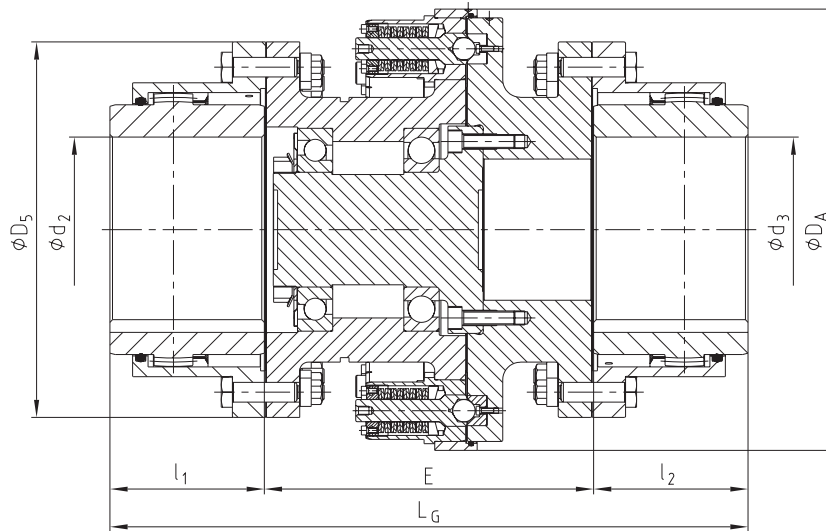
Torques [Nm]									
Size	Type of element	3 idle rotation elements		6 idle rotation elements		9 idle rotation elements		12 idle rotation elements	
		min.	Max.	min.	Max.	min.	Max.	min.	Max.
00-1	1T1	1200	3800	2400	7600	3600	11400	-	-
	1T2	1700	6000	3400	1200	5100	18000	-	-
	1T3	3500	8200	7000	16400	10500	24600	-	-
00-2	2T1	-	-	6800	17200	10200	25800	13600	34400
	2T2	-	-	11700	31900	17550	47850	23400	63800
	2T3	-	-	21200	43000	32400	64500	42400	86000
00-3	3T1	-	-	23000	78000	34500	117000	46000	156000
	3T2	-	-	47000	108000	70500	162000	94000	216000

Technical data – dimensions																									
Size	GEARex®		RADEX®-N		Max. bore			Dimensions [mm]																	
	Size	Torque [Nm]	Size	Torque [Nm]	d ₂ , d ₃	d ₄	d ₅	d, d ₁	D, D ₁	D ₂	D ₃ , D ₄	D ₅	D ₆	D _A	l ₁ , l ₂	l ₃	l ₄	E	E ₁	L	L _G	L _{G1}	H=stroke		
00-1	35	17000	34000	136	17500	35000	133	135	140	custom-ised	custom-ised	270	280	300	324	105	135	126	256	custom-ised	custom-ised	466	723	±8	5.2
00-2	55	65000	130000	208	70000	140000	210	200	250	custom-ised	custom-ised	410	425.5	425.5	500	175	200	245	373	custom-ised	custom-ised	723	1000	±17	8.9
00-3	85	225000	450000	288	200000	400000	325	290	350	custom-ised	custom-ised	540	585	567	655	292	280	335	416	custom-ised	custom-ised	1000	1000	±17	13.6

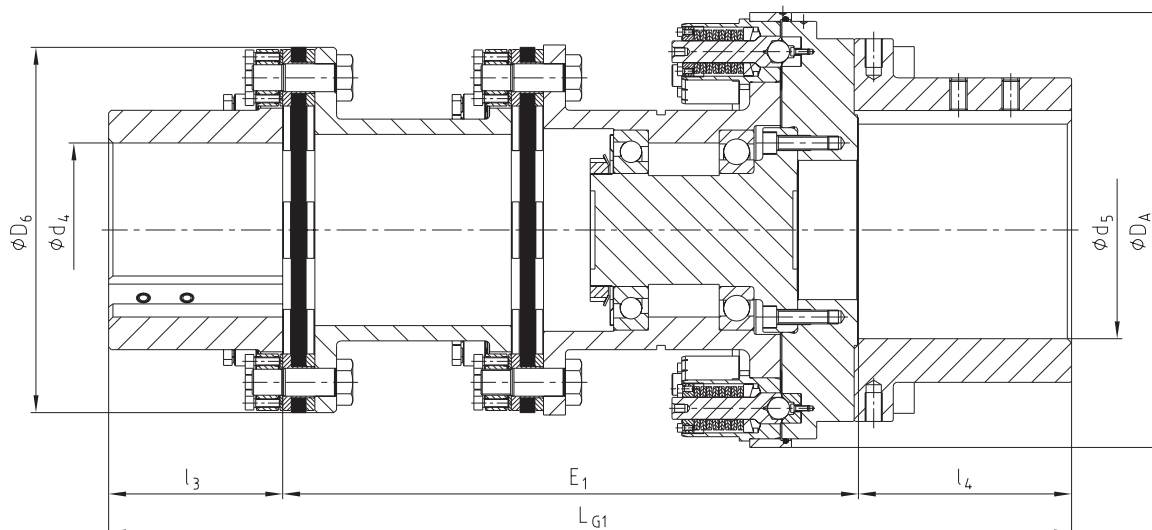
Ordering example:	KTR-SI FRE 00-2	T2	6	Ø350	Ø400	349	25000 Nm
	Type/size	Type of element	Number of idle rotation elements	Flange diameter ØD ₃	Flange diameter ØD ₄	Total length L	Torque set

Other types and combinations available on request.

Type 00 with GEARex®



Type 00 with RADEX®-N



RUFLEX®

KTR-SI

SYNTEX®

SYNTEX®-NC

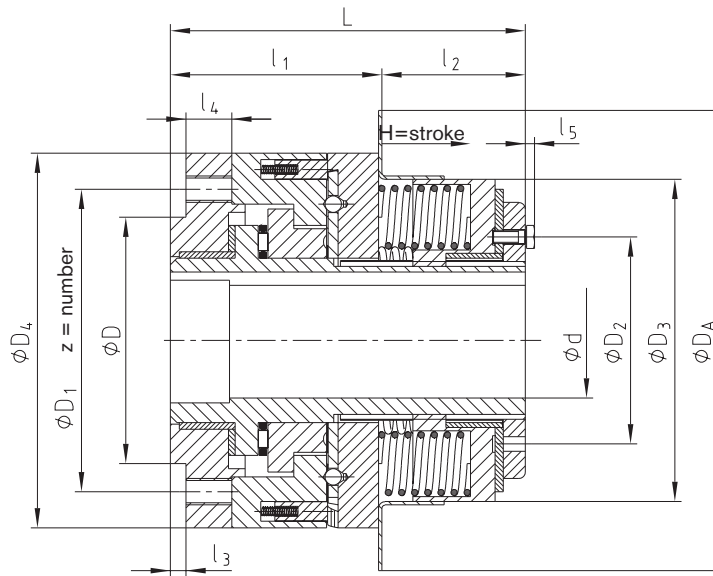
KTR-SI Compact

Torque
limiters

KTR-SI FRA

Idle rotation overload system with automatic re-engagement when reversing the direction of rotation

Flange type FT



Torques [Nm]				
Size	T1	T2	T3	T4
2	5-20	15-70	40-135	80-260
3	24-104	57-360	110-540	245-730
4	45-210	145-435	340-960	465-1320
5	90-415	240-640	490-1880	1060-3000

Technical data – dimensions																			
Size	Bore d		Dimensions [mm]															Speed ¹⁾ [rpm]	Weight with max. bore [kg]
	Pilot bore	Max.	D j7	D1	D2	D3	D4	DA	l1	l2	l3	l4	l5	L	z	H=stroke			
2	22	35	75	92	70	98	114	140	63	45	4.7	14	-	108	6xM8	2.8	3600	5	
3	22	45	95	114	77	131	149	184	69	42	4.7	15	3.5	111	7xM10	3.5	3600	10	
4	25	55	122	144	88	147	166	203	75	46	4.7	15	4.0	121	8xM12	3.5	2000	13	
5	30	80	155	184	152	196	223	279	94	70	6.3	23	2.3	164	8xM16	4.4	2000	32	

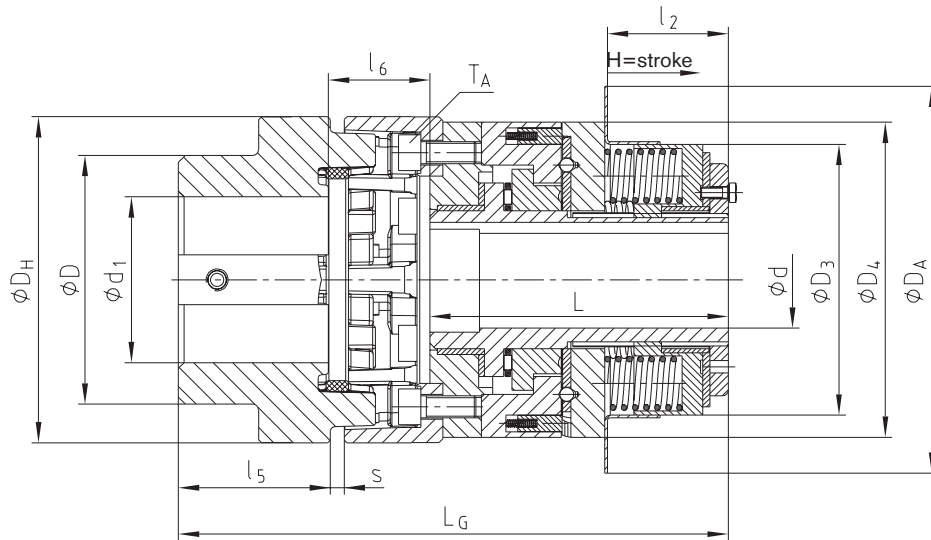
¹⁾ See comments on page 265

Ordering example:	KTR-SI FRA 3	FT	T3	d Ø35	300 Nm
	Type/size	Type	Torque setting range	KTR-SI FRE bore	Torque set

KTR-SI FRA

Idle rotation overload system with automatic re-engagement when reversing the direction of rotation

With torsionally flexible POLY-NORM®



Torques [Nm]

KTR-SI FRA size	T1	T2	T3	T4
2	5-20	15-70	40-135	80-260
3	24-104	57-360	110-540	245-730
4	45-210	145-435	340-960	465-1320
5	90-415	240-640	490-1880	1060-3000

Technical data – dimensions

KTR-SI FRA size	POLY-NORM®			Max. bore		Dimensions [mm]													TA [Nm]	Speed ¹⁾ [rpm]	Weight with max. bore [kg]
	Size	Torque [Nm]		d	d1	D	D3	D4	DH	DA	l1	l2	l5	l6	s	LG	L	H=stroke			
		TKN	TK max																		
2	55	300	600	35	60	90	98	114	118	140	108	45	55	27	5	189.3	108	2.8	23	3600	9
3	75	850	1700	45	70	123	131	149	158	184	111	42	75	33.8	5	218.8	111	3.5	46	3600	18
4	85	1350	2700	55	80	139	147	166	182	203	121	46	85	52.6	5	257.6	121	3.5	79	2000	25
5	100	3900	7800	80	90	165	196	223	224	279	164	70	100	63.2	6	326.2	164	4.4	195	2000	51

¹⁾ See comments on page 265

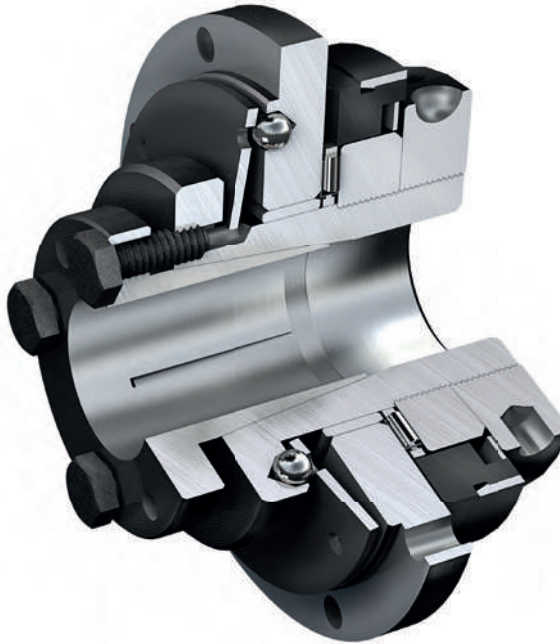
Ordering example:	KTR-SI FRA 3	T3	d Ø35	POLY-NORM® 75	AR	d1 Ø45	300 Nm
	Type/size	Torque setting range	KTR-SI FRA bore	Type/size	Type	POLY-NORM® bore	Torque set

SYNTEX®

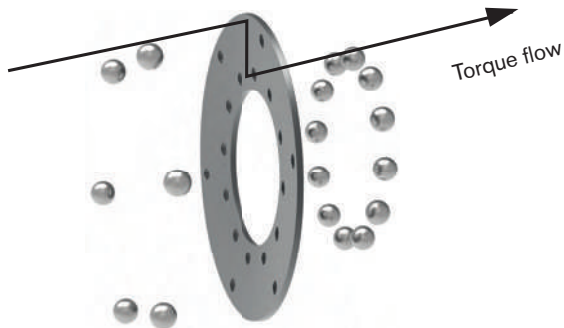
Backlash-free overload systems

Design and operation

- Backlash-free, torsionally rigid overload protection up to 400 Nm, suitable for reversing operation
- Disconnection of the drive in case of overload
- Reduction of torque peaks
- High response accuracy, even after a long operating period
- Easy integration of customer components
- Compact design, low mass moment of inertia
- User-variable due to modular system
- Special disk springs available for special applications



- Low-cost protection even for simple drives
- Easy assembly and torque setting
- Maintenance-free
- Insensitive to oil and grease
- Long service life due to small internal loads
- Backlash-free shaft-hub-connections
- Any or synchronous re-engagement
- Automatically ready for operation again



SYNTEX® is an overload system with positive locking operation. The punched disk spring is a component serving for transmitting the torque.

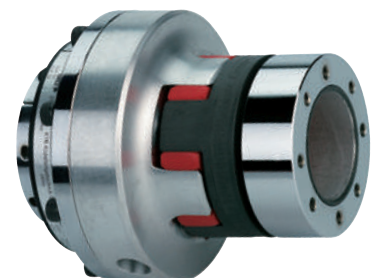
SYNTEX®
Overload system with mounting flange



SYNTEX®
Overload system with sprocket

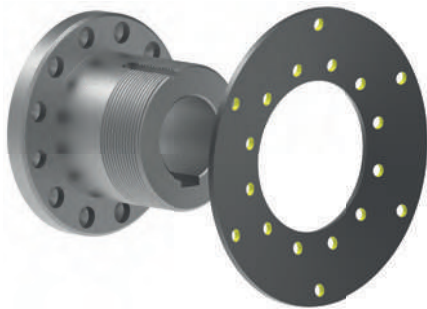


SYNTEX®
Overload system with ROTEX® GS

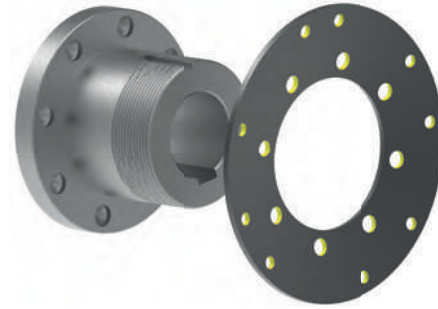


Operating principles

Ratchet design DK



Synchronous design SK



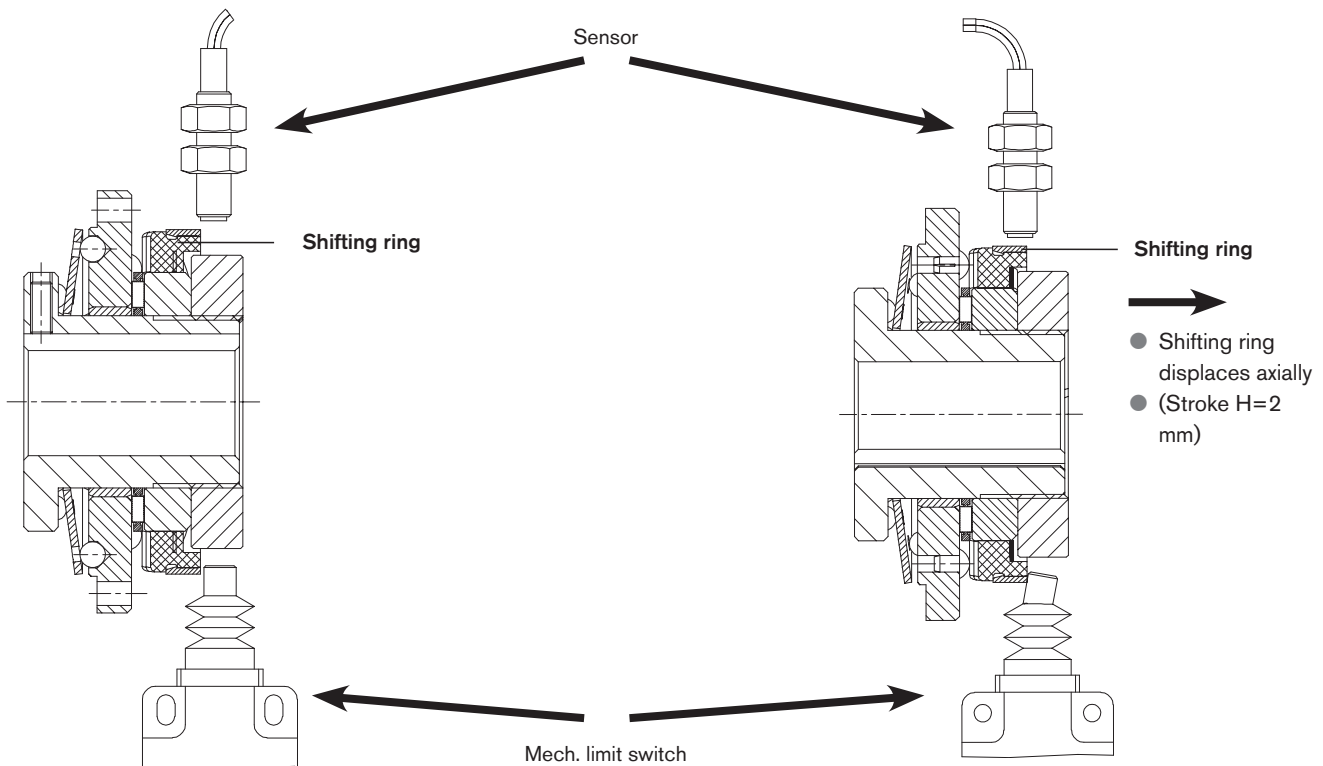
If the torque set is exceeded, a relative movement is generated between the driving and driven side. The transmittable torque is reduced to a low residual figure.

The balls leave the indentations of the disk spring. After eliminating the overload, the balls engage automatically with the next following ball indentation of the disk spring.

If the torque set is exceeded, a relative movement is generated between the driving and driven side. The transmittable torque is reduced to a low residual figure.

The balls leave the indentations of the disk spring. After eliminating the overload, the balls re-engage automatically with the disk springs after a rotation of 360° subject to their special pitch. Driving and driven side are always in the same position to each other (other degrees of re-engagement, for example 180°, are also possible).

Signal by limit switch or sensor in case of overload



Normal operation:
No signal by sensor or mechanical limit switch.

In case of overload:
The axial motion of the shifting ring activates the sensor resp. mechanical limit switch. The resulting signal can be used for control operation (e. g. motor stop).

SYNTEX®

Backlash-free overload systems

Flange type



For legend of pictogram refer to flapper on the cover



Technical data – dimensions

Size	Torques [Nm]				Max. speed ¹⁾ [rpm]	Dimensions [mm]															
	Ratchet design DK		Synchronous design SK			Max. bore d	D	D ₁	D ₂	D ₃	D ₄	D _A	l ₁	l ₂	l ₃	l ₄	l ₅	d _L	L	z	H=stroke
	DK1	DK2	SK1	SK2																	
20	6-20	15-30	10-20	20-65	1500	20	48	54	61.5	65	71	80	8	2	16	6	35	4.5	45	8	2
25	20-60	45-90	25-65	40-100	1500	25	60	68	80	81	89	98	8	2	17	8	39	5.5	50	8	2
35	25-80	75-150	30-100	70-180	1000	35	75	78	91	102	110	120	10	2	21	10	42	5.5	60	12	2
50	60-180	175-300	80-280	160-400	1000	50	105	108	121	142	152	162	12	2	25	13	56	6.6	70	12	2

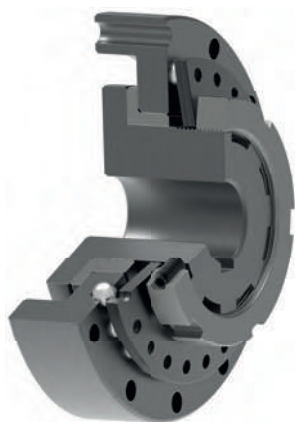
Dimensions – Hub type 4.5

Size	Dimensions [mm]							Clamping screws	Tightening torque T _A [Nm]
	d ₁ max.	l ₆	l ₇	l ₈	L ₁	s			
20	20	9	3.5	23	54	3	4 x M5	8.5	
25	25	11	4.0	28	61	4	4 x M6	14	
35	35	10	4.0	31	70	4	4 x M6	14	
50	50	12	4.0	37	82	6	4 x M6	14	

Transmittable friction torques T_R [Nm] (clearance H7/h6) of hub type 4.5

Size	Ø12	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20	Ø22	Ø23	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50
20	45	62	71	81	92	103	115	127														
25		72	83	95	107	120	133	148	179	196	213	231										
35									127	139	152	165	207	237	270	323						
50															238	281	311	343	394	448	486	

¹⁾ See comments on page 265



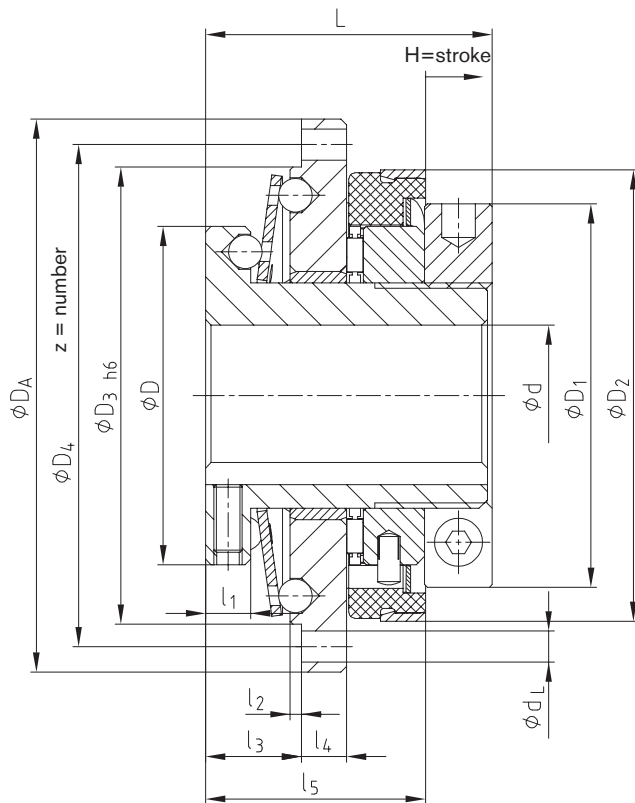
Special type:

- SYNTEX® 35 spec. with integrated flange
- Performance range up to 360 Nm
- Adjustment of flange to ambient components possible

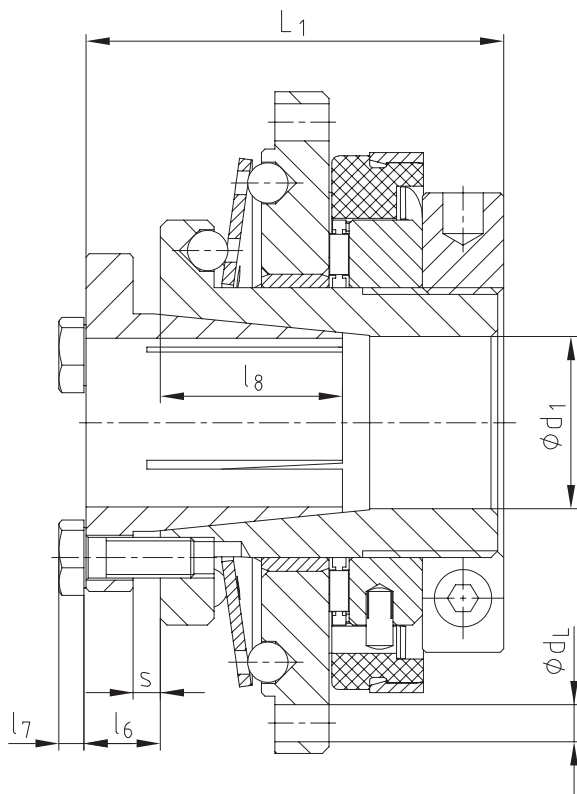
Ordering example:

SYNTEX® 25	d Ø20	DK1	1.0	45 Nm
Type/size	Bore	Type (DK/SK)	Hub type	Torque set

Hub type 1.0



Hub type 4.5



KTR-SI

SYNTEX®

SYNTEX®-NC

KTR-SI Compact

Torque limiters

SYNTEX®

Backlash-free overload systems

With sprocket



For legend of pictogram refer to flapper on the cover



Technical data – dimensions

Size	Torque [Nm]				Max. speed ²⁾ [rpm]	Dimensions [mm]											
	Ratchet design DK		Synchronous design SK			Max. bore d	Standard sprocket ¹⁾			D	D ₁	D ₂	l ₁	l ₃	l ₅	L	H=stroke
	DK1	DK2	SK1	SK2													
20	6-20	15-30	10-20	20-65	1500	20	06 B-1 (³ / ₈ x ⁷ / ₃₂) z = 25			48	54	61.5	8	14	33	45	2
25	20-60	45-90	25-65	40-100	1500	25	08 B-1 (¹ / ₂ x ⁵ / ₁₆) z = 24			60	68	80	8	15	37	50	2
35	25-80	75-150	30-100	70-180	1000	35	08 B-1 (¹ / ₂ x ⁵ / ₁₆) z = 29			75	78	91	10	19	41	60	2
50	60-180	175-300	80-280	160-400	1000	50	12 B-1 (³ / ₄ x ⁷ / ₁₆) z = 27			105	108	121	12	23	52	70	2

Dimensions – Hub type 4.5

Size	Dimensions [mm]							Tightening torque T _A [Nm]
	d ₁ max.	l ₆	l ₇	l ₈	L ₁	s	Clamping screws	
20	20	9	3.5	23	54	3	4 x M5	8.5
25	25	11	4.0	28	61	4	4 x M6	14
35	35	10	4.0	31	70	4	4 x M6	14
50	50	12	4.0	37	82	6	4 x M6	14

Transmittable friction torques T_R [Nm] (clearance H7/h6) of hub type 4.5

Size	Ø12	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20	Ø22	Ø23	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	
20	45	62	71	81	92	103	115	127															
25		72	83	95	107	120	133	148	179	196	213	231											
35									127	139	152	165	207	237	270	323							
50																238	281	311	343	394	448	486	

¹⁾ z = min. number of teeth required / Other sprockets available on request

²⁾ See comments on page 265



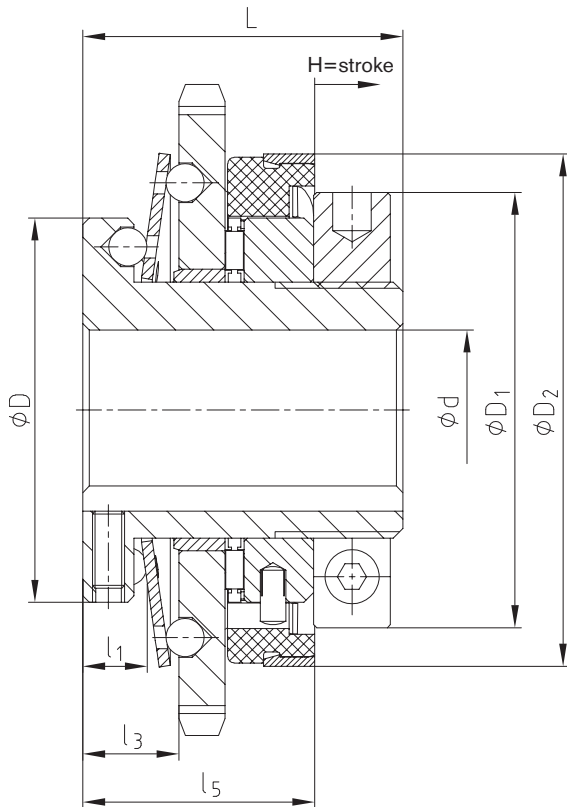
Special type:

- Standard SYNTEX® with integrated toothed belt pulley or sprocket
- Available ready for assembly with the torque set
- Reduction of components by integration of components
- Available both as a ratchet and synchronous design
- torque setting possible while in place
- Finish bore according to ISO fit H7, feather keyway according to DIN 6885, sheet 1 [JS9]
- Also available with a frictionally engaged shaft-hub-connection (hub type 4.5)

Ordering
example:

SYNTEX® 25	DK1	1.0	d Ø20	08 B-1 (¹ / ₂ x ⁵ / ₁₆), z = 29	45 Nm
Type/size	Type (DK/SK)	Hub type	Bore	Sprocket	Torque set

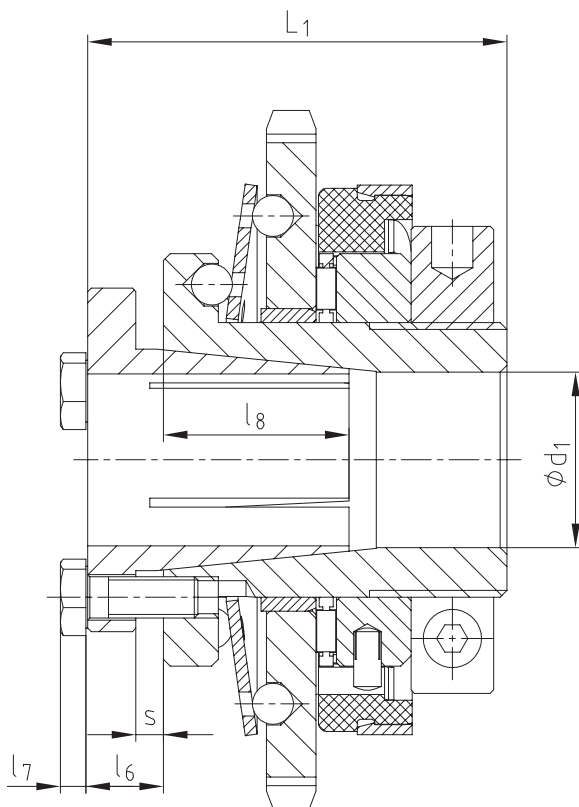
Hub type 1.0



KTR-SI

SYNTEX®

Hub type 4.5



SYNTEX®-NC

KTR-SI Compact

Torque limiters

SYNTEX®

Backlash-free overload systems

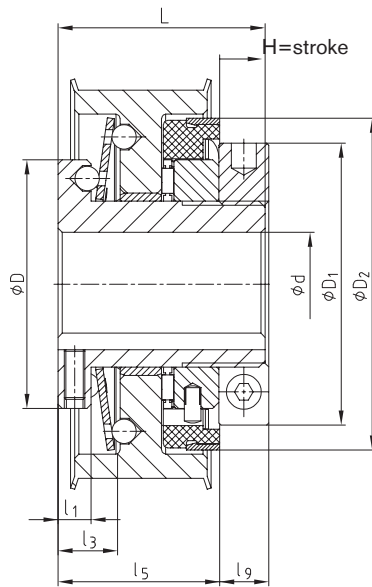
With toothed belt pulley



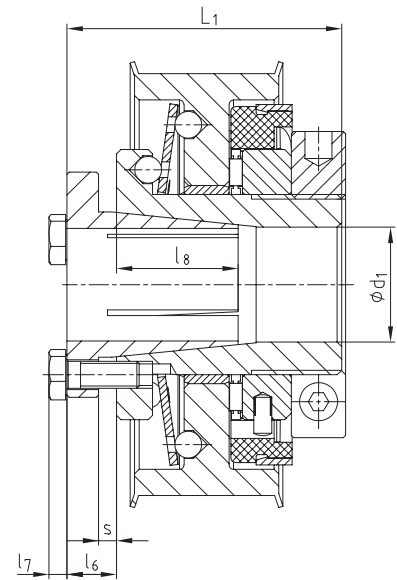
For legend of pictogram refer to flapper on the cover



Hub type 1.0



Hub type 4.5



Technical data – dimensions

Size	Torques [Nm]				Max. speed ²⁾ [rpm]	Dimensions [mm]										
	Ratchet design DK		Synchronous design SK			Max. bore	Toothed belt pulley		D	D ₁	D ₂	l ₁	l ₃	l ₅	L	H=stroke
	DK1	DK2	SK1	SK2			d	T10 ¹⁾								
20	6-20	15-30	10-20	20-65	1500	20	T10, z = 24	AT10, z = 24	48	54	61.5	8	14	35	45	2
25	20-60	45-90	25-65	40-100	1500	25	T10, z = 30	AT10, z = 30	60	68	80	8	15	39	50	2
35	25-80	75-150	30-100	70-180	1000	35	T10, z = 36	AT10, z = 36	75	78	91	10	19	42	60	2
50	60-180	175-300	80-280	160-400	1000	50	T10, z = 48 ³⁾	AT10, z = 48 ³⁾	105	108	121	12	23	56	70	2

Dimensions – Hub type 4.5

Size	Max. bore	Dimensions [mm]							Clamping screws	Tightening torque T _A [Nm]
		d ₁	l ₆	l ₇	l ₈	l ₉	L ₁	s		
20	20	9	3.5	23	10	54	3	4 x M5	8.5	
25	25	11	4.0	28	11	61	4	4 x M6	14	
35	35	10	4.0	31	13	70	4	4 x M6	14	
50	50	12	4.0	37	14	82	6	4 x M6	14	

Transmittable friction torques T_R [Nm] (clearance H7/h6) of hub type 4.5

Size	Ø12	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20	Ø22	Ø23	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50
20	45	62	71	81	92	103	115	127														
25		72	83	95	107	120	133	148	179	196	213	231										
35									127	139	152	165	207	237	270	323						
50																238	281	311	343	394	448	486

¹⁾ z = min. number of teeth required / Other sizes available on request

²⁾ See comments on page 265

³⁾ Without flanged wheel

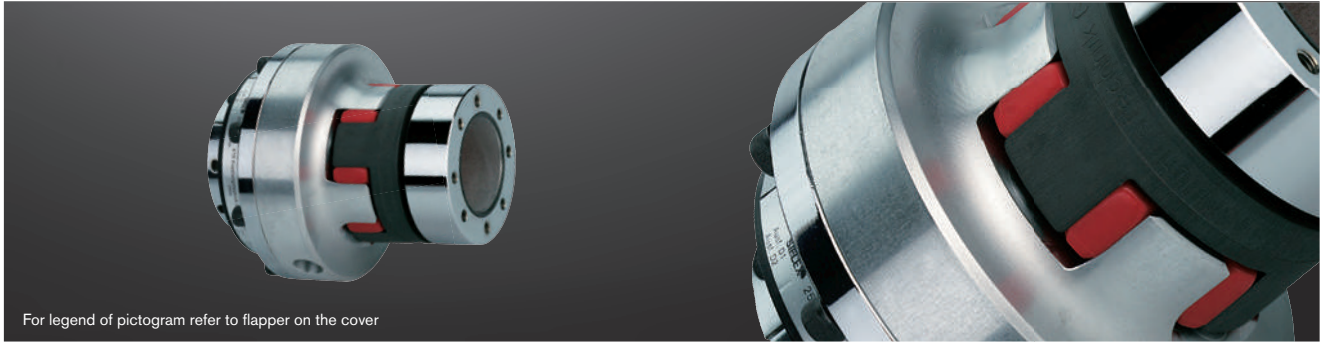
Ordering example:

SYNTEX® 25	DK1	1.0	d Ø20	AT10, z = 24	32	45 Nm
Type/size	Type (DK/SK)	Hub type	Bore	Toothed belt pulley	Width of toothed belt pulley	Torque set

SYNTEX®

Backlash-free overload systems

With backlash-free ROTEX® GS



For legend of pictogram refer to flapper on the cover

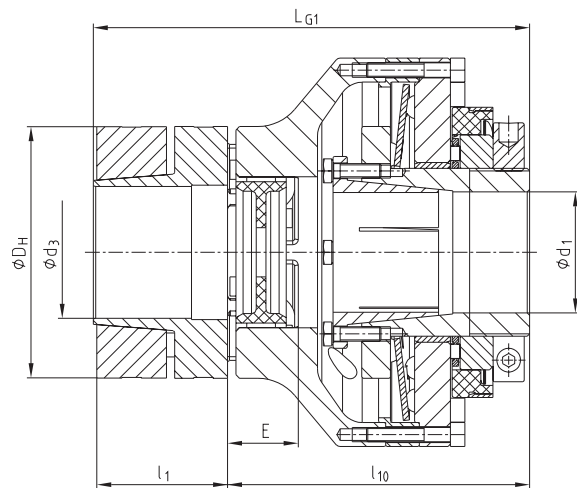
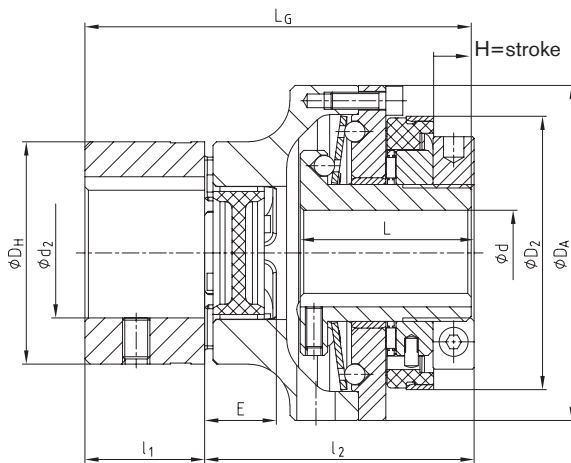


Hub type 1.0

Hub type 1.0

Hub type 6.0

Hub type 4.5



Technical data – dimensions

SYNTEX® size	ROTEX® GS size	Torques [Nm]							Max. speed ²⁾ [rpm]	Dimensions [mm]													
		Ratchet design DK		Synchronous design SK		ROTEX® GS ¹⁾ 98 ShA-GS		Max. bore				D ₂	D _H	D _A	l ₁	l ₂	l ₁₀	E	L	L _G	L _{G1}	H=stroke	
		DK1	DK2	SK1	SK2	T _{KN}	T _{K max}	d		d ₁	d ₂												d ₃
20	24	6-20	15-30	10-20	20-65	60	120	1500	20	20	28	28 ³⁾	61.5	55	80	30	70	83	18	45	100	113	2
25	28	20-60	45-90	25-65	40-100	160	320	1500	25	25	38	38 ³⁾	80	65	98	35	78	91	20	50	113	126	2
35	38	25-80	75-150	30-100	70-180	325	650	1000	35	35	45	48 ³⁾	91	80	120	45	91	105.5	24	60	136	150.5	2
50	48	60-180	175-300	80-280	160-400	525	1050	1000	50	50	62	55 ³⁾	121	105	162	56	111	126	28	70	167	182	2

Transmittable friction torques T_R [Nm] (clearance H7/h6) of hub type 4.5

Size	Ø12	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20	Ø22	Ø23	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50
20	45	62	71	81	92	103	115	127														
25		72	83	95	107	120	133	148	179	196	213	231										
35									127	139	152	165	207	237	270	323						
50																238	281	311	343	394	448	486

¹⁾ See selection of ROTEX® GS couplings on page 22 et seqq.

²⁾ See comments on page 265

³⁾ For transmittable friction torques T_R [Nm] of ROTEX® GS hub type 2.8 or 6.0 refer to mounting instructions of ROTEX® GS

Ordering example:

SYNTEX® 25	DK1	1.0	d Ø20	ROTEX® GS 28	98 ShA-GS	1.0	d ₂ Ø25	50 Nm
Type/size	Type	Hub type	Bore	Type/size	Spider	Hub type	ROTEX® GS bore	Torque set

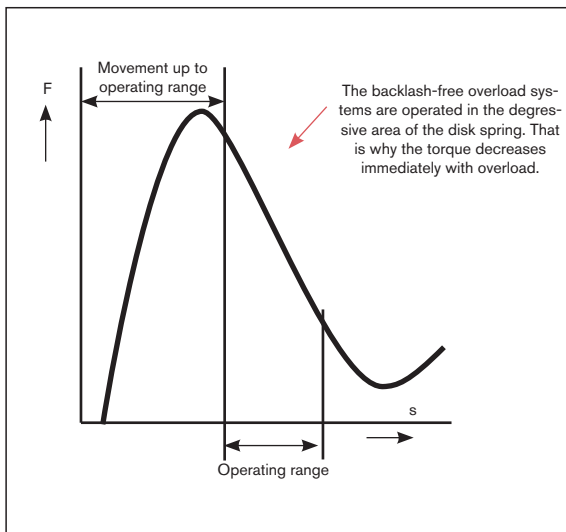
SYNTEX[®]-NC / KTR-SI Compact Backlash-free overload systems

Design and operation

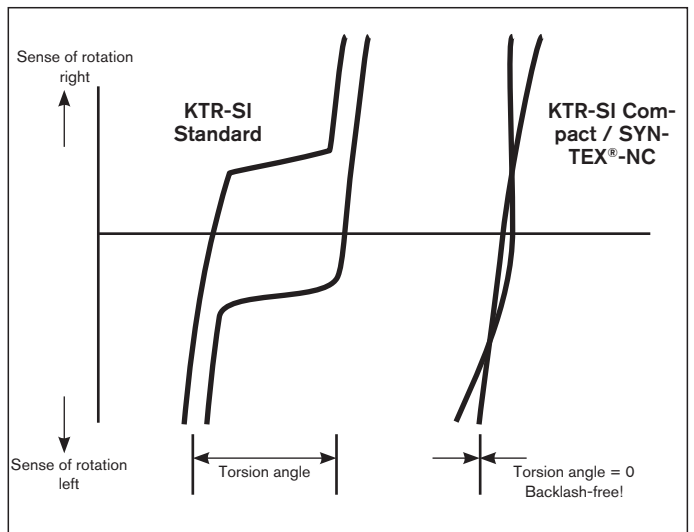
The design of the backlash-free overload systems SYNTEX[®]-NC and KTR-SI Compact is based on a spring-preloaded and positive-locking ball engagement principle allowing for high repeatability and short response times. Moreover, an integrated groove ball bearing provides for the option of direct assembly of toothed belt pulleys, special flanges or other components. Main applications are latest machine tools, control and positioning technology as well as packaging machines and special purpose machinery.

Both systems make use of disk springs with a degressive spring characteristic the preset prestress of which drops during the disengaging process. As a result driving and driven end are reliably separated from each other within some milliseconds with the wear on the components being simultaneously reduced to a minimum.

Spring characteristic curve



What does backlash-free mean?



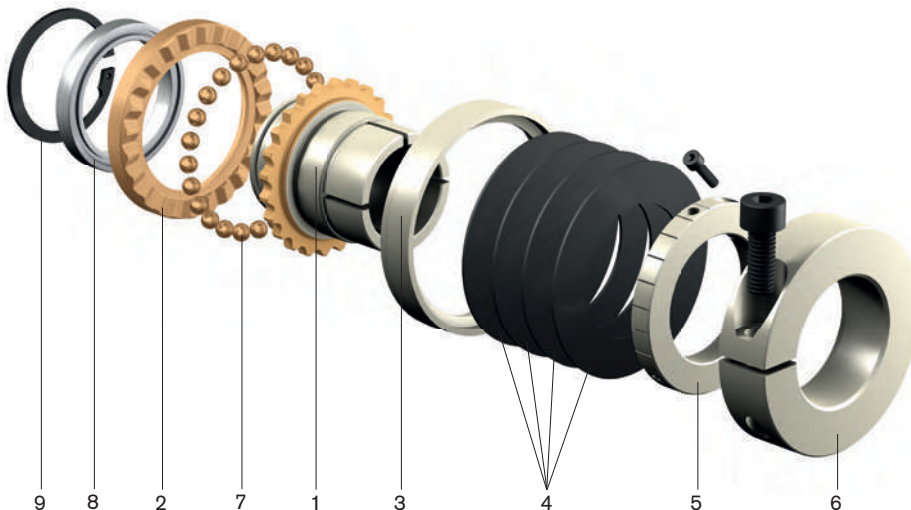
Ratchet design DK

Any engagement after an overload. After eliminating the overload, the balls automatically re-engage with the next following ball indentation.

Synchronous design SK

Synchronous engagement after an overload. After eliminating the overload, the balls re-engage automatically with the disk springs after a rotation of 360°. Driving and driven side are always placed in the same position to each other. Other degrees of re-engagement, for example 180°, are also possible.

● = The core of the backlash-free overload systems



List of components:

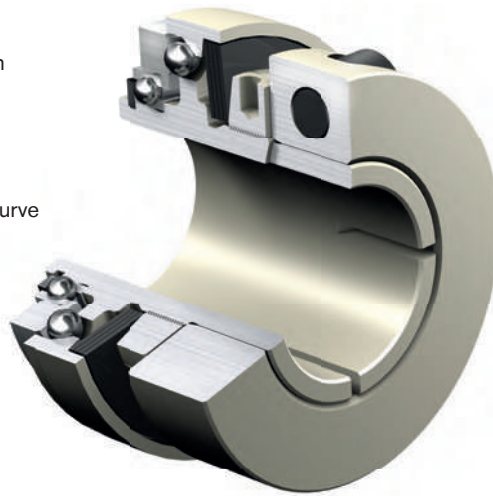
1. Hub with keyway to DIN (type 1.0) or with clamping ring (type 6.1)
2. Flange ring
3. Shifting ring
4. Disk spring
5. Setting nut
6. Clamping ring
7. Balls
8. Groove ball bearing
9. Circlip

SYNTEX®-NC / KTR-SI Compact Backlash-free overload systems

Operating principle

SYNTEX®-NC

- Overload protection up to 550 Nm
- Backlash-free torque transmission
- Light-weight design
- Degressive spring characteristic curve
- Low mass moment of inertia
- Large bore diameters
- Short response times
- High power density



- Clamping ring design easy to assemble
- Available both as a ratchet (DK) and synchronous design (SK)
- Backlash-free shaft-hub-connection
- In combination with the backlash-free, torsionally flexible ROTEX® GS or backlash-free, torsionally stiff TOOLFLEX®
- Direct assembly of toothed belt pulleys, as an example, possible (integrated groove ball bearing)

KTR-SI Compact

- Overload protection up to 3,100 Nm
- Backlash-free overload system with a degressive spring characteristic curve
- Solid design
- Accurate disengagement with high repeatability
- Accurate backlash-free torque transmission even in case of wear
- Shifting ring with setting scale for accurate torque setting



- Easy torque setting by torque scale on the coupling
- Connection flange with ball bearing
- Hardened ratchet surfaces for a long service life
- Backlash-free shaft-hub-connection via taper bush
- Can be used with the proven ROTEX® GS as a shaft-to-shaft connection

RUFLEX®

KTR-SI

SYNTEX®

SYNTEX®-NC

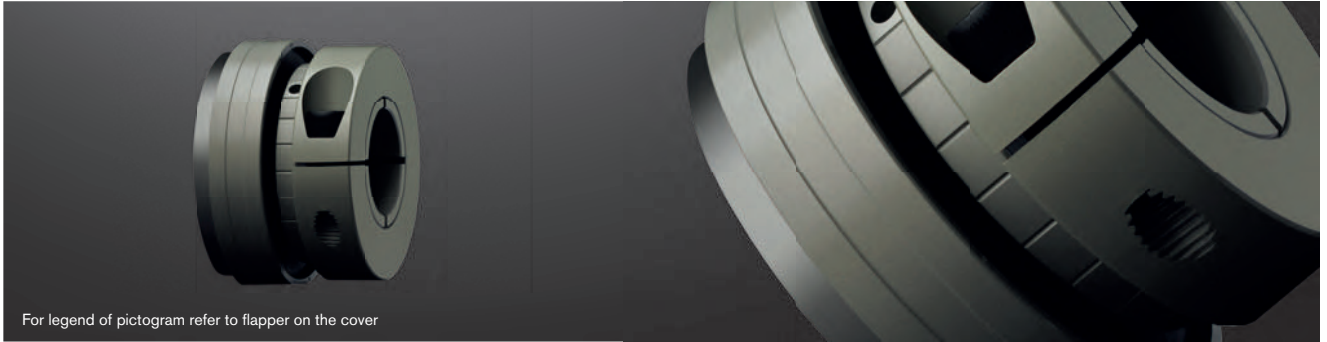
KTR-SI Compact

Torque
limiters

SYNTEX®-NC

Backlash-free overload systems

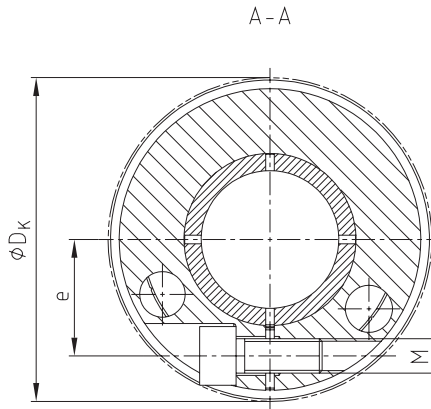
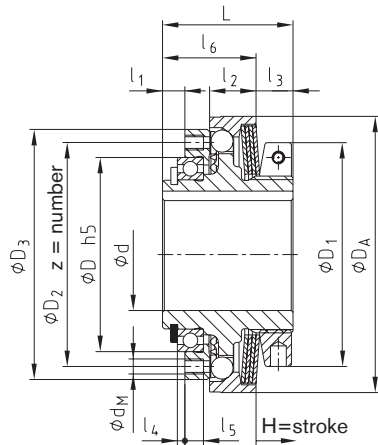
Hub type



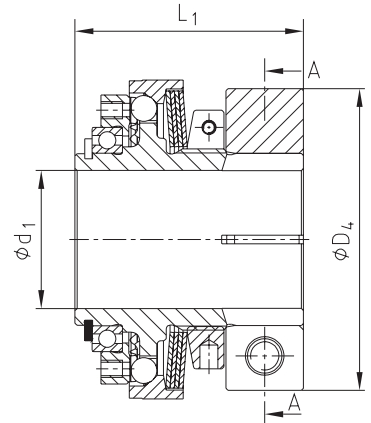
For legend of pictogram refer to flapper on the cover



Hub type 1.0 (keyway acc. to DIN 6885)



Hub type 6.1 (clamping ring)



Technical data – dimensions

Size	Max. speed ³⁾ [rpm]	Torques [Nm]			Max. bore d	Dimensions [mm]											z x d _M	H=stroke	
		T1	T2	T3		D _{h5}	D ₁	D ₂	D ₃	D _A	l ₁	l ₂	l ₃	l ₄	l ₅	l ₆			L
15	3500	2-3.5	3.5-7	7-14	12	32	33	37	42	42	5.0	7.0	9.2	2	4	18.8	28	12xM3	0.8
25	3000	9-15	20-35	40-65	20 (22) ¹⁾	42	50	48	56	61	5.5	11.5	9.1	2	5	23.9	33	8xM4	1.2
32	3000	25-38	50-75	100-150	27 (30) ¹⁾	52	60	60	67	74	6	12.5	9.9	2	5	25.1	35	8xM4	1.5
42	2500	30-65	60-135	120-265	36 (38) ¹⁾	65	72	75	83	90	7	16	11.2	2	6	31.8	43	8xM5	1.5
60 ⁴⁾	2000	70-140	120-180	220-550	50	90	96	100	113	116	8	21	11.8	2	7	38.2	52	12xM6	1.8

Dimensions – Hub type 6.1

Size	Bore d ₁		Dimensions [mm]						Weight with max. bore [kg]	Mass moment of inertia ²⁾ J _{total} [kgm ²]
	Pilot bore	Max.	D ₄	DK	L ₁	e	M	T _A [Nm]		
15	7.5	15	40	43	38	15	M4	1.7	0.124	0.029 x 10 ⁻³
25	9.5	25	55	-	45	21	M6	14	0.282	0.14 x 10 ⁻³
32	13.5	32	70	-	53	27	M8	34	0.471	0.35 x 10 ⁻³
42	18.5	42	86	91.2	63	33	M10	67	0.815	0.95 x 10 ⁻³
60 ⁴⁾	24	60	112	119.4	75	45	M12	115	3.04	5.9 x 10 ⁻³

Transmittable friction torques T_R [Nm] (clearance H7/h6) of hub type 6.1

Size	Ø8	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø36	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60
15	8	12	14	16	22	24																				
25		30	35	42	55	62	69	48	53	58	69	80	86													
32						74	83	104	114	125	148	116	125	153	172	192										
42										149	178	209	225	275	310	264	309	324	356	389	422					
60 ⁴⁾													247	310	356	405	485	513	571	633	394	452	514	558	675	803

¹⁾ The figure in brackets specifies the max. bore with keyway to DIN 6885 sheet 3 (low-rise design)

²⁾ With max. bore

³⁾ See comments on page 265

⁴⁾ Material steel

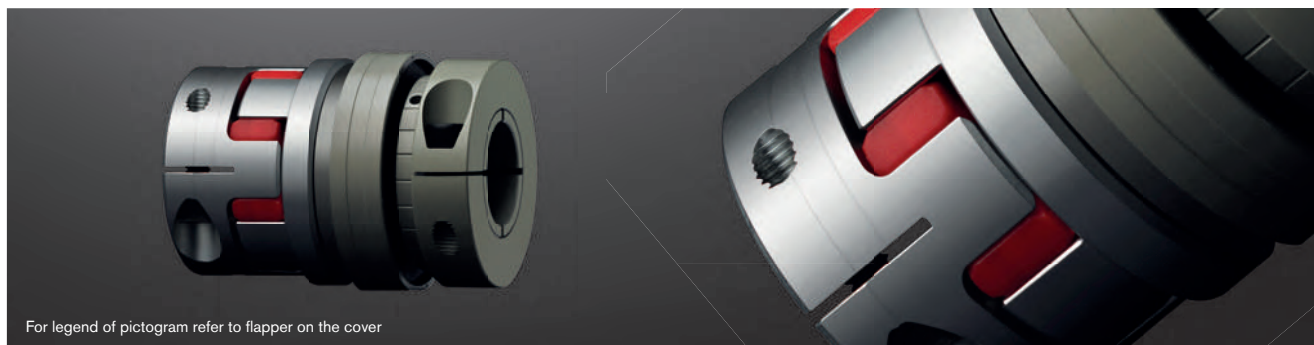
Ordering example:

SYNTEX®-NC 32	SK	6.1	T3	d ₁ Ø25	120
Type/size	Type (DK/SK)	Hub type	Disk springs	Bore	Torque set

SYNTEX®-NC

Backlash-free overload systems

With backlash-free ROTEX® GS

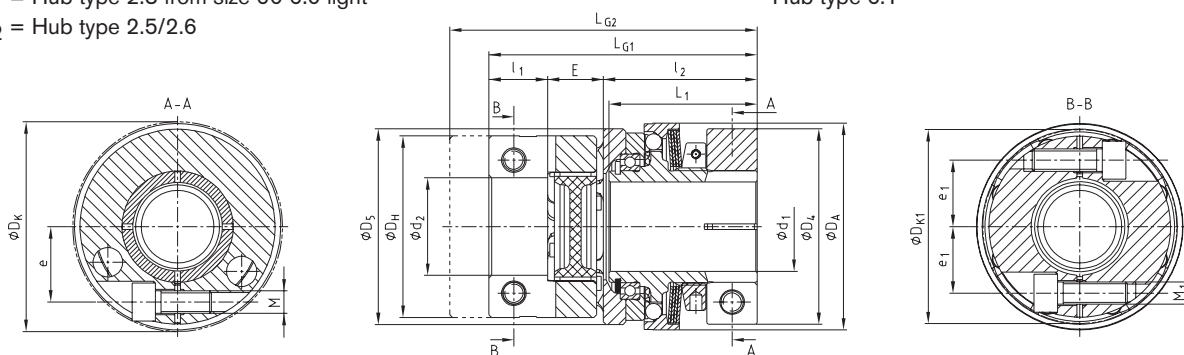


For legend of pictogram refer to flapper on the cover



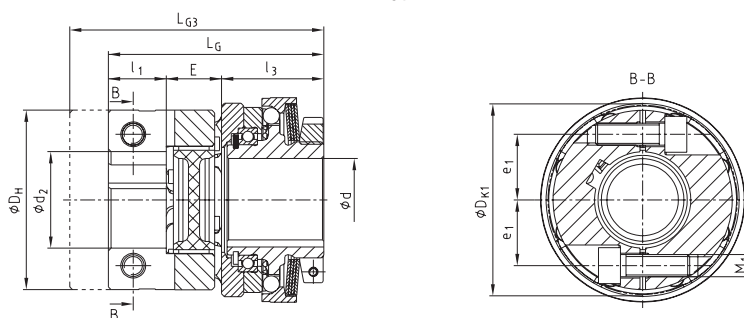
LG1 = Hub type 2.8 from size 60 6.0 light
LG2 = Hub type 2.5/2.6

Hub type 6.1



LG = Hub type 2.9 from size 60 1.0
LG3 = Hub type 2.5/2.6

Hub type 1.0



Technical data – dimensions

Size	ROTEX® GS size ¹⁾	Torques [Nm]			Max. speed ²⁾ [rpm]	Max. bore			Dimensions [mm]																			
		T1	T2	T3		d	d1	d2	D5	DH	DK	DK1	DA	l1	l2	l3	E	e	e1	LG	L1	LG1	LG2	LG3	M	TA [Nm]	M1	TA1 [Nm]
15	19	2-3.5	3.5-7	7-14	3500	12	15	24 ³⁾	45	40	-	46.7	42	17	40	30	16	15	15.5	63	38	73	81	71	M4	1.7	M5	6
25	24	9-15	20-35	40-65	3000	20 (22) ⁴⁾	25	32 ³⁾	58	55	-	57.5	61	18	47.5	35.5	18	21	20	71.5	45	83.5	95.5	83.5	M6	14	M6	10
32	28	25-38	50-75	100-150	3000	27 (30) ⁴⁾	32	35 ³⁾	70	65	-	69	74	21	55	37	20	27	23.8	78	53	96	110	92	M8	34	M8	25
42	38	30-65	60-135	120-265	2500	36 (38) ⁴⁾	42	45 ³⁾	88	80	91.2	86	90	26	66	46	24	33	30.5	96	63	116	135	115	M10	67	M10	49
60 ⁵⁾	48	70-140	120-280	220-550	2000	50	60	55 ³⁾	113	105	119.4	-	116	56	83	60	28	45	-	144	75	167	167	144	M12	115	M10	49

Transmittable friction torques TR [Nm] (clearance H7/h6) of hub type 6.1

Size	Ø8	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø36	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60
15	8	12	14	16	22	24																				
25		30	35	42	55	62	69	48	53	58	69	80	86													
32					74	83	104	114	125	148	116	125	153	172	192											
42									149	178	209	225	275	310	264	309	324	356	389	422						
60 ⁵⁾													247	310	356	405	485	513	571	633	394	452	514	558	675	803

¹⁾ See selection of ROTEX® GS couplings on page 22 et seqq.

²⁾ See comments on page 265

³⁾ For transmittable friction torques TR [Nm] of ROTEX® GS hub type 2.8 or 6.0 refer to mounting instructions of ROTEX® GS

⁴⁾ The figure in brackets specifies the max. bore with keyway to DIN 6885 sheet 3 (low-rise design)

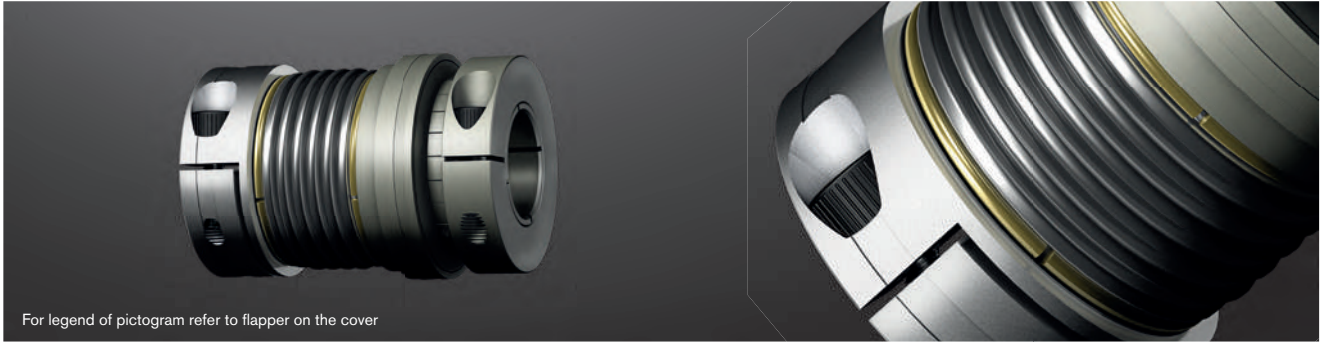
⁵⁾ Material steel

Ordering example:	SYNTEX®-NC 32	SK	6.1	T3	d1 Ø25	28	2.8	d2 Ø20	120
	Type/size	Type	Hub type	Disk springs	SYNTEX®-NC bore	ROTEX® GS size	Hub type	ROTEX® GS bore	Torque set

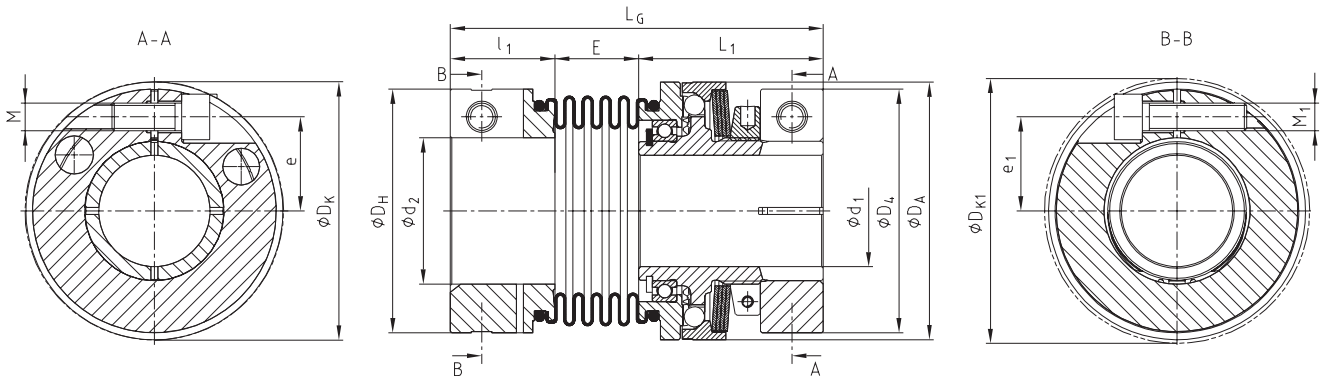
SYNTEX®-NC

Backlash-free overload systems

With torsionally stiff TOOLFLEX® S



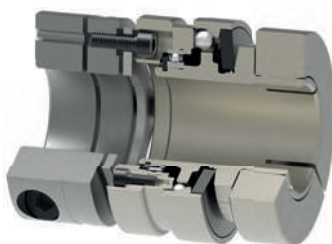
For legend of pictogram refer to flapper on the cover



Technical data – dimensions																							
Size	TOOLFLEX® size ¹⁾	Torques [Nm]			Speed ²⁾ [rpm]	Max. bore		Dimensions [mm]															
		T1	T2	T3		d ₁	d ₂	D ₄	D _H	D _A	DK	DK1	l ₁	L ₁	E	e	e ₁	L _G	M	T _A [Nm]	M ₁	T _{A1} [Nm]	
15	20	2-3.5	3.5-7	7-14	3500	15	20 ³⁾	40	40	52	43	43.5	21.5	38	16.5	15	14.5	76	M4	1.7	M5	6	
25	38	9-15	20-35	40-65	3000	25	38 ³⁾	55	65	61	-	72.6	25.5	45	18	21	25	88	M6	14	M8	25	
32	42	25-38	50-75	100-150	3000	32	42 ³⁾	70	70	74	-	76.1	30	53	24	27	27	107	M8	34	M8	25	
42	45	30-65	60-135	120-265	2500	42	45 ³⁾	86	83	90	91.2	89	32	63	22.5	33	30	114	M10	67	M10	49	
60 ⁴⁾	65	70-140	120-280	220-550	2000	60	65 ³⁾	112	125	140	119.4	127.1	45	84	36	45	45	165	M12	115	M14	185	

Transmittable friction torques T _R [Nm] (clearance H7/h6) of hub type 6.1																										
Size	Ø8	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø36	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60
15	8	12	14	16	22	24																				
25		30	35	42	55	62	69	48	53	58	69	80	86													
32					74	83	104		114	125	148	116	125	153	172	192										
42										149	178	209	225	275	310	264	309	324	356	389	422					
60 ⁴⁾													247	310	356	405	485	513	571	633	394	452	514	558	675	803

¹⁾ See selection of TOOLFLEX® couplings on page 22 et seqq.
²⁾ See comments on page 265
³⁾ For transmittable friction torques T_R [Nm] of TOOLFLEX® hub type 2.5 refer to mounting instructions of TOOLFLEX®
⁴⁾ Material steel

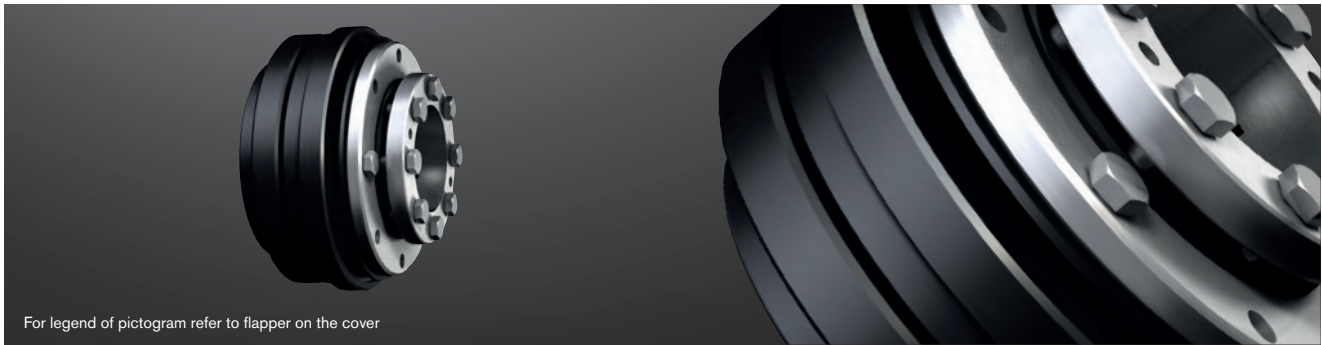


Special type:
 ● SYNTEX®-NC with RADEX®-NC

Ordering example:	SYNTEX®-NC 32	SK	6.1	T3	d ₁ Ø25	42-S	2.5	d ₂ Ø20	120
	Type/size	Type	Hub type	Disk springs	SYNTEX®-NC bore	TOOLFLEX® size	Hub type	TOOLFLEX® bore	Torque set

KTR-SI Compact Backlash-free overload systems

Flange type



For legend of pictogram refer to flapper on the cover



Hub type 1.0

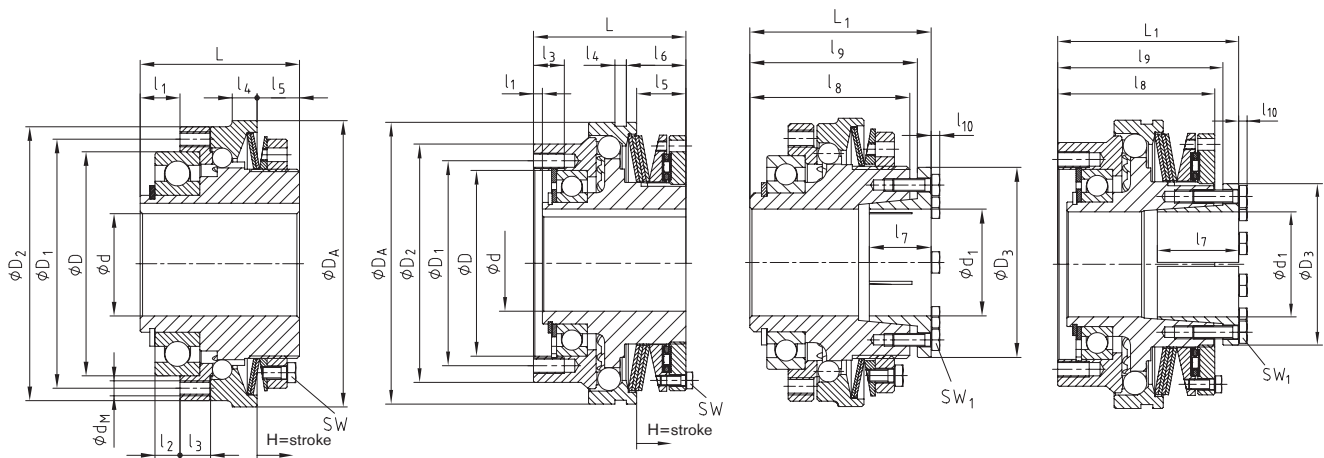
Hub type 4.5
with taper sleeve

Size 01 - 3

Size 4

Size 01 - 3

Size 4



Technical data – dimensions

Size	Speed ¹⁾ [rpm]	Torque [Nm]			Dimensions [mm]															
		T1	T2	T3	Bore d		D _{h5}	D ₁	D ₂	D _A	l ₁	l ₂	l ₃	l ₄	l ₅	l ₆	L	d _M	SW	H=stroke
01	4000	3-14	6-28	13-56	8-20		47	56	65	70	8	5	7.5	7	12	-	40	8xM4	7	1.2
0	3000	9-35	18-70	40-140	10-25 (30) ³⁾		62	71	80	85	11	7	8.0	8	14	-	48	8xM5	7	1.5
1	2500	19-65	38-130	78-260	14-30 (35) ³⁾		75	85	95	100	14	9	10.5	9	16	-	59	8xM6	8	1.8
2	2000	35-110	80-220	160-440	18-40 (45) ³⁾		90	100	110	115	16	10	12	10	17	-	64	8xM6	10	2.0
3	1200	80-200	160-400	320-800	24-50		100	116	130	135	18	10	12	12	21	-	75	8xM8	10	2.2
4	400	230-730	460-1590	960-3100	40-75		145 ^{H7}	160	186	220	7	-	24	9	38.5	46.5	119	6xM12	13	3.5

Dimensions – Hub type 4.5

Size	Bore ²⁾		Dimensions [mm]										T _A [Nm]
	d ₁	D ₃	l ₇	l ₈	l ₉	l ₁₀	L ₁	SW ₁					
01	10-20	40.5	26	40	42	2.8	47	7	3				
	19-25	42											
0	15-20	40.5	26	46	48	2.8	53	7	4.6				
	19-30	57											
1	19-30	57	40	57	60	4	67	10	10				
	32-40	64											
2	32-50	73.5	29	63	66.5	4	73	10	10				
	32-50	73.5											
3	55-60	89	44	75	78	4	86	10	10				
	55-60	89											
4	50-60	96.5	54	119	125.5	5.5	133.5	13	28				
	65-80	123											

¹⁾ See comments on page 265

²⁾ For transmittable friction torques T_R [Nm] of hub type 4.5 refer to assembly instructions

³⁾ The figure in brackets specifies the max. bore with keyway to DIN 6885 sheet 3 (low-rise design)

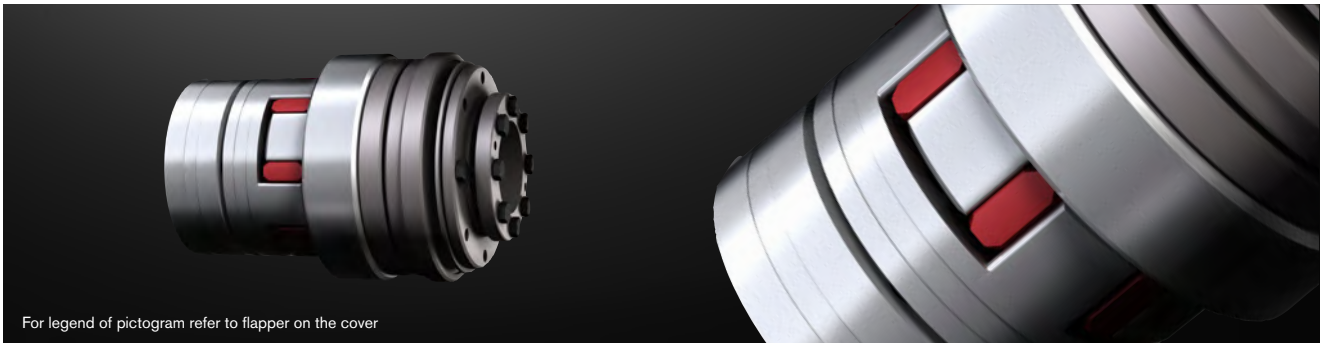
Ordering example:

KTR-SI Compact 2	DK	4.5	T2	d ₁ Ø40	150 Nm
Type/size	Type (DK/SK)	Hub type	Disk springs	Bore	Torque set

KTR-SI Compact

Backlash-free overload systems

With backlash-free ROTEX® GS



For legend of pictogram refer to flapper on the cover

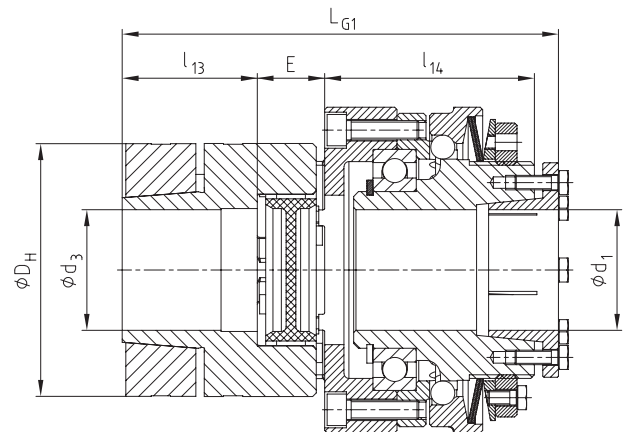
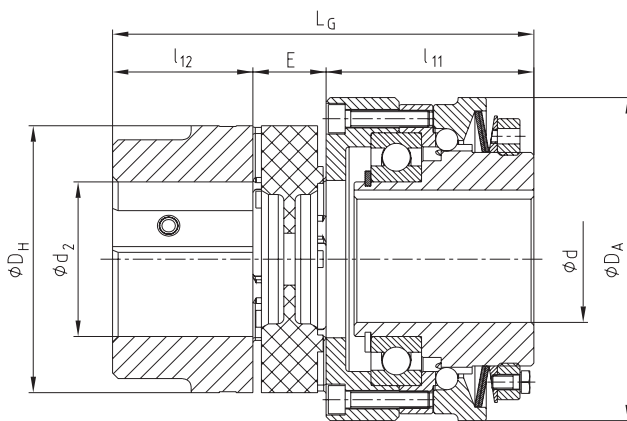


Hub type 1.0

Hub type 1.0

Hub type 6.0

Hub type 4.5



Technical data – dimensions

Size	Max. speed ¹⁾ [rpm]	Torques [Nm]			ROTEX® GS size ²⁾	Max. bore				Dimensions [mm]								
		T1	T2	T3		d	d ₁	d ₂	d ₃	D _H	D _A	l ₁₁	l ₁₂	l ₁₃	l ₁₄	E	L _G	L _{G1}
01	4000	3-14	6-28	13-56	24	20	25	28	20	55	70	47	30	30	47	18	95	102
0	3000	9-35	18-70	40-140	28	25	30	38	38	65	85	56.5	35	35	54.5	20	111.5	119.5
1	2500	19-65	38-130	78-260	38	30	40	45	48	80	100	69	45	45	67	24	138	146
2	2000	35-110	80-220	160-440	42	40 (45) ³⁾	50	55	51	95	115	74	50	50	73	26	150	159
3	1200	80-210	160-400	320-800	48	50	60	62	55	105	135	87	56	56	87	28	171	182
4	400	230-730	460-1590	960-3100	75	75	80	80	80	160	220	158.5	85	85	139.5	40	283.5	302.5

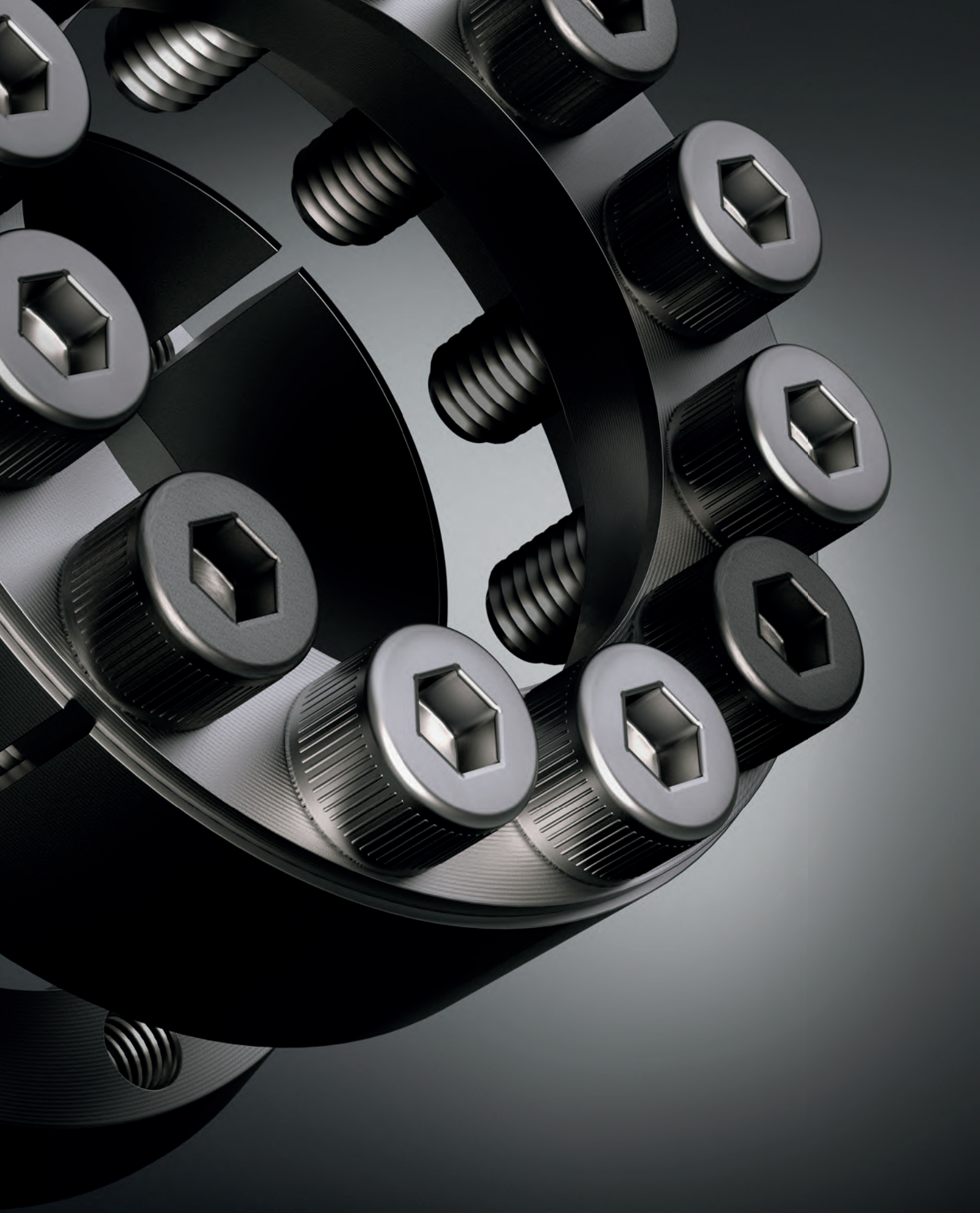
¹⁾ See comments on page 265

²⁾ See selection of ROTEX® GS couplings on page 22 et seqq.

³⁾ The figure in brackets specifies the max. bore with keyway to DIN 6885 sheet 3 (low-rise design)

Ordering
example:

KTR-SI Compact 1	DK	T2	4.5	d ₁ Ø25	6.0 / d ₃ Ø25	150 Nm
Type/size	Type (DK/SK)	Disk spring	KTR-SI hub type	KTR-SI bore	ROTEX® GS hub type/bore	Torque set



Clamping elements and precision joints

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Internal clamping elements

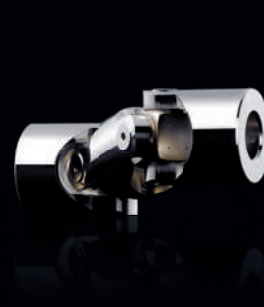


External clamping elements



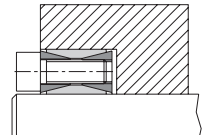
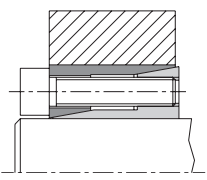
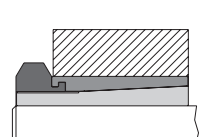
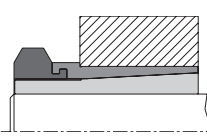
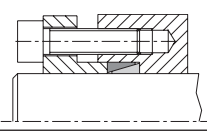
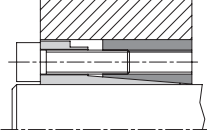
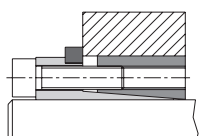
Shaft couplings

Precision joints



CLAMPEX® CLAMPING ELEMENTS TYPES AND OPERATING DESCRIPTION

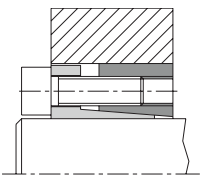
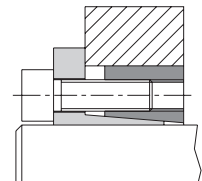
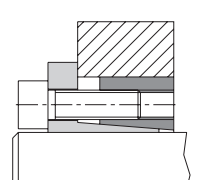
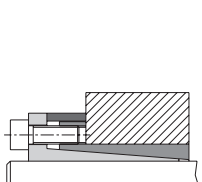
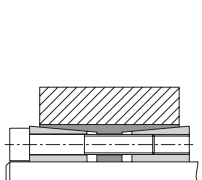
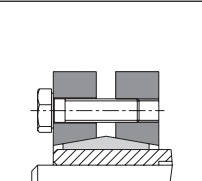
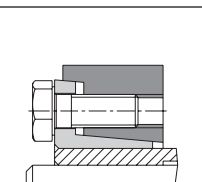
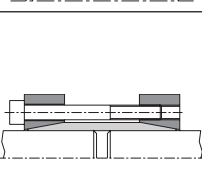
Properties of clamping elements

Type	Series	Shaft diameter [mm]	Transmittable torque T [Nm]	Centering of hub to shaft via the clamping element	Centering between hub and shaft required	Axial displacement of hub during assembly of clamping element	Details on page
Internal clamping elements	 KTR 100	17 – 1,000	260 – 3,017,100		●		308 309
	 KTR 105	5 – 50	5 – 1,900	●		●	310 311
	 KTR 130	5 – 50	10 – 2,320	●		●	312 313
	 KTR 131	5 – 35	10 – 836	●		●	312 313
	 KTR 150	6 – 440	2 – 215,000		●	●*	314 315
	 KTR 200	20 – 200	530 – 68,000	●		●	316 317
	 KTR 201	20 – 200	320 – 48,800	●			316 317

* Depending on mounting position

CLAMPEX® CLAMPING ELEMENTS

TYPES AND OPERATING DESCRIPTION

Type	Series	Shaft diameter [mm]	Transmittable torque T [Nm]	Centering of hub to shaft via the clamping element	Centering between hub and shaft required	Axial displacement of hub during assembly of clamping element	Details on page
Internal clamping elements	 KTR 203	18 – 400	370 – 487,000	●		●	318 319
	 KTR 206	18 – 400	290 – 342,000	●			318 319
	 KTR 225	14 – 50	287 – 1,796	●			320 321
	 KTR 250	6 – 130	11 – 25,000	●			322 323
	 KTR 400	24 – 600	700 – 1,640,000	●		●	324 325
External clamping elements	 KTR 603	10 – 420	28 – 1,460,000	●			326 - 329
	 KTR 620	13 – 700	70 – 7,394,000	●			330 - 333
Shaft couplings	 KTR 700	10 – 100	62 – 8,350	●			334 335

CLAMPEX®

Clamping nuts

KTR Precision joints

Clamping sets

Guide for selection

1. Which properties of a clamping set are required?

- Shall shaft and hub be centered to each other by the clamping set?
- Is axial displacement of the hub permissible during assembly of the clamping set?

For an explanation of the properties specified above see CLAMPEX® selection guide on page 306.

2. Which dimensions of clamping sets are required?

- Internal diameter of clamping set
- External diameter of clamping set
- Length of clamping set

For dimensions of clamping sets see catalogue on page 309 et seqq.

3. How much torque and/or axial force needs to be transmitted?

The following safety factors are recommended by KTR:

- ≥ 1.5 between the maximum torque of machine and the transmittable torque of clamping set.
- ≥ 2.0 between the rated torque of machine and the transmittable torque of clamping set.

4. Are shaft and hub suitable for the clamping set connection?

Calculation of the components is possible via the following methods:

- Formula for calculation of components see page 305.
- Review of components as well as the entire application via KTR CLAMPEX® online tool at www.KTR.com.

5. Other selection criteria

For questions about the following subjects, please contact the KTR engineering department.

- The clamping set is to be mounted on a shaft with a feather keyway.
- Simultaneous transmission of torque and axial force.
- The clamping set is radially loaded.
- The clamping set is loaded on bending.
- High circumferential speeds (from 30 m/s).
- Low/high operating temperatures (below -20 °C or above +50 °C).
- Shaft with bore (hollow shaft).
- Clamping set in a corrosion-protected design.
- Use in potentially explosive atmosphere (ATEX).
- Concentricity and axial run-out accuracies.
- Notch impact factors.

Table of screws						
Dimension M	Preload force F_V and tightening torque T_A with $\mu_{total} = 0.14$					
	Preload force F_V [N]			Tightening torque T_A [Nm]		
	8.8	10.9	12.9	8.8	10.9	12.9
M3	2210	3110	3730	1.34	1.89	2.25
M4	3900	5450	6550	2.9	4.1	4.9
M5	6350	8950	10700	6	8.5	10
M6	9000	12600	15100	10	14	17
M8	16500	23200	27900	25	35	41
M10	26200	36900	44300	49	69	83
M12	38300	54000	64500	86	120	145
M14	52500	74000	88500	135	190	230
M16	73000	102000	123000	210	295	355
M18	88000	124000	148000	290	405	485
M20	114000	160000	192000	410	580	690
M22	141000	199000	239000	550	780	930
M24	164000	230000	276000	710	1000	1200
M27	215000	302000	363000	1050	1500	1800
M30	262000	368000	442000	1450	2000	2400

Selection

Symbol	Definition resp. explanation
$\sigma_{N0.2}$	Yield point of hub material [N/mm ²]
$\sigma_{W0.2}$	Yield point of shaft material [N/mm ²]
C	Specific heat capacity C of hub type (see illustration on page 323)
d	Internal diameter of clamping element [mm]
d_{iW}	Internal diameter of hollow shaft [mm]
D	External diameter of clamping element [mm]
D_N	Required external diameter of hub [mm]
T	Transmittable torque [Nm]
T_S	Peak torque to be transmitted [Nm]
T_A	Screw tightening torque [Nm]
B2/B3	Length of clamping element [mm]

Symbol	Definition resp. explanation
L/L ₁	Hub length [mm]
P_N	Surface pressure generated on the clamping element/hub [N/mm ²]
P_W	Surface pressure generated on the clamping element/shaft [N/mm ²]
C _W	d_{iW}/d -> Ratio of internal diameter of hollow shaft/clamping element
C_N	D/D_N -> Ratio of external diameter of clamping element/hub
F_a	Axial force generated during operation [kN]
F_{ax}	Transmittable axial force [kN]
F_V	Preload force [N]
P_O	Setting force for clamping element [N]
P_S	Clamping force for clamping element [N]
P_A	$P_O + P_S$ = Total force for clamping element [N]

The transmission data are parameters found out by calculations. Subject to the friction coefficient variation which is subjected to physical properties, small deviations with the transmission figures may arise.

1. Fatigue strength and shape stability of components subjected to torsion and bending load

The stress concentration figures β_k for the clamping elements press fits are worked out similarly to those of pressure oil fits. Stress concentration factors on request.

2. Transmittable torque T

The transmittable torque T always has to be above the biggest torque peak T_S , which may arise on the joints. The torque peaks occurring with acceleration of electric motors as well as additional axial forces F_a have to be considered.

$$T \geq \sqrt{T_S [Nm]^2 + (F_a [kN] \cdot \frac{d [mm]}{2})^2}$$

3. Transmittable axial force F_{ax}

The maximum transmittable axial force F_{ax} specified in the tables has to be reduced accordingly with additional torque transmission.

$$F_{ax} [kN] = 2 \cdot \frac{T [Nm]}{d [mm]}$$

4. Calculation of external diameter of hub D_N

The required external diameter of hub D_N depends on the hub geometry, the yield point of the hub material and the surface pressure between clamping element and hub. In order to simplify the calculation, the table on page 323 specifies correction values which allow to calculate D_N .

$$D_N [mm] \geq D \cdot \text{correction value } x$$

Those external diameters of hubs which cannot be calculated based on the table are calculated via the following formula:

$$D_N \geq D \cdot \sqrt{\frac{\sigma_{N0.2} + P_N \cdot C}{\sigma_{N0.2} - P_N \cdot C}}$$

Tangential stress on the internal diameter of hub

$$\sigma_{tiN} \approx P_N \cdot \frac{(1 + C_N^2)}{(1 - C_N^2)} \cdot C$$

For clamping connections with hollow shafts the required internal diameter of the hollow shaft d_{iW} is calculated based on the following formula:

$$d_{iW} \leq d \cdot \sqrt{\frac{\sigma_{W0.2} - 2 \cdot P_W \cdot 0.8}{\sigma_{W0.2}}}$$

Tangential stress on the internal diameter of shaft

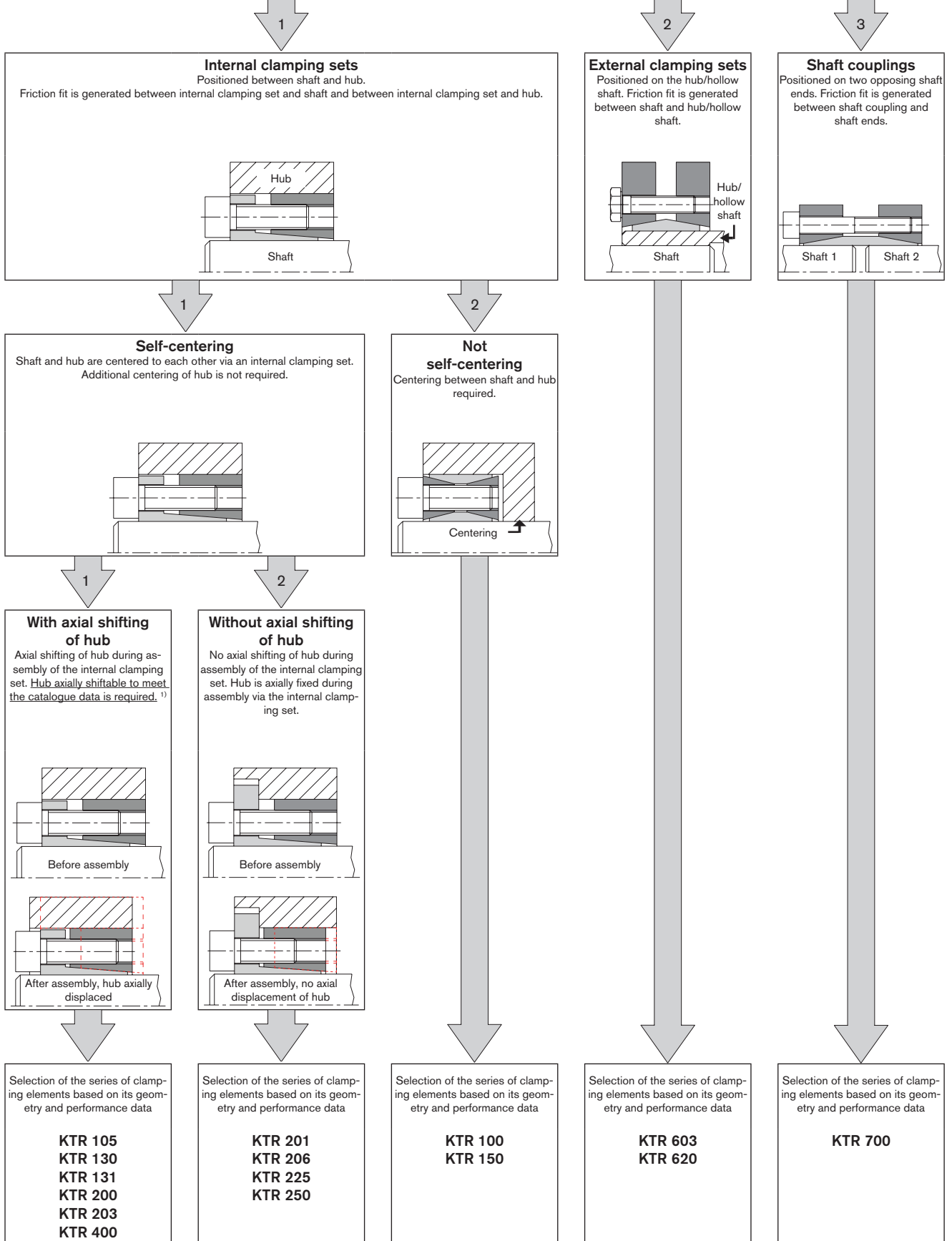
$$\sigma_{tiW} \approx \frac{2 \cdot P_W}{(C_W^2 - 1)}$$

Selection of hub material with external clamping sets KTR 603 and KTR 620

The hub material should have a yield strength R_e of ≥ 350 N/mm². For applications with additional bending load, Q + T steel such as 42CrMo4 should be used.

Selection guide

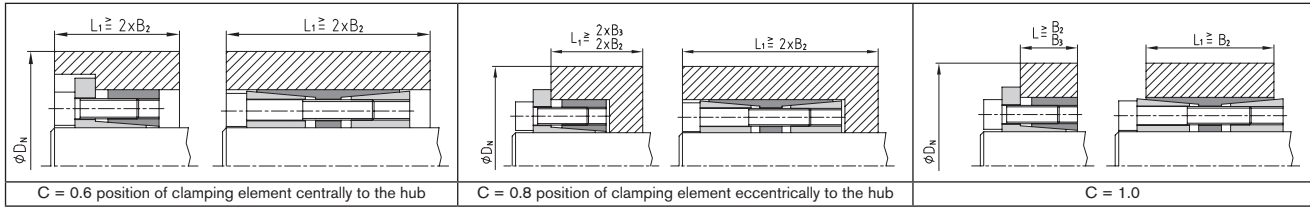
Selection guide for CLAMPEX® clamping elements



¹⁾ Does not apply for KTR 400

Calculation of hubs

Mounting conditions of clamping elements with specific heat capacity C of hub type



C = 0.6 position of clamping element centrally to the hub

C = 0.8 position of clamping element eccentrically to the hub

C = 1.0

Selection table for the calculation of the external diameter of hub D_N required (correction value x)

Surface pressure between clamping element and hub		Average yield point of material $\sigma \geq 0.2$ in N/mm ² (more accurate stiffness figures depending on diameter as specified by the manufacturer)										
		150	180	200	220	250	270	300	350	400	450	600
PN [N/mm ²]	Specific heat capacity C of hub type	Hub materials										
		GJL 200	GJL 250 GE 200	GJL 300 GJMB-350	GE 240	GJS 400-15 GE 260 AW-2007	E295 C 35	GJS 500-7 GE 300 S355J2	GJS 600-3 C 45	GJS 700-2 C 60	Q & T steel	Q & T steel
65	C = 0.6	1.30	1.25	1.22	1.20	1.18	1.15	1.13	1.11	1.10	1.09	1.07
	C = 0.8	1.44	1.35	1.30	1.28	1.24	1.22	1.20	1.16	1.14	1.12	1.09
	C = 1.0	1.60	1.45	1.40	1.35	1.30	1.28	1.24	1.20	1.18	1.16	1.12
70	C = 0.6	1.34	1.26	1.24	1.22	1.18	1.16	1.15	1.12	1.11	1.10	1.07
	C = 0.8	1.48	1.38	1.34	1.30	1.25	1.23	1.20	1.18	1.15	1.13	1.10
	C = 1.0	1.65	1.50	1.45	1.40	1.34	1.30	1.26	1.22	1.20	1.17	1.13
75	C = 0.6	1.30	1.28	1.25	1.23	1.20	1.18	1.16	1.14	1.12	1.11	1.08
	C = 0.8	1.52	1.42	1.36	1.32	1.28	1.25	1.22	1.18	1.16	1.14	1.11
	C = 1.0	1.74	1.55	1.48	1.42	1.36	1.33	1.30	1.25	1.20	1.18	1.13
80	C = 0.6	1.39	1.31	1.28	1.25	1.21	1.20	1.18	1.15	1.13	1.11	1.08
	C = 0.8	1.58	1.45	1.39	1.35	1.30	1.27	1.24	1.20	1.18	1.15	1.11
	C = 1.0	1.81	1.61	1.53	1.46	1.39	1.36	1.31	1.26	1.22	1.20	1.14
85	C = 0.6	1.42	1.34	1.30	1.27	1.23	1.21	1.19	1.16	1.14	1.12	1.09
	C = 0.8	1.63	1.49	1.42	1.38	1.32	1.29	1.26	1.22	1.19	1.16	1.12
	C = 1.0	1.90	1.67	1.57	1.50	1.42	1.39	1.34	1.28	1.24	1.21	1.15
90	C = 0.6	1.46	1.36	1.32	1.28	1.25	1.22	1.20	1.17	1.15	1.13	1.09
	C = 0.8	1.69	1.53	1.46	1.40	1.34	1.31	1.28	1.23	1.20	1.18	1.13
	C = 1.0	2.00	1.73	1.62	1.54	1.46	1.41	1.36	1.30	1.26	1.22	1.16
95	C = 0.6	1.49	1.39	1.34	1.30	1.26	1.24	1.21	1.18	1.15	1.14	1.10
	C = 0.8	1.75	1.57	1.49	1.43	1.37	1.34	1.30	1.25	1.21	1.19	1.14
	C = 1.0	2.11	1.80	1.68	1.59	1.49	1.44	1.39	1.32	1.27	1.24	1.17
100	C = 0.6	1.53	1.41	1.36	1.32	1.28	1.25	1.22	1.19	1.16	1.14	1.11
	C = 0.8	1.81	1.61	1.53	1.46	1.39	1.36	1.31	1.26	1.22	1.20	1.14
	C = 1.0	2.24	1.87	1.73	1.63	1.53	1.48	1.41	1.34	1.29	1.25	1.18
105	C = 0.6	1.56	1.44	1.39	1.34	1.29	1.27	1.24	1.20	1.17	1.15	1.11
	C = 0.8	1.88	1.66	1.56	1.50	1.42	1.38	1.33	1.28	1.24	1.21	1.15
	C = 1.0	2.38	1.95	1.79	1.68	1.56	1.51	1.44	1.36	1.31	1.27	1.19
110	C = 0.6	1.60	1.47	1.41	1.36	1.31	1.28	1.25	1.21	1.18	1.16	1.12
	C = 0.8	1.96	1.71	1.60	1.53	1.44	1.40	1.35	1.29	1.25	1.22	1.16
	C = 1.0	2.55	2.04	1.86	1.73	1.60	1.54	1.47	1.38	1.33	1.28	1.20
115	C = 0.6	1.64	1.50	1.43	1.36	1.33	1.30	1.26	1.22	1.19	1.17	1.12
	C = 0.8	2.04	1.76	1.64	1.56	1.47	1.43	1.37	1.31	1.26	1.23	1.17
	C = 1.0	2.75	2.13	1.93	1.79	1.64	1.58	1.50	1.41	1.34	1.30	1.21
120	C = 0.6	1.69	1.53	1.46	1.40	1.34	1.31	1.28	1.23	1.20	1.18	1.13
	C = 0.8	2.13	1.81	1.69	1.60	1.50	1.45	1.39	1.33	1.28	1.24	1.18
	C = 1.0	3.00	2.24	2.00	1.84	1.69	1.61	1.53	1.43	1.36	1.31	1.22
125	C = 0.6	1.73	1.56	1.48	1.43	1.36	1.33	1.29	1.24	1.21	1.18	1.13
	C = 0.8	2.24	1.87	1.73	1.63	1.53	1.48	1.41	1.34	1.29	1.25	1.18
	C = 1.0	3.32	2.35	2.08	1.91	1.73	1.65	1.56	1.45	1.38	1.33	1.24
130	C = 0.6	1.78	1.59	1.51	1.45	1.38	1.35	1.30	1.25	1.22	1.19	1.14
	C = 0.8	2.35	1.93	1.78	1.67	1.56	1.50	1.44	1.36	1.30	1.27	1.19
	C = 1.0	3.74	2.49	2.17	1.97	1.78	1.69	1.59	1.48	1.40	1.35	1.25
135	C = 0.6	1.83	1.62	1.54	1.47	1.40	1.36	1.32	1.27	1.23	1.20	1.15
	C = 0.8	2.48	2.00	1.83	1.71	1.59	1.53	1.46	1.38	1.32	1.28	1.20
	C = 1.0	4.36	2.65	2.27	2.04	1.83	1.73	1.62	1.50	1.42	1.36	1.26
140	C = 0.6	1.88	1.66	1.56	1.50	1.42	1.38	1.33	1.28	1.24	1.21	1.15
	C = 0.8	2.63	2.07	1.88	1.75	1.62	1.55	1.48	1.39	1.33	1.29	1.21
	C = 1.0	5.39	2.83	2.38	2.12	1.88	1.78	1.66	1.53	1.44	1.38	1.27
145	C = 0.6	1.94	1.69	1.59	1.52	1.44	1.40	1.35	1.29	1.25	1.22	1.16
	C = 0.8	2.80	2.15	1.94	1.80	1.65	1.58	1.50	1.41	1.35	1.30	1.22
	C = 1.0	7.68	3.05	2.50	2.21	1.94	1.82	1.69	1.55	1.46	1.40	1.28
150	C = 0.6	2.00	1.73	1.62	1.54	1.46	1.41	1.36	1.30	1.26	1.23	1.16
	C = 0.8	3.00	2.24	2.0	1.84	1.69	1.61	1.53	1.43	1.36	1.31	1.23
	C = 1.0	-	3.32	2.65	2.30	2.00	1.87	1.73	1.58	1.48	1.41	1.29
155	C = 0.6	2.06	1.77	1.65	1.57	1.48	1.43	1.38	1.31	1.27	1.24	1.17
	C = 0.8	3.25	2.33	2.06	1.89	1.72	1.65	1.55	1.45	1.38	1.33	1.23
	C = 1.0	-	3.66	2.80	2.40	2.06	1.92	1.77	1.61	1.51	1.43	1.30
160	C = 0.6	2.13	1.81	1.69	1.60	1.50	1.45	1.39	1.33	1.28	1.24	1.18
	C = 0.8	3.55	2.43	2.13	1.94	1.76	1.67	1.58	1.47	1.39	1.34	1.24
	C = 1.0	-	4.12	3.00	2.52	2.13	1.98	1.81	1.64	1.53	1.45	1.31
165	C = 0.6	2.21	1.86	1.72	1.62	1.52	1.47	1.41	1.34	1.29	1.25	1.18
	C = 0.8	3.96	2.55	2.21	2.00	1.80	1.71	1.60	1.49	1.41	1.35	1.25
	C = 1.0	-	4.80	3.23	2.65	2.21	2.04	1.86	1.67	1.55	1.47	1.33

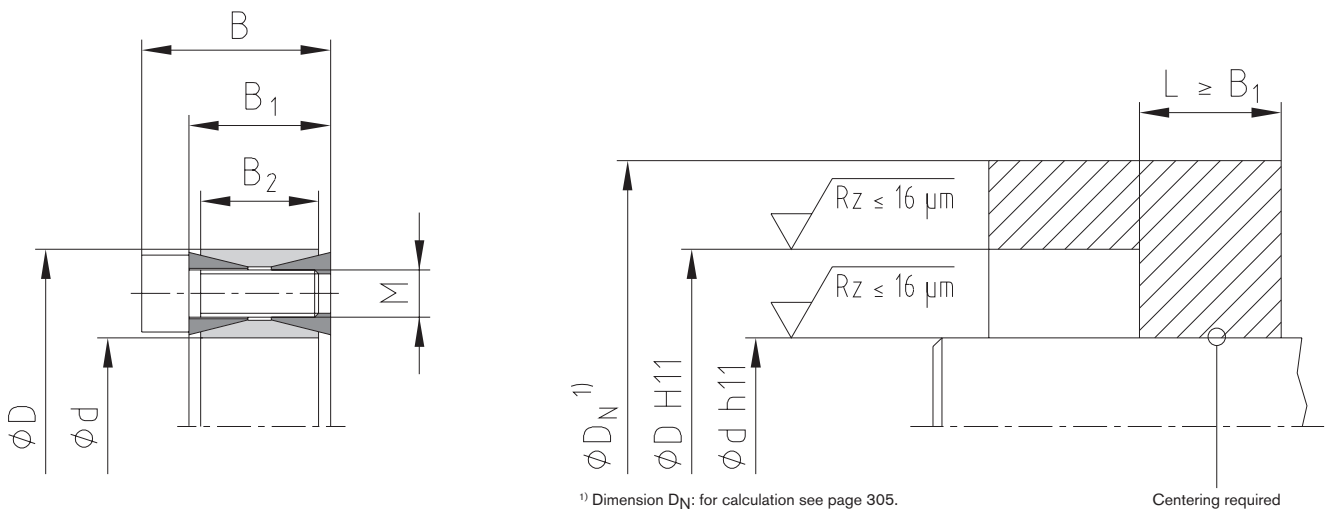
CLAMPEX® KTR 100

Clamping elements

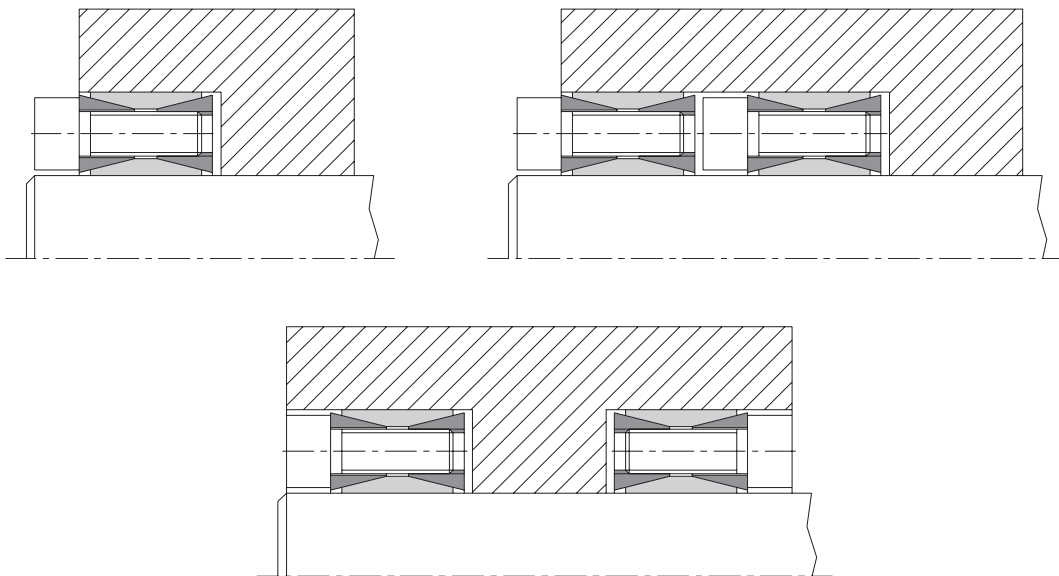
Not self-centering, suitable for large shaft and hub tolerances



For legend of pictogram refer to flapper on the cover



Example of application of hub type



● Sizes of clamping elements available from stock.

¹⁾ These are the maximum screw tightening torques. They can be reduced by a maximum of 40 % of the above-mentioned figures with T , F_{ax} , P_W and P_N decreasing proportionately.

Ordering example:	KTR 100	50	x	80
	Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 100

d x D [mm]	Dimensions [mm]			Clamping screws DIN EN ISO 4762 - 12.9 $\mu_{total}=0.14$				Transmittable torque or axial force		Surface pressure between clamping element		Weight [-kg]	Stock programme
	B	B ₁	B ₂	M	Length	z = number	T _A [Nm] ¹⁾	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]		
17 x 47	26	20	17	M6	18	8	16	260	31	281	102	0.2	
18 x 47	26	20	17	M6	18	8	16	280	31	270	103	0.2	
19 x 47	26	20	17	M6	18	8	16	290	31	251	101	0.2	●
20 x 47	26	20	17	M6	18	8	16	310	31	242	103	0.2	●
22 x 47	26	20	17	M6	18	8	16	340	31	219	103	0.2	●
24 x 50	26	20	17	M6	18	8	16	370	31	200	96	0.3	●
25 x 50	26	20	17	M6	18	8	16	390	31	195	97	0.3	●
28 x 55	26	20	17	M6	18	12	16	650	46	259	132	0.3	●
30 x 55	26	20	17	M6	18	12	16	700	47	243	132	0.3	●
32 x 60	26	20	17	M6	18	12	16	750	47	229	122	0.3	●
35 x 60	26	20	17	M6	18	12	16	820	47	209	122	0.3	●
38 x 65	26	20	17	M6	18	15	16	1100	58	238	139	0.4	●
40 x 65	26	20	17	M6	18	15	16	1170	59	228	140	0.3	●
42 x 75	32	24	20	M8	22	12	40	1670	80	251	141	0.6	●
45 x 75	32	24	20	M8	22	12	40	1790	80	234	141	0.5	●
48 x 80	32	24	20	M8	22	12	40	1900	79	219	131	0.6	●
50 x 80	32	24	20	M8	22	12	40	1990	80	211	132	0.6	●
55 x 85	32	24	20	M8	22	15	40	2740	100	240	155	0.6	●
60 x 90	32	24	20	M8	22	15	40	2990	100	220	147	0.7	●
65 x 95	32	24	20	M8	22	15	40	3240	100	203	139	0.8	●
70 x 110	38	28	24	M10	25	15	78	5550	159	250	159	1.3	●
75 x 115	38	28	24	M10	25	15	78	5950	159	234	152	1.2	●
80 x 120	38	28	24	M10	25	15	78	6350	159	219	146	1.4	●
85 x 125	38	28	24	M10	25	15	78	6740	159	206	140	1.4	●
90 x 130	38	28	24	M10	25	15	78	7140	159	195	135	1.5	●
95 x 135	38	28	24	M10	25	18	78	9000	189	220	155	1.6	●
100 x 145	44	32	26	M12	30	15	135	11600	232	237	163	2.2	●
110 x 155	44	32	26	M12	30	15	135	12750	232	215	153	2.3	●
120 x 165	44	32	26	M12	30	16	135	14800	247	210	153	2.4	●
130 x 180	50	38	34	M12	30	20	135	20150	310	186	134	3.5	●
140 x 190	50	38	34	M12	30	22	135	23850	341	190	140	3.8	●
150 x 200	50	38	34	M12	30	24	135	27850	371	193	145	4.0	●
160 x 210	50	38	34	M12	30	26	135	32200	403	196	150	4.4	●
170 x 225	58	44	38	M14	45	22	215	40300	474	195	147	5.7	●
180 x 235	58	44	38	M14	45	24	215	46600	518	201	154	6.0	●
190 x 250	66	52	46	M14	45	28	215	57300	603	183	139	8.0	●
200 x 260	66	52	46	M14	45	30	215	71000	710	205	157	8.2	●
220 x 285	72	56	50	M16	50	26	335	93200	847	204	158	11.0	●
240 x 305	72	56	50	M16	50	30	335	117300	978	216	170	12.2	●
260 x 325	72	56	50	M16	50	34	335	144000	1108	226	181	13.2	●
280 x 355	84	66	60	M18	60	32	465	177700	1269	200	158	19.2	●
300 x 375	84	66	60	M18	60	36	465	214100	1427	210	168	20.5	●
320 x 405	98	78	72	M20	70	36	660	295800	1849	213	168	29.6	●
340 x 425	98	78	72	M20	70	36	660	314300	1849	200	160	31.1	●
360 x 455	112	90	84	M22	80	36	900	413300	2296	201	159	42.2	●
380 x 475	112	90	84	M22	80	36	900	436300	2296	191	153	44.0	●
400 x 495	112	90	84	M22	80	36	900	459300	2297	181	147	46.0	●
420 x 515	112	90	84	M22	80	40	900	535800	2551	192	156	50.0	●
440 x 545	130	102	96	M24	90	40	1130	647600	2944	185	149	64.6	●
460 x 565	130	102	96	M24	90	40	1130	677000	2943	177	144	67.4	●
480 x 585	130	102	96	M24	90	42	1130	741800	3091	178	146	71.0	●
500 x 605	130	102	96	M24	90	44	1130	809500	3238	179	148	72.6	●
520 x 630	130	102	96	M24	90	45	1130	861000	3312	176	145	80	●
540 x 650	130	102	96	M24	90	45	1130	894000	3311	169	141	82	●
560 x 670	130	102	96	M24	90	48	1130	989000	3532	174	146	85	●
580 x 690	130	102	96	M24	90	50	1130	1067000	3679	175	147	88	●
600 x 710	130	102	96	M24	90	50	1130	1103800	3679	169	143	91	●
620 x 730	130	102	96	M24	90	52	1130	1186200	3826	171	145	93	●
640 x 750	130	102	96	M24	90	54	1130	1271600	3974	172	146	96	●
660 x 770	130	102	96	M24	90	56	1130	1359900	4121	173	148	99	●
680 x 790	130	102	96	M24	90	56	1130	1401100	4121	167	144	102	●
700 x 810	130	102	96	M24	90	60	1130	1545400	4415	174	151	104	●
720 x 830	130	102	96	M24	90	60	1130	1589500	4415	169	147	107	●
740 x 850	130	102	96	M24	90	62	1130	1688100	4562	170	148	110	●
760 x 870	130	102	96	M24	90	64	1130	1789700	4710	171	150	113	●
780 x 890	130	102	96	M24	90	65	1130	1865500	4783	169	149	116	●
800 x 910	130	102	96	M24	90	66	1130	1942700	4857	168	147	118	●
820 x 930	130	102	96	M24	90	68	1130	2051600	5004	169	149	121	●
840 x 950	130	102	96	M24	90	70	1130	2163500	5151	169	150	124	●
860 x 970	130	102	96	M24	90	72	1130	2278300	5298	170	151	127	●
880 x 990	130	102	96	M24	90	74	1130	2396000	5445	171	152	129	●
900 x 1010	130	102	96	M24	90	75	1130	2483600	5519	169	151	132	●
920 x 1030	130	102	96	M24	90	76	1130	2572600	5593	168	150	135	●
940 x 1050	130	102	96	M24	90	78	1130	2697700	5740	169	151	138	●
960 x 1070	130	102	96	M24	90	80	1130	2825800	5887	169	152	140	●
980 x 1090	130	102	96	M24	90	81	1130	2920700	5961	168	151	143	●
1000 x 1110	130	102	96	M24	90	82	1130	3017100	6034	167	150	146	●

CLAMPEX®

Clamping nuts

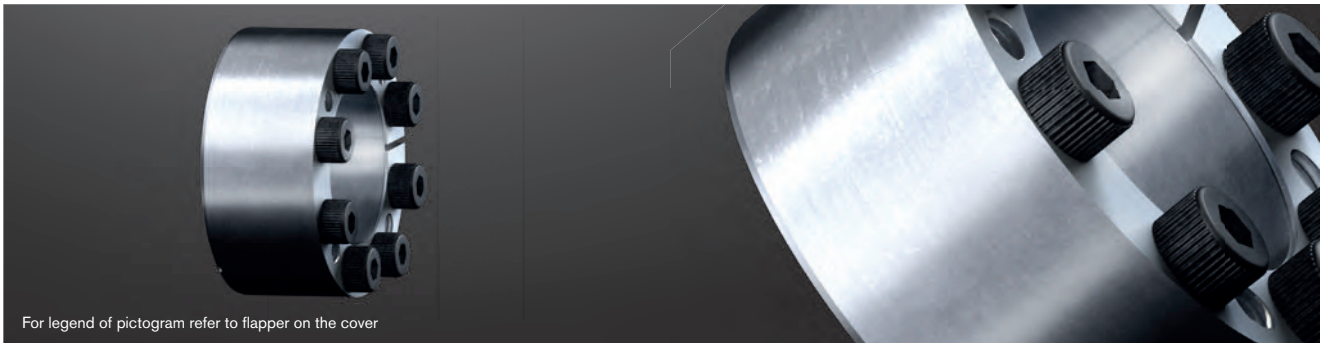
KTR Precision joints

Clamping sets

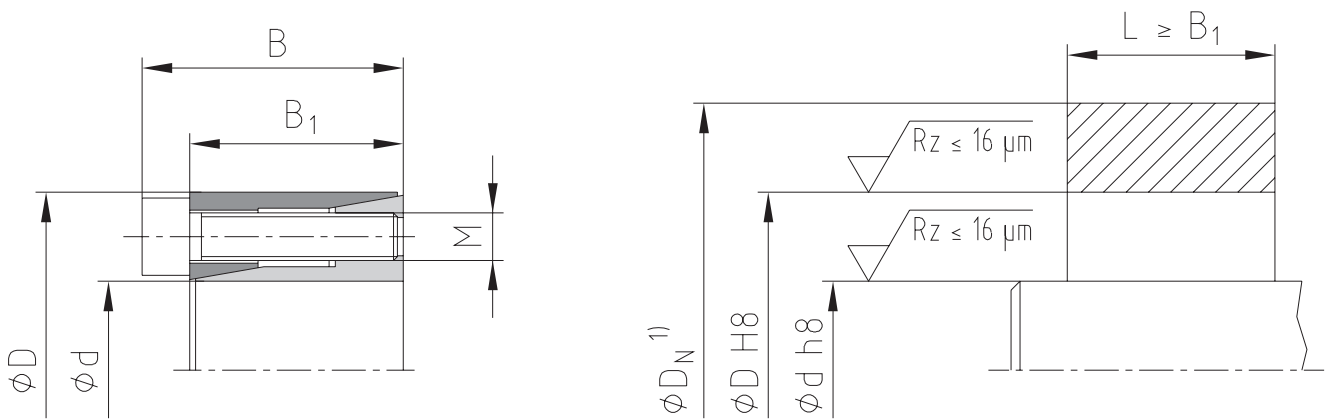
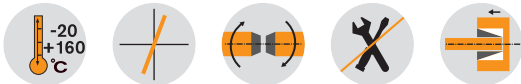
CLAMPEX® KTR 105

Clamping elements

Self-centering clamping element in a compact design

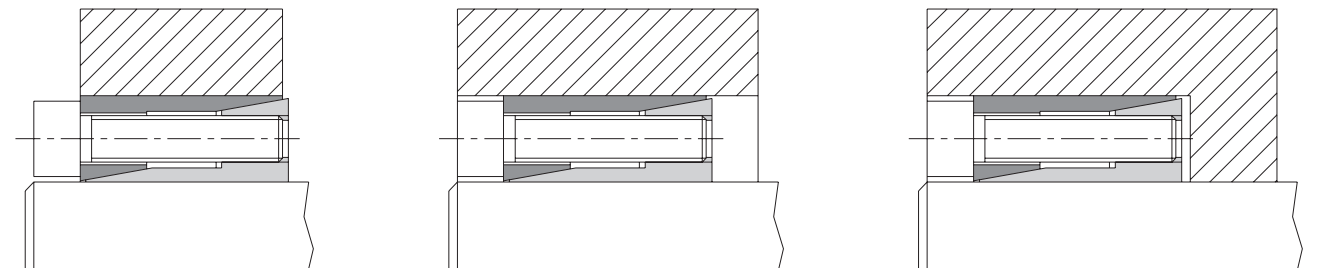


For legend of pictogram refer to flapper on the cover



¹⁾ Dimension D_N : for calculation see page 305.

Example of application of hub type



Ordering example:

KTR 105	8	x	18
Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 105													
d x D [mm]	Dimensions [mm]		Clamping screws DIN EN ISO 4762 - 12.9 $\mu_{total}=0.14$				Transmittable torque or axial force			Surface pressure between clamping element		Weight [~kg]	Stock programme
	B	B1	M	Length	z = number	T _A [Nm] ¹⁾	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]			
5 x 16	13.5	11	M2.5	10	3	1.2	5	2	177	55	0.01	●	
6 x 16	13.5	11	M2.5	10	3	1.2	6	2	147	55	0.01	●	
6.35 x 16	13.5	11	M2.5	10	3	1.2	6	2	132	52	0.01	●	
7 x 17	13.5	11	M2.5	10	3	1.2	8	2	144	59	0.01	●	
8 x 18	13.5	11	M2.5	10	3	1.2	10	3	138	61	0.02	●	
9 x 20	15.5	13	M2.5	12	4	1.2	15	3	140	63	0.02	●	
9.53 x 20	15.5	13	M2.5	12	4	1.2	15	3	125	60	0.02	●	
10 x 20	15.5	13	M2.5	12	4	1.2	15	3	114	57	0.02	●	
11 x 22	15.5	13	M2.5	12	4	1.2	18	3	113	56	0.02	●	
12 x 22	15.5	13	M2.5	12	4	1.2	20	3	105	57	0.02	●	
14 x 26	20	17	M3	16	4	2.1	35	5	105	57	0.04	●	
15 x 28	20	17	M3	16	4	2.1	40	5	94	51	0.04	●	
16 x 32	21	17	M4	16	4	4.9	70	9	132	66	0.07	●	
17 x 35	25	21	M4	20	4	4.9	75	9	125	61	0.09	●	
18 x 35	25	21	M4	20	4	4.9	80	9	119	61	0.09	●	
19 x 35	25	21	M4	20	4	4.9	85	9	114	62	0.08	●	
20 x 38	26	21	M5	20	4	9.7	150	15	153	81	0.1	●	
22 x 40	26	21	M5	20	4	9.7	160	15	135	74	0.1	●	
24 x 47	32	26	M6	25	4	16.5	250	21	154	78	0.2	●	
25 x 47	32	26	M6	25	4	16.5	260	21	147	78	0.2	●	
28 x 50	32	26	M6	25	6	16.5	440	31	198	111	0.2	●	
30 x 55	32	26	M6	25	6	16.5	470	31	185	101	0.3	●	
32 x 55	32	26	M6	25	6	16.5	500	31	173	100	0.25	●	
35 x 60	37	31	M6	30	8	16.5	730	42	166	97	0.35	●	
38 x 65	37	31	M6	30	8	16.5	800	42	155	90	0.4	●	
40 x 65	37	31	M6	30	8	16.5	840	42	147	90	0.4	●	
42 x 75	44	36	M8	35	6	40	911	43	125	70	0.7	●	
45 x 75	44	36	M8	35	8	40	1300	58	155	93	0.6	●	
48 x 80	44	36	M8	35	8	40	1824	76	191	115	0.7	●	
50 x 80	44	36	M8	35	8	40	1900	76	183	115	0.7	●	

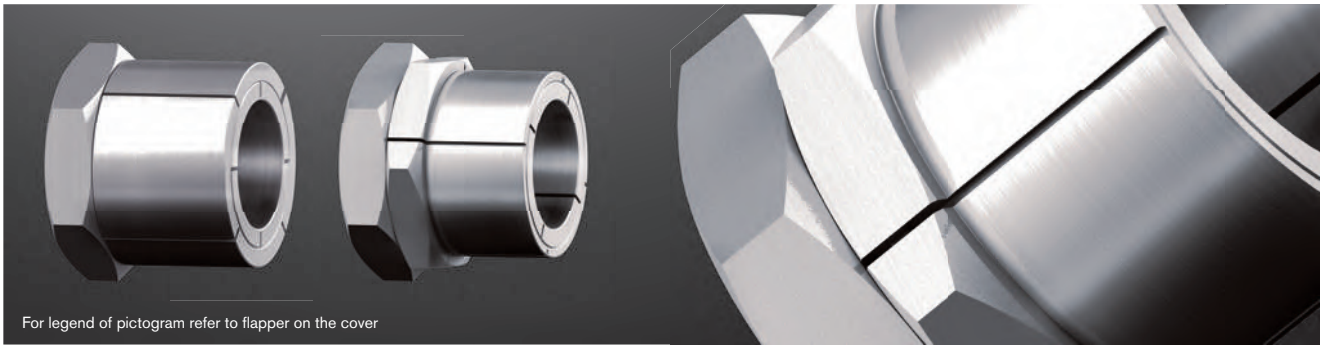
● Sizes of clamping elements available from stock.

¹⁾ These are the maximum screw tightening torques. They can be reduced by a maximum of 40 % of the above-mentioned figures with T, F_{ax}, P_W and P_N decreasing proportionately.

CLAMPEX® KTR 130 and KTR 131

Clamping elements

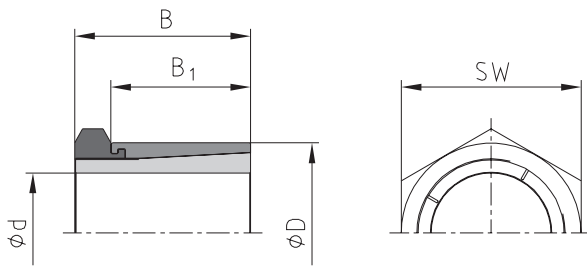
Self-centering clamping elements with a central clamping nut for easy assembly/disassembly



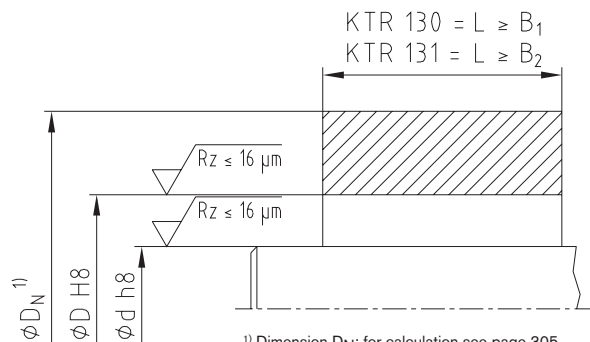
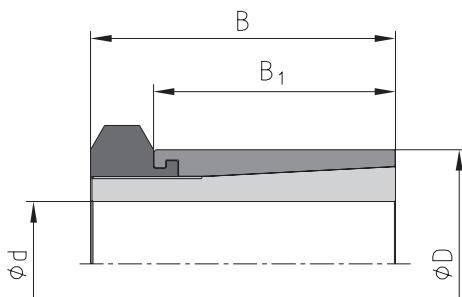
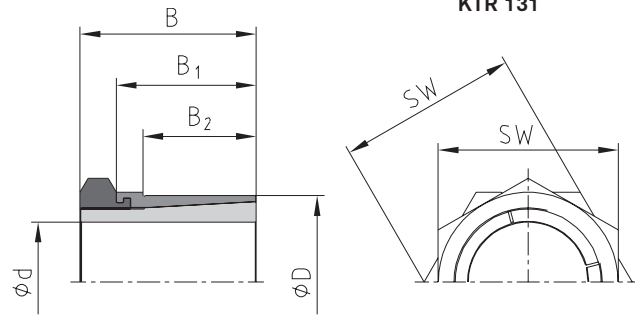
For legend of pictogram refer to flapper on the cover



KTR 130

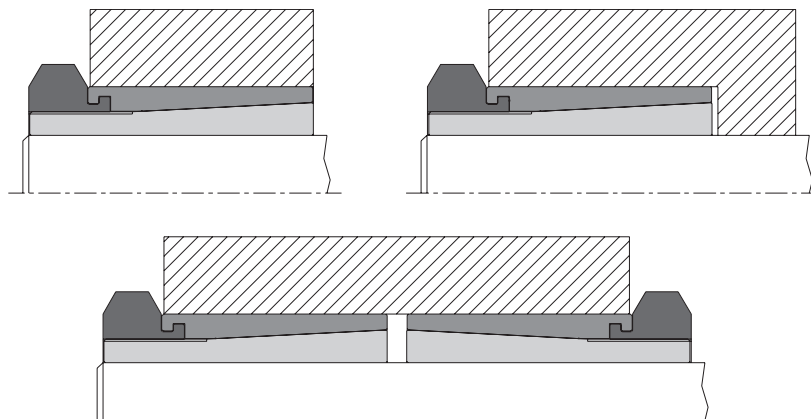


KTR 131



¹⁾ Dimension D_N : for calculation see page 305.

Example of application of hub type



Ordering example:

KTR 130	18	x	35
Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 130											
d x D [mm]	Dimensions [mm]		Hexagon nut		Transmittable torque or axial force			Surface pressure between clamping element		Weight [-kg]	Stock programme
	B	B ₁	Width across flats SW	T _A [Nm] ¹⁾	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]			
5 x 14	19	15	14	10	10.1	4.0	264	96	0.02	●	
6 x 14	19	15	14	10	12.1	4.0	220	96	0.02	●	
8 x 16	22	17	17	17	23.4	5.8	179	91	0.02	●	
9 x 20	24	19	22	35	43.2	9.7	248	112	0.04	●	
10 x 20	24	19	22	35	48.6	9.7	223	112	0.05	●	
12 x 22	24	19	22	44	65.3	10.9	206	117	0.05	●	
14 x 26	28	22	27	65	93.0	13.3	178	99	0.08	●	
15 x 26	28	22	27	65	99.0	13.3	166	99	0.08	●	
16 x 26	28	22	27	65	106	13.3	156	99	0.07	●	
18 x 35	36	27	36	161	223	24.8	224	125	0.2	●	
19 x 35	36	27	36	161	235	24.8	212	125	0.2	●	
20 x 35	36	27	36	161	248	24.8	201	125	0.2	●	
22 x 42	41	30	46	250	349	31.8	197	110	0.3	●	
24 x 42	41	30	46	250	381	31.8	180	110	0.3	●	
25 x 42	41	30	46	250	397	31.8	173	110	0.3	●	
30 x 47	44	33	50	355	605	40.4	162	110	0.4	●	
32 x 55	51	38	55	490	764	47.8	166	102	0.6	●	
35 x 55	51	38	55	490	836	47.8	151	102	0.6	●	
40 x 62	58	43	65	800	1329	66.5	152	98	0.8	●	
45 x 65	63	48	65	900	1605	71.0	142	98	0.9	●	
48 x 75	73	58	75	1290	2227	92.0	121	77	1.5	●	
50 x 75	73	58	75	1290	2320	92.0	116	77	1.4	●	

● Sizes of clamping elements available from stock.

¹⁾ These are the maximum screw tightening torques. They can be reduced by a maximum of 40 % of the above-mentioned figures with T, F_{ax}, P_W and P_N decreasing proportionately.

CLAMPEX® – KTR 131											
d x D [mm]	Dimensions [mm]			Hexagon nut/ counter hexagon nut		Transmittable torque or axial force		Surface pressure between clamping element		Weight [-kg]	Stock programme
	B	B ₁	B ₂	Width across flats SW	T _A [Nm] ¹⁾	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]		
5 x 12	19	15	9	14	10	10.1	4.0	264	119	0.02	●
6 x 12	19	15	9	14	10	12.1	4.0	220	119	0.02	●
8 x 14	22	17	11	17	17	23.4	5.8	179	121	0.02	●
10 x 18	24	19	12	22	35	48.6	9.7	221	127	0.04	●
12 x 20	24	19	12	22	44	65.3	10.9	206	128	0.04	●
14 x 24	28	22	15	27	65	93.0	13.3	178	107	0.08	●
15 x 24	28	22	15	27	65	99.0	13.3	166	107	0.07	●
16 x 24	28	22	15	27	65	106	13.3	156	107	0.07	●
18 x 30	36	27	17	36	161	223	24.8	224	145	0.2	●
19 x 30	36	27	17	36	161	235	24.8	212	145	0.2	●
20 x 30	36	27	17	36	161	248	24.8	201	145	0.15	●
22 x 38	41	30	20	46	250	349	31.8	197	122	0.35	●
24 x 38	41	30	20	46	250	381	31.8	180	122	0.3	●
25 x 38	41	30	20	46	250	397	31.8	173	122	0.3	●
30 x 42	44	33	23	50	355	605	40.4	162	123	0.35	●
32 x 50	51	38	28	55	490	764	47.8	166	112	0.55	●
35 x 50	51	38	28	55	490	836	47.8	151	112	0.5	●

● Sizes of clamping elements available from stock.

¹⁾ These are the maximum screw tightening torques. They can be reduced by a maximum of 40 % of the above-mentioned figures with T, F_{ax}, P_W and P_N decreasing proportionately.

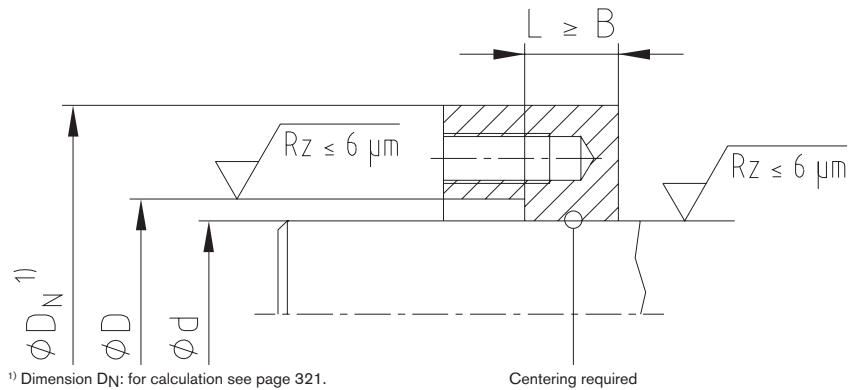
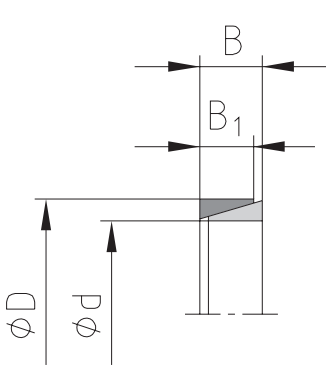
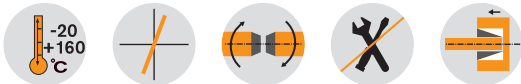
CLAMPEX® KTR 150

Clamping elements

Not self-centering clamping element with minimum dimensions



For legend of pictogram refer to flapper on the cover

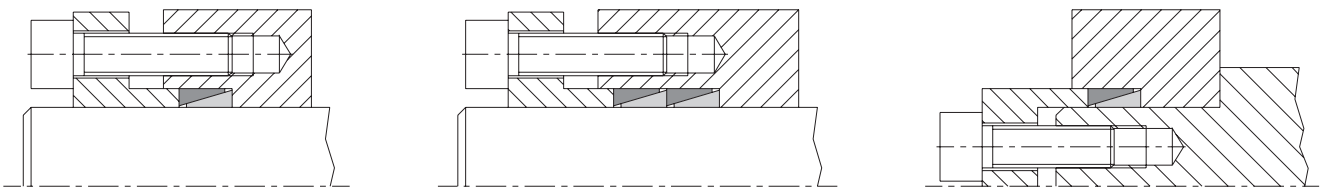


Tolerances for d and D

$$d \leq 38 \text{ mm} = d \text{ h6/D H7}$$

$$d > 38 \text{ mm} = d \text{ h8/D H8}$$

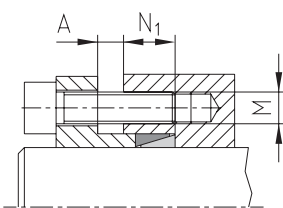
Example of application of hub type



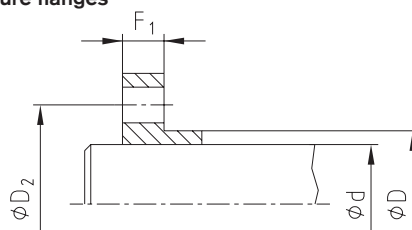
Up to four clamping elements can be installed one after another.

The torques rise as follows:

- 1 clamping element $T = T_{\text{catalogue}} \times 1.00$
- 2 clamping elements $T = T_{\text{catalogue}} \times 1.55$
- 3 clamping elements $T = T_{\text{catalogue}} \times 1.85$
- 4 clamping elements $T = T_{\text{catalogue}} \times 2.02$



Pressure flanges



Recommended dimensions of pressure flanges:

- $N_1 \text{ [mm]} \geq 1.5 \cdot B$
- $D_2 \text{ [mm]} = D + 12 + M$
- $F_1 \text{ [mm]} = M \cdot 1.3$ (with screws 8.8)
- $F_1 \text{ [mm]} = M \cdot 1.8$ (with screws 10.9/12.9)

Ordering example:	KTR 150	60	x	68
	Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 150

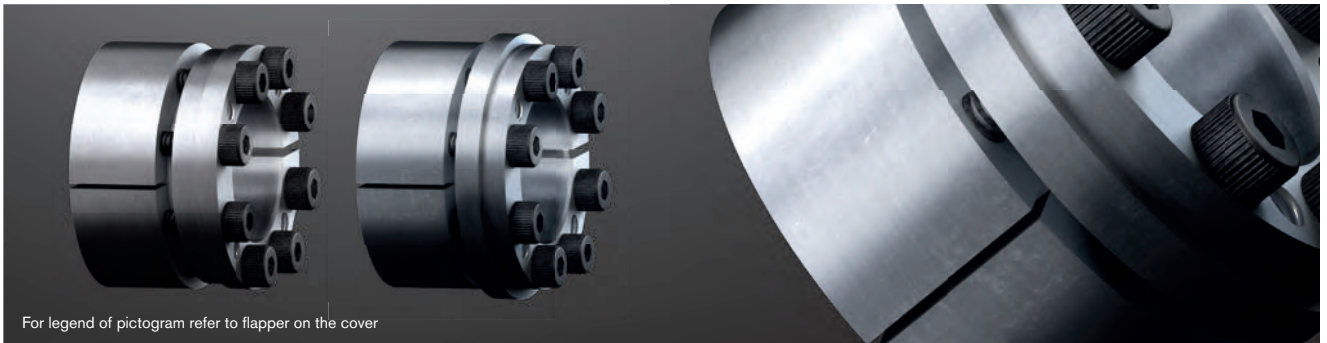
d x D [mm]	Dimensions [mm]		Distance dimension A [mm]				Clamping force required for clamping screws $\mu_{total}=0.14$			Transmittable torque or axial force		Surface pressure between clamping element		Weight [-kg]	Stock programme
							P _O [kN]	P _S [kN]	P _A = P _O +P _S [kN]	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]		
	1	2	3	4											
6 x 9	4.5	3.7	3	3	3	4	0	3	3	2	0.6	80	53	0.0015	●
7 x 10	4.5	3.7	3	3	3	4	0	5	5	4	1	117	82	0.0014	●
8 x 11	4.5	3.7	3	3	3	4	0	6	6	5	1	112	81	0.0015	●
9 x 12	4.5	3.7	3	3	3	4	8	8	16	8	1	142	106	0.0017	●
10 x 13	4.5	3.7	3	3	3	4	7	9	16	10	2	143	110	0.0018	●
12 x 15	4.5	3.7	3	3	3	4	7	8	15	11	1	110	88	0.0022	●
13 x 16	4.5	3.7	3	3	3	4	6	10	16	13	2	110	90	0.0023	●
14 x 18	6.3	5.3	3	4	4	5	11	15	26	22	3	112	87	0.0049	●
15 x 19	6.3	5.3	3	4	4	5	11	15	26	25	3	111	88	0.0053	●
16 x 20	6.3	5.3	3	4	4	5	10	15	25	26	3	102	81	0.0055	●
17 x 21	6.3	5.3	3	4	4	5	10	16	26	30	3	104	84	0.0058	●
18 x 22	6.3	5.3	3	4	4	5	9	17	26	33	3	102	83	0.0061	●
19 x 24	6.3	5.3	3	4	4	5	13	19	32	40	4	111	88	0.0078	●
20 x 25	6.3	5.3	3	4	4	5	12	20	32	44	4	110	88	0.0082	●
22 x 26	6.3	5.3	3	4	4	5	9	21	30	50	4	103	87	0.0072	●
24 x 28	6.3	5.3	3	4	4	5	8	26	34	68	5	118	101	0.0079	●
25 x 30	6.3	5.3	3	4	4	5	10	27	37	75	6	120	100	0.01	●
28 x 32	6.3	5.3	3	4	4	5	7	30	37	90	6	115	101	0.009	●
30 x 35	6.3	5.3	3	4	4	5	8	31	39	100	6	111	95	0.012	●
32 x 36	6.3	5.3	3	4	4	5	8	34	42	120	7	117	104	0.01	●
35 x 40	7	6.0	3	4	4	5	13	42	55	160	9	115	101	0.02	●
36 x 42	7	6.0	4	5	5	6	15	43	58	170	9	116	99	0.02	●
38 x 44	7	6.0	4	5	5	6	14	46	60	190	10	116	100	0.02	●
40 x 45	8	6.6	4	5	5	6	14	53	67	230	11	116	103	0.02	●
42 x 48	8	6.6	4	5	5	6	16	57	73	260	12	118	104	0.03	●
45 x 52	10	8.6	4	5	5	6	26	80	106	390	17	119	103	0.05	●
48 x 55	10	8.6	4	5	5	6	25	82	107	430	17	115	100	0.05	●
50 x 57	10	8.6	4	5	5	6	24	86	110	470	18	116	102	0.05	●
55 x 62	10	8.6	4	5	5	6	22	97	119	580	21	118	105	0.05	●
56 x 64	12	10.4	4	5	5	6	29	122	151	740	26	120	105	0.07	●
60 x 68	12	10.4	4	5	6	7	27	129	156	840	28	119	105	0.07	●
63 x 71	12	10.4	4	5	6	7	26	134	160	920	29	118	105	0.08	●
65 x 73	12	10.4	4	5	6	7	25	142	167	1000	30	121	108	0.08	●
70 x 79	14	12.2	4	5	6	7	31	171	202	1300	37	115	102	0.11	●
71 x 80	14	12.2	4	5	6	7	31	181	212	1400	39	121	107	0.11	●
75 x 84	14	12.2	4	5	6	7	34	184	218	1500	40	116	104	0.12	●
80 x 91	17	15.0	5	6	7	8	48	241	289	2100	52	116	102	0.12	●
85 x 96	17	15.0	5	6	7	8	45	260	305	2400	56	117	104	0.2	●
90 x 101	17	15.0	5	6	7	8	43	276	319	2700	60	118	105	0.2	●
95 x 106	17	15.0	5	6	8	9	41	290	331	3000	63	118	105	0.22	●
100 x 114	21	18.7	5	6	8	9	61	386	447	4200	84	119	105	0.4	●
110 x 124	21	18.7	5	6	8	9	65	393	458	4700	85	110	98	0.4	●
120 x 134	21	18.7	5	6	8	9	60	391	451	5100	85	100	90	0.5	●
130 x 148	28	25.3	6	7	9	11	96	573	669	8100	124	101	88	0.85	●
140 x 158	28	25.3	6	7	9	11	89	618	707	9400	134	101	89	0.91	●
150 x 168	28	25.3	6	7	9	11	84	674	758	11000	146	103	92	0.97	●
160 x 178	28	25.3	6	7	9	11	79	833	912	14500	181	119	107	1.02	●
170 x 191	33	30.0	7	8	10	12	118	1054	1172	19500	229	119	106	1.5	●
180 x 201	33	30.0	7	8	10	12	112	1082	1194	21200	235	116	104	1.6	●
190 x 211	33	30.0	7	9	10	12	106	1166	1272	24100	253	118	106	1.7	●
200 x 224	38	34.5	7	9	11	13	133	1425	1558	31000	310	119	106	2.3	●
210 x 234	38	34.5	7	9	11	13	127	1532	1659	35000	333	122	110	2.5	●
220 x 244	38	34.5	7	9	11	13	122	1587	1709	38000	345	121	109	2.5	●
230 x 257	43	39.5	7	9	12	14	165	1579	1744	39500	343	100	90	3.4	●
240 x 267	43	39.5	7	9	12	14	158	1801	1959	47000	391	110	99	3.5	●
250 x 280	48	44.0	8	10	13	16	188	1912	2100	52000	416	100	90	4.7	●
260 x 290	48	44.0	8	10	13	16	181	1997	2178	56500	434	101	90	4.8	●
270 x 300	48	44.0	8	10	13	16	174	2077	2251	61000	451	101	91	4.9	●
280 x 313	53	49.0	9	11	14	17	205	2381	2586	72500	517	100	90	6.3	●
290 x 323	53	49.0	9	11	14	17	221	2457	2678	77500	534	100	90	6.5	●
300 x 333	53	49.0	9	11	14	17	214	2544	2758	83000	553	100	90	6.7	●
320 x 360	65	59.0	10	15	20	25	291	3275	3566	114000	712	100	89	10.9	●
340 x 380	65	59.0	10	15	20	25	275	3474	3749	128500	755	100	89	11.5	●
360 x 400	65	59.0	10	15	20	25	261	3677	3938	144000	800	100	90	12.2	●
380 x 420	65	59.0	10	15	20	25	269	3870	4139	160000	842	100	90	12.8	●
400 x 440	65	59.0	10	15	20	25	256	4091	4347	178000	890	100	91	13.5	●
420 x 460	65	59.0	10	15	20	25	244	4290	4534	196000	933	100	91	14.1	●
440 x 480	65	59.0	10	15	20	25	234	4492	4726	215000	977	100	92	14.7	●

● Sizes of clamping elements available from stock.
Other sizes on request.

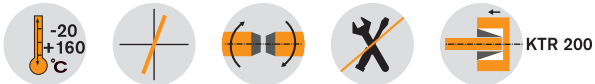
P_A = Total force
P_O = Setting force
P_S = Clamping force

CLAMPEX® KTR 200 and KTR 201 Clamping elements

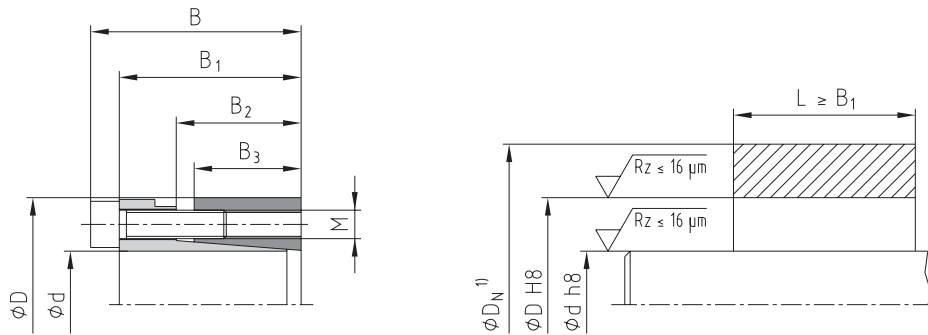
Self-centering clamping elements with a wide range of applications



For legend of pictogram refer to flapper on the cover



KTR 200

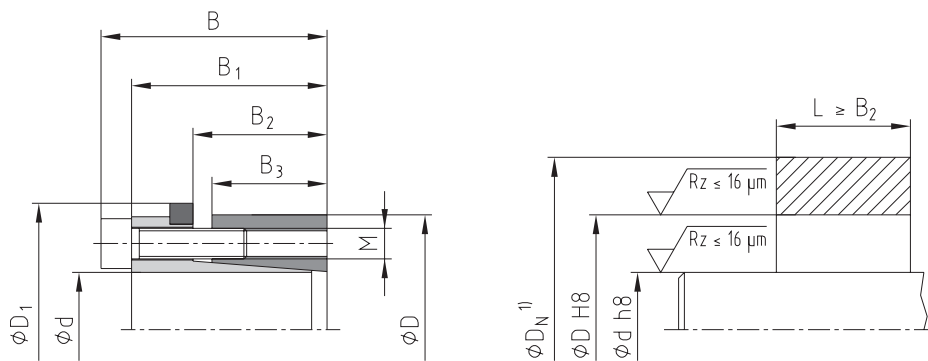


¹⁾ Dimension D_N : for calculation see page 305.

Example of application of hub type

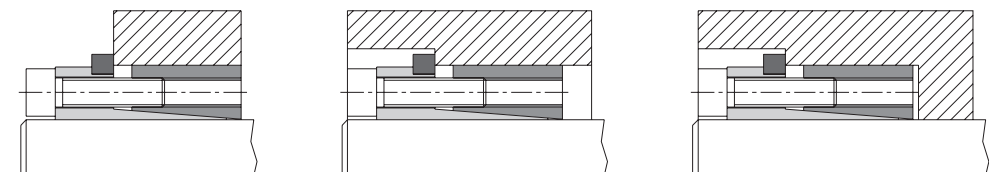


KTR 201



¹⁾ Dimension D_N : for calculation see page 305.

Example of application of hub type



Ordering
example:

KTR 200	40	x	65
Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 200 and KTR 201

d x D [mm]	Dimensions [mm]					Clamping screws DIN EN ISO 4762 - 12.9 $\mu_{total}=0.14$					KTR 200				KTR 201							
											Transmittable torque or axial force		Surface pressure between clamping element		Weight [-kg]	Stock programme	Transmittable torque or axial force		Surface pressure between clamping element		Weight [-kg]	Stock programme
	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]														
20 x 47	48	42	31	26	53	M6	25	6	17	17	530	53	270	115	0.4	●	320	32	163	69	0.4	●
22 x 47	48	42	31	26	53	M6	25	6	17	17	580	53	245	114	0.4	●	360	33	152	71	0.4	●
24 x 50	48	42	31	26	56	M6	25	6	17	17	630	53	223	107	0.4	●	390	33	138	66	0.4	●
25 x 50	48	42	31	26	56	M6	25	6	17	17	660	53	215	108	0.4	●	400	32	131	65	0.4	●
28 x 55	48	42	31	26	61	M6	25	6	17	17	740	53	193	98	0.5	●	450	32	117	60	0.5	●
30 x 55	48	42	31	26	61	M6	25	6	17	17	790	53	179	98	0.5	●	490	33	111	61	0.5	●
32 x 60	48	42	31	26	66	M6	25	8	17	17	1150	72	229	122	0.6	●	690	43	137	73	0.6	●
35 x 60	48	42	31	26	66	M6	25	8	17	17	1300	74	217	126	0.6	●	750	43	125	73	0.5	●
38 x 65	48	42	31	26	71	M6	25	8	17	17	1300	68	184	107	0.6	●	820	43	116	68	0.6	●
40 x 65	48	42	31	26	71	M6	25	8	17	17	1400	70	179	110	0.6	●	860	43	110	67	0.6	●
42 x 75	59	51	35	30	81	M8	30	6	41	41	2000	95	200	112	1.0	●	1300	62	130	73	1.0	●
45 x 75	59	51	35	30	81	M8	30	6	41	41	2200	98	192	115	1.0	●	1400	62	122	73	1.0	●
48 x 80	59	51	35	30	86	M8	30	8	41	41	3200	133	246	147	1.1	●	1900	79	146	87	1.1	●
50 x 80	59	51	35	30	86	M8	30	8	41	41	3300	132	233	146	1.1	●	2000	80	141	88	1.1	●
55 x 85	59	51	35	30	91	M8	30	8	41	41	3600	131	210	136	1.2	●	2200	80	129	83	1.2	●
60 x 90	59	51	35	30	96	M8	30	8	41	41	3900	130	192	128	1.2	●	2400	80	118	79	1.2	●
65 x 95	59	51	35	30	101	M8	30	8	41	41	4300	132	180	123	1.3	●	2600	80	109	74	1.3	●
70 x 110	71	61	46	40	119	M10	30	8	83	83	7500	214	203	129	2.2	●	4600	131	125	79	2.3	●
75 x 115	71	61	46	40	124	M10	30	8	83	83	8000	213	189	123	2.3	●	5000	133	118	77	2.4	●
80 x 120	71	61	46	40	129	M10	30	8	83	83	8500	213	176	117	2.4	●	5200	130	108	72	2.6	●
85 x 125	71	61	46	40	134	M10	30	10	83	83	11400	268	209	142	2.6	●	7000	165	128	87	2.7	●
90 x 130	71	61	46	40	139	M10	30	10	83	83	12000	267	196	136	2.7	●	7400	164	121	84	2.8	●
95 x 135	71	61	46	40	144	M10	30	10	83	83	12600	265	185	130	2.8	●	7800	164	115	81	2.9	●
100 x 145	80	68	52	45	155	M12	35	8	145	145	15000	300	177	122	3.9	●	9800	196	116	80	4.1	●
110 x 155	80	68	52	45	165	M12	35	8	145	145	16500	300	161	114	4.2	●	10700	195	104	74	4.4	●
120 x 165	80	68	52	45	175	M12	35	10	145	145	22500	375	184	134	4.5	●	14600	243	120	87	4.7	●
130 x 180	80	68	52	45	188	M12	35	12	145	145	29000	446	202	146	5.5	●	19000	292	133	96	5.7	●
140 x 190	90	76	58	50	199	M14	40	10	210	230	32000	457	173	128	6.6	●	23000	329	125	92	6.9	●
150 x 200	90	76	58	50	209	M14	40	12	210	230	41000	547	193	145	6.9	●	30000	400	141	106	7.2	●
160 x 210	90	76	58	50	219	M14	40	12	210	230	44000	550	182	139	7.4	●	32000	400	133	101	7.8	●
170 x 225	90	76	58	50	234	M14	40	14	210	230	54500	641	200	151	8.6	●	39000	459	143	108	9.0	●
180 x 235	90	76	58	50	244	M14	40	14	210	230	57500	639	188	144	9.1	●	41000	456	134	103	9.5	●
190 x 250	90	76	58	50	259	M14	40	15	210	230	65000	684	191	145	10.6	●	46400	488	136	104	11.1	●
200 x 260	90	76	58	50	269	M14	40	15	210	230	68000	680	180	139	11.2	●	48800	488	129	100	11.7	●

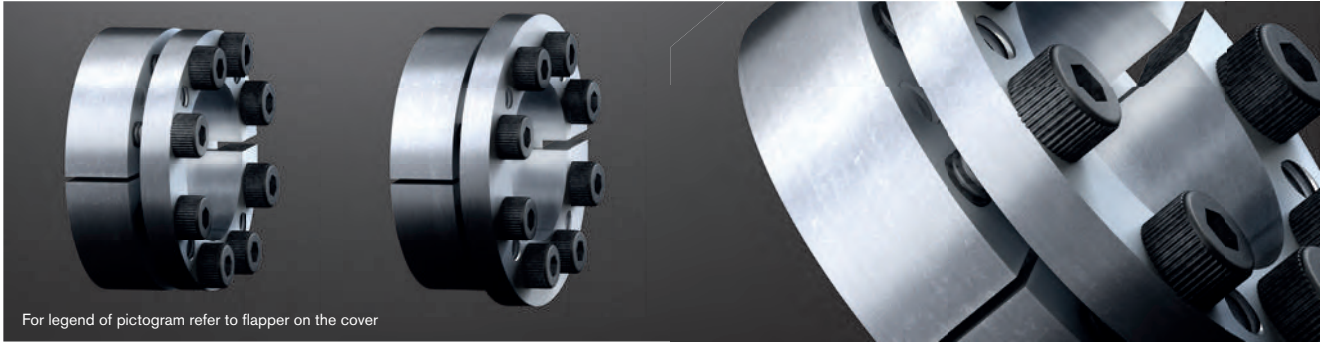
● Sizes of clamping elements available from stock.

¹⁾ These are the maximum screw tightening torques. They can be reduced by a maximum of 40 % of the above-mentioned figures with T, F_{ax}, P_W and P_N decreasing proportionately.

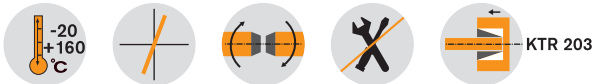
CLAMPEX® KTR 203 and KTR 206

Clamping elements

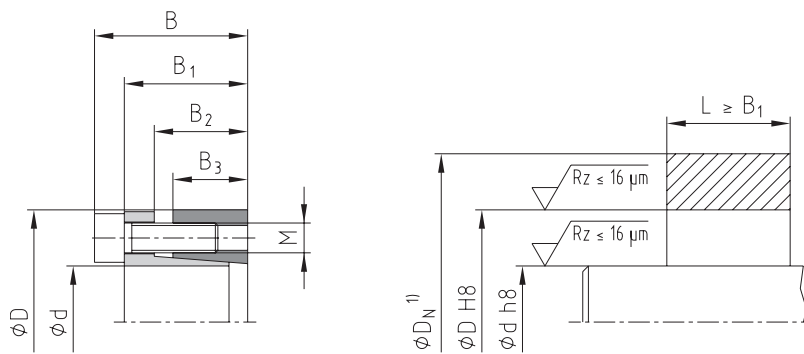
Self-centering clamping elements as a compact alternative to KTR 200/201



For legend of pictogram refer to flapper on the cover

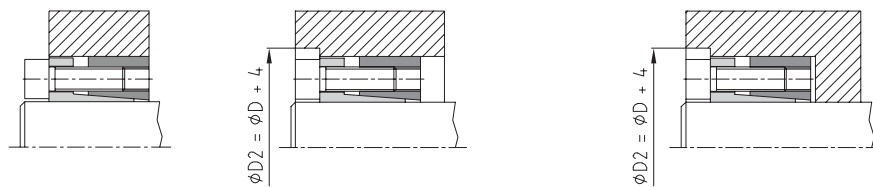


KTR 203

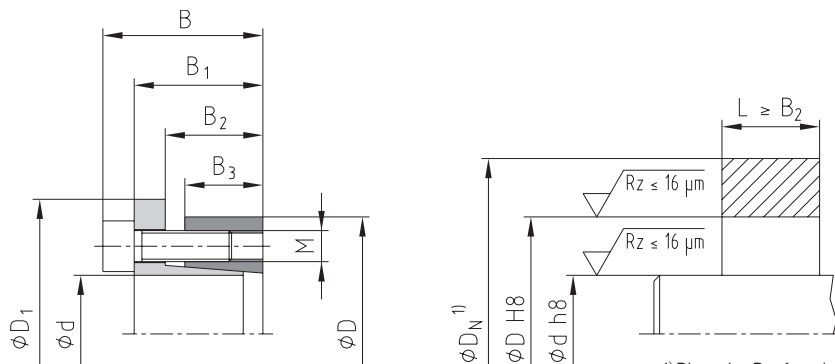


¹⁾ Dimension D_N : for calculation see page 305.

Example of application of hub type

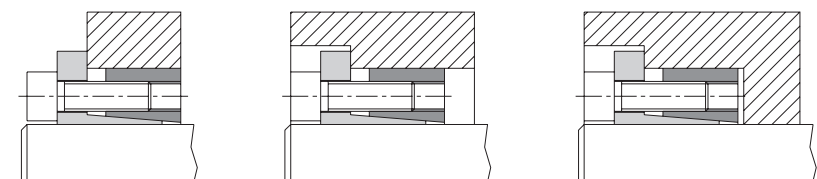


KTR 206



¹⁾ Dimension D_N : for calculation see page 305.

Example of application of hub type



Ordering example:

KTR 203	40	x	65
Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 203 and KTR 206

d x D [mm]	Dimensions [mm]					Clamping screws DIN EN ISO 4762 - 12.9 $\mu_{total}=0.14$					KTR 203						KTR 206					
											Transmittable torque or axial force		Surface pressure between clamping element		Weight [-kg]	Stock programme	Transmittable torque or axial force		Surface pressure between clamping element		Weight [-kg]	Stock programme
	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]														
18 x 47	34	28	22	17	53	M6	20	6	14	17	370	41	356	136	0.3	●	290	32	279	107	0.3	●
19 x 47	34	28	22	17	53	M6	20	6	14	17	390	41	337	136	0.3	●	300	32	259	105	0.3	●
20 x 47	34	28	22	17	53	M6	20	6	14	17	410	41	320	136	0.3	●	320	32	250	106	0.3	●
22 x 47	34	28	22	17	53	M6	20	6	14	17	450	41	290	136	0.3	●	350	32	226	106	0.3	●
24 x 50	34	28	22	17	56	M6	20	6	14	17	490	41	265	127	0.3	●	390	33	211	101	0.3	●
25 x 50	34	28	22	17	56	M6	20	6	14	17	510	41	255	127	0.3	●	400	32	200	100	0.3	●
28 x 55	34	28	22	17	61.4	M6	20	6	14	17	570	41	227	116	0.3	●	450	32	179	91	0.4	●
30 x 55	34	28	22	17	61.4	M6	20	6	14	17	610	41	212	115	0.3	●	490	33	170	93	0.3	●
32 x 60	34	28	22	17.5	67	M6	20	8	14	17	880	55	261	139	0.4	●	700	44	207	111	0.3	●
35 x 60	34	28	22	17.5	67	M6	20	8	14	17	960	55	238	139	0.3	●	760	43	188	110	0.4	●
38 x 65	34	28	22	17.5	72	M6	20	8	14	17	1000	53	210	123	0.4	●	820	43	172	101	0.5	●
40 x 65	34	28	22	17.5	72	M6	20	8	14	17	1100	55	208	128	0.4	●	870	44	165	101	0.4	●
42 x 75	41	33	25	20	84	M8	25	8	35	41	2200	105	331	185	0.6	●	1700	81	256	143	0.7	●
45 x 75	41	33	25	20	84	M8	25	8	35	41	2400	107	314	189	0.6	●	1800	80	236	141	0.7	●
48 x 80	41	33.5	24	20	89	M8	25	8	35	41	2500	104	288	173	0.7	●	1900	79	219	131	0.8	●
50 x 80	41	33.5	24	20	89	M8	25	8	35	41	2600	104	276	172	0.7	●	2000	80	212	133	0.8	●
55 x 85	41	33.5	24	20	94	M8	25	8	35	41	2900	105	254	165	0.7	●	2200	80	193	125	0.9	●
60 x 90	41	33.5	24	20	99	M8	25	8	35	41	3100	103	228	152	0.8	●	2400	80	177	118	0.9	●
65 x 95	41	33.5	24	20	104	M8	25	8	35	41	3400	105	213	146	0.8	●	2600	80	163	112	0.9	●
70 x 110	50	40	29	24	119	M10	30	8	70	83	6000	171	271	172	1.5	●	4600	131	208	132	1.6	●
75 x 115	50	40	29	24	124	M10	30	8	70	83	6400	171	252	164	1.6	●	5000	133	196	128	1.7	●
80 x 120	50	40	29	24	129	M10	30	8	70	83	6800	170	235	157	1.7	●	5300	133	183	122	1.9	●
85 x 125	50	40	29	24	134	M10	30	10	70	83	9000	212	275	187	1.8	●	7000	165	214	146	2.0	●
90 x 130	50	40	29	24	139	M10	30	10	70	83	9600	213	262	181	1.9	●	7400	164	202	140	2.0	●
95 x 135	50	40	29	24	144	M10	30	10	70	83	10200	215	250	176	2.0	●	7800	164	191	134	2.3	●
100 x 145	56	44	31	25.5	154	M12	30	8	115	145	12000	240	250	172	2.6	●	9700	194	202	139	2.8	●
110 x 155	56	44	31	25.5	164	M12	30	8	115	145	13000	236	224	159	2.8	●	10700	195	184	131	3.1	●
120 x 165	56	44	31	26	174	M12	30	9	115	145	16000	267	227	165	3.6	●	13100	218	186	135	3.2	●
130 x 180	64	52	39	34	189	M12	30	12	115	145	23000	354	212	153	4.4	●	19000	292	175	127	4.6	●
140 x 190	68	54	39	34	199	M14	40	9	185	230	25000	357	199	147	4.9	●	20500	293	163	120	5.0	●
150 x 200	68	54	39	34	209	M14	40	10	185	230	30000	400	208	156	5.2	●	24500	327	170	127	5.2	●
160 x 210	68	54	39	34	219	M14	40	12	185	230	38800	485	236	180	5.6	●	31300	391	191	145	5.6	●
170 x 225	78	64	49	44	234	M14	40	12	185	230	41300	486	172	130	6.9	●	33200	391	139	105	6.5	●
180 x 235	78	64	49	44	244	M14	40	12	185	230	43700	486	163	125	8.5	●	35000	389	130	100	8.5	●
190 x 250	78	64	49	43.5	259	M14	40	15	185	230	57700	607	195	148	9.0	●	46500	489	157	119	9.0	●
200 x 260	78	64	49	43.5	269	M14	40	15	185	230	60700	607	185	142	9.6	●	49000	490	149	115	9.6	●
220 x 285	88	72	57	50	294	M16	40	12	290	360	77300	703	169	131	13.4	●	57100	519	125	97	14.0	●
240 x 305	88	72	57	50	314	M16	40	15	290	360	105400	878	194	153	14.5	●	77800	648	143	113	15.1	●
260 x 325	88	72	57	50	334	M16	40	18	290	360	137000	1054	215	172	16.1	●	101200	778	159	127	16.2	●
280 x 355	102	84	66	60	364	M18	50	16	400	480	160300	1145	181	143	23.4	●	113300	809	128	101	25.6	●
300 x 375	102	84	66	60	384	M18	50	18	400	480	193200	1288	190	152	25.3	●	136500	910	134	107	25.5	●
320 x 405	121	101	81	74	414	M20	50	18	580	690	269300	1683	189	149	36.9	●	191000	1194	134	106	37.9	●
340 x 425	121	101	81	74	434	M20	50	21	580	690	333800	1964	207	166	39.0	●	237000	1394	147	118	38.3	●
360 x 455	138	116	93	86	464	M22	60	18	780	930	375700	2087	179	141	54.0	●	264000	1467	126	99	53.3	●
380 x 475	138	116	93	86	484	M22	60	21	780	930	462700	2435	198	158	56.2	●	325000	1711	139	111	57.6	●
400 x 495	138	116	93	86	504	M22	60	21	780	930	487000	2435	188	152	58.9	●	342000	1710	132	107	60.3	●

● Sizes of clamping elements available from stock.

¹⁾ These are the maximum screw tightening torques. They can be reduced by a maximum of 40 % of the above-mentioned figures with T, F_{ax}, P_W and P_N decreasing proportionately.

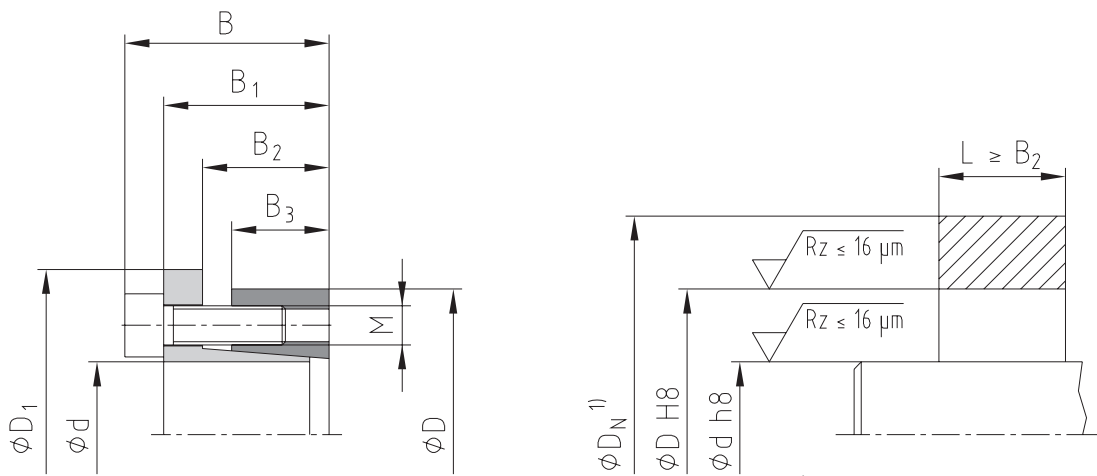
CLAMPEX® KTR 225

Clamping elements

Self-centering, combination of a hub \varnothing with various shaft \varnothing

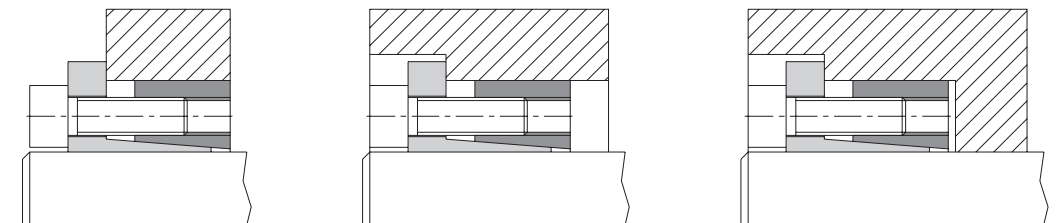


For legend of pictogram refer to flapper on the cover

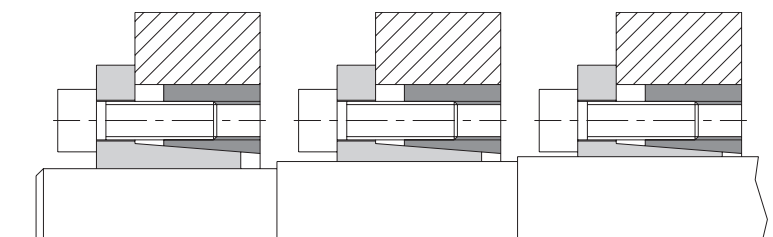


¹⁾ Dimension D_N : for calculation see page 305.

Example of application of hub type



To fasten one size of hubs on different shaft diameters



Ordering example:	KTR 225	28	x	65
	Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 225															
d x D [mm]	Dimensions [mm]					Clamping screws DIN EN ISO 4762 - 12.9 $\mu_{total}=0.14$				Transmittable torque or axial force		Surface pressure between clamping element		Weight [-kg]	Stock programme
	B	B ₁	B ₂	B ₃	D ₁	M	Length	z = number	T _A ¹⁾ [Nm]	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]		
14 x 55	38	30	22	17	62	M8	25	4	41	287	41	457	116	0.5	●
16 x 55	38	30	22	17	62	M8	25	4	41	329	41	401	117	0.5	●
18 x 55	38	30	22	17	62	M8	25	4	41	370	41	356	117	0.5	●
19 x 55	38	30	22	17	62	M8	25	4	41	390	41	337	116	0.5	●
20 x 55	38	30	22	17	62	M8	25	4	41	410	41	320	116	0.5	●
22 x 55	38	30	22	17	62	M8	25	4	41	451	41	291	116	0.5	●
24 x 55	38	30	22	17	62	M8	25	4	41	492	41	267	116	0.4	●
25 x 55	38	30	22	17	62	M8	25	4	41	513	41	256	116	0.4	●
28 x 55	38	30	22	17	62	M8	25	4	41	575	41	229	117	0.4	●
30 x 55	38	30	22	17	62	M8	25	4	41	616	41	214	117	0.4	●
24 x 65	38	30	22	17	72	M8	25	5	41	616	51	334	123	0.7	●
25 x 65	38	30	22	17	72	M8	25	5	41	641	51	320	123	0.7	●
28 x 65	38	30	22	17	72	M8	25	5	41	718	51	286	123	0.6	●
30 x 65	38	30	22	17	72	M8	25	5	41	770	51	267	123	0.6	●
32 x 65	38	30	22	17	72	M8	25	5	41	821	51	250	123	0.6	●
35 x 65	38	30	22	17	72	M8	25	5	41	898	51	229	123	0.5	●
38 x 65	38	30	22	17	72	M8	25	5	41	975	51	211	123	0.5	●
40 x 65	38	30	22	17	72	M8	25	5	41	1026	51	200	123	0.5	●
30 x 80	41	33	25	20	88	M8	25	7	41	1077	72	317	119	1.1	
32 x 80	41	33	25	20	88	M8	25	7	41	1150	72	298	119	1.1	
35 x 80	41	33	25	20	88	M8	25	7	41	1257	72	272	119	1.0	
38 x 80	41	33	25	20	88	M8	25	7	41	1364	72	251	119	1.0	
40 x 80	41	33	25	20	88	M8	25	7	41	1436	72	238	119	0.9	●
42 x 80	41	33	25	20	88	M8	25	7	41	1509	72	227	119	0.9	
45 x 80	41	33	25	20	88	M8	25	7	41	1616	72	212	119	0.9	
48 x 80	41	33	25	20	88	M8	25	7	41	1723	72	198	119	0.8	
50 x 80	41	33	25	20	88	M8	25	7	41	1796	72	191	119	0.8	●

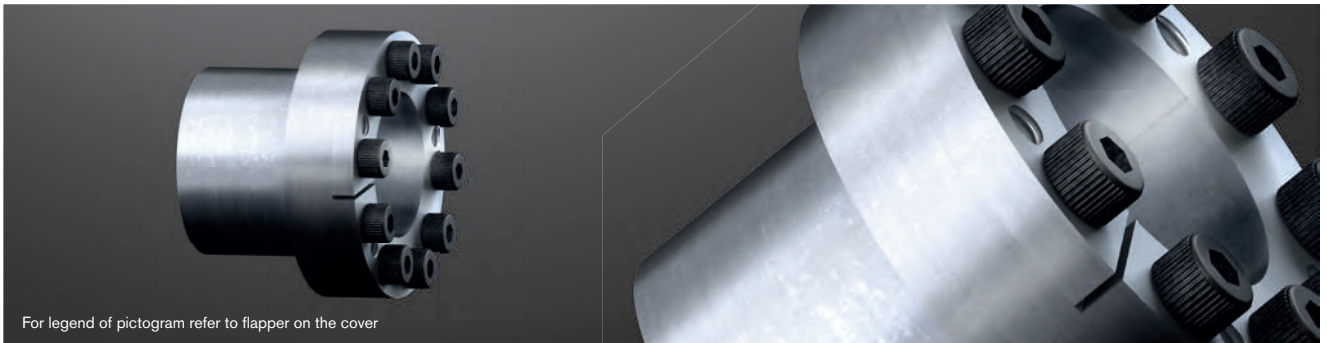
● Sizes of clamping elements available from stock.

¹⁾ These are the maximum screw tightening torques. They can be reduced by a maximum of 40 % of the above-mentioned figures with T, F_{ax}, P_W and P_N decreasing proportionately.

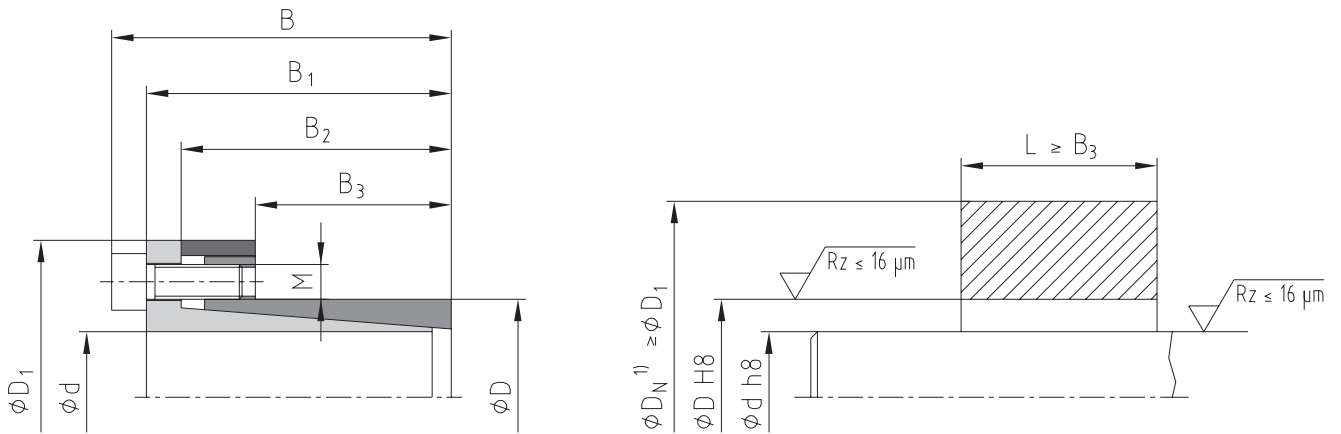
CLAMPEX® KTR 250

Clamping elements

Self-centering clamping element, particularly suitable for thin-walled hubs

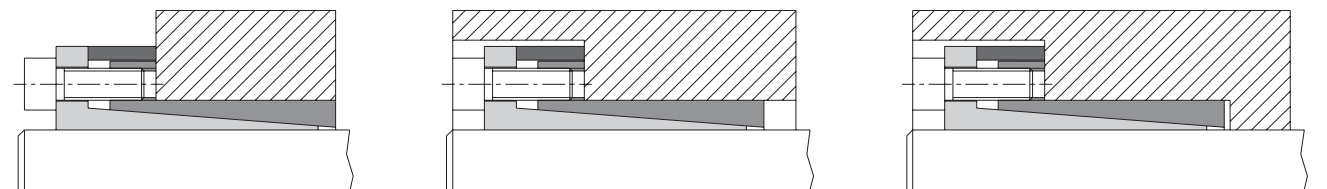


For legend of pictogram refer to flapper on the cover



¹⁾ Dimension D_N : for calculation see page 305.

Example of application of hub type



Ordering example:	KTR 250	28	x	39
	Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 250

d x D [mm]	Dimensions [mm]					Clamping screws DIN EN ISO 4762 - 12.9 $\mu_{total}=0.14$				Transmittable torque or axial force		Surface pressure be- tween clamping element		Weight [~kg]	Stock pro- gramme
	B	B ₁	B ₂	B ₃	D ₁	M	Length	z = number	T _A [Nm] ¹⁾	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/ mm ²]		
6 x 14	24.5	21.5	18.5	10	25	M3	10	4	2.6	11	4	162	69	0.05	●
8 x 15	29	25	21.5	11.5	27	M4	10	3	5.6	26	7	187	100	0.05	●
9 x 16	30	26	22.5	14	28	M4	10	4	5.6	37	8	173	97	0.06	●
10 x 16	30	26	22.5	14	29	M4	10	4	5.6	42	8	159	99	0.16	●
11 x 18	30	26	22.5	13.5	32	M4	10	4	5.6	50	9	162	99	0.18	●
12 x 18	30	26	22.5	13.5	32	M4	10	4	5.6	55	9	150	100	0.18	●
14 x 23	30	26	22.5	14	38	M4	10	6	5.6	100	14	193	118	0.20	●
15 x 24	42	36	28.5	16	44	M6	18	4	15	145	19	214	134	0.2	●
16 x 24	42	36	28.5	16	44	M6	18	4	15	155	19	201	134	0.3	●
17 x 25	42	36	28.5	16	45	M6	18	4	15	162	19	186	126	0.2	●
17 x 26	44	38	31	18	47	M6	18	4	17	180	21	184	120	0.2	●
18 x 26	44	38	31	18	47	M6	18	4	17	200	22	182	126	0.2	●
19 x 27	44	38	31	18	48	M6	18	4	17	210	22	171	121	0.3	●
20 x 28	44	38	31	18	49	M6	18	4	17	220	22	162	116	0.2	●
22 x 32	51	45	38	25	54	M6	18	4	17	250	23	110	75	0.3	●
24 x 34	51	45	38	25	56	M6	18	4	17	270	23	99	70	0.3	●
25 x 34	51	45	38	25	56	M6	18	4	17	280	22	95	70	0.3	●
28 x 39	51	45	38	25	61	M6	18	6	17	480	34	130	93	0.4	●
30 x 41	51	45	38	25	62	M6	18	6	17	510	34	120	88	0.4	●
32 x 43	51	45	38	25	65	M6	18	8	17	730	46	151	113	0.5	●
35 x 47	56	50	43	30	69	M6	18	8	17	800	46	115	86	0.5	●
38 x 50	56	50	43	30	72	M6	18	8	17	860	45	105	80	0.6	●
40 x 53	56	50	43	30	75	M6	18	8	17	900	45	99	75	0.6	●
42 x 55	65	57	49	32	78	M8	22	8	41	1800	86	169	129	0.9	●
45 x 59	73	65	57	40	85	M8	22	8	41	1900	84	124	95	1.0	●
48 x 62	78	70	62	45	87	M8	22	8	41	2000	83	102	79	1.0	●
50 x 65	78	70	62	45	92	M8	22	10	41	2600	104	123	94	1.3	●
55 x 71	83	75	67	50	98	M8	22	10	41	2900	105	102	79	1.5	●
60 x 77	83	75	67	50	104	M8	22	10	41	3100	103	91	71	1.7	●
65 x 84	83	75	67	50	111	M8	22	10	41	3400	105	85	66	1.9	●
70 x 90	101	91	80	60	119	M10	25	10	83	5800	166	105	81	2.9	●
75 x 95	101	91	80	60	126	M10	25	10	83	6200	165	97	77	2.3	●
80 x 100	106	96	85	65	131	M10	25	12	83	8000	200	102	82	3.3	●
85 x 106	106	96	85	65	137	M10	25	12	83	8500	200	96	77	3.6	●
90 x 112	106	96	85	65	143	M10	25	15	83	11200	249	113	91	3.9	●
95 x 120	106	96	85	65	153	M10	25	15	83	11800	248	107	84	4.5	●
100 x 125	114	102	89	65	162	M12	30	12	145	14600	292	119	95	5.5	●
110 x 140	140	128	114	90	180	M12	30	12	145	16000	291	78	61	8.0	●
120 x 155	140	128	114	90	198	M12	30	12	145	17400	290	71	55	10.5	●
130 x 165	140	128	114	90	208	M12	30	16	145	25000	385	87	69	11.9	●

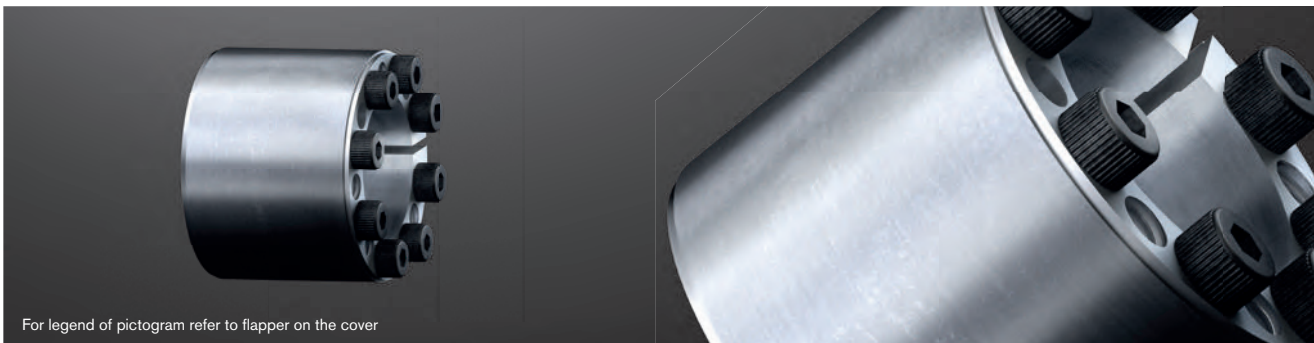
● Sizes of clamping elements available from stock.

¹⁾ These are the maximum screw tightening torques. They can be reduced by a maximum of 40 % of the above-mentioned figures with T, F_{ax}, P_W and P_N decreasing proportionately.

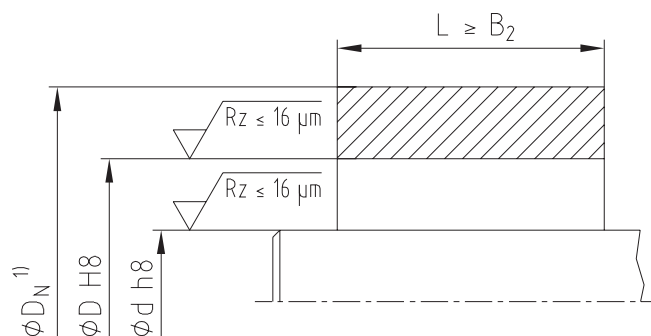
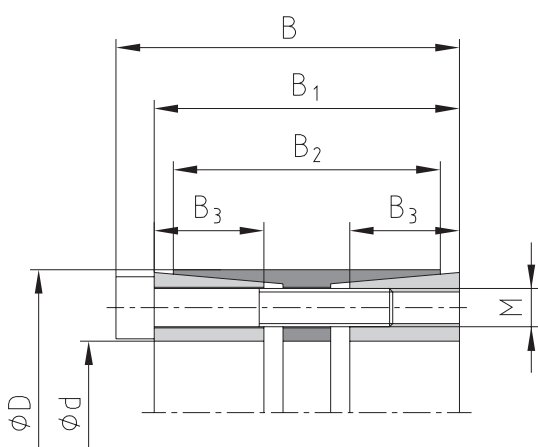
CLAMPEX® KTR 400

Clamping elements

Self-centering clamping element with highest transmission performance

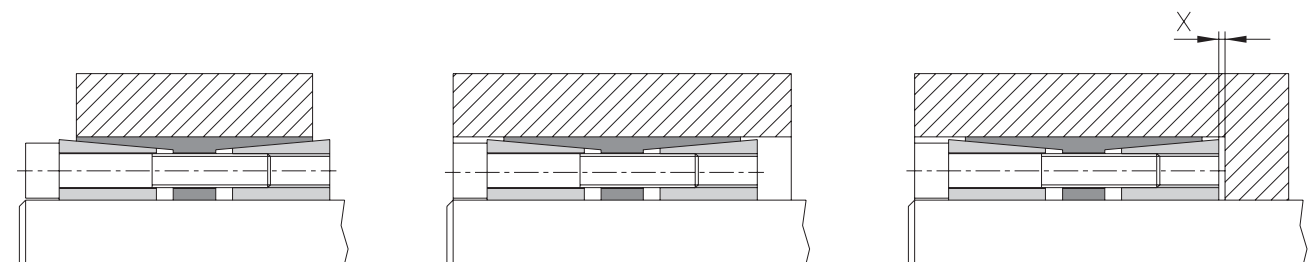


For legend of pictogram refer to flapper on the cover



¹⁾ Dimension D_N : for calculation see page 305.

Example of application of hub type



Formula to calculate space x for disassembly:

$$x = \frac{B_1 - B_2}{2}$$

Ordering example:	KTR 400	100	x	145
	Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 400

d x D ¹⁾ [mm]		Dimensions [mm]				Standard applications in industry								Applications with components subjected to bending and torsion stress								Weight [-kg]	Stock programme		
						Clamping screws DIN EN ISO 4762 - 12.9				Transmittable torque or axial force		Surface pressure between clamp- ing element		Clamping screws DIN EN ISO 4762 - 12.9				Transmittable torque or axial force		Transmit- table bending moment				Surface pressure between clamp- ing element	
						M	z = num- ber	Length	T _A ²⁾ [Nm]	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]	M	z = num- ber	Length	T _A [Nm]	T [Nm]	F _{ax} [kN]	M _b perm. [Nm]	Shaft P _W [N/mm ²]			Hub P _N [N/mm ²]	
24 x 50	51	45	41	16	M6	6	35	17	700	58	202	92	M6	6	35	14	460	38	420	230	93	0.5	●		
25 x 50	51	45	41	16	M6	6	35	17	730	58	194	92	M6	6	35	14	470	38	430	227	94	0.5	●		
28 x 55	51	45	41	16	M6	8	35	17	1100	79	233	112	M6	8	35	14	740	53	490	252	110	0.5	●		
30 x 55	51	45	41	16	M6	8	35	17	1180	79	217	112	M6	8	35	14	790	53	520	243	112	0.5	●		
32 x 60	51	45	41	16	M6	8	35	17	1270	79	206	103	M6	8	35	14	830	52	560	230	104	0.8	●		
35 x 60	51	45	41	16	M6	8	35	17	1390	79	188	104	M6	8	35	14	890	51	610	214	106	0.7	●		
38 x 65	51	45	41	16	M6	10	35	17	1880	99	216	119	M6	10	35	14	1250	66	660	240	119	1.1	●		
40 x 65	51	45	41	16	M6	10	35	17	1980	99	205	119	M6	10	35	14	1300	65	700	230	120	1.1	●		
40 x 75	51	45	41	16	M8	8	35	41	2850	143	296	149	M8	8	35	35	2030	102	700	320	142	1.1	●		
42 x 75	51	45	41	16	M8	8	35	41	3000	143	282	149	M8	8	35	35	2120	101	730	307	142	1.2	●		
45 x 75	51	45	41	16	M8	8	35	41	3250	144	266	151	M8	8	35	35	2260	100	780	289	145	1.1	●		
48 x 80	70	62	58	23	M8	8	55	41	3450	144	173	98	M8	8	55	35	2160	90	1700	202	101	1.5	●		
50 x 80	70	62	58	23	M8	8	55	41	3600	144	166	98	M8	8	55	35	2220	89	1770	196	102	1.4	●		
55 x 85	70	62	58	23	M8	8	55	41	3950	144	151	92	M8	8	55	35	2350	85	1950	182	98	1.5	●		
60 x 90	70	62	58	23	M8	10	55	41	5400	180	173	109	M8	10	55	35	3380	113	2130	202	113	1.6	●		
65 x 95	70	62	58	23	M8	10	55	41	5850	180	160	103	M8	10	55	35	3560	110	2310	190	109	1.7	●		
70 x 110	86	76	70	28	M10	10	60	83	10200	291	197	118	M10	10	60	69	6620	189	3650	222	120	3.1	●		
75 x 115	86	76	70	28	M10	10	60	83	10950	292	184	113	M10	10	60	69	6970	186	3920	210	117	3.3	●		
80 x 120	86	76	70	28	M10	12	60	83	14000	350	207	130	M10	12	60	69	9210	230	4180	231	131	3.5	●		
85 x 125	86	76	70	28	M10	12	60	83	15000	353	197	126	M10	12	60	69	9710	228	4440	220	129	3.6	●		
90 x 130	86	76	70	28	M10	12	60	83	15800	351	185	121	M10	12	60	69	10000	222	4700	210	124	3.8	●		
95 x 135	86	76	70	28	M10	12	60	83	16800	354	176	117	M10	12	60	69	10500	221	4960	201	122	4.0	●		
100 x 145	110	98	92	35	M12	12	80	145	26000	520	197	121	M12	12	80	120	16850	337	8580	219	124	6.1	●		
110 x 155	110	98	92	35	M12	12	80	145	28600	520	179	114	M12	12	80	120	18000	327	9440	203	118	6.6	●		
120 x 165	110	98	92	35	M12	14	80	145	36300	605	191	124	M12	14	80	120	23350	389	10300	214	128	7.1	●		
130 x 180	128	114	108	41	M14	12	90	230	46000	708	176	114	M14	12	90	190	29950	461	15300	201	119	10.0	●		
140 x 190	128	114	108	41	M14	14	90	230	57800	826	191	126	M14	14	90	190	37200	531	16500	214	129	10.6	●		
150 x 200	128	114	108	41	M14	16	90	230	70800	944	204	136	M14	16	90	190	46400	619	17700	226	139	11.2	●		
160 x 210	128	114	108	41	M14	16	90	230	75500	944	191	130	M14	16	90	190	48600	608	18800	214	133	11.9	●		
170 x 225	162	146	136	52	M16	14	110	355	95900	1128	169	114	M16	14	110	295	59100	695	32000	196	119	17.6	●		
180 x 235	162	146	136	52	M16	15	110	355	108800	1209	171	117	M16	15	110	295	67500	750	33900	198	122	18.5	●		
190 x 250	162	146	136	52	M16	16	110	355	122500	1289	173	117	M16	16	110	295	76100	801	35800	199	122	21.4	●		
200 x 260	162	146	136	52	M16	16	110	355	128900	1289	164	113	M16	16	110	295	78600	786	37700	192	118	22.4	●		
220 x 285	162	146	136	52	M16	18	110	355	171800	1562	181	120	M16	18	110	295	105000	955	41400	195	126	26.6	●		
240 x 305	162	146	136	52	M16	20	110	355	208000	1733	184	125	M16	20	110	295	128000	1067	45200	198	130	28.7	●		
260 x 325	166	150	134	55	M16	21	110	355	237000	1823	169	117	M16	21	110	295	142000	1092	51000	187	123	31.2	●		
280 x 355	197	177	165	66	M20	18	130	690	340000	2429	174	119	M20	18	130	580	208000	1486	81300	192	125	46.8	●		
300 x 375	197	177	165	66	M20	20	130	690	405000	2700	181	125	M20	20	130	580	252000	1680	87100	198	130	69.7	●		
320 x 405	197	177	165	66	M20	21	130	690	453000	2831	178	121	M20	21	130	580	280000	1750	92900	196	127	60.5	●		
340 x 425	197	177	165	66	M20	22	130	690	504900	2970	176	121	M20	22	130	580	311000	1829	98700	193	127	63.9	●		
360 x 455	224	203	190	76	M22	21	150	930	626000	3478	169	115	M22	21	150	780	381000	2117	138500	189	121	86.8	●		
380 x 475	224	203	190	76	M22	22	150	930	692000	3642	167	115	M22	22	150	780	420000	2211	146000	188	122	91.0	●		
400 x 495	224	203	190	76	M22	24	150	930	795000	3975	173	121	M22	24	150	780	489000	2445	154000	194	127	95.3	●		
420 x 515	224	203	190	76	M22	24	150	930	835000	3976	165	116	M22	24	150	780	505000	2405	161500	186	123	100	●		
440 x 535	224	203	190	76	M22	24	150	930	875000	3977	158	112	M22	24	150	780	517000	2350	169000	178	120	105	●		
460 x 555	224	203	190	76	M22	24	150	930	914000	3974	151	108	M22	24	150	780	530000	2304	177000	172	117	109	●		
480 x 575	224	203	190	76	M22	28	150	930	1113000	4638	169	121	M22	28	150	780	678000	2825	184500	189	128	114	●		
500 x 595	224	203	190	76	M22	28	150	930	1160000	4640	162	117	M22	28	150	780	692000	2768	192000	182	125	119	●		
520 x 615	224	203	190	76	M22	30	150	930	1292000	4969	167	122	M22	30	150	780	780000	3000	200000	186	129	122.5	●		
540 x 635	224	203	190	76	M22	30	150	930	1342000	4970	161	118	M22	30	150	780	799000	2959	207500	180	126	128	●		
560 x 655	224	203	190	76	M22	32	150	930	1484000	5300	165	122	M22	32	150	780	893000	3189	215500	184	129	131	●		
580 x 675	224	203	190	76	M22	32	150	930	1537000	5300	159	118	M22	32	150	780	912000	3145	223000	179	127	136	●		
600 x 695	224	203	190	76	M22	33	150	930	1640000	5467	159	118	M22	33	150	780	972000	3240	231000	179	127	139	●		

● Sizes of clamping elements available from stock.

¹⁾ External ring without slot from size 400 x 495.

²⁾ These are the maximum screw tightening torques. They can be reduced by a maximum of 40 % of the above-mentioned figures with T, F_{ax}, P_W and P_N decreasing proportionately.

CLAMPEX®

Clamping nuts

KTR Precision joints

Clamping sets

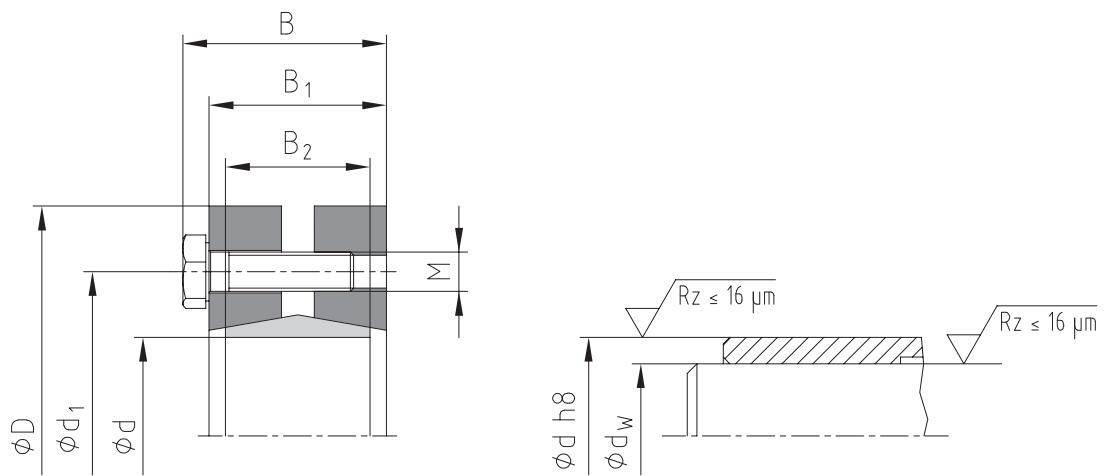
CLAMPEX® KTR 603

Clamping elements

Three-part external clamping set for applications on hollow shafts



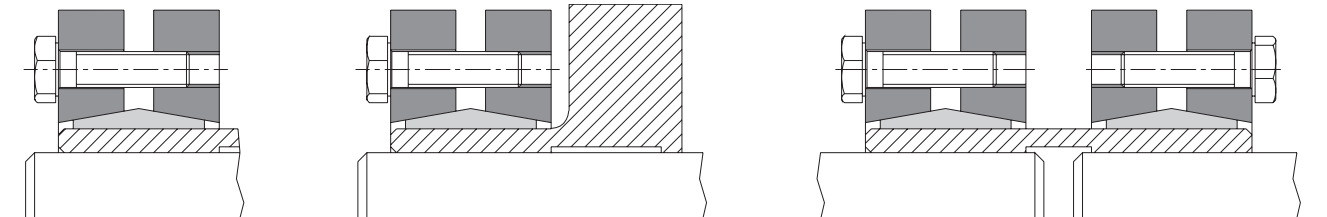
For legend of pictogram refer to flapper on the cover



Tolerances for d_w

- For d_w from 10 to 30 mm **H6 / j6**
- For d_w from 31 to 50 mm **H6 / h6**
- For d_w from 51 to 80 mm **H6 / g6**
- For d_w from 81 to 500 mm **H7 / g6**

Example of application of hub type



Ordering example:	KTR 603	44	x	80
	Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 603

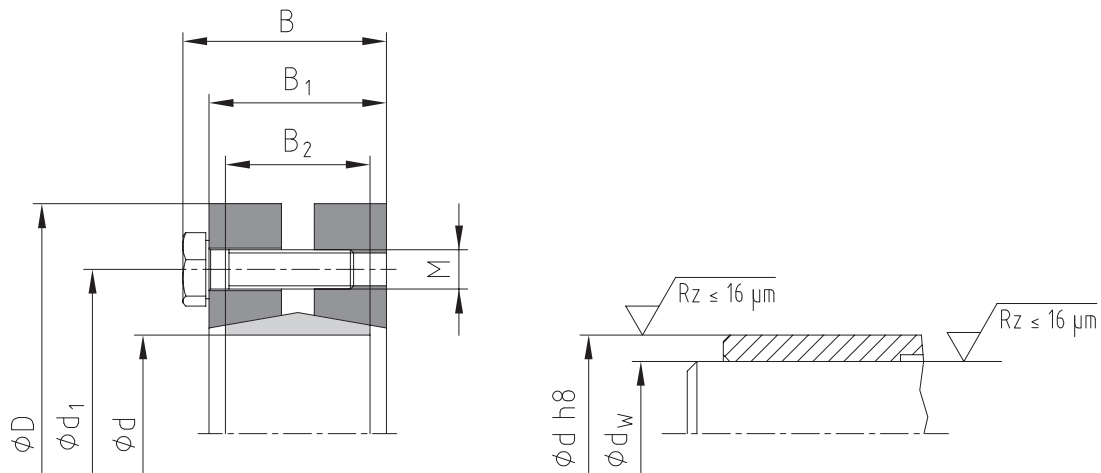
d x D [mm]	Shaft diameter d _w [mm]	Transmittable torque or axial force		Dimensions [mm]				Clamping screws DIN EN ISO 4014 - 10.9 μ _{total} =0.10				Surface pressure of clamping element/hollow shaft P _H [N/mm ²]	Weight [-kg]	Stock programme	
		T [Nm]	F _{ax} [kN]	B	B ₁	B ₂	d ₁	M	Length	z = number	T _A [Nm]				
14 x 38	10	28	6												
	11	38	7	14.5	11	9	24	M5	10	4	3.5	388	0.1	●	
	12	50	8												
16 x 41	12	50	8												
	13	70	11	18.5	15	11	26	M5	14	5	4	310	0.2	●	
	14	90	13												
24 x 50	19	180	19												
	20	210	21	22.5	19	14	36	M5	18	6	5	286	0.2	●	
	21	250	24												
30 x 60	24	310	26												
	25	340	27	24.5	21	16	44	M5	18	6	6	233	0.3	●	
	26	380	29												
36 x 72	28	460	33												
	30	590	39	27	23	18	52	M6	20	5	12	307	0.4	●	
	31	630	41												
44 x 80	32	630	39												
	35	780	45	29	25	20	61	M6	22	7	12	317	0.6	●	
	36	860	48												
50 x 90	38	940	49												
	40	1100	55	31	27	22	70	M6	22	8	12	289	0.8	●	
	42	1300	62												
55 x 100	42	1200	57												
	45	1500	67	34	30	23	75	M6	25	8	12	252	1.1	●	
	48	1900	79												
62 x 110	48	1800	75												
	50	2200	88	34	30	23	86	M6	25	10	12	279	1.3	●	
	52	2400	92												
68 x 115	50	2000	80												
	55	2500	91	34	30	23	86	M6	25	10	12	255	1.4	●	
	60	3100	103												
75 x 138	55	2500	91												
	60	3200	107	37.5	32	25	100	M8	30	7	30	273	1.8	●	
	65	3900	120												
80 x 145	60	3200	107												
	65	3900	120	37.5	32	25	100	M8	30	7	30	256	2.6	●	
	70	4600	131												
85 x 155	65	4800	148												
	70	6100	174	44.5	39	30	114	M8	35	10	30	285	3.9		
	75	7400	197												
90 x 155	65	4700	145												
	70	6000	171	44.5	39	30	114	M8	35	10	30	217	3.8	●	
	75	7200	192												
100 x 170	70	6900	197												
	75	7500	200	49.5	44	34	124	M8	35	12	30	227	4.7	●	
	80	9000	225												
110 x 185	75	7200	192												
	80	9000	225	56.5	50	39	136	M10	40	9	59	215	6.0	●	
	85	11000	259												
115 x 188	80	8500	213												
	85	10000	235	56.5	50	39	141	M10	40	9	59	209	5.0		
	90	12000	267												
120 x 215	80	10500	263												
	85	13200	311	58.5	52	42	160	M10	40	12	59	271	5.9		
	90	14400	320												
125 x 215	85	11000	259												
	90	13000	289	58.5	52	42	160	M10	40	12	59	222	8.5	●	
	95	15000	316												
130 x 215	90	13700	304												
	95	15800	333	58.5	52	42	160	M10	40	12	59	227	9.0		
	100	18200	364												
140 x 230	95	15000	316												
	100	17000	340	67.5	60	46	175	M12	45	10	100	209	11		
	105	20000	381												

● Sizes of clamping elements available from stock.
Other sizes on request.

CLAMPEX® KTR 603

Clamping elements

Three-part external clamping set for applications on hollow shafts



CLAMPEX® – KTR 603														
d x D [mm]	Shaft diameter d_w [mm]	Transmittable torque or axial force		Dimensions [mm]				Clamping screws DIN EN ISO 4014 - 10.9 $\mu_{total}=0.10$				Surface pressure of clamping element/hollow shaft	Weight [~kg]	Stock programme
		T [Nm]	F_{ax} [kN]	B	B_1	B_2	d_1	M	Length	z = number	T_A [Nm]	P_H [N/mm ²]		
155 x 265	105	20000	381	71.5	64	50	192	M12	50	12	100	212	15	
	110	23000	418											
	115	26000	452											
160 x 265	110	22500	409	71.5	64	50	192	M12	50	12	100	204	14	
	115	25500	443											
	120	28600	477											
165 x 290	115	36000	626	81	71	56	210	M16	60	8	250	269	24	
	120	39000	650											
	125	44000	704											
170 x 290	120	31700	528	81	71	56	210	M16	60	8	250	216	24	
	125	35800	573											
	130	40000	615											
175 x 300	125	40000	640	81	71	56	220	M16	60	8	250	253	16	
	130	44000	677											
	135	49000	726											
180 x 300	130	36800	566	81	71	56	220	M16	60	8	250	211	16	
	135	42000	622											
	140	46000	657											
185 x 330	135	55000	815	96	86	71	236	M16	65	10	250	231	35	
	140	60000	857											
	145	65000	897											
190 x 330	140	53300	761	96	86	71	236	M16	65	10	250	201	35	
	145	58500	807											
	150	63500	847											
195 x 350	140	66000	943	96	86	71	246	M16	65	12	250	259	38	
	150	76000	1013											
	155	82000	1058											
200 x 350	150	73700	983	96	86	71	246	M16	65	12	250	240	41	
	155	79800	1030											
	160	85800	1073											
220 x 370	160	95000	1188	114	104	88	270	M16	80	15	250	216	54	
	165	102000	1236											
	170	110000	1294											
240 x 405	170	120000	1412	121.5	109	92	295	M20	80	12	490	239	67	
	180	140000	1556											
	190	160000	1684											
250 x 405	180	160000	1778	120.5	108	92	295	M20	85	14	490	263	64	
	190	180000	1895											
	200	200000	2000											
260 x 430	190	165000	1737	132.5	120	103	321	M20	90	14	490	225	82	
	200	185000	1850											
	210	204000	1943											

● Sizes of clamping elements available from stock.
Other sizes on request.

CLAMPEX® – KTR 603

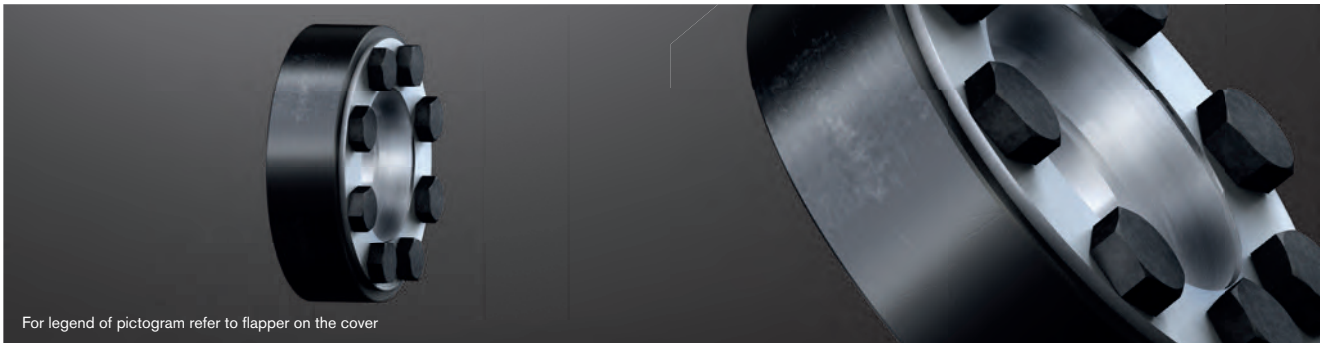
d x D [mm]	Shaft diameter d _w [mm]	Transmittable torque or axial force		Dimensions [mm]				Clamping screws DIN EN ISO 4014 - 10.9 μ _{total} =0.10				Surface pressure of clamping element/hollow shaft	Weight [-kg]	Stock programme	
		T [Nm]	F _{ax} [kN]	B	B ₁	B ₂	d ₁	M	Length	z = number	T _A [Nm]	P _H [N/mm ²]			
280 x 460	210	216000	2057												
	220	245000	2227	146.5	134	114	346	M20	100	16	490	217	102		
	230	270000	2348												
300 x 485	230	274000	2383												
	240	296000	2467	154.5	142	122	364	M20	100	18	490	209	118		
	245	316000	2580												
320 x 520	240	311000	2592												
	250	340000	2720	154.5	142	122	386	M20	100	20	490	219	131		
	260	375000	2885												
330 x 520	250	352000	2816												
	260	385000	2962	154.5	142	122	386	M20	100	22	490	224	126.1		
	270	420000	3111												
340 x 570	250	389000	3112												
	260	422000	3246	168.5	156	134	408	M20	110	24	490	227	186		
	270	459000	3400												
350 x 580	270	443000	3281												
	280	480000	3429	174.5	162	140	432	M20	110	24	490	212	195		
	285	500000	3509												
360 x 590	280	462000	3300												
	290	500000	3448	174.5	162	140	432	M20	110	24	490	204	204		
	300	530000	3533												
380 x 645	290	570000	3931												
	300	610000	4067	183	168	144	458	M24	120	20	840	224	239		
	310	660000	4258												
390 x 660	300	625000	4167												
	310	670000	4323	183	168	144	468	M24	120	21	840	229	260		
	320	720000	4500												
400 x 680	315	671000	4260												
	320	695000	4344	183	168	144	480	M24	120	21	840	222	280		
	330	745000	4515												
420 x 690	330	782000	4739												
	340	841000	4947	203	188	164	504	M24	130	24	840	211	316		
	350	902000	5154												
440 x 750	340	805000	4735												
	350	861000	4920	217	202	177	527	M24	140	24	840	190	408		
	360	920000	5111												
460 x 770	360	1000000	5556												
	370	1073000	5800	217	202	177	547	M24	140	28	840	210	420		
	380	1141000	6005												
480 x 800	380	1175000	6184												
	390	1250000	6410	228	213	188	570	M24	140	30	840	206	505		
	400	1312000	6560												
500 x 850	400	1314000	6570												
	410	1382000	6741	230	213	188	590	M27	150	24	1250	205	575		
	420	1460000	6952												

● Sizes of clamping elements available from stock.
Other sizes on request.

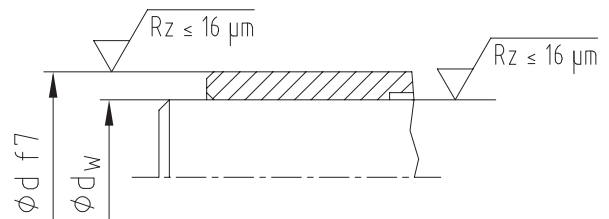
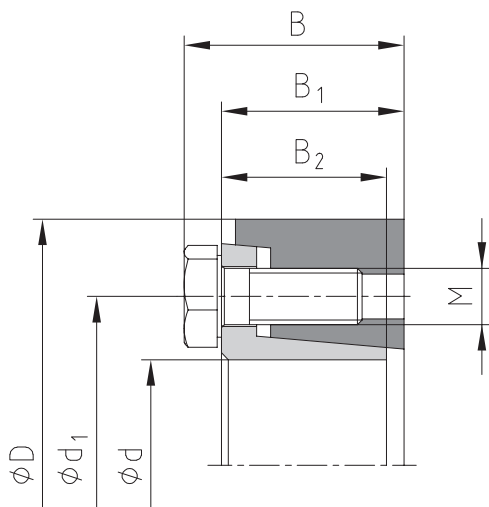
CLAMPEX® KTR 620

Clamping elements

Two-part external clamping set for applications on hollow shafts



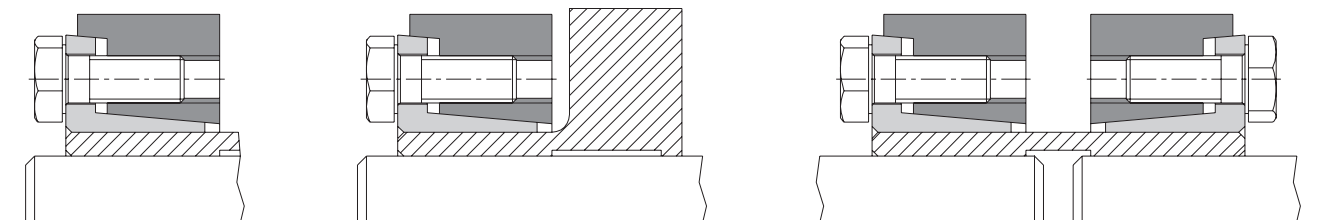
For legend of pictogram refer to flapper on the cover



Tolerances for d_w

- $d_w \leq \phi 160 = h6/H7$
- $d_w > \phi 160 = g6/H7$

Example of application of hub type



Ordering example:	KTR 620	55	x	100
	Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 620

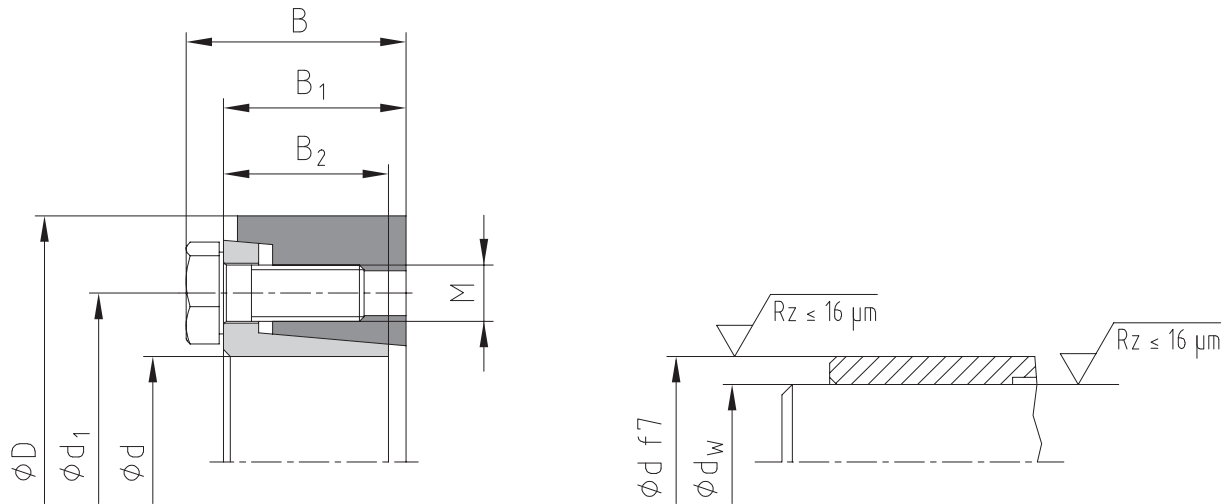
d x D [mm]	Shaft diameter d _w [mm]	Transmittable torque or axial force		Dimensions [mm]				Clamping screws DIN EN ISO 4017 - 12.9 ¹⁾ μ _{total} =0.10				Surface pressure of clamping element/hollow shaft P _H [N/mm ²]	Weight [-kg]	Stock programme
		T [Nm]	F _{ax} [kN]	B	B ₁	B ₂	d ₁	M	Length	z = number	T _A [Nm]			
16 x 41	13	70	11	19.5	15.3	13.5	28	M6	12	3	13	254	0.1	
	14	90	13											
18 x 44	15	80	11	19.5	15.3	13.5	30	M6	12	4	13	222	0.1	
	16	110	14											
20 x 47	17	150	18	19.5	15.3	13.5	32	M6	12	4	13	274	0.1	●
	18	175	19											
24 x 50	19	165	17	22	18.22	16	36	M6	16	5	13	243	0.2	●
	20	215	22											
26 x 51.5	22	280	25	22	18.05	16	38	M6	16	5	13	238	0.2	
	20	200	20											
30 x 60	24	370	31	24	20.26	18	44	M6	16	6	13	255	0.3	●
	25	420	34											
36 x 72	26	465	36	27.5	22.1	20	52	M8	20	5	30	250	0.5	●
	27	480	36											
38 x 72	30	650	43	27.5	22.1	20	54	M8	20	5	30	240	0.5	●
	33	765	46											
40 x 80	34	830	49	29.5	24.22	22	61	M8	20	6	30	209	0.6	●
	35	770	44											
44 x 80	37	880	48	29.5	24.22	22	61	M8	20	6	30	192	0.6	●
	38	1130	59											
50 x 90	40	1260	63	31.5	26.1	23.5	68	M8	20	8	30	212	0.8	●
	42	1400	67											
55 x 100	42	1300	62	34.5	29	26	72	M8	20	8	30	195	1.1	●
	45	1600	71											
60 x 110	48	1900	79	34.5	29.25	26	80	M8	20	9	30	191	1.3	●
	48	1700	71											
62 x 110	50	1950	78	34.5	29.25	26	80	M8	20	9	30	189	1.3	●
	52	2160	83											
68 x 115	50	1900	76	35	29.4	26	86	M8	20	9	30	206	1.3	●
	55	2500	91											
75 x 138	60	3400	113	37.5	30.7	27	100	M10	25	10	60	211	2.3	●
	65	4100	126											
80 x 141	60	3300	110	37.5	31.1	27	104	M10	25	10	60	215	2.3	●
	65	4100	126											
85 x 155	70	6400	183	44.5	38.2	34	114	M10	25	11	60	216	3.2	
	75	7300	195											
90 x 155	65	5500	169	44.5	38.2	34	114	M10	25	11	60	223	3.2	●
	70	6600	189											
95 x 170	75	7400	197	50	43.45	39	124	M10	30	14	60	182	4.3	
	80	8600	215											
100 x 170	70	6200	177	50	43.45	39	124	M10	30	14	60	176	4.3	●
	75	7400	197											
105 x 185	80	8600	215	56.5	49.1	43.5	136	M12	35	12	100	208	5.8	
	80	10500	263											
110 x 185	85	11800	278	56.5	49.1	43.5	136	M12	35	12	100	202	5.8	●
	90	13700	304											
115 x 197	80	10500	263	60.5	53	48	147	M12	35	14	100	193	6.9	
	85	12500	294											
120 x 197	90	14100	313	60.5	53	48	147	M12	35	14	100	189	6.9	
	95	16000	337											
	85	12500	294											
	90	14100	313											
	95	16000	337											
	95	16000	337											

● Sizes of clamping elements available from stock.
¹⁾ DIN EN ISO 4017-10.9 for size 16 x 41 to 20 x 47

CLAMPEX® KTR 620

Clamping elements

Two-part external clamping set for applications on hollow shafts



CLAMPEX® – KTR 620

d x D [mm]	Shaft diameter d _w [mm]	Transmittable torque or axial force		Dimensions [mm]				Clamping screws DIN EN ISO 4017 - 12.9 μ _{total} =0.10				Surface pressure of clamping element/hollow shaft		Weight [-kg]	Stock programme
		T [Nm]	F _{ax} [kN]	B	B ₁	B ₂	d ₁	M	Length	z = number	T _A [Nm]	P _H [N/mm ²]			
125 x 215	90	14500	322	61	53.4	48	158	M12	35	14	100	196	8.7	●	
	95	16600	349												
	100	18800	376												
130 x 215	95	17000	358	61	53.4	48	158	M12	35	14	100	187	9.4		
	100	18400	368												
	110	22000	400												
130 x 230	95	18400	387	66.5	57.5	51	165	M14	40	12	160	213	10.8	●	
	100	20800	416												
	110	26200	476												
135x 230	95	18400	387	66.5	57.5	51	165	M14	40	12	160	209	10.8		
	100	20800	416												
	110	26200	476												
140 x 230	100	19900	398	67	57.8	51	172	M14	40	12	160	207	10.3		
	105	22200	423												
	115	27800	483												
150 x 263	110	27000	491	71	62.2	55	186	M14	40	14	160	202	15.2		
	120	32000	533												
	125	36200	579												
155 x 263	110	27000	491	71	62.2	55	186	M14	40	14	160	199	15.2		
	120	32000	533												
	125	36200	579												
160 x 290	120	39000	650	78.5	68.5	61	198	M16	45	12	250	215	21.5		
	130	48000	738												
	135	51000	756												
165 x 290	120	39000	650	78.5	68.5	61	198	M16	45	12	250	212	21.5		
	130	48000	738												
	135	51000	756												
170 x 300	130	46500	715	79	68.9	61	208	M16	50	14	250	212	22.5		
	140	53000	757												
	145	59000	814												
175 x 300	130	46500	715	79	68.9	61	208	M16	50	14	250	209	22.5	●	
	140	53000	757												
	145	59000	814												
180 x 320	140	66000	943	95	85	77.5	222	M16	50	16	250	210	32.7		
	150	76000	1013												
	155	83000	1071												
185 x 320	140	66000	943	95	85	77.5	222	M16	50	16	250	207	32.7		
	150	76000	1013												
	155	83000	1071												
190 x 340	150	82000	1093	98	87.7	77.5	238	M16	50	16	250	225	36.3		
	160	91000	1138												
	165	102000	1236												
195 x 340	150	82000	1093	98	87.7	77.5	238	M16	50	16	250	222	36.3		
	160	91000	1138												
	165	102000	1236												
200 x 340	150	82000	1093	98	87.7	77.5	238	M16	50	16	250	219	36.3		
	160	91000	1138												
	165	102000	1236												

● Sizes of clamping elements available from stock.

CLAMPEX® – KTR 620

d x D [mm]	Shaft diameter d _w [mm]	Transmittable torque or axial force		Dimensions [mm]				Clamping screws DIN EN ISO 4017 - 12.9 ²⁾ H _{total} =0.10			Surface pressure of clamping element/hollow shaft	Weight [-kg]	Stock programme
		T [Nm]	F _{ax} [kN]	B	B ₁	B ₂	d ₁	M	Length	z = number	T _A [Nm]		
220 x 370	160	105000	1313	120	107.55	96.5	268	M20	60	15	480	205	53
	170	122000	1435										
	180	138000	1533										
240 x 405	170	125000	1471	123.5	111.1	98	288	M20	60	16	480	214	66
	180	145000	1611										
	200	182000	1820										
260 x 430	190	165000	1737	138	125.3	110.5	312	M20	60	16	480	202	82
	200	190000	1900										
	220	238000	2164										
280 x 460	210	220000	2095	152.5	140	121	334	M20	60	18	480	193	103
	220	245000	2227										
	240	300000	2500										
300 x 485	220	297000	2700	159	139.8	124	360	M24	70	16	840	205	120
	230	330000	2870										
	250	399000	3192										
320 x 520	240	331000	2758	160.5	141.6	124	380	M24	70	18	840	190	138
	250	365000	2920										
	270	437000	3237										
340 x 570	250	429000	3432	177.5	158.4	139	402	M24	70	18	840	195	189
	260	469000	3608										
	280	556000	3971										
360 x 590	270	545000	4037	182	163	143	424	M24	70	20	840	216	207
	280	592000	4229										
	290	694000	4786										
390 x 650	290	704000	4855	191	169.2	148	454	M27	70	18	1250	216	249
	300	760000	5067										
	320	879000	5494										
420 x 670	320	827000	5169	208.4	186.4	166	486	M27	70	20	1250	184	285
	330	876000	5309										
	350	1000000	5714										
440 x 710	340	1117000	6571	220	198	179	506	M27	70	21	1250	222	343
	350	1190000	6800										
	370	1345000	7270										
460 x 750	360	1306000	7256	223	201	179	534	M27	70	21	1250	230	387
	370	1386000	7492										
	390	1554000	7969										
470 x 705	370	950000	5135	241.6	219.6	200	538	M27	70	21	1250	151	340
	380	1000000	5263										
	400	1150000	5750										
480 x 770	380	1557000	8195	247	223	201	552	M30	100	21	1650	223	449
	390	1648000	8451										
	410	1818000	8868										
500 x 820	400	1653000	8265	241	217	198	572	M30	100	24	1650	214	515
	410	1725000	8415										
	430	1915000	8907										
530 x 850	430	2048000	9526	262.3	238.3	216	606.5	M30	100	24	1650	208	585
	440	2154000	9791										
	460	2374000	10322										
560 x 885	450	2306000	10249	266	242	220	632	M30	100	24	1650	212	636
	460	2419000	10517										
	480	2654000	11058										
590 x 950	470	2735000	11638	281.5	257.5	236	664	M30	100	28	1650	211	805
	480	2863000	11929										
	500	3128000	12512										
620 x 960	500	3150000	12600	307	283	258	706	M30	100	28	1650	201	853
	520	3396000	13062										
	540	3689000	13663										
660 x 1020	530	3636000	13721	319	293	267	748	M33	130	28	2250	199	993
	550	3942000	14335										
	570	4261000	14951										
700 x 1085	560	4189000	14961	318.5	292.5	263	788	M33	130	28	2250	187	1112
	580	4520000	15586										
	600	4863000	16210										
750 x 1100	600	5281000	17603	346	320	280	850	M33	130	32	2250	202	1111
	620	5672000	18297										
	650	6287000	19345										
800 x 1230	640	6091000	19034	359	333	296	900	M33	130	32	2250	202	1589
	660	6511000	19730										
	700	7394000	21126										

● Sizes of clamping elements available from stock.
²⁾ DIN EN ISO 4014-12.9 for size 660 x 1020 to 800 x 1230

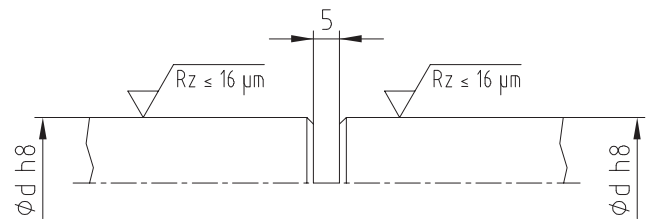
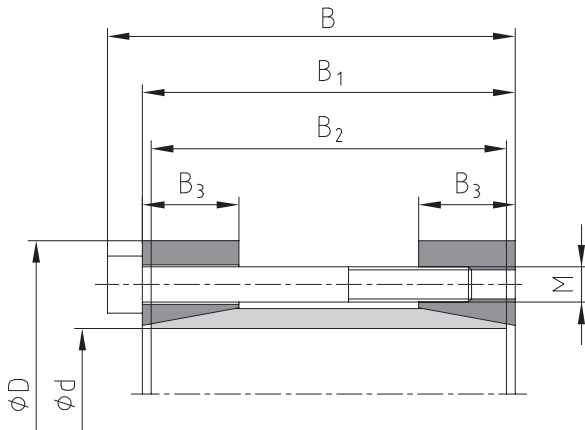
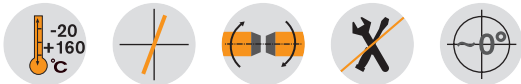
CLAMPEX® KTR 700

Clamping elements

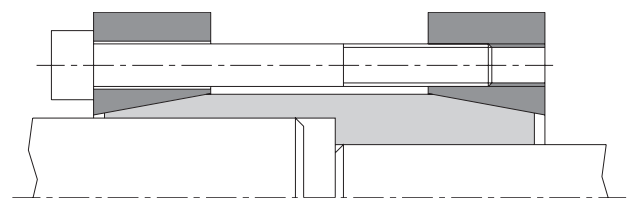
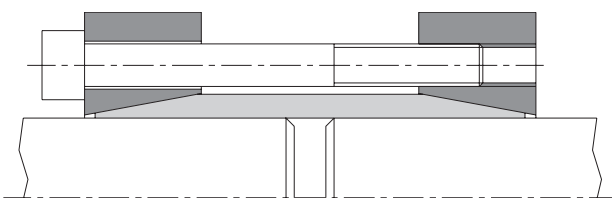
Rigid shaft coupling to connect two shaft ends



For legend of pictogram refer to flapper on the cover



Example of application



Type on request

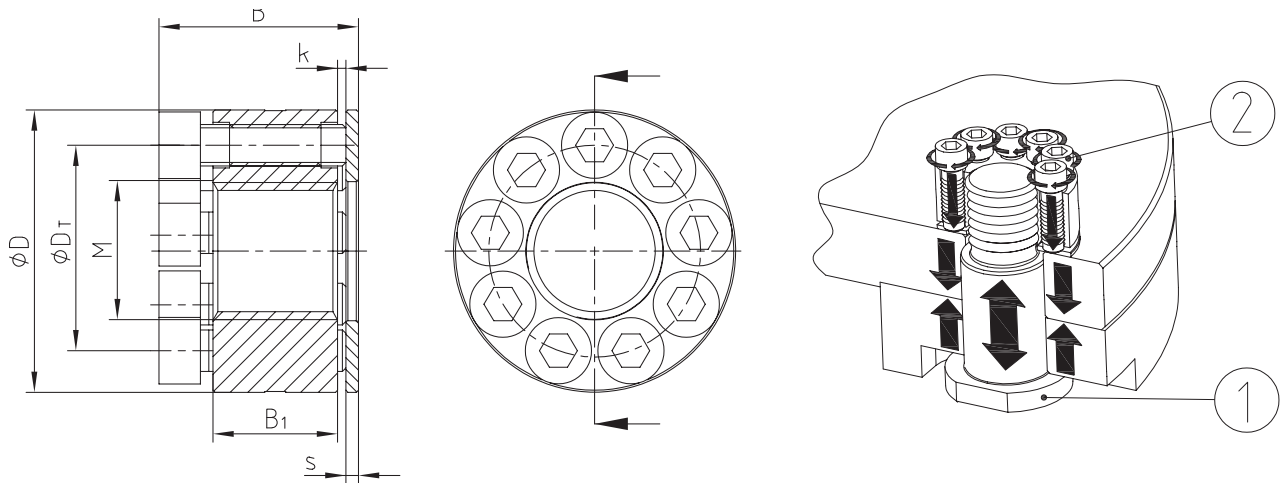
Ordering example:	KTR 700	35	x	75
	Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 700														
d x D [mm]	Dimensions [mm]				Clamping screws DIN EN ISO 4762 - 12.9 $\mu_{\text{total}}=0.14$				Transmittable torque or axial force			Surface pressure of clamping element/ shaft	Weight [~kg]	Stock pro- gramme
	B	B ₁	B ₂	B ₃	M	Length	z = number	T _A [Nm]	T [Nm]	F _{ax} [kN]	P _{VV} [N/mm ²]			
10 x 35	42	38	36	15	M4	30	6	5.5	62	12	219	0.2		
11 x 35	42	38	36	15	M4	30	6	5.5	66	12	193	0.2		
12 x 35	42	38	36	15	M4	30	6	5.5	72	12	177	0.2		
14 x 35	42	38	36	15	M4	30	6	5	76	11	137	0.2		
15 x 45	56	50	47	15	M6	45	4	17	160	21	252	0.4		
16 x 45	56	50	47	15	M6	45	4	17	170	21	235	0.4		
17 x 45	56	50	47	15	M6	45	4	17	180	21	220	0.4	●	
18 x 50	56	50	47	15	M6	45	4	17	190	21	207	0.5		
19 x 50	56	50	47	15	M6	45	4	17	200	21	196	0.4		
20 x 50	56	50	47	15	M6	45	4	17	220	22	195	0.4	●	
22 x 55	66	60	57	18	M6	55	6	17	360	33	219	0.5		
24 x 55	66	60	57	18	M6	55	6	17	390	33	200	0.6		
25 x 55	66	60	57	18	M6	55	6	17	400	32	189	0.6	●	
28 x 60	66	60	57	18	M6	55	6	17	390	28	147	0.8		
30 x 60	66	60	57	18	M6	55	6	17	420	28	138	0.7	●	
32 x 75	83	75	72	20	M8	70	4	41	610	38	158	0.1		
35 x 75	83	75	72	20	M8	70	4	41	670	38	145	1.3	●	
38 x 75	83	75	72	20	M8	70	4	41	730	38	134	1.2		
40 x 75	83	75	72	20	M8	70	4	41	760	38	126	1.2	●	
42 x 85	93	85	81	22	M8	80	6	41	1170	56	160	1.8		
45 x 85	93	85	81	22	M8	80	6	41	1260	56	150	1.7		
48 x 90	93	85	81	22	M8	80	6	41	1360	57	142	1.9		
50 x 90	93	85	81	22	M8	80	6	41	1400	56	135	1.8	●	
55 x 95	93	85	81	22	M8	80	8	41	2000	73	159	2.0		
60 x 100	93	85	81	22	M8	80	8	41	2260	75	151	2.2	●	
65 x 105	93	85	81	22	M8	80	8	41	2500	77	143	2.6		
70 x 115	110	100	96	35	M10	80	8	83	3300	94	102	4.1		
75 x 120	110	100	96	35	M10	80	8	83	3500	93	94	4.3		
80 x 125	110	100	96	35	M10	80	7	75	3900	98	92	4.5		
90 x 136	110	100	96	35	M10	80	8	75	5100	113	95	5.2		
100 x 158	132	120	116	40	M12	100	8	130	8350	167	111	6.0		

● Sizes of clamping elements available from stock.

KTR Clamping nuts

Large screw connections for easy and quick assembly

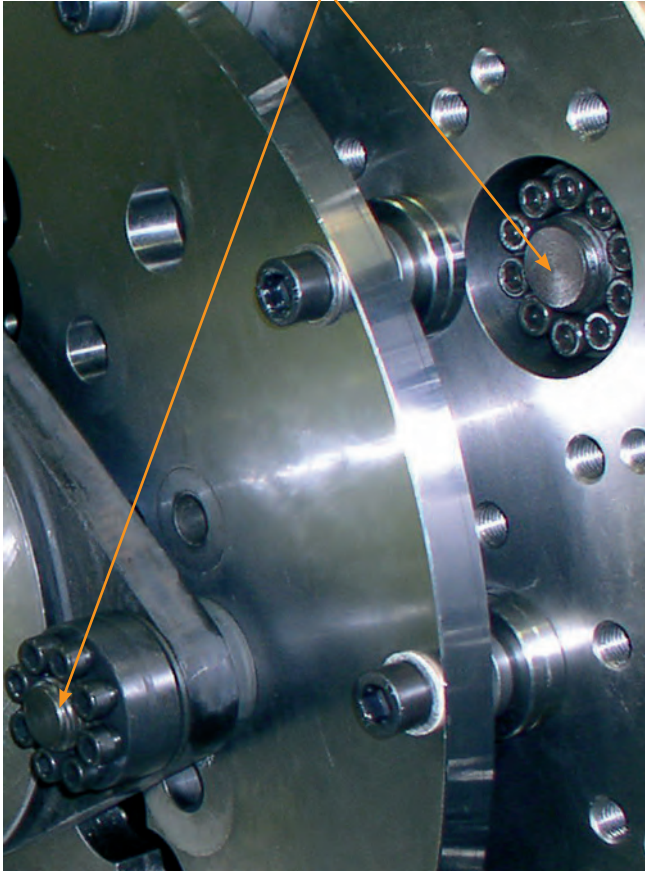


KTR Clamping nuts													
Size	Dimensions [mm]						Pressure screw pos. 2		Property class 8.8, screw pos. 1		Property class 10.9, screw pos. 1		
	D	D _T	B	B ₁	s	k	DIN EN ISO 4762	z = number	Tightening torque* [Nm]	Preload force [N]	Tightening torque* [Nm]	Preload force [N]	
M24 x 3.0	52	39	36.0	20	3.0	1 - 2	M8	8	21	174000	30	249000	
M27 x 3.0	57	42	41.0	25	3.0	1 - 2	M8	9	24	224000	30	280000	
M30 x 3.5	65	48	43.0	25	3.0	1 - 2	M10	8	41	274000	60	401000	
M33 x 3.5	68	51	48.0	30	3.0	1 - 2	M10	9	45	338000	60	451000	
M36 x 4.0	80	58	50.0	30	3.0	1 - 2	M12	8	71	396000	105	586000	
M42 x 4.5	86	64	55.0	35	3.0	1 - 2	M12	10	78	544000	105	732000	
M48 x 5.0	90	72	60.0	40	3.0	1 - 2	M12	11	94	721000	105	806000	
M52 x 5.0	100	79	66.5	42	4.5	1 - 2	M12	13	95	862000	105	952000	
M56 x 5.5	108	83	75.5	45	4.5	1 - 2	M16	9	210	1001000	250	1192000	
M60 x 5.5	112	86	80.5	48	4.5	1 - 2	M16	10	215	1139000	250	1325000	
M64 x 6.0	120	92	84.0	52	8.0	1 - 2	M16	11	225	1311000	250	1457000	
M72 x 6.0	142	107	98.0	58	8.0	1 - 2	M20	10	400	1696000	490	2077000	
M80 x 6.0	164	122	103.0	64	8.0	1 - 2	M20	12	420	2137000	490	2493000	

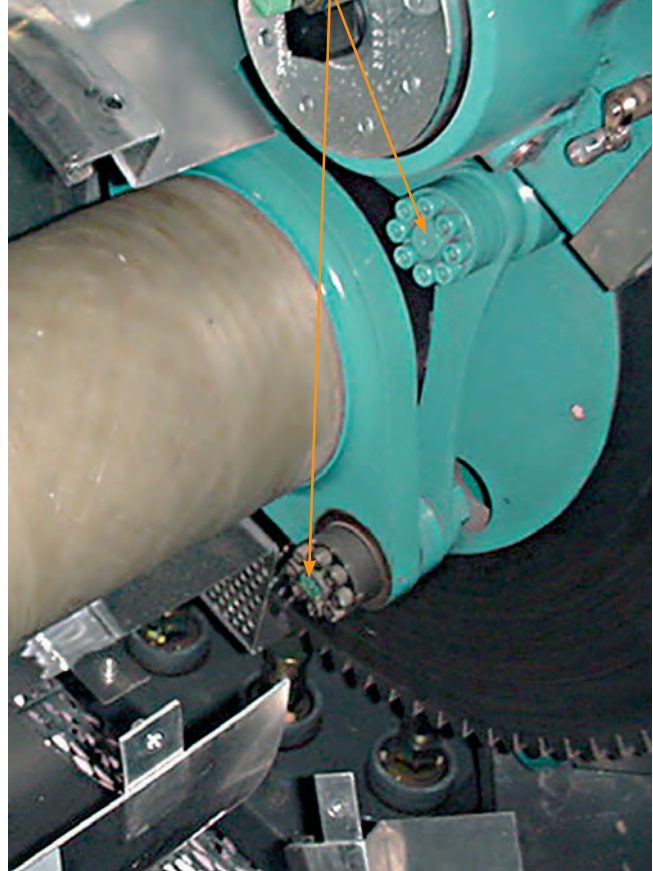
* per screw pos. 2

Ordering example:	KTR clamping nut	M33 x 3.5
	Description	Size

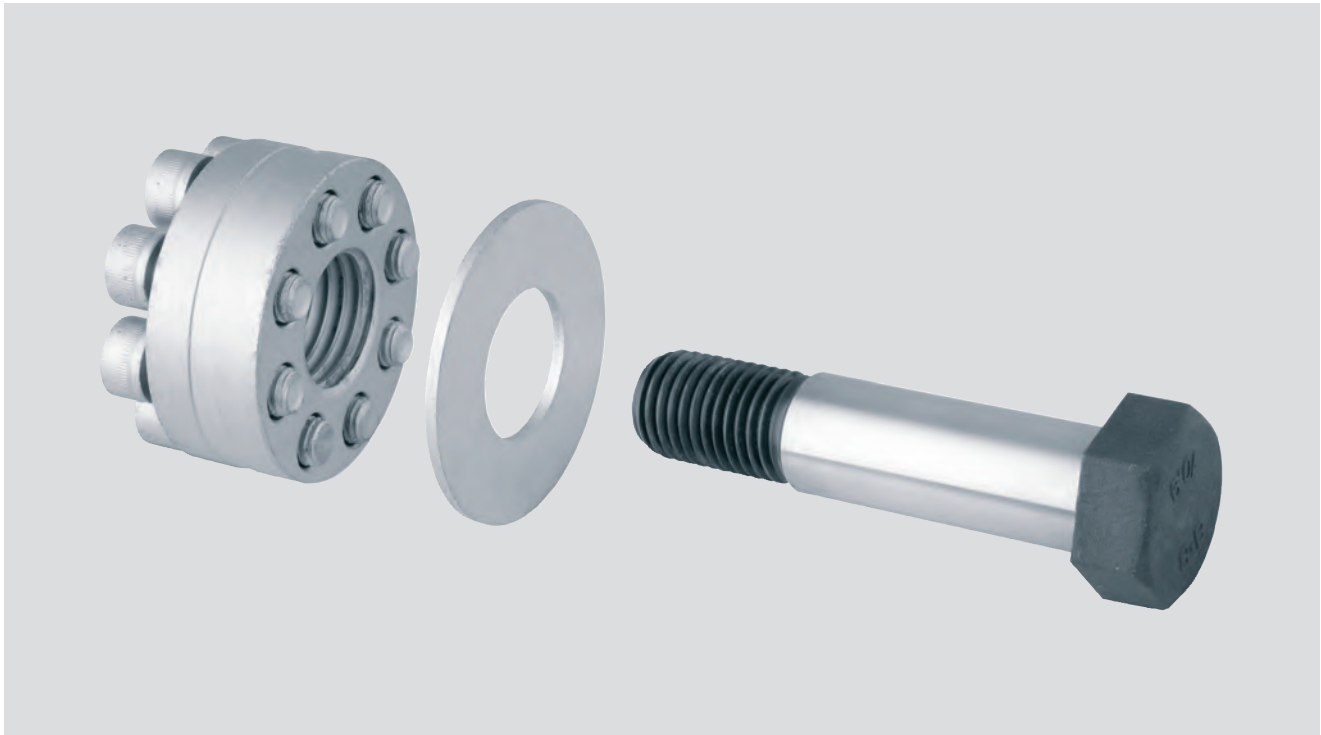
Used on 100 kNm test bench flanges



Used on couplings for wind turbines



Available as a complete unit including
dowel screw



Precision joints with plain and needle bearing series G and H according to DIN 808

Series G is provided with plain bearings, series H with needle bearings. Series H requires neither lubrication nor maintenance, since its bearings are permanently lubricated.

For low-speed applications (max. 1,000 rpm) precision joints with plain bearings (series G) are recommended. They are able to absorb shock loads, irregular rotation and relatively high torques. With high speeds, relatively low torques, reversing operation or big diffraction angles precision joints with needle bearings (series H) should be preferred. Considering the diffraction angle, they can be used up to a speed of 4,000 rpm.

The maximum diffraction angle is 45° for single joints and 90° for double joints.

Joints made of stainless steel series X according to DIN 808

Joints series X are fully made of stainless steel 1.4301. The maximum diffraction angle is 45° for single joints and 90° for double joints. The maximum permissible speed for series X is 300 rpm.

Selection criteria

The permissible torque transmission of a joint over a more or less long period considering constant and shock-free load mainly depends on the number of revolutions per minute and the diffraction angle.

The diagrammes on pages 340 - 341 were created based on such criteria.

The figures in the diagramme shall be considered as reference values referring to single joints only. With the selection of a double joint it must be considered that it is able to transmit a torque falling below that of a single joint of the same size by about 10 %. Every application has special properties, e. g. shock loads, change of direction of rotation, mass moment of inertia, start/stop operation, start-up characteristics etc. that have to be considered with the selection of the joint.

Instructions for correct assembly

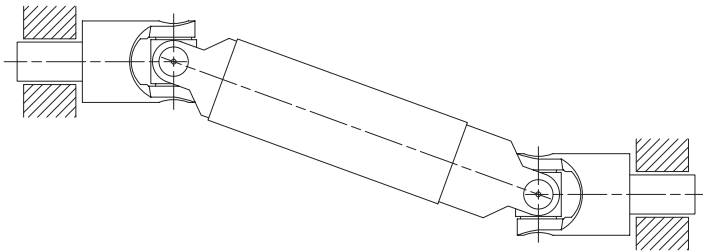


Illustration 1

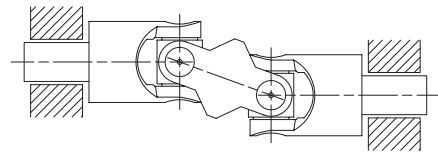


Illustration 2

In order to obtain consistent rotation between driving and driven shaft two single joints or one double joint have to be used. The bearing of the two shafts to be combined should be positioned as close as possible to the joints (see illustration 1 and 2).

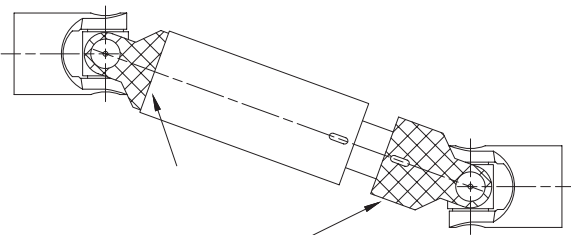


Illustration 3 (correct)

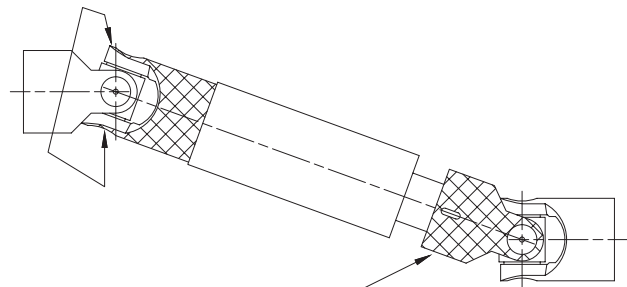


Illustration 4 (not correct)

When using two opposing single joints the identical fork position has to be observed. When using extendable joints it must be made sure that the markings applied are flush (see illustration 3 and 4).

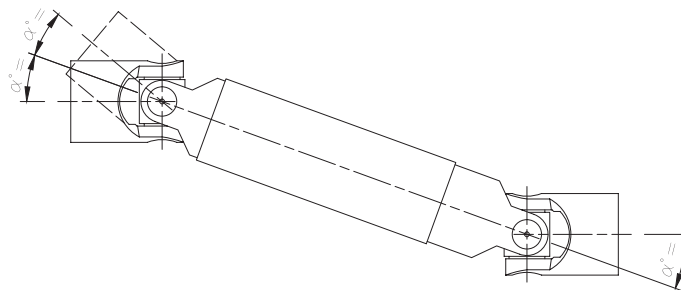
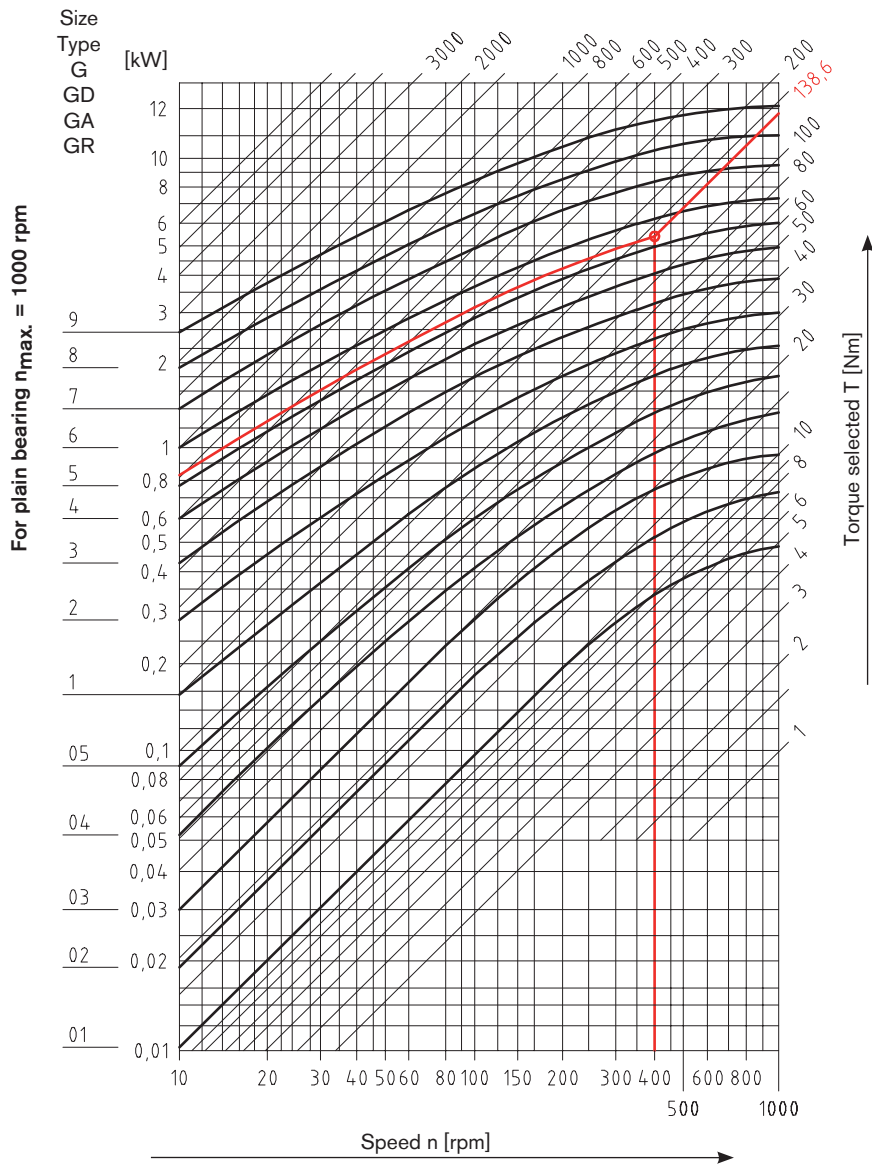


Illustration 5 (correct)

The diffraction angles α° must be identical (see illustration 5). The shafts may only be arranged in parallel or symmetrically to one another.

Selection and sizing according to DIN 808 with plain/needle bearing



Selection of type G, GD, GA, GR (max. 1000 rpm) ¹⁾

The selection of precision joints with plain bearing is based on the driving torque considering a correction factor which depends on the diffraction angle α and the operating speed.

For extendable joints the overall length and the speed need to be additionally considered for sizing (please consult with KTR).

$$\text{Driving torque } M_t \text{ [Nm]} = 9550 \cdot \frac{\text{Power [kW]}}{\text{Speed [rpm]}}$$

$$\text{Torque selected } T \text{ [Nm]} = \text{driving torque} \cdot \text{correction factor}$$

Additional review:

$$\text{Diffraction angle } [\alpha] \cdot \text{speed [rpm]} \leq 40,000$$

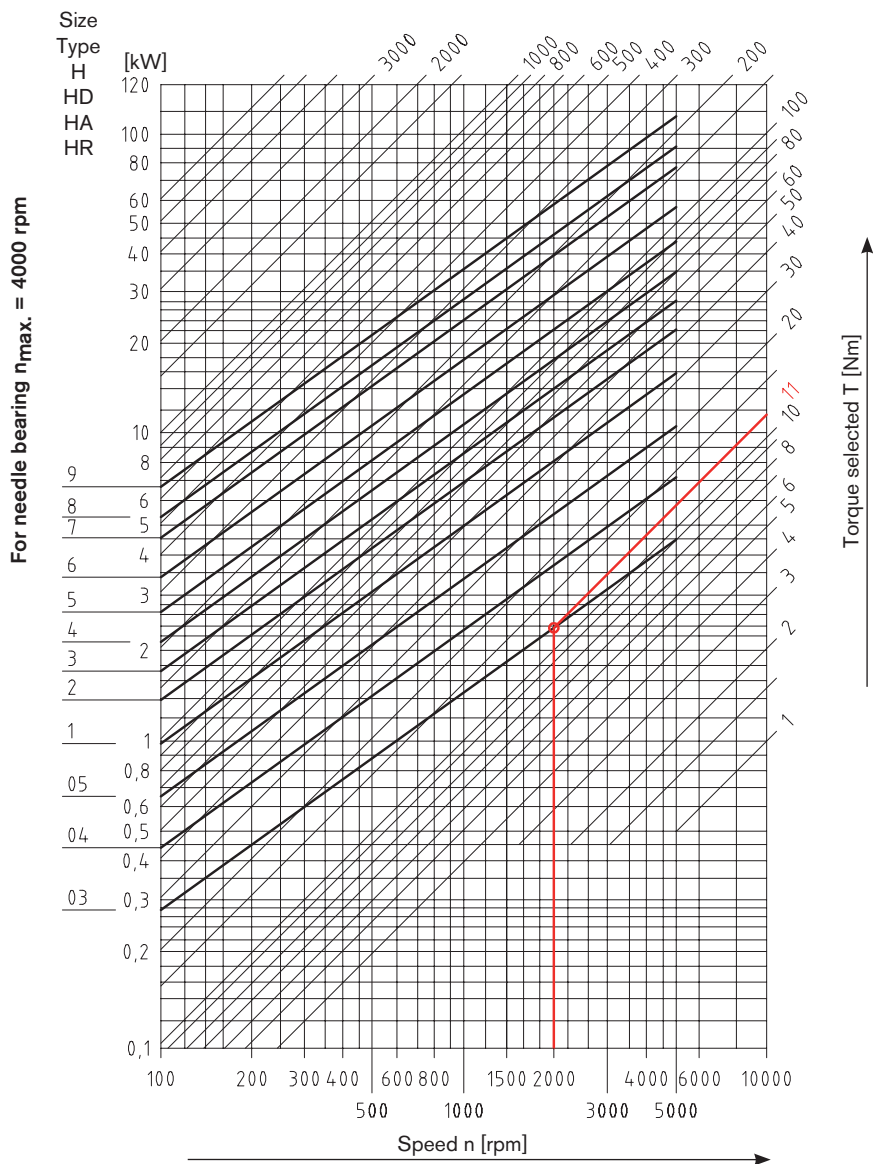
Diffraction angle $[\alpha]$	5°	10°	15°	20°	25°	30°	35°	40°	45°
Correction factor	0.8	1.00	1.25	1.5	1.8	2.2	2.6	3.3	4.0

Details given:

Driving torque M_t 63 Nm
 Diffraction angle 30° → Correction factor for diffraction angle 2.2
 Operating speed 400 rpm

$$\text{Torque selected } T \text{ [Nm]} = 63 \text{ Nm} \cdot 2.2 \rightarrow 138.6 \text{ Nm}$$

Selection based on table: [joint size 6](#)



CLAMPEX®

Clamping nuts

Selection of type H, HD, HA, HR (max. 4000 rpm) ¹⁾

The selection of precision joints with needle bearing is based on the driving torque considering a correction factor which depends on the diffraction angle α and the operating speed.

For extendable joints the overall length and the speed need to be additionally considered for sizing (please consult with KTR).

$$\text{Driving torque } M_t \text{ [Nm]} = 9550 \cdot \frac{\text{Power [kW]}}{\text{Speed [rpm]}}$$

$$\text{Torque selected } T \text{ [Nm]} = \text{driving torque} \cdot \text{correction factor}$$

Additional review:

$$\text{¹⁾ Diffraction angle } [\text{°}] \cdot \text{speed [rpm]} \leq 40,000$$

Diffraction angle α	5°	10°	15°	20°	25°	30°	35°	40°	45°
Correction factor	0.8	1.00	1.1	1.25	1.4	2.0	2.5	3.3	4.0

Details given:

Driving torque M_t

8.8 Nm

Diffraction angle

20°

→ Correction factor for diffraction angle 1.25

Operating speed

2000 rpm

$$\text{Torque selected } T \text{ [Nm]} = 8.8 \text{ Nm} \cdot 1.25 \rightarrow 11 \text{ Nm}$$

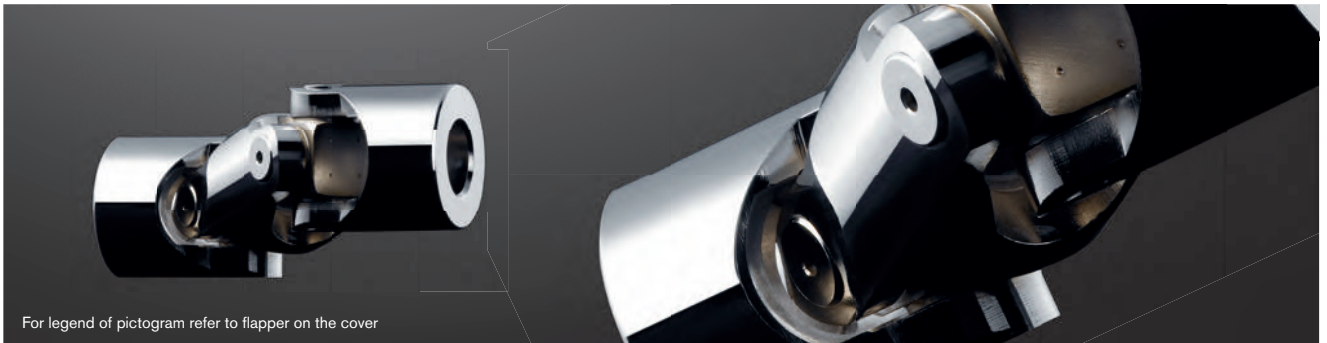
Selection based on table: [joint size 03](#)

KTR Precision joints

Clamping sets

KTR Precision joints type G and GD

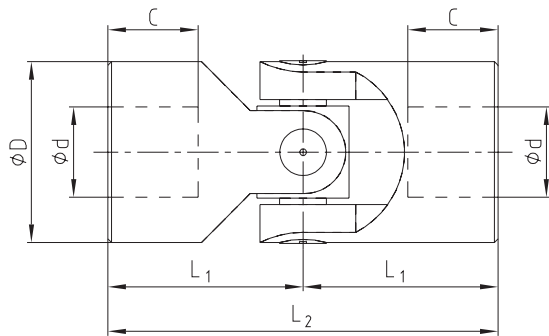
According to DIN 808 with plain bearing



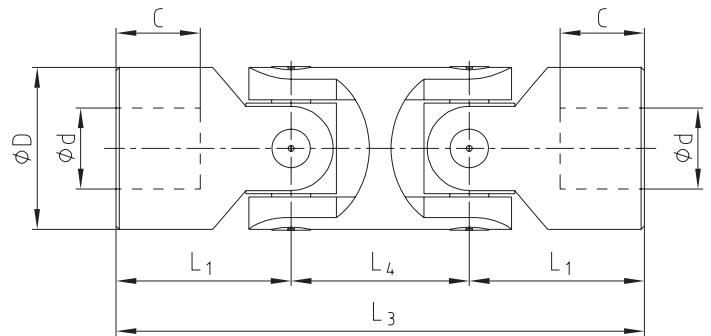
For legend of pictogram refer to flapper on the cover



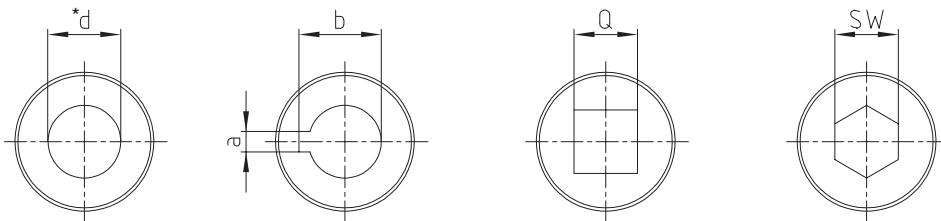
Precision single joint G



Precision double joint GD



Bore options:



* Standard type of bore, unless differently inquired/ordered

Types and size				Type G and GD											Weight [kg]	
Size G	DIN designation G	Size GD	DIN designation GD	d (H7)	D	L ₂	L ₁	C	L ₄	L ₃	a (JS9)	b	Q (H10)	SW (H10)	G	GD
01 G	E6 x 16-G	01 GD	D6 x 16-G	6	16	34	17	8	22	56	2	7.0	6	6	0.05	0.08
02 G	E8 x 16-G	02 GD	D8 x 16-G	8	16	40	20	11	22	62	2	9.0	8	8	0.05	0.08
03 G	E10 x 22-G	03 GD	D10 x 22-G	10	22	48	24	12	26	74	3	11.4	10	10	0.10	0.15
04 G	E12 x 25-G	04 GD	D12 x 25-G	12	25	56	28	13	30	86	4	13.8	12	12	0.16	0.25
05 G	E14 x 28-G	05 GD	D14 x 28-G	14	28	60	30	14	36	96	5	16.3	14	14	0.20	0.40
1 G	E16 x 32-G	1 GD	D16 x 32-G	16	32	68	34	16	37	105	5	18.3	16	16	0.30	0.45
2 G	E18 x 36-G	2 GD	D18 x 36-G	18	36	74	37	17	40	114	6	20.8	18	18	0.45	0.70
3 G	E20 x 42-G	3 GD	D20 x 42-G	20	42	82	41	18	47	129	6	22.8	20	20	0.60	1.00
4 G	E22 x 45-G	4 GD	D22 x 45-G	22	45	95	47.5	22	50	145	6	24.8	22	22	0.95	1.55
5 G	E25 x 50-G	5 GD	D25 x 50-G	25	50	108	54	26	55	163	8	28.3	25	25	1.20	2.00
6 G	E30 x 58-G	6 GD	D30 x 58-G	30	58	122	61	29	68	190	8	33.3	30	30	1.85	2.90
6 G1	E32 x 58-G	6 GD1	D32 x 58-G	32	58	130	65	33	68	198	10	35.3	30	30	2.00	3.00
7 G	E35 x 70-G	7 GD	D35 x 70-G	35	70	140	70	33	72	212	10	38.3	-	-	3.15	4.75
8 G	E40 x 80-G	8 GD	D40 x 80-G	40	80	160	80	38	85	245	12	43.3	-	-	4.60	7.20
9 G	E50 x 95-G	9 GD	D50 x 95-G	50	95	190	95	46	100	290	14	53.8	-	-	7.60	12.0

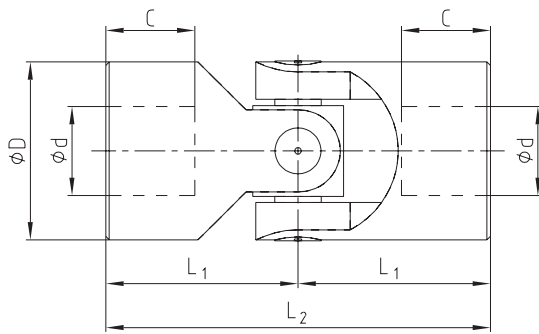
Ordering example:	04 G	Ø12	Ø12 keyway to DIN
	Size and type of joint	Finish bore (H7)	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)

KTR Precision joints type H and HD

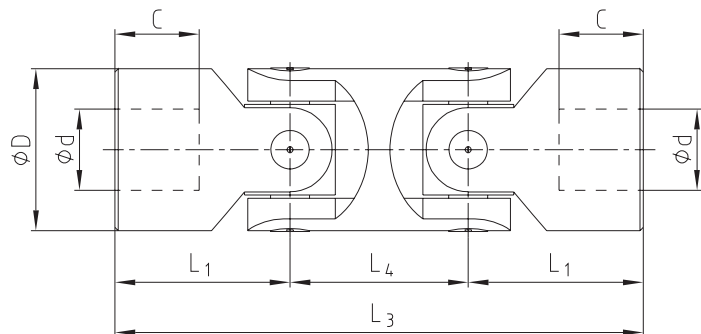
According to DIN 808 with needle bearing



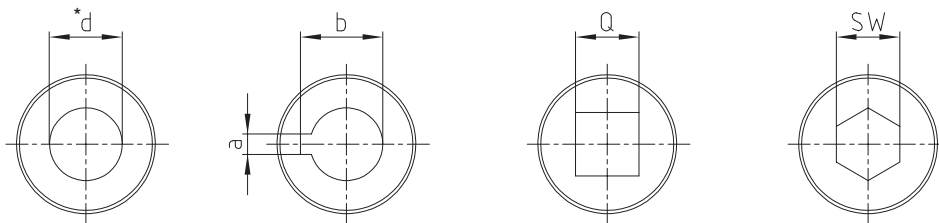
Precision single joint type H



Precision double joint type HD



Bore options:



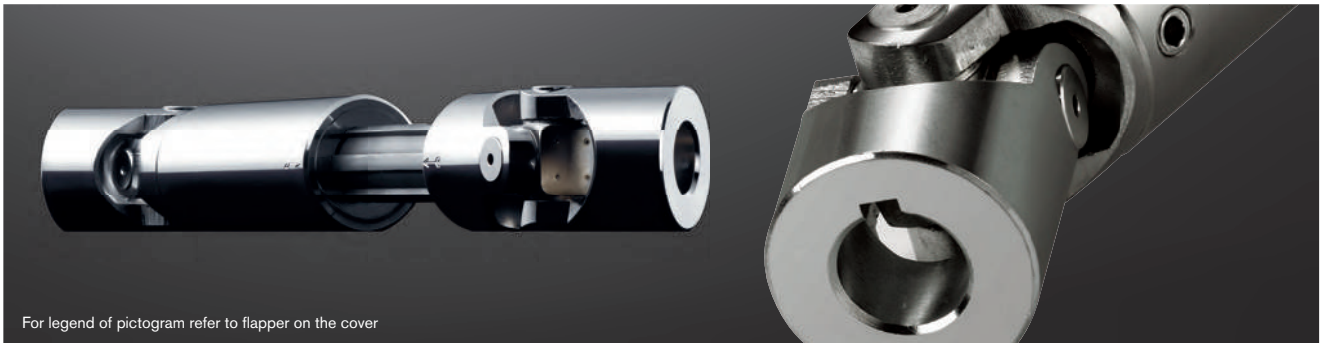
* Standard type of bore, unless differently inquired/ordered

Type H and HD																
Types and size				Dimensions [mm]										Weight [kg]		
Size H	DIN designation H	Size HD	DIN designation HD	d (H7)	D	L ₂	L ₁	C	L ₄	L ₃	a (JS9)	b	Q (H10)	SW (H10)	H	HD
03 H	E10 x 22-W	03 HD	D10 x 22-W	10	22	48	24	12	26	74	3	11.4	10	10	0.10	0.15
04 H	E12 x 25-W	04 HD	D12 x 25-W	12	25	56	28	13	30	86	4	13.8	12	12	0.16	0.25
05 H	E14 x 28-W	05 HD	D14 x 28-W	14	28	60	30	14	36	96	5	16.3	14	14	0.20	0.40
1 H	E16 x 32-W	1 HD	D16 x 32-W	16	32	68	34	16	37	105	5	18.3	16	16	0.30	0.45
2 H	E18 x 36-W	2 HD	D18 x 36-W	18	36	74	37	17	40	114	6	20.8	18	18	0.45	0.70
3 H	E20 x 42-W	3 HD	D20 x 42-W	20	42	82	41	18	47	129	6	22.8	20	20	0.60	1.00
4 H	E22 x 45-W	4 HD	D22 x 45-W	22	45	95	47.5	22	50	145	6	24.8	22	22	0.95	1.55
5 H	E25 x 50-W	5 HD	D25 x 50-W	25	50	108	54	26	55	163	8	28.3	25	25	1.20	2.00
6 H	E30 x 58-W	6 HD	D30 x 58-W	30	58	122	61	29	68	190	8	33.3	30	30	1.85	2.90
6 H1	E32 x 58-W	6 HD1	D32 x 58-W	32	58	130	65	33	68	198	10	35.3	30	30	2.00	3.00
7 H	E35 x 70-W	7 HD	D35 x 70-W	35	70	140	70	33	72	212	10	38.3	-	-	3.15	4.75
8 H	E40 x 80-W	8 HD	D40 x 80-W	40	80	160	80	38	85	245	12	43.3	-	-	4.60	7.20
9 H	E50 x 95-W	9 HD	D50 x 95-W	50	95	190	95	46	100	290	14	53.8	-	-	7.60	12.0

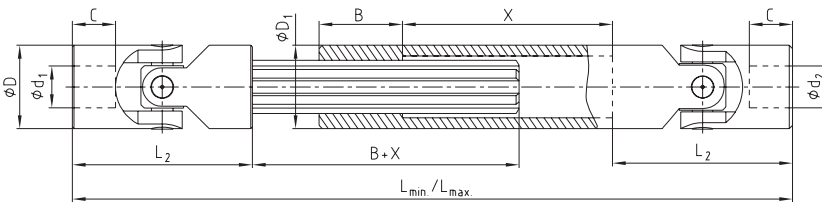
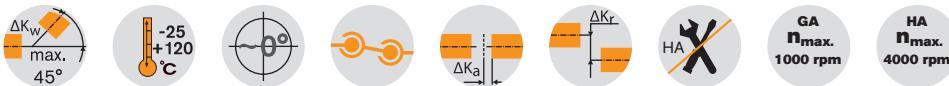
Ordering example:	1 H	Ø16	Ø16 keyway to DIN
	Size and type of joint	Finish bore (H7)	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)

KTR Precision joints type GA and HA

According to DIN 808 with plain and needle bearing (extendable)

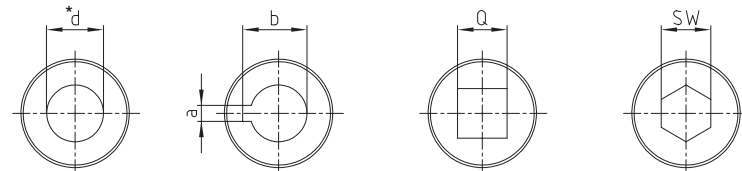


For legend of pictogram refer to flapper on the cover



Preferred lengths									
Size	Dimensions [mm]								
	L _{min.} / L _{max.}								
03	140	160	180	230					
	170	200	240	330					
04	160	180	200	220	250	280	300		
	190	225	270	300	355	420	450		
05	170	180	200	220	250	280	300	350	400
	200	220	260	300	350	420	450	550	650
1	190	210	240	250	275	300	380	400	
	220	250	320	350	390	430	590	630	
2	230	250	270	290	300	400	500		
	280	320	370	400	415	620	820		
3	250	270	290	320	380	420	500		
	300	340	380	440	560	640	800		
4	250	270	290	330	350	470			
	280	320	350	430	470	710			
5	295	310	350	380	420	460	500		
	345	375	450	500	590	660	745		
6	330	350	370	400	450	500	540		
	380	420	455	510	620	720	795		

Bore options:



* Standard type of bore, unless differently inquired/ordered

Type GA with plain bearing n _{max.} = 1000 rpm and type HA with needle bearing n _{max.} = 4000 rpm													
Size		Dimensions [mm]											
GA	HA	d ₁ , d ₂ (H7)	D	L ₂	C	L _{min.} / L _{max.} / X	B	a (JS9)	b	Q (H10)	SW (H10)	Spline shaft	D ₁
01 GA	-	6	16	34	8	← →	25	2	7.0	6	6	SW8	16
02 GA	-	8	16	40	11	← →	25	2	9.0	8	8	SW8	16
03 GA	03 HA	10	22	48	12	← →	30	3	11.4	10	10	11 x 14 Z6	22
04 GA	04 HA	12	25	56	13	← →	40	4	13.8	12	12	13 x 16 Z6	26
05 GA	05 HA	14	28	60	14	← →	40	5	16.3	14	14	13 x 16 Z6	29
1 GA	1 HA	16	32	68	16	← →	40	5	18.3	16	16	16 x 20 Z6	32
2 GA	2 HA	18	36	74	17	← →	40	6	20.8	18	18	18 x 22 Z6	37
3 GA	3 HA	20	42	82	18	← →	45	6	22.8	20	20	21 x 25 Z6	42
4 GA	4 HA	22	45	95	22	← →	45	6	24.8	22	22	23 x 28 Z6	47
5 GA	5 HA	25	50	108	26	← →	45	8	28.3	25	25	26 x 32 Z6	52
6 GA	6 HA	30	58	122	29	← →	50	8	33.3	30	30	32 x 38 Z8	58
7 GA	7 HA	35	70	140	33	← →	70	10	38.3	-	-	36 x 42 Z8	70
8 GA	8 HA	40	80	160	38	← →	80	12	43.3	-	-	42 x 48 Z8	80
9 GA	9 HA	50	95	190	46	← →	90	14	53.8	-	-	46 x 54 Z8	95

Calculation of mounting lengths L and X (stroke)

$$\text{Stroke } X \geq \frac{L_{\max.} - 2 \cdot L_2 - B}{2}$$

$$L_{\min.} \geq \frac{L_{\max.} + 2 \cdot L_2 + B}{2}$$

$$\text{Minimum size } L_{\min.} = L_2 + B + X + L_2$$

Ordering example:	3 GA	d ₁ = Ø20	d ₂ = Ø20 keyway to DIN	550/650
	Size and type of joint	Finish bore (H7)	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)	Mounting length L _{min.} /L _{max.}

KTR Precision joints type X and XD

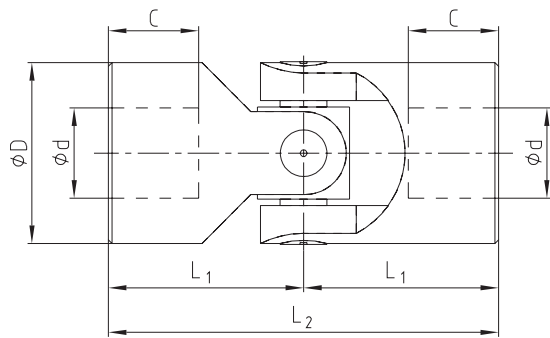
According to DIN 808 with plain bearing made of stainless steel 1.4301



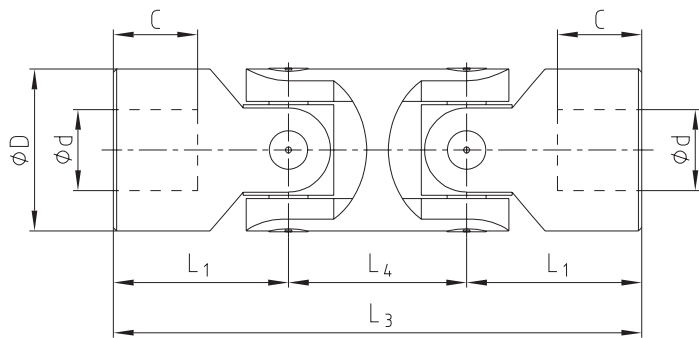
For legend of pictogram refer to flapper on the cover



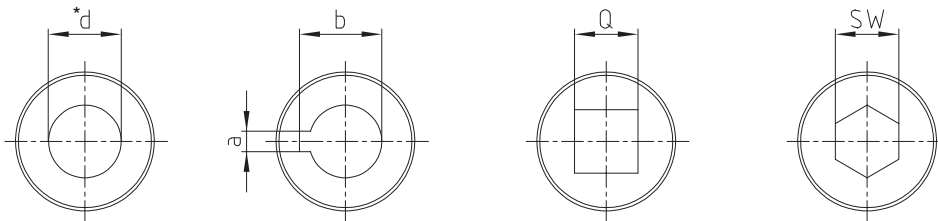
Precision single joint X



Precision double joint XD



Bore options:



* Standard type of bore, unless differently inquired/ordered

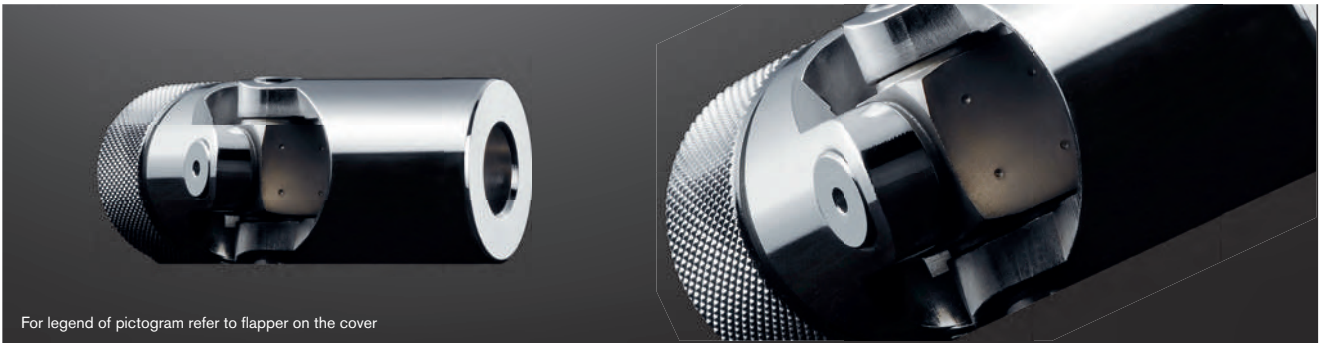
Type X and XD																
Types and size				Dimensions [mm]											Weight [kg]	
Size X	DIN designation X	Size XD	DIN designation XD	d (H7)	D	L ₂	L ₁	C	L ₄	L ₃	a (JS9)	b	Q (H10)	SW (H10)	X	XD
01 X	E6 x 16-G	01 XD	D6 x 16-G	6	16	34	17	8	22	56	2	7.0	6	6	0.05	0.08
02 X	E8 x 16-G	02 XD	D8 x 16-G	8	16	40	20	11	22	62	2	9.0	8	8	0.05	0.08
03 X	E10 x 22-G	03 XD	D10 x 22-G	10	22	48	24	12	26	74	3	11.4	10	10	0.10	0.15
04 X	E12 x 25-G	04 XD	D12 x 25-G	12	25	56	28	13	30	86	4	13.8	12	12	0.16	0.25
05 X	E14 x 28-G	05 XD	D14 x 28-G	14	28	60	30	14	36	96	5	16.3	14	14	0.20	0.40
1 X	E16 x 32-G	1 XD	D16 x 32-G	16	32	68	34	16	37	105	5	18.3	16	16	0.30	0.45
3 X	E20 x 42-G	3 XD	D20 x 42-G	20	42	82	41	18	47	129	6	22.8	20	20	0.60	1.00
5 X	E25 x 50-G	5 XD	D25 x 50-G	25	50	108	54	26	55	163	8	28.3	25	25	1.20	2.00
6 X	E30 x 58-G	6 XD	D30 x 58-G	30	58	122	61	29	68	190	8	33.3	30	30	1.85	2.90

Ordering example:

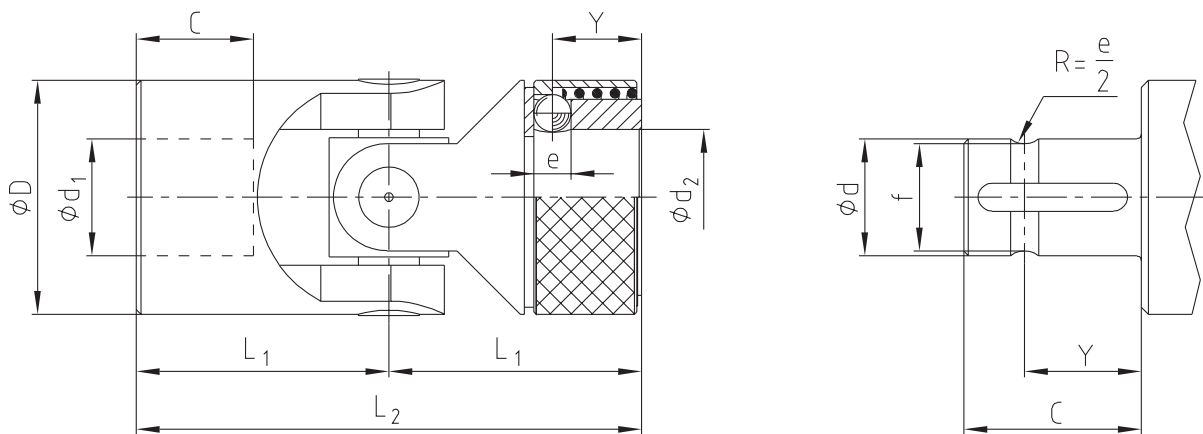
04 X	Ø12	Ø12 keyway to DIN
Size and type of joint	Finish bore (H7)	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)

KTR Precision joints type GR and HR

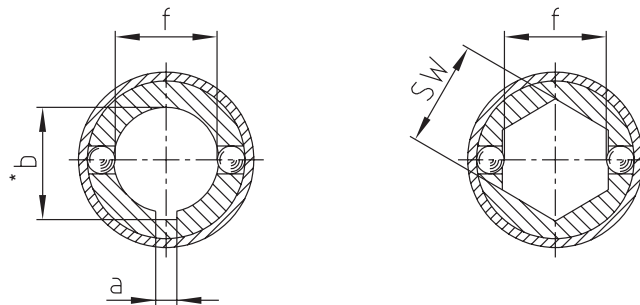
Plain and needle bearing with quick locking



For legend of pictogram refer to flapper on the cover



Bore options:



* Standard type of bore of quick locking, unless differently inquired/ordered

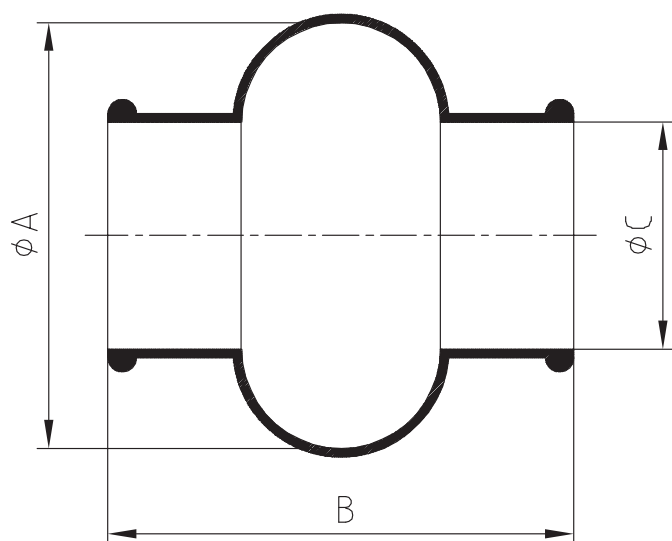
Type GR with plain bearing $n_{max.} = 1000$ rpm and type HR with needle bearing $n_{max.} = 4000$ rpm

Size		Dimensions [mm]											Weight [kg]
GR	HR	d_1, d_2 (H7)	D	L_2	L_1	C	Y	e	f	a (JS9)	b	SW (H10)	
02 GR	-	8	16	52	26	14	9.5	3.5	6.3	2	9.0	8	0.05
03 GR	03 HR	10	22	62	31	17	11.5	4.0	8.7	3	11.0	10	0.12
04 GR	04 HR	12	25	74	37	21	13.5	4.0	11.0	4	13.3	12	0.19
05 GR	05 HR	14	25	74	37	21	13.5	4.0	13.0	5	15.3	14	0.17
1 GR	1 HR	16	32	86	43	24	14.0	6.35	14.8	5	18.3	16	0.34
2 GR	2 HR	18	36	96	48	28	19.0	8.0	16.0	6	20.8	18	0.48
3 GR	3 HR	20	42	108	54	31	19.0	8.0	18.0	6	22.8	20	0.76
4 GR	4 HR	22	45	120	60	34	20.5	10.0	20.0	6	24.8	22	0.97
5 GR	5 HR	25	50	132	66	38	20.5	10.0	23.0	8	28.3	25	1.3
6 GR	6 HR	30	58	166	83	49	25.0	10.0	28.0	8	33.3	30	2.13

Ordering example:

03 HR	$d_1 = \text{Ø}10$	$d_2 = \text{Ø}10$ keyway to DIN
Size and type of joint	Finish bore (H7)	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)

Protection bushings



CLAMPEX®

Clamping nuts

Protection bushings				
Size	Precision joints	A	B	C
M 01	01 G, 01 X	28	34	15
M 02	02 G, 02 X, 02 GR	32	40	16.5
M 03	03 G, 03 H, 03 GA, 03 HA, 03 X, 03 GR, 03 HR	40	45	20.5
M 04	04 G, 04 H, 04 GA, 04 HA, 04 X, 04 GR, 04 HR	48	50	24.5
M 05	05 G, 05 H, 05 GA, 05 HA, 05 GR, 05 HR	52	56	27.5
M 1	1 G, 1 H, 1 GA, 1 HA, 1 X, 1 GR, 1 HR	56	65	30.5
M 2	2 G, 2 H, 2 GA, 2 HA, 2 GR, 2 HR	66	72	35.5
M 3	3 G, 3 H, 3 GA, 3 HA, 3 X, 3 GR, 3 HR	75	82	40.0
M 4	4 G, 4 H, 4 GA, 4 HA, 4 GR, 4 HR	84	95	45.0
M 5	5 G, 5 H, 5 GA, 5 HA, 5 X, 5 GR, 5 HR	92	108	50.0
M 6	6 G, 6 G1, 6 H, 6 H1, 6 GA, 6 HA, 6 X, 6GR, 6 HR	100	122	56.0

KTR Precision joints

Clamping sets



Torque measuring technology

Torque measuring shafts
Types and operating description 350

DATAFLEX®

Type 16/10, 16/30, 16/50 352
Type 32/100, 32/300, 32/500 354
Type 42/1000 356
Type 70/3000, 70/5000 358
Type 110/10000, 110/20000 360
Connection accessories 361

Torque measuring coupling hub

MONITEX® BT

Type 28/200 362
Type 42/800 364
DAC – analog output 364

DATAFLEX® 16



DATAFLEX® 32



DATAFLEX® 42



DATAFLEX® 70



DATAFLEX® 110



MONITEX® BT 28/200



MONITEX® BT 42/800



TORQUE MEASURING TECHNOLOGY TYPES AND OPERATING DESCRIPTION

Properties of torque measuring shafts

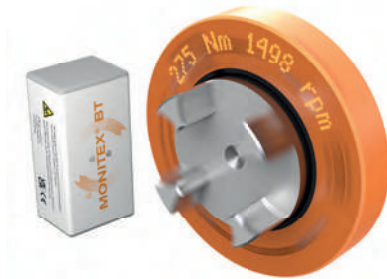
DATAFLEX® 16, 32, 42, 70, 110 – Dual-range measuring shaft providing for high precision



The KTR torque sensors type DATAFLEX® 16 to DATAFLEX® 110 cover a torque range from 10 Nm to 20,000 Nm.

The torque is measured using the approved technology of DMS wire strain gauges while processing contactlessly with a resolution of 24 bits. Thus, the inaccuracy of torque measuring is reduced to less than 0.1 % of the measuring range. By integrating a high-resolution speed sensor the new series combines four measurements in one: Measuring the torque, speed, rotation angle and rotation direction is part of the standard equipment. A new feature is the option to switch the measuring range of each measuring shaft to one fifth of the rated torque. This option allows to measure smaller torques precisely without changing the design.

MONITEX® BT 28/200, 42/800 – Torque measuring coupling hub



MONITEX® BT is a ROTEX® GS coupling hub with an integrated measuring system for measuring torque and speed. Subject to its short design the system can replace a standard ROTEX® hub in many cases while easy to assemble.

The inductive energy supply is implemented by an inductive head that is fitted radially to the coupling with a maximum distance of 10 mm. As soon as the system is switched on, the measured torque and speed data are sent by the MONITEX® BT via bluetooth and can be received by a smartphone, a tablet or a PC via the free MONITEX® BT app. Besides a digital-to-analog converter is available displaying the torque and speed data as voltage (± 10 V) and simultaneously as current (4-20 mA) (e. g. for existing controls).

Customised solutions and special designs



Besides KTR precision measuring shafts KTR manufactures and calibrates customised measuring shafts for measuring ranges up to 500 kNm. In this context key parameters such as measuring range, size, length and coupling type can be adjusted to the specifications. The torque is measured contactlessly so that bearings are not required.

Apart from customised torque sensors KTR provides special solutions with couplings equipped with torque measuring technology so that the design does not have to be modified.

TORQUE MEASURING TECHNOLOGY TYPES AND OPERATING DESCRIPTION

Product finder of torque measuring shafts

Product	DATAFLEX® 16	DATAFLEX® 32	DATAFLEX® 42	DATAFLEX® 70	DATAFLEX® 110	MONITEX® BT 28/200	MONITEX® BT 42/800	customised
maintenance-free	●	●	●	●	●	●	●	●
For rotating applications	●	●	●	●	●	●	●	●
Dual-range measuring shaft	●	●	●	●	●	-	-	-
Measuring range 1 T_{KN} [Nm]	10, 30, 50	100, 300, 500	1000	3000, 5000	10000, 20000	200	800	up to 500000
Measuring range 2 T_{KN2} [Nm]	2, 6, 10	20, 60, 100	200	600, 1000	2000, 4000	-	-	-
Inaccuracy (% of T_{KN}/T_{KN2})	< 0.1/0.2	< 0.1/0.2	< 0.1/0.2	< 0.1/0.2	< 0.1/0.2	< 0.25	< 0.25	< 0.2
Torque output	-10 ... 10 V	-10 ... 10 V	-10 ... 10 V	-10 ... 10 V	-10 ... 10 V	Bluetooth, App, PC, -10 ... 10 V, 4 ... 20 mA ¹⁾		-10 ... 10 V, 4 ... 20 mA
Speed output								
Square-wave signal [pulses/rev.]	2 x 360	2 x 720	2 x 720	2 x 450	2 x 720	-	-	-
DC - direct voltage signal [0 ... 10V]	●	●	●	●	●	● ¹⁾	● ¹⁾	-
Direction signal	●	●	●	●	●	-	-	-
Maximum speed [rpm]	10,000	7,500	6,500	4,000	3,000	3500	3500	miscellaneous
Recommended coupling	RADEX®-NC 21, 26	RADEX®-NC 36 RADEX®-N 60	RADEX®-N 80	RADEX®-N 90, 115	as specified	ROTEX® GS 28	ROTEX® GS 42	as specified
Connection housing DF2	●	●	●	●	●	-	-	-

¹⁾ With DAC (digital-to-analog converter)

DATAFLEX® Connection housing DF2

(see page 361)



The connection housing DF2 can easily be combined with all DATAFLEX® torque measuring shafts disposing of a retainer for top hat rail assembly as well as terminal screws for an easy connection of external devices.

The following features save the purchase of expensive measuring amplifiers and converters:

- The torque output can be filtered over 5 steps so that short torque peaks in the display can be reduced.
- The pulsed outputs of the speed signals can be configured both for 5 V (TTL) and 24 V (HTL) controls. This makes the outputs compatible with data logging boards and SPS controls.
- In parallel with the pulse signal an integrated frequency voltage converter supplies a DC voltage from 0 – 10 V proportionally to the speed, the scaling of which can be individually adapted. This makes an expensive counter superfluous so that the signal can either be processed as a voltage or displayed.
- A direction signal indicates the rotational direction of the drive (with DATAFLEX® 16, 32, 42, 70 and 110).

MONITEX® BT DAC - Analog outputs

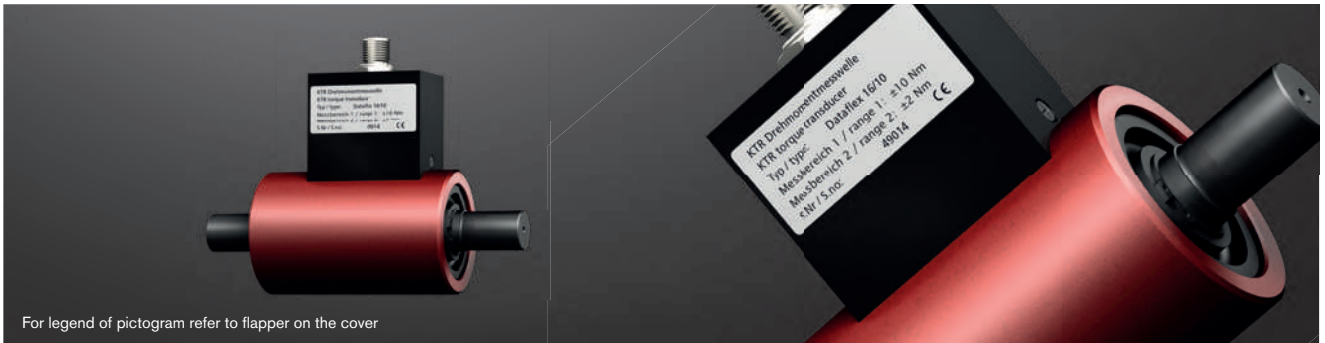
(see page 364)



The DAC connects to the torque measuring MONITEX® BT coupling hub displaying the data for torque and speed as analog voltage and current. The DAC allows for integrating the MONITEX® BT torque and speed data in the control systems.

DATAFLEX® 16/10, 16/30, 16/50 DUAL-RANGE TORQUE SENSOR

for torques up to 50 Nm



For legend of pictogram refer to flapper on the cover



General properties

DATAFLEX® type	Measuring range 1 T_{KN1} [Nm]	Measuring range 2 T_{KN2} [Nm]	Supply voltage [V]	Current consumption [mA]	Operating temperature range [°C]
16/10	-10 ... +10	-2 ... +2	24 ±4	<100	0 ... 55
16/30	-30 ... +30	-6 ... +6			
16/50	-50 ... +50	-10 ... +10			

Technical data of torque signal

Technical data of speed signal

DATAFLEX® type	Inaccuracy [%] ^{1), 2), 3)}	Output voltage [V]	Bandwidth [kHz]	Influence of temperature ¹⁾ [%/10 °C]	Resolution [pulses/rev.]	Number of channels	Square-wave signal ⁴⁾ [Vss]	Direct voltage signal ⁴⁾ [V]	Direction signal ⁴⁾ [V]
16/10									
16/30	<0.1/0.2	-10 ... 10	2	0.05	360	2, 90° offset	5/24	0 ... 10, scalable	5/24
16/50									

Mechanical data of torque measuring shaft

DATAFLEX® type	Static load limit ¹⁾ $T_{K \max}$ [%]	Breaking load $T_{K \text{ break}}$ ¹⁾ [%]	Max. bending torque [Nm]	Max. radial force [N]	Max. axial force [kN]	Weight [kg]	Torsion spring stiffness C_T [Nm/rad]	Torsion angle with T_{KN} [°]	Mass moment of inertia [kgmm ²]	Max. speed ⁵⁾ [rpm]
16/10			1.07	12	1.1		910	0.63		
16/30	150	300	3.2	37	2.3	0.7	2840	0.61	22.6	10000
16/50			5.3	61	3.1		4100	0.7		

Mechanical data of combination of DATAFLEX® 16 and RADEX®-NC

DATAFLEX® type	Coupling			Mechanical data of combination			
	RADEX®-NC size	Clamping screw M		Mass moment of inertia [kgmm ²]	Torsion spring stiffness C_T [Nm/rad]	Weight [kg]	Max. speed ⁵⁾ [rpm]
		M	T_A [Nm]				
16/10	21	M6	10	323	2500	1.30	10000
16/30							
16/50							

¹⁾ Referring to T_{KN}

²⁾ Referring to T_{KN2}

³⁾ Error in linearity incl. hysteresis

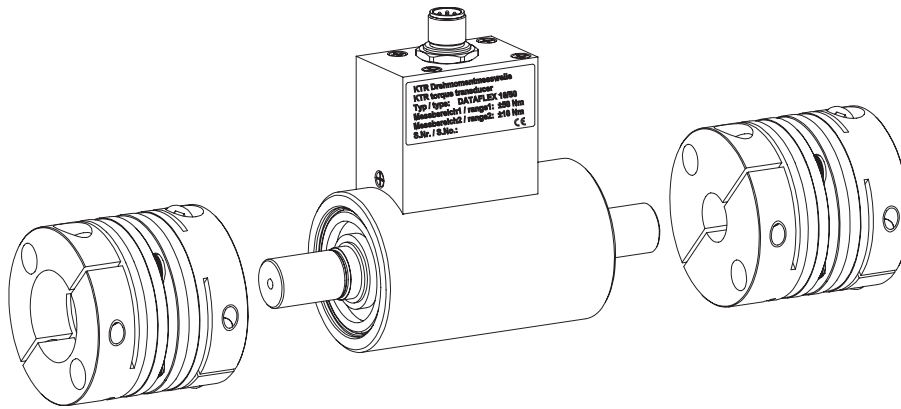
⁴⁾ See page 361: with connection housing DF2

⁵⁾ Using RADEX®-NC 3.5 hubs, with other couplings 7500 rpm.

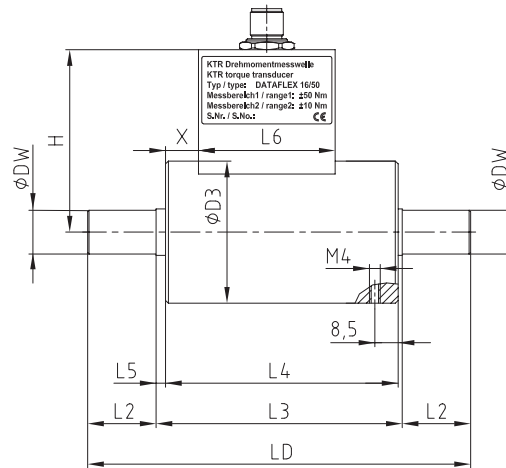
Ordering example:

DATAFLEX® 16/30	DF2	2 m, 5 m and 10 m	RADEX®-NC 21 EK Ø16/20-Ø16/30
Type of measuring shaft with measuring range	Connection housing (is required)	Connection cable	If any accessories are requested: coupling type, finish bores D/DW

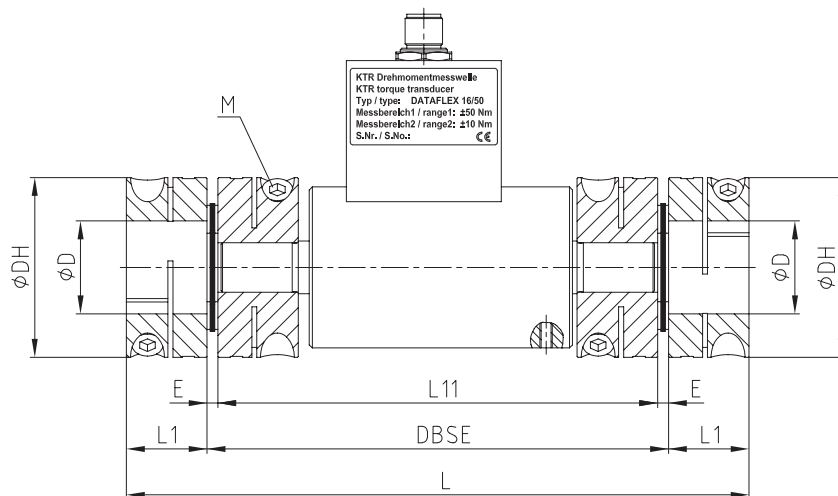
Components



DATAFLEX® 16



Combination of DATAFLEX® 16 with RADEX®-NC



Dimensions [mm] of torque measuring shaft and combination with RADEX®-NC HT couplings

DATAFLEX® type	DW	D3	LD	L2	L3	L4	L5	L6	H	X	RADEX®-NC size	DH	D _{max}	DBSE	L	L1	L11	E
16/10											21	58	30	149	201	26	142	3.5
16/30	16	52	140	25	90	85	3.5	50	67	12	26	69	38	166	232	33	156	5.0
16/50																		

DATAFLEX® 32/100, 32/300, 32/500 DUAL-RANGE TORQUE SENSOR

for torques up to 500 Nm



General properties

DATAFLEX® type	Measuring range 1 T _{KN} [Nm]	Measuring range 2 T _{KN2} [Nm]	Supply voltage [V]	Current consumption [mA]	Operating temperature range [°C]
32/100	-100 ... +100	-20 ... +20	24 ± 4	< 100	0 ... 55
32/300	-300 ... +300	-60 ... +60			
32/500	-500 ... +500	-100 ... +100			

Technical data of torque signal

DATAFLEX® type	Inaccuracy (% of T _{KN} /T _{KN2}) ^{1), 2), 3)}	Output voltage [V]	Bandwidth [kHz]	Influence of temperature ¹⁾ [%/10 °C]	Resolution [pulses/rev.]	Number of channels	Square-wave signal ⁴⁾ [V _{ss}]	Direct voltage signal ⁴⁾ [V]	Direction signal ⁴⁾ [V]
32/100									
32/300	< 0.1/0.2	-10 ... 10	2	0.05	720	2, 90° offset	5/24	0 ... 10, scalable	5/24
32/500									

Mechanical data of torque measuring shaft

DATAFLEX® type	Static load limit ¹⁾ T _{K max} [%]	Breaking load T _{K break} ¹⁾ [%]	Max. bending torque [Nm]	Max. radial force [N]	Max. axial force [kN]	Weight [kg]	Torsion spring stiffness C _T [Nm/rad]	Torsion angle with T _{KN} [°]	Mass moment of inertia [kgmm ²]	Max. speed ⁵⁾ [rpm]
32/100			11	110	5.0		18000	0.32	219	
32/300	150	300	32	320	10.4	1.9	46000	0.37	221	7500
32/500			53	530	14.6		60000	0.48	224	

Mechanical data of combination of DATAFLEX® 32 and RADEX®-NC

DATAFLEX® type	Coupling				Mechanical data of combination			
	RADEX®-NC/RADEX®-N size	Setscrew/clamping screw			Mass moment of inertia [kgmm ²]	Torsion spring stiffness C _T [Nm/rad]	Weight [kg]	Max. speed ⁵⁾ [rpm]
		G	T	T _A [Nm]				
32/100	RADEX®-NC 36	M10	-	49	1097	15800	3.80	7500
32/300						40000	11.65	
32/500	RADEX®-N 60	M8	20	10	17900	49000	11.70	6700

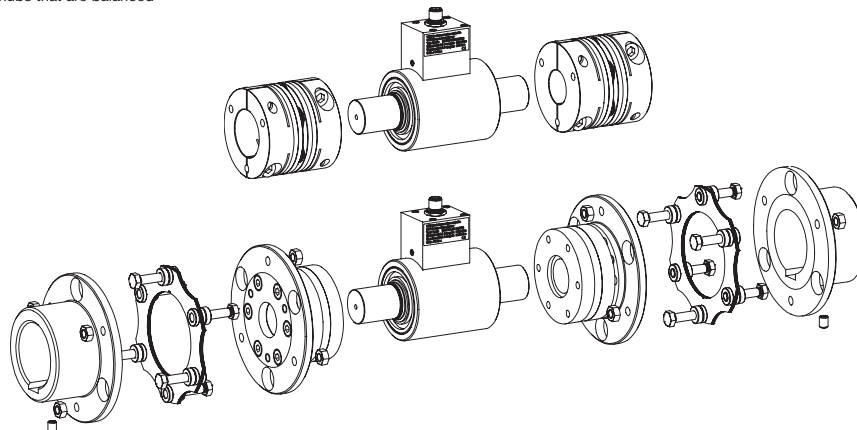
¹⁾ Referring to T_{KN}

²⁾ Referring to T_{KN2}

³⁾ Error in linearity incl. hysteresis

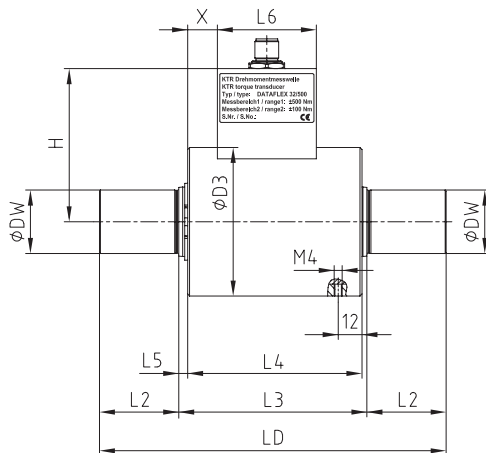
⁴⁾ See page 361: with connection housing DF2

⁵⁾ With high speeds use coupling hubs that are balanced

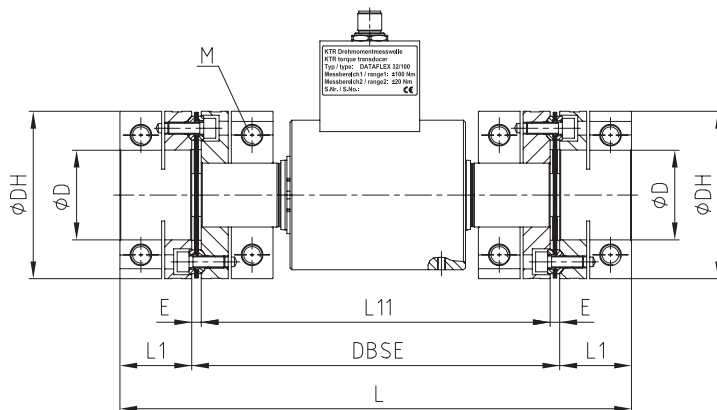


Ordering example:	DATAFLEX® 32/300	DF2	2 m, 5 m and 10 m	RADEX®-N 60 NN Ø32/50 keyway to DIN Ø32/60 keyway to DIN
	Type of measuring shaft with measuring range	Connection housing (is required)	Connection cable	If any accessories are requested: coupling type, finish bores D/DW

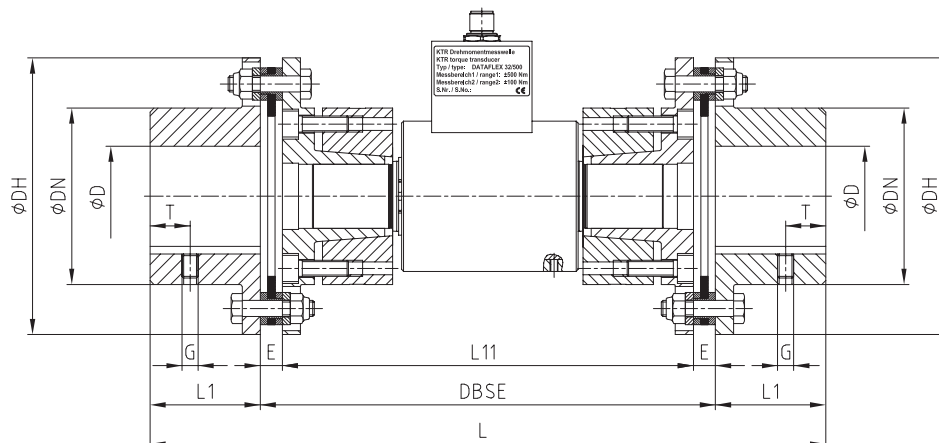
DATAFLEX® 32



Combination of DATAFLEX® 32 with RADEX®-NC



Combination of DATAFLEX® 32 with RADEX®-N



Dimensions [mm] of torque measuring shaft and combination with RADEX®-NC HT couplings

DATAFLEX® type	DW	D3	LD	L2	L3	L4	L5	L6	H	X	RADEX®-NC size	DH	D _{max}	DBSE	L	L1	L11	E
32/100	32	75	175	40	95	88	4.5	50	77.3	15	36	84	45	184.6	256.6	36	175	4.8

Dimensions [mm] of torque measuring shaft and combination with RADEX®-N couplings

DATAFLEX® type	DW	D3	LD	L2	L3	L4	L5	L6	H	X	RADEX®-N size	DH	DN	D _{max}	DBSE	L	L1	L11	E
32/300	32	75	175	40	95	88	4.5	50	77.3	15	60	138	88	60	227	337	55	205	11
32/500																			

DATAFLEX® 42/1000 DUAL-RANGE TORQUE SENSOR

for torques up to 1000 Nm



For legend of pictogram refer to flapper on the cover



General properties					
DATAFLEX® type	Measuring range 1 T _{KN} [Nm]	Measuring range 2 T _{KN2} [Nm]	Supply voltage [V]	Current consumption [mA]	Operating temperature range [°C]
42/1000	-1000 ... +1000	-200 ... +200	24 ±4	<100	0 ... 55

Technical data of torque signal					Technical data of speed signal				
DATAFLEX® type	Inaccuracy (% of T _{KN} /T _{KN2}) ^{1), 2), 3)}	Output voltage [V]	Bandwidth [kHz]	Influence of temperature ¹⁾ [%/10 °C]	Resolution [pulses/rev.]	Number of channels	Square-wave signal ⁴⁾ [V _{ss}]	Direct voltage signal ⁴⁾ [V]	Direction signal ⁴⁾ [V]
42/1000	<0.1 / 0.2	-10 ... 10	2	0.05	720	2, 90° offset	5 / 24	0 ... 10, scalable	5 / 24

Mechanical data of torque measuring shaft										
DATAFLEX® type	Static load limit ¹⁾ T _{K max} [%]	Breaking load T _{K break} ¹⁾ [%]	Max. bending torque [Nm]	Max. radial force [N]	Max. axial force [kN]	Weight [kg]	Torsion spring stiffness C _T [Nm/rad]	Torsion angle with T _{KN} [°]	Mass moment of inertia [kgmm ²]	Max. speed ⁵⁾ [rpm]
42/1000	150	300	107	780	24	3.43	132000	0.43	710	6500

Mechanical data of torque measuring shaft and combination with RADEX®-N couplings									
DATAFLEX® type	Coupling				Mechanical data of combination				
	RADEX®-N size	Setscrew			Mass moment of inertia [kgmm ²]	Torsion spring stiffness C _T [Nm/rad]	Weight [kg]	Max. speed ⁵⁾ [rpm]	
		G	T	T _A [Nm]					
42/1000	80	M10	20	17	61000	107000	23.1	5100	

¹⁾ Referring to T_{KN}

²⁾ Referring to T_{KN2}

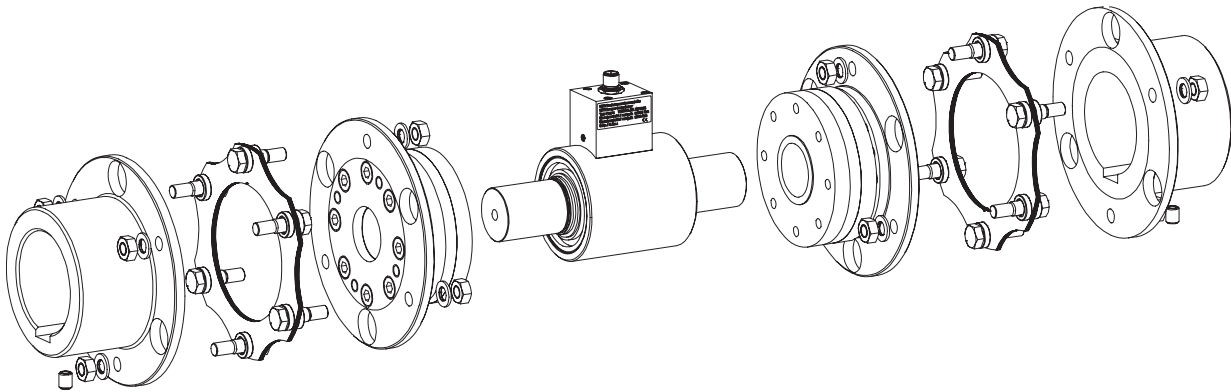
³⁾ Error in linearity incl. hysteresis

⁴⁾ See page 361 : with connection housing DF2

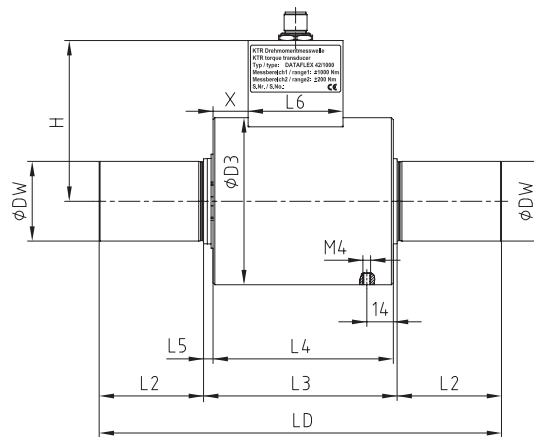
⁵⁾ With high speeds use coupling hubs that are balanced

Ordering example:	DATAFLEX® 42/1000	DF2	2 m, 5 m and 10 m	RADEX®-N 80 NN Ø42/50 keyway to DIN Ø42/60 keyway to DIN
	Type of measuring shaft with measuring range	Connection housing (is required)	Connection cable	If any accessories are requested: coupling type, finish bores D/DW

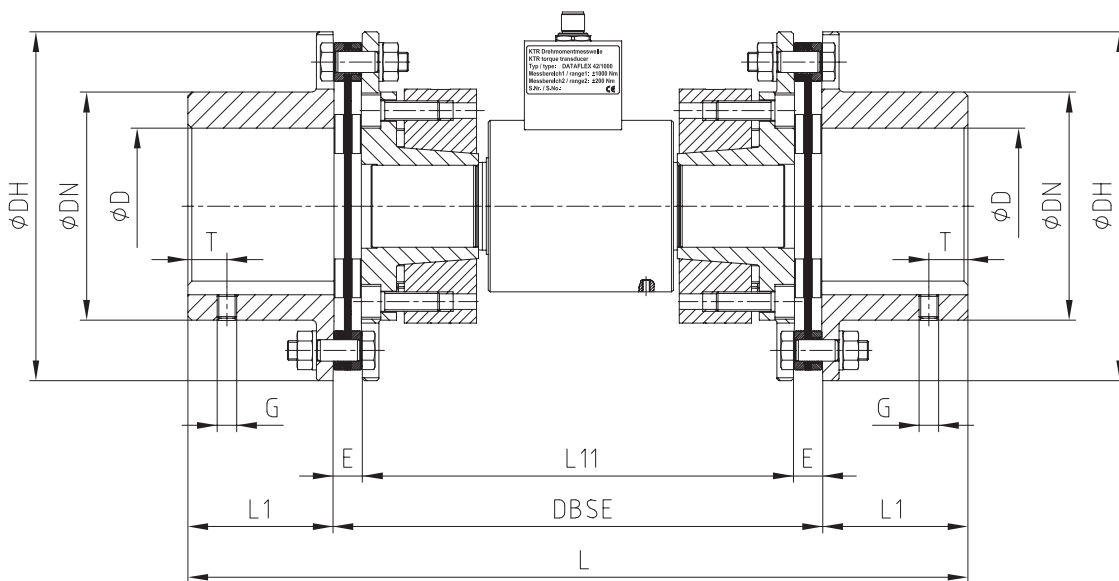
Components



DATAFLEX® 42



Combination of DATAFLEX® 42 with RADEX®-N



Dimensions [mm] of torque measuring shaft and combination with RADEX®-N couplings

DATAFLEX® type	DW	D3	LD	L2	L3	L4	L5	L6	H	X	RADEX®-N size	DH	DN	D _{max}	DBSE	L	L1	L11	E
42/1000	42	88	212	55	102	95	5	50	84.7	18.5	80	179	117	80	250	400	75	222	14

DATAFLEX® 70/3000, 70/5000 DUAL-RANGE TORQUE SENSOR

for torques up to 5000 Nm



For legend of pictogram refer to flapper on the cover



General properties										
DATAFLEX® type	Measuring range 1 T _{KN} [Nm]	Measuring range 2 T _{KN2} [Nm]	Supply voltage [V]	Current consumption [mA]	Operating temperature range [°C]					
70/3000	-3000 ... +3000	-600 ... +600	24 ±4	<100	0 ... 55					
70/5000	-5000 ... +5000	-1000 ... +1000								
Technical data of torque signal					Technical data of speed signal					
DATAFLEX® type	Inaccuracy (% of T _{KN} /T _{KN2}) ^{1), 2), 3)}	Output voltage [V]	Bandwidth [kHz]	Influence of temperature ¹⁾ [%/10 °C]	Resolution [pulses/rev.]	Number of channels	Square-wave signal ⁴⁾ [V _{ss}]	Direct voltage signal ⁴⁾ [V]	Direction signal ⁴⁾ [V]	
70/3000	< 0.1/0.2	-10 ... 10	2	0.05	450	2, 90° offset	5/24	0 ... 10, scalable	5/24	
70/5000										
Mechanical data of torque measuring shaft										
DATAFLEX® type	Static load limit ¹⁾ T _{K max} [%]	Breaking load T _{K break} ¹⁾ [%]	Max. bending torque [Nm]	Max. radial force [N]	Max. axial force [kN]	Weight [kg]	Torsion spring stiffness C _T [Nm/rad]	Torsion angle with T _{KN} [°]	Mass moment of inertia [kgmm ²]	Max. speed ⁵⁾ [rpm]
70/3000	150	300	320	1700	48	12.30	395000	0.44	7200	4000
70/5000			520	2800	66	12.45	500000	0.57	7300	
Mechanical data of combination of DATAFLEX® 70 and RADEX®-N										
DATAFLEX® type	Coupling				Mechanical data of combination					
	RADEX®-N size	Setscrew			Mass moment of inertia [kgmm ²]	Torsion spring stiffness C _T [Nm/rad]	Weight [kg]	Max. speed ⁵⁾ [rpm]		
G		T	T _A [Nm]							
70/3000	90	M12	25	40	155200	283000	44.7	4000		
70/5000	115	M12	30		470000	389000	77.6	3400		

¹⁾ Referring to T_{KN}

²⁾ Referring to T_{KN2}

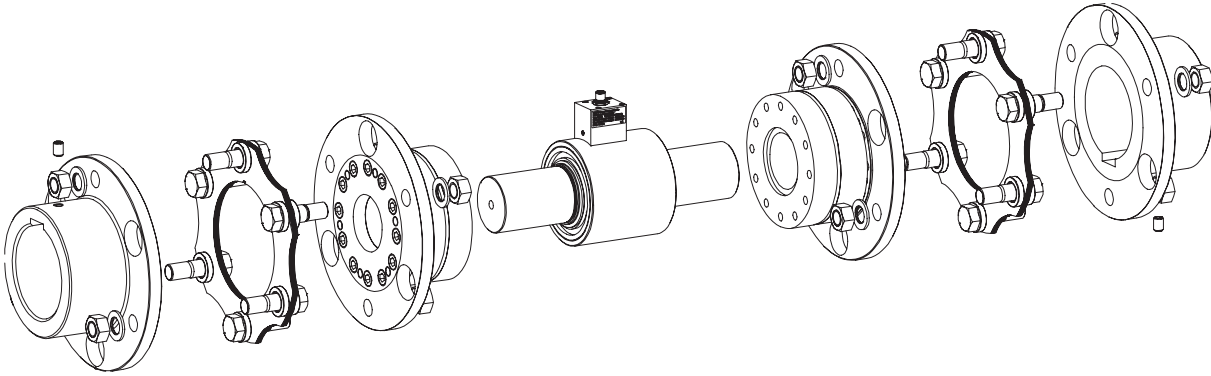
³⁾ Error in linearity incl. hysteresis

⁴⁾ See page 361: with connection housing DF2

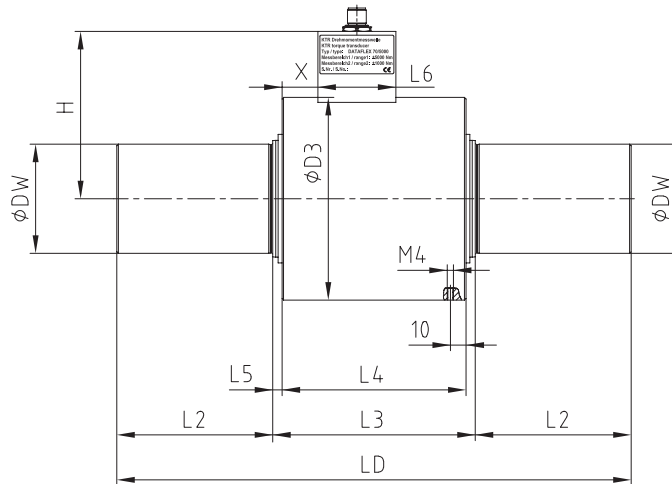
⁵⁾ With high speeds use coupling hubs that are balanced

Ordering example:	DATAFLEX® 70/5000	DF2	2 m, 5 m and 10 m	RADEX®-N 115 NN Ø65/60 keyway to DIN Ø65/70 keyway to DIN
	Type of measuring shaft with measuring range	Connection housing (is required)	Connection cable	If any accessories are requested: coupling type, finish bores D/DW

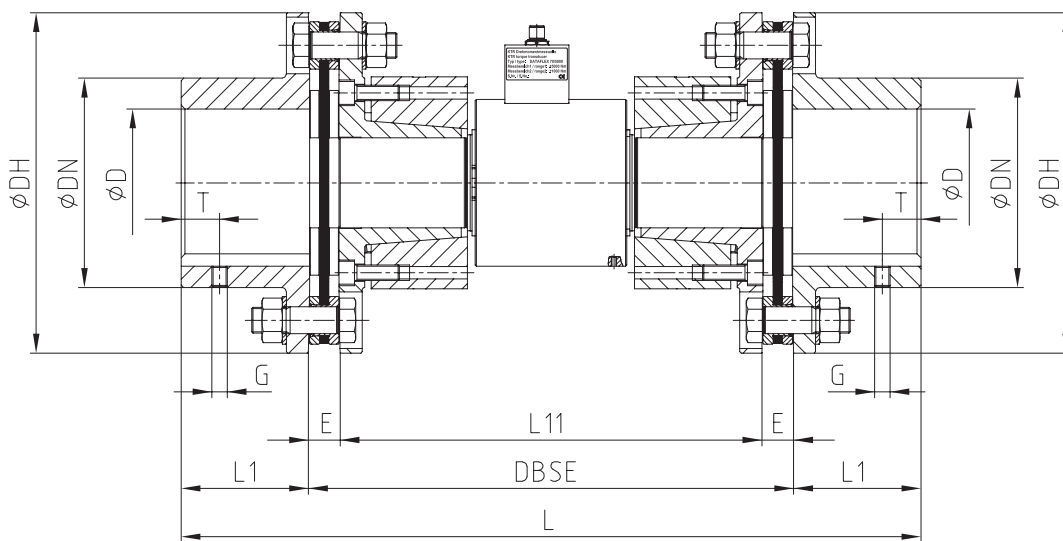
Components



DATAFLEX® 70



Combination of DATAFLEX® 70 with RADEX®-N



Dimensions [mm] of torque measuring shaft and combination with RADEX®-N couplings																			
DATAFLEX® type	DW	D3	LD	L2	L3	L4	L5	L6	H	X	RADEX®-N size	DH	DN	D _{max}	DBSE	L	L1	L11	E
70/3000	70	130	330	100	130	118	6	50	107.35	23	90	210	132	90	360	520	80	330	15
70/5000											115	265	163	115	376	576	100		23

DATAFLEX® 110/10000, 110/20000 DUAL-RANGE TORQUE SENSOR

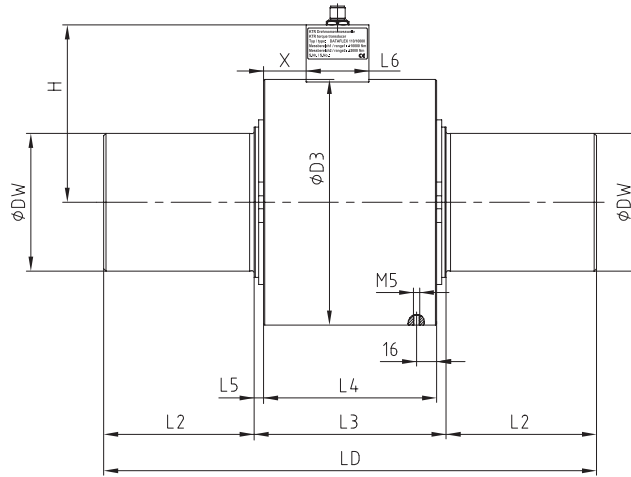
for torques up to 20000 Nm



For legend of pictogram refer to flapper on the cover



DATAFLEX® 110



General properties

DATAFLEX® type	Measuring range 1 T_{KN} [Nm]	Measuring range 2 T_{KN2} [Nm]	Supply voltage [V]	Current consumption [mA]	Operating temperature range [°C]
110/10000	- 10000 ... + 10000	- 2000 ... + 2000	24 ± 4	< 100	0 ... 55
110/20000	- 20000 ... + 20000	- 4000 ... + 4000			

Technical data of torque signal

Technical data of speed signal

DATAFLEX® type	Inaccuracy (% of T_{KN}/T_{KN2}) ^{1), 2), 3)}	Output voltage [V]	Bandwidth [kHz]	Influence of temperature ¹⁾ [%/10 °C]	Resolution [pulses/rev.]	Number of channels	Square-wave signal ⁴⁾ [Vss]	Direct voltage signal ⁴⁾ [V]	Direction signal ⁴⁾ [V]
110/10000	< 0.1/0.2	-10 ... +10	2	0.05	720	2, 90° offset	5/24	0 ... 10,	5/24
110/20000								scalable	

Mechanical data of torque measuring shaft

DATAFLEX® type	Static load limit ¹⁾ $T_{K \max}$ [%]	Breaking load $T_{K \text{ break}}$ [%]	Max. bending torque [Nm]	Max. radial force [N]	Max. axial force [kN]	Weight [kg]	Torsion spring stiffness C_T [Nm/rad]	Torsion angle with T_{KN} [°]	Mass moment of inertia [kgm ²]	Max. speed ⁵⁾ [rpm]
110/10000	150	300	1033	4700	106	35.72	2270000	0.25	0.0562	3000
110/20000			2037	9300	166	36.20	3550000	0.32	0.0569	

Dimensions [mm] of torque measuring shaft

DATAFLEX® type	DW	D3	LD	L2	L3	L4	L5	L6	H	X
110/10000	110	196	393	120	153	138	7.5	50	141.4	34
110/20000										

¹⁾ Referring to T_{KN}

²⁾ Referring to T_{KN2}

³⁾ Error in linearity incl. hysteresis

⁴⁾ See page 361: with connection housing DF2

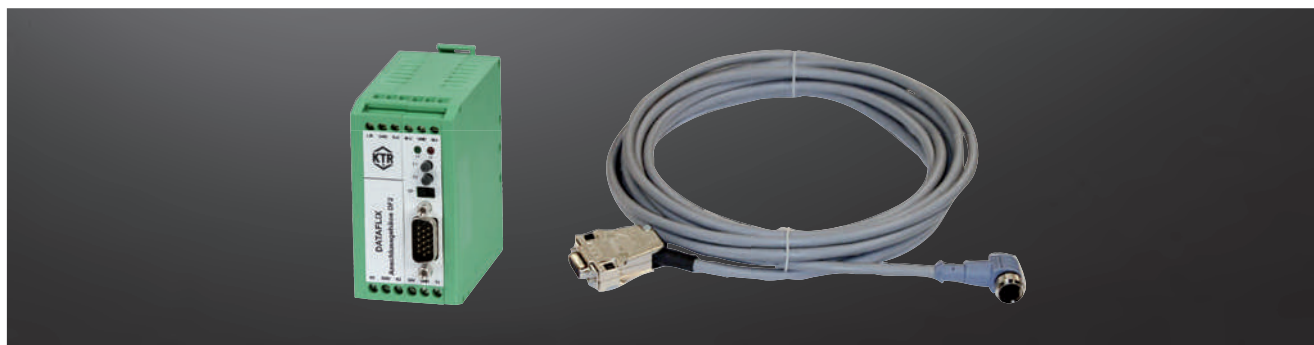
⁵⁾ With high speeds use coupling hubs that are balanced

Ordering example:

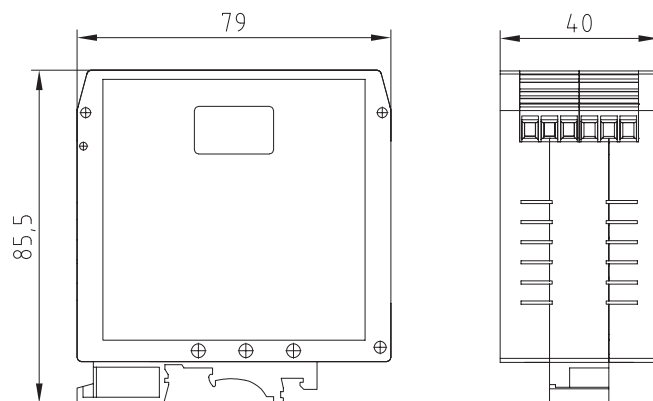
DATAFLEX® 110/10000	DF2	2 m, 5 m and 10 m
Type of measuring shaft with measuring range	Connection housing (is required)	Connection cable

DATAFLEX® CONNECTION ACCESSORIES OF TORQUE MEASURING SHAFTS

Connection housing DF2 and connection cable



DATAFLEX®



Connection cable and connection housing DF2

Description	Function	DATAFLEX® 16	DATAFLEX® 32	DATAFLEX® 42	DATAFLEX® 70	DATAFLEX® 110
Connections DF2						
Input of operating voltage						
24 V	Supply voltage +	24 V DC \pm 4V / 100mA max.				
GND	Supply voltage -					
Torque output						
M-U	Voltage output +	-10 V ... 10V				
GND		Ground of torque output				
M-I	Current output	-	-	-	-	-
Speed output pulse signal						
N1	Pulsed output speed track 1	HTL, TTL (24 V, 5 V, 360 pulses/rev.)	HTL, TTL (24 V, 5 V, 720 pulses/rev.)	HTL, TTL (24 V, 5 V, 720 pulses/rev.)	HTL, TTL (24 V, 5 V, 450 pulses/rev.)	HTL, TTL (24 V, 5 V, 720 pulses/rev.)
GND		Ground of pulsed output				
N2	Pulsed output speed track 2	HTL, TTL (24 V, 5 V, 360 pulses/rev.)	HTL, TTL (24 V, 5 V, 720 pulses/rev.)	HTL, TTL (24 V, 5 V, 720 pulses/rev.)	HTL, TTL (24 V, 5 V, 450 pulses/rev.)	HTL, TTL (24 V, 5 V, 720 pulses/rev.)
Speed of direct voltage output						
R/L	Direction signal speed	HTL, TTL (24 V, 5 V, CW = 1)				
GND		Mass of direct voltage output speed				
N-U	Voltage output speed	0 V ... 10 V (scalable)				
Other connections / operating devices						
T1	Push button T1 - connection	External push button connection T1				
L1, L2	Signal LEDs	Condition monitoring				
T1, T2	Push button T1, T2	Push button for programming				
TP	Switch low pass	Filter for torque signal to be set in four levels				
Connection cable						
Lengths of connection cable		2, 5, 10 m, other lengths on request				

MONITEX® BT 28/200, 42/800 TORQUE MEASURING COUPLING HUB

For torques of 200 Nm and 800 Nm



For legend of pictogram refer to flapper on the cover



General properties

MONITEX® BT type	Coupling type	Supply voltage ²⁾ [V]	Current consumption ²⁾ [mA]	Operating temperature range [°C]
28/200	ROTEX® GS 28	24 ± 4	<200	0 ... 55
42/800	ROTEX® GS 42			

Technical data of torque signal

Technical data of speed signal

Technical data of display

MONITEX® BT type	Measuring range T _{KN} [Nm]	Inaccuracy [% of T _{KN}]	Measuring frequency of App/Windows software/DAC [Hz]	Influence of temperature ¹⁾ [%/10 °C]	Measuring range [rpm]	Resolution [rpm]	Measuring frequency of App/Windows software/DAC [Hz]	Number of digits of torque	Number of digits of speed	Switch-on threshold [rpm]
28/200	-200 ... +200	±0.25	60/500/500	0.05	30-3500	1	3/5/5	3+1 decimals + ± sign	4	300
42/800	-800 ... +800									

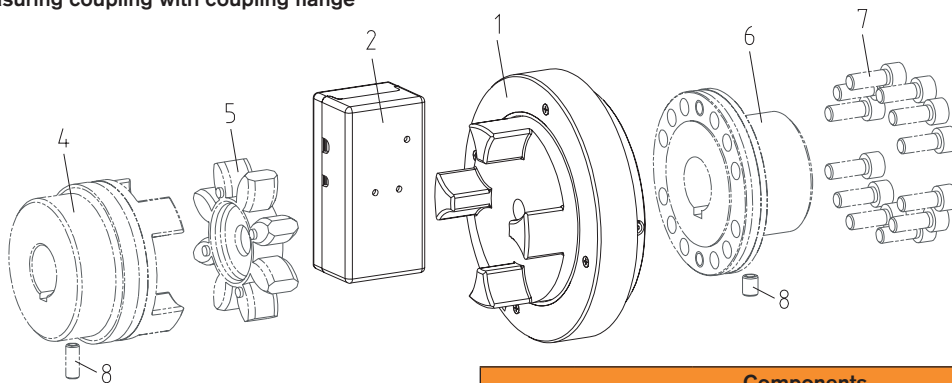
Mechanical data of the coupling hub

MONITEX® BT type	Static load limit ¹⁾ T _{K max} [%]	Breaking load T _{K break} ¹⁾ [%]	Max. bending torque [Nm]	Max. radial force [N]	Max. axial force [kN]	Weight [kg]	Torsion spring stiffness C _T [Nm/rad]	Torsion angle with T _{KN} [degrees]	Mass moment of inertia [kgmm ²]	Max. speed [rpm]
28/200	150	300	22	250	8	0.84	46000	0.25	765	3500
42/800			86	700	20	1.72	194000	0.24	2690	

¹⁾ Referring to rated torque T_{KN}

²⁾ MONITEX® BT inductive head

MONITEX® BT measuring coupling with coupling flange



Components

Component	Quantity	Subassembly
1	1	MONITEX® BT measuring hub
2	1	MONITEX® BT inductive head (inductive current transmission)
3 ¹⁾	1	MONITEX® BT connection cable
4 ²⁾	1	ROTEX®/ROTEX® GS hub
5 ²⁾	1	ROTEX® GS spider
6 ²⁾	1	ROTEX® coupling flange N
7 ²⁾	see page 379	Cap screws DIN EN ISO 4762 - 12.9
8 ²⁾	2	Setscrew DIN EN ISO 4029
9 ^{1) 2)}	1	DAC (digital-to-analog-converter), see page 380

¹⁾ not graphically shown in the left image

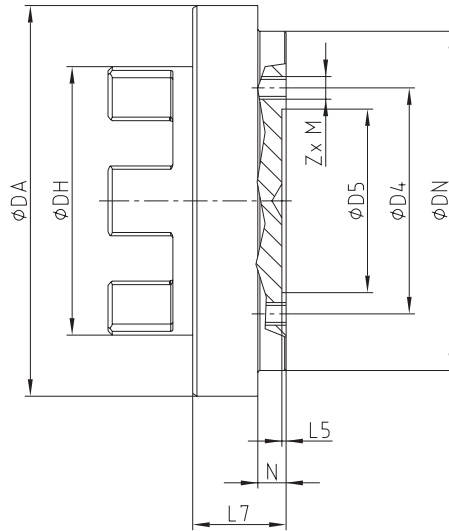
²⁾ Optionally available

Ordering example:

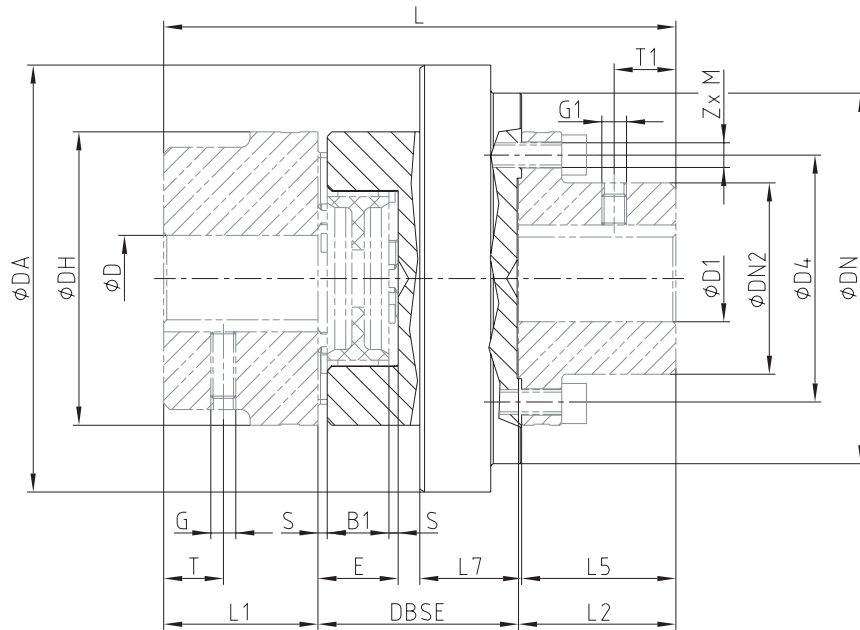
MONITEX® BT 42/800	Inductive head	2 m	Ø38	ROTEX® GS 2.5 - Ø38	98 ShA-GS
Measuring hub size	Inductive power supply	Connection cable	ROTEX® coupling flange N, finish bore	Hub type, finish bore	Spider hardness, see catalogue page 127

Components

MONITEX® BT measuring coupling



Dimensions [mm]									
MONITEX® BT type	DA	DH	DN	D4	D5	L5	L7	N	Z x M
28/200	112.4	65	90	54	44	1.5	28	10	8 x M6
42/800	138.4	95	120	80	65	1.5	33	10	12 x M8



Dimensions in mm									
MONITEX® BT type	ROTEX® GS size	Max. finish bore ¹⁾		DA	DH	DBSE	DN	DN2	D4
		D	D1						
28/200	28	38	30	112.4	65	54.5	90	42	54
42/800	42	55	45	138.4	95	65.0	120	62	80

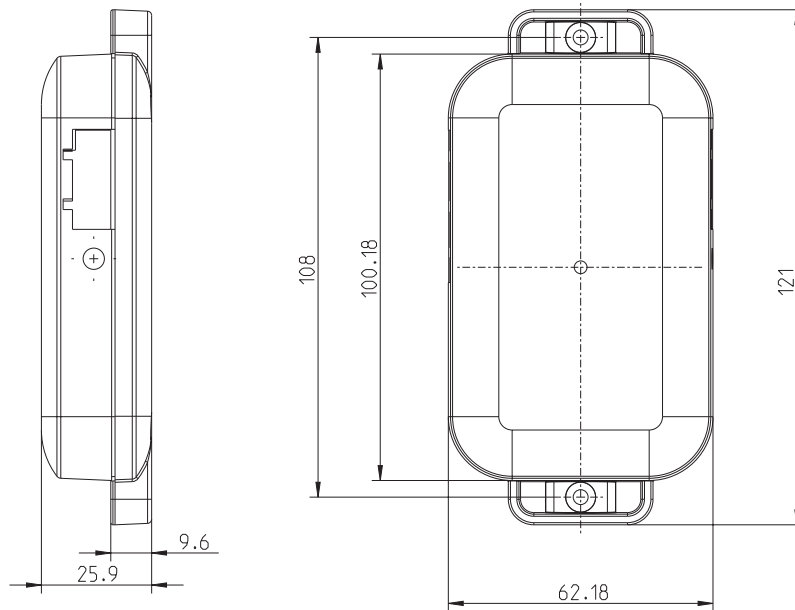
¹⁾ Special hubs on request

Dimensions in mm											
MONITEX® BT type	L	L1	L2	L5	L7	E	B1	S	Cap screws DIN EN ISO 4762		
									Number Z	M	T _A [Nm]
28/200	125	35	35.5	35	28	20	15	2.5	8	M6	17
42/800	166	50	51.0	50	33	26	20	3.0	12	M8	41

Setscrew DIN EN ISO 4029		
Size	28	42
Dimension G, G1 in mm	M8	M8
Dimension T, T1 in mm	15	20
Tightening torque T _A [Nm]	10	10

MONITEX® BT ACCESSORIES (TORQUE MEASURING COUPLING HUB)

DAC – analog output



The digital-to-analog converter (DAC) automatically connects to the torque measuring MONITEX® BT coupling hub displaying the torque and speed data as analog voltage and current. Besides the free app and Windows software, the signals can be directly connected to controls or existing data logging.

Electrical data		Output resistances	
Power supply [V DC]	24 ±4	Voltage outputs [Ohm]	1000
Max. current consumption [mA]	<100	Maximum current loop resistance [Ohm]	Max. 560
Torque outputs		Inaccuracies of converter	
Voltage output [V]	-10 ... +10	Voltage outputs ¹⁾ [%]	0.05
Current output [mA]	4 ... 20	Current outputs ¹⁾ [%]	0.1
Converter frequency [Hz]	500		
Torque outputs		Dimensions	
Voltage output [V]	0 ... 10	Dimensions [mm]	121 x 62 x 26
Current output [mA]	4 ... 20	Weight [g]	90
Converter frequency [Hz]	5		

¹⁾ Referring to upper range value

Scaling				
Type MONITEX® BT	Torque		Speed	
	Voltage output [Nm/V]	Current output [Nm/mA]	Voltage output [rpm/V]	Current output [rpm/mA]
MONITEX® BT 28	20	25	350	218.75
MONITEX® BT 42	80	100		

Summary of literature

No matter if a perfect drive, a brake that takes effect, space-saving cooling or accurate hydraulics is required, if on land, by sea or at an airy height - KTR's product portfolio is just as manifold as its applications. The following catalogues and leaflets provide an overview. Available at www.ktr.com

Product catalogues



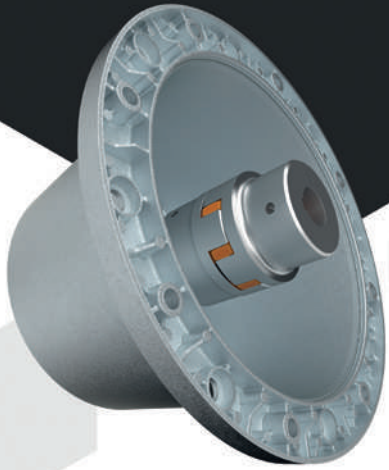
ATEX leaflet



Company leaflet



Made for Motion **KTR**



Hydraulic components

- Bellhousings
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Certificates and Approvals

Being one of the first companies in the field of drive technology, KTR was certified in accordance with DIN EN ISO 9001 already in 1993, including the plants in Poland, China, India and USA.

Currently KTR products have been approved by numerous internationally renowned societies for standardization and classification. Individual approvals by other societies can be implemented on request without fail.



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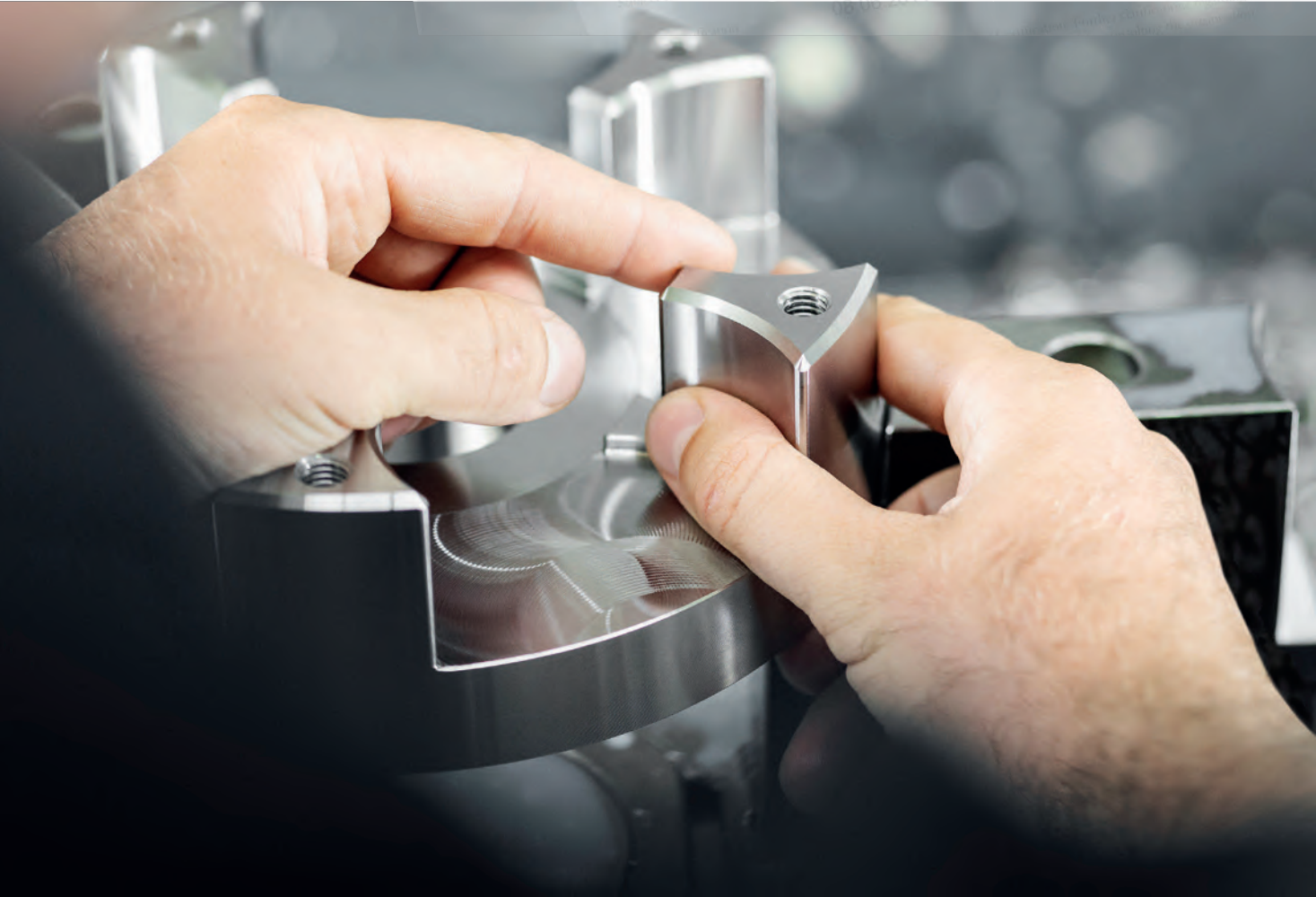
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	Relatively short shaft distance		Radial disassembly, ease of service		Torque limiter with synchronous ratcheting
	Maximum operating temperature		standard drop-out centre lengths available		Torque limiter with idle rotation type
	High speeds		API Available in accordance with API		Hardened surface
	backlash-free		Complying with ATEX For details refer to our ATEX leaflet		Accuracy X %
	non fail-safe type, separating, slipping		ABS Certified in accordance with ABS		Consider axial displacement
					Additional features compared to standard version