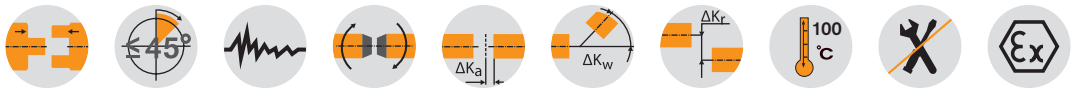
BoWex-ELASTIC® HE1 - HE4
Highly flexible flange couplings

Axial plug-in, available in different kinds of hardness



BoWex-ELASTIC® Type HE1 - HE4

Size	Bore d [mm]		Flange connection acc. to SAE - J620						Dimensions [mm]										Type HE1 / HE2			Type HE3 / HE4		
																			Weight with max. bore [kg]	Mass moment of inertia with max. bore [kgm²]		Weight with max. bore [kg]	Mass moment of inertia with max. bore [kgm²]	
	Pilot bored	Max.	6 ½"	7 ½"	8"	10"	11 ½"	14"	l3 HE1/ HE2	l3 HE3/ HE4	D5	l2	D4	D	l1	LHE1	LHE2	LHE3	LHE4		JA	JL		JA	JL
42 HE	-	42	●	●					4	2	180	33	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	-	-	-
			●	●																2.3	0.0119	0.0021	1.9	0.0070	0.0022
48 HE	-	48			●				4	2	198	37	163	68	50	78	50	68	42	2.6	0.0170	0.0021	2.1	0.0103	0.0022
						●														3.4	0.0342	0.0021	2.5	0.0201	0.0022
65 HE	21	65				●			5	-	244	55	205	96	55	85	62	-	-	4.9	0.0424	0.0069			
							●													5.7	0.0647	0.0069	-	-	-
					●																		-	-	-
G 65 HE						●			-	3	-	45	205	96	55	-	-	73	50	-	-	-	4.1	0.0281	0.0075
							●																4.6	0.0423	0.0075
					●																		3.8	0.0163	0.0093
GG 65 HE						●			-	3	-	48	220	96	55	-	-	73	50	-	-	-	4.4	0.0294	0.0093
							●																4.9	0.0439	0.0093
80 HE	31	90				●			-	4	316	56	265	124	90	126	74	112	60	8.1	0.0239	0.0307	9.1	0.0414	0.0305
							●		6							132	80			10.2	0.0765	0.0307	-	-	-
G 80 HE	31	90					●		-	4	356	66	300	124	90	136	80	122	70	9.7	0.0426	0.0471	11.1	0.0713	0.0472
								●	6							142	84			14.7	0.2851	0.0471	-	-	-
GG 80 HE							●		-	4	-	71	302	124	90	-	-	130	80	-	-	-	11.9	0.0768	0.0498
100 HE	38	100						●	-	4	-	80	350	152	110	142	90	150	82	-	-	-	18.3	0.2028	0.1104

Other flange connections on request

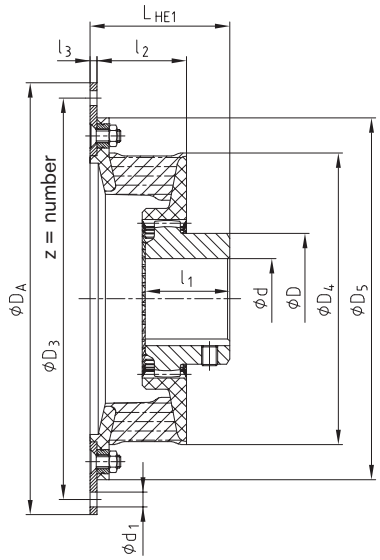
Technical data

Size	Shore	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 $V_R \approx 2 \bullet \pi / \psi$	Radial spring stiffness C_r [N/mm]
		T_{KN}	$T_{K\,max}$	with 10 Hz T_{KW}	60 °C	80 °C	90 °C					
	T40 Sh	130	390	39					550	0.6	10.5	142
42 HE	T50 Sh	150	450	45	26	13	6.5	6200	850	0.8	7.9	219
	T65 Sh	180	540	54					2700	1.2	5.2	697
	T40 Sh	200	600	60					850	0.6	10.5	176
48 HE	T50 Sh	230	690	69	36	18	9	5600	1300	0.8	7.9	269
	T65 Sh	280	840	84					3500	1.2	5.2	724
	T40 Sh	350	1050	105					1600	0.6	10.5	209
65 HE	T50 Sh	400	1200	120	60	30	15	4500	2200	0.8	7.9	288
	T65 Sh	500	1500	150					6000	1.2	5.2	784
	T40 Sh	430	1290	129					2350	0.6	10.5	259
G 65 HE	T50 Sh	500	1500	150	68	34	17	4300	3000	0.8	7.9	346
	T65 Sh	620	1860	186					8500	1.2	5.2	975
	T40 Sh	600	1800	180					3650	0.6	10.5	240
GG 65 HE	T50 Sh	700	2100	210	76	38	19	4000	4800	0.8	7.9	324
	T65 Sh	850	2550	255					13500	1.2	5.2	911
	T40 Sh	750	2250	225					4500	0.6	10.5	351
80 HE	T50 Sh	950	2850	285	120	60	30	3600	6500	0.8	7.9	507
	T65 Sh	1200	3600	360					18000	1.2	5.2	1404
	T40 Sh	1250	3750	375					7500	0.6	10.5	476
G 80 HE	T50 Sh	1600	4800	480	180	90	45	3000	12000	0.8	7.9	762
	T65 Sh	2000	6000	600					32000	1.2	5.2	2031
	T40 Sh	1550	4650	465					9200	0.6	10.5	395
GG 80 HE	T50 Sh	2000	6000	600	196	98	49	3000	14200	0.8	7.9	635
	T65 Sh	2500	7500	750					39600	1.2	5.2	1650
	T40 Sh	2000	6000	600					12000	0.6	10.5	366
100 HE	T50 Sh	2500	7500	750	212	106	53	2700	19000	0.8	7.9	570
	T65 Sh	3200	9600	960					48000	1.2	5.2	1200

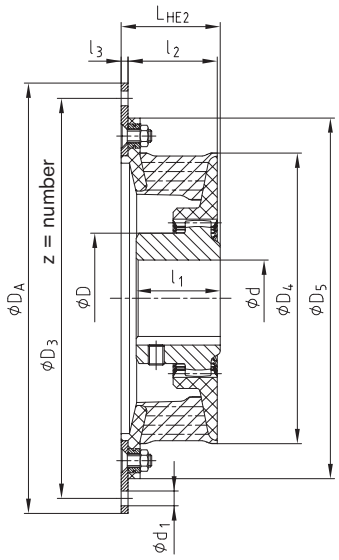
T = Temperature-stable rubber compound. The technical data specified apply for an ambient temperature of T = 60 °C.
* Expiring as a standard

Ordering example:

BoWex-ELASTIC® 42	HE1	40	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



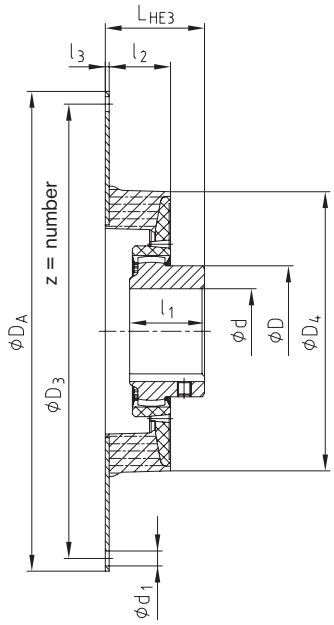
Type HE1



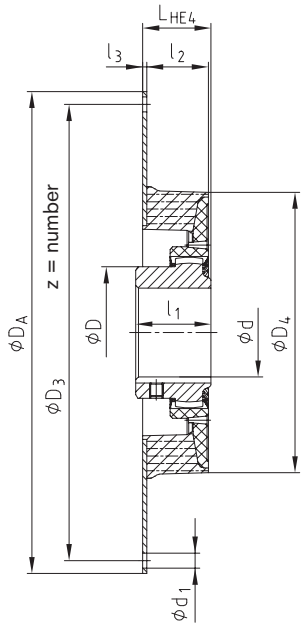
Type HE2

Flange dimensions according to SAE J620 [mm]

Nominal size	D_A	D_3	z	d_1
6 ½"	215.90	200.02	6	9
7 ½"	241.30	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 ½"	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		
Elastomer hardness [Shore A]		T40 Sh	T50 Sh	T65 Sh	T40 Sh	T50 Sh	T65 Sh	T40 Sh	T50 Sh	T65 Sh	T40 Sh	T50 Sh	T65 Sh	T40 Sh	T50 Sh	T65 Sh
Perm. radial displacement ΔKr [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 ΔKw [°]	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 ΔKw [mm]	max. [1]	1.5			1.5			1.5			1.5			1.5		
Perm. axial displacement ΔKa [mm]		± 2			± 2			± 2			± 2			± 3		

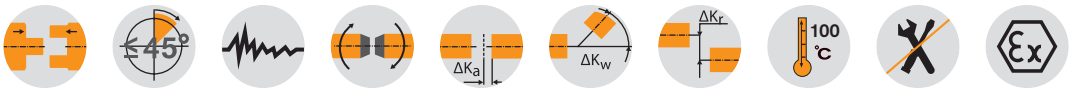
[1] For short-term start-up operation

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

Morskate®

Axial plug-in, available in different kinds of hardness



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	l_3	l_2	D_4	D	l_1	L_{HE3}	L_{HE4}		J_A	J_L
125 HE	45	125	●							6	92	416	192	140	186	103	33.1	0.3142	0.2750
				●											192	109	34.8	0.4231	0.2750
G125 HE	45	125		●						6	89	440	192	140	179	91	36.6	0.4634	0.3264
					●												39.5	0.6812	0.3264
150 HE	44	160			●					6	140	470	225	150	205	160	46.8	0.7277	0.5414
						●											51.5	1.2120	0.5414
150 HE-D	44	160			●					-	286	470	225	275	291	-	113	3.0045	1.0738
						●											155	6.4399	1.0738
G150 HE	44	160			●					6	140	504	225	150	205	160	51.9	0.8164	0.6500
						●											56.6	1.3007	0.6500
G150 HE-D	44	160			●					-	286	504	225	275	291	-	123	3.1820	1.291
						●											165	6.6173	1.291
200 HE	46	180				●				6	149	568	250	175	240	160	76.8	1.4880	1.2952
							●										81.2	2.0390	1.2952
200 HE-D	46	180				●				-	325	568	250	298	310	-	228	11.80	2.4672
							●										216	10.66	2.4672
G200 HE	46	180				●				6	149	600	250	175	240	160	81.6	1.6272	1.5409
							●										86.0	2.1782	1.5409
G200 HE-D	46	180				●				-	325	600	250	298	310	-	238	12.00	3.0387
							●										230	10.92	3.0387
240 HE	80	240						●		8	172	772	326	200	270	205	138	4.2414	4.0410
275 HE	80	275							●	10	185	810	372	240	312	215	206	7.3696	7.6845

Technical data

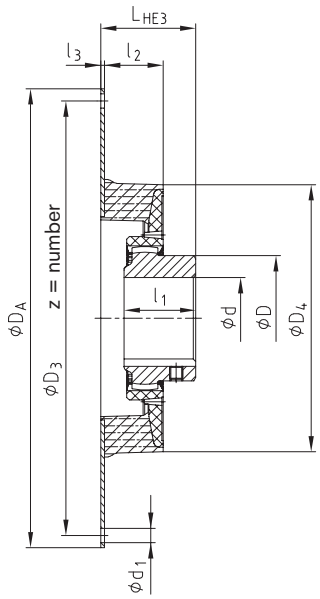
Size	Shore	Torque [Nm]				Perm. damping power P_{KW} [W]			Perm. operating speed $n_{max.}$ [rpm]	Dynamic torsion spring stiffness $C_{dyn.}$ [Nm/rad] 60 °C	Relative damping ψ	Resonance factor $V_R \approx 2 \bullet \pi / \psi$	Radial spring stiffness C_r [N/mm]
		T_{KN} [Nm]	T_K max 10,000 LW [Nm]	T_K max 50,000 LW [Nm]	T_{KW} [Nm]	60 °C	80 °C	90 °C					
125 HE	T50 Sh	4300	12900	6450	1075	221	133	88	2300	30000	0.8	7.9	617
	T70 Sh	7500	22500	11250	1875					54000	1.2	5.2	2434
G125 HE	T50 Sh	6100	18300	9150	1525	240	144	96	2250	51000	0.8	7.9	560
	T70 Sh	9750	29250	14625	2438					98000	1.2	5.2	1915
150 HE	T50 Sh	8000	24000	12000	2000	262	157	105	2200	67500	0.8	7.9	714
	T70 Sh	14000	42000	21000	3500					140000	1.2	5.2	2500
150 HE-D	T50 Sh	16000	48000	24000	4000	524	314	210	2200	134000	0.8	7.9	1428
	T70 Sh	28000	84000	42000	7000					279000	1.2	5.2	5000
G150 HE	T50 Sh	10000	30000	15000	2500	278	167	111	2100	85000	0.8	7.9	1485
	T70 Sh	18000	54000	27000	4500					160000	1.2	5.2	5874
G150 HE-D	T50 Sh	20000	60000	30000	5000	556	334	222	2100	170000	0.8	7.9	2970
	T70 Sh	36000	108000	54000	9000					320000	1.2	5.2	11748
200 HE	T50 Sh	14500	43500	21750	3625	308	185	123	1900	119000	0.8	7.9	1720
	T70 Sh	25000	75000	37500	6250					241000	1.2	5.2	6769
200 HE-D	T50 Sh	29000	87000	43500	7250	616	370	246	1900	238000	0.8	7.9	3440
	T70 Sh	50000	150000	75000	12500					482000	1.2	5.2	13538
G200 HE	T50 Sh	17500	52500	26250	4375	324	194	130	1800	139000	0.8	7.9	1952
	T70 Sh	30000	90000	45000	7500					281500	1.2	5.2	7708
G200 HE-D	T50 Sh	35000	105000	52500	8750	648	388	260	1800	278000	0.8	7.9	3904
	T70 Sh	60000	180000	90000	15000					563000	1.2	5.2	15416
240 HE	T50 Sh	29000	87000	43500	7250	372	223	149	1500	259000	0.8	7.9	2326
	T70 Sh	49000	147000	73500	12250					521000	1.2	5.2	9160
275 HE	T50 Sh	42000	126000	63000	10500	410	246	164	1500	375000	0.8	7.9	2950
	T70 Sh	70000	210000	105000	17500					758000	1.2	5.2	11785

= 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 rated torques with some sizes of this series.

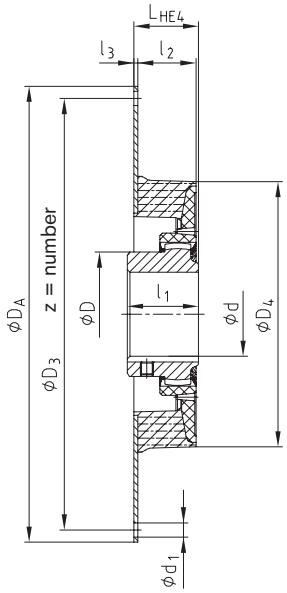
Ordering example:

BoWex-ELASTIC® 80	HE3	40	10	112	U
Coupling size	Type	Elastomer hardness	Flange Ø D_A according to SAE or special	Mounting length L_{HE}	Unbored or with finish bore

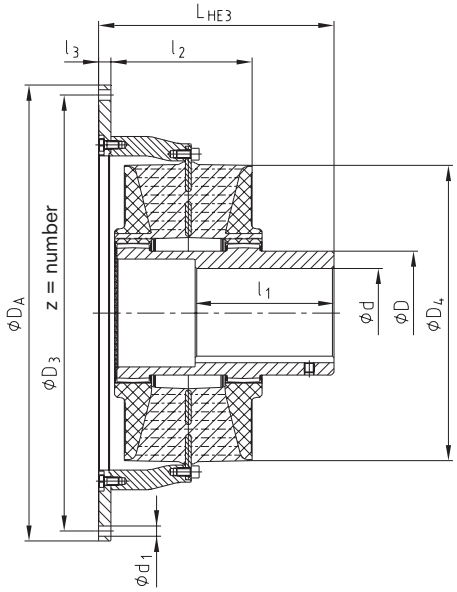
Type HE3



Type HE4



Type D



Flange dimensions according to SAE J620 [mm]

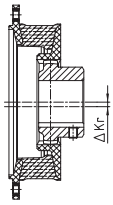
Nominal size	D_A	D_3	z	d_1
14"	466.72	438.15	8	13
16"	517.50	489.00	8	13
18"	571.50	542.90	6	17
21"	673.10	641.35	12	17
24"	733.42	692.15	12	21
Ø800	800	770	32	17
Ø885	885	855	36	17

Displacements

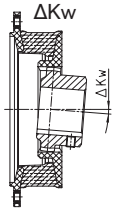
For different operating speeds or higher operating temperatures the permissible radial displacement is calculated as follows:

$$\Delta Kr_{perm.} = \Delta Kr \bullet St \bullet \sqrt{1500 / nx}$$

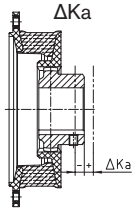
Radial displacement ΔKr



Angular displacement ΔKw



Axial displacement ΔKa



Displacements

Size		125 HE G125 HE			150 HE G150 HE			200 HE G200 HE			240 HE			275 HE		
Elastomer hardness [Shore A]		T40 Sh	T50 Sh	T70 Sh	T40 Sh	T50 Sh	T65 Sh	T40 Sh	T50 Sh	T65 Sh	T40 Sh	T50 Sh	T65 Sh	T40 Sh	T50 Sh	T65 Sh
Perm. radial displacement ΔKr [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. [1]	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 ΔKw [°]	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 ΔKw [mm]	max. [1]	1.5			1.5			1.5			1.5			1.5		
Perm. axial displacement ΔKa [mm]		± 3			± 4			± 4			± 4			± 4		

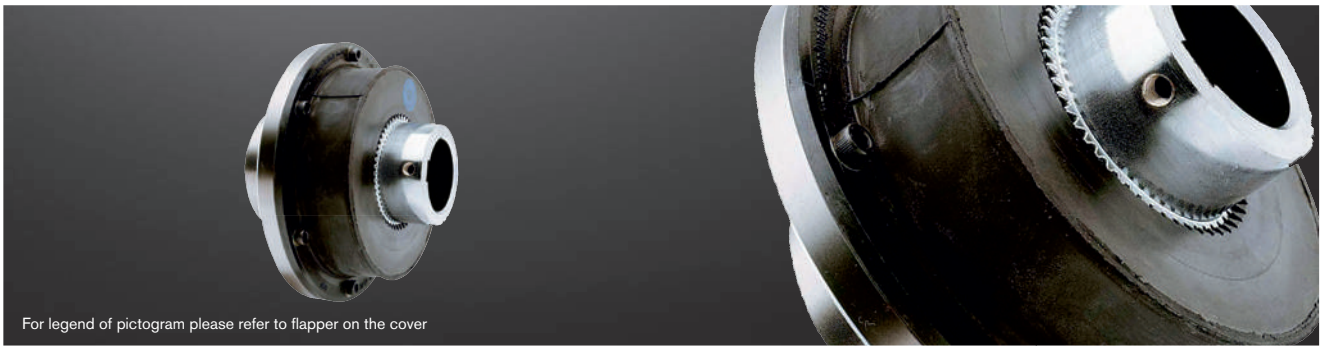
[1] For short-term start-up operation

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

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

Morskate®

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



BoWex-ELASTIC® Type HE-ZS

Size	Max. finish bore d_4	Flange connection acc. to SAE - J620 D_A for HE-ZS										Dimensions [mm]									Drop-out center part HE-ZS L_Z [mm]					Weight with max. bore [kg]	Mass moment of inertia [kgm²]	
		6 ½"	7 ½"	8"	10"	11 ½"	14"	16"	18"	21"	24"	D_1	D_4	D_5	D_7	D_8	l_1	l_2	l_3	l_6	100	120	140	180	250		J_A	J_L
		●																48	10		●	●				2.9 [1]	0.0026	0.0033
48 [3]	28		●									160	164	200	78	45	40			37	●	●				3.6 [1]	0.0106	0.0033
				●														37	4		●	●				3.9 [1]	0.0148	0.0033
					●																●	●				4.6 [1]	0.0298	0.0033
G65 [3]	45				●								205		110	72	60	48	3	56		●	●			7.3 [1]	0.0242	0.0129
						●																	●	●		8.9 [2]	0.0372	0.0150
80 [3]	65				●							265	266	318	145	100	80	70	11	76			●	●		13.7 [2]	0.0211	0.0497
						●													6				●	●		15.9 [2]	0.0726	0.0497
G80 [3]	65					●						300	302	358	145	100	80	80	11	76			●	●		14.6 [2]	0.0402	0.0634
							●												6					●	●	19.5 [2]	0.2251	0.0634
100 [3]	95						●						350		202	148	110	80	4	106				●	●	29.8 [2]	0.1951	0.1779
125 [4]	100						●						416		225	165	120	99	6	116				●	●	41.7 [2]	0.3013	0.3363
								●																●	●	43.6 [2]	0.4123	0.3363
G125 [4]	120							●					440		225	165	120	95	6	116				●	●	45.6 [2]	0.4781	0.3700
									●															●	●	47.7 [2]	0.6380	0.3700
150 [4]	135								●				470		245	185	140	140	6	136					●	63.2	0.6918	0.6647
										●															●	67.9	1.1410	0.6647
G150 [4]	135								●				504		245	185	140	140	6	136					●	68.3	0.7540	0.7677
										●															●	73.0	1.2460	0.7677
200 [4]	150									●			568		270	205	160	149	6	156					●	98.7	1.5348	1.4109
											●														●	101.7	1.9138	1.4109
G200 [4]	150									●			600		270	205	160	149	6	156					●	103.5	1.7270	1.6401
											●														●	106.6	2.1060	1.6401

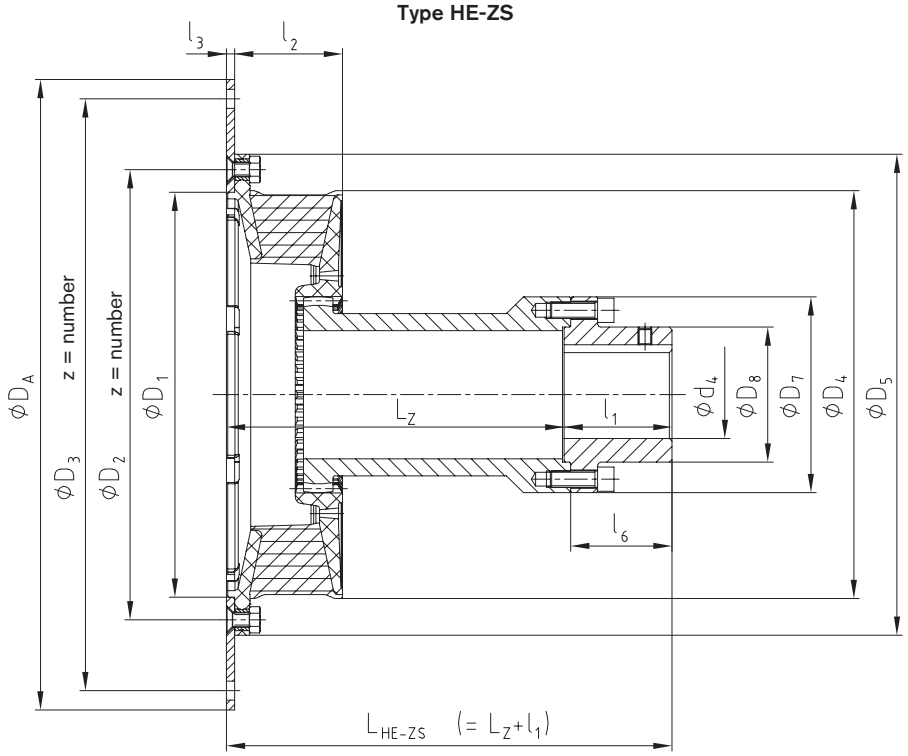
[1] with L_Z 120
[2] with L_Z 100
[3] Technical data see page 220
[4] Technical data see page 222

BoWex-ELASTIC® Type HEW

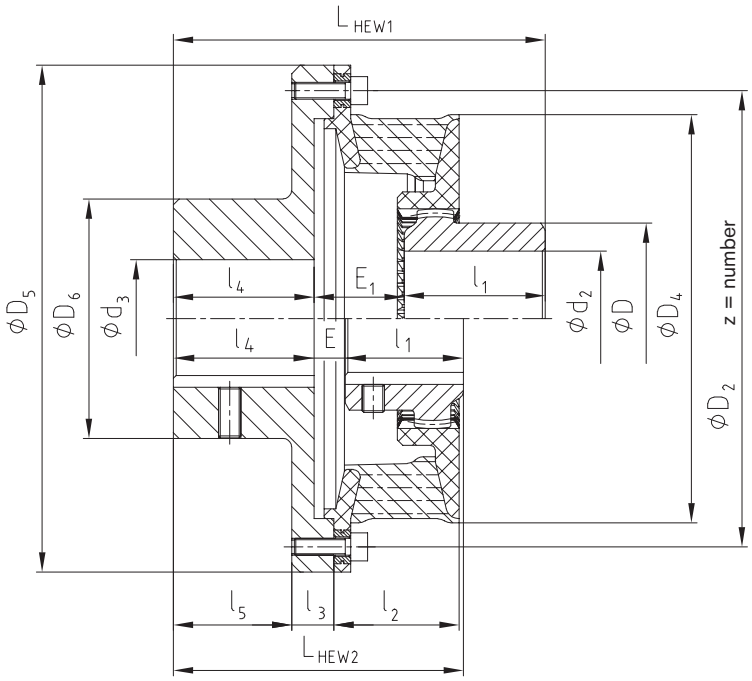
Size	Max. finish bore		Dimensions [mm]																	Weight with max. bore [kg]	Mass moment of inertia [kgm²]	
	d_2	d_3	D	D_2	z x M		D_4	D_5	D_6	l_1	l_2	l_3	l_4	l_5	E	E_1	L_{HEW1}	L_{HEW2}		J_A	J_L
42	48	50	68	162	6	M6	146	180	85	50	45	15	50	42	4	32	132	104		4.3	0.0121	0.0015
48 [3]	48	55	68	180	8	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
G 80 [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	335	-		67.2	0.9498	0.2617
G125 [4]	125	125	192	489	8	M12	440	530	175	140	95	14	170	158	-	45	335	-		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] Technical data see page 220
[4] Technical data see page 222
Other sizes available. Please consult with us.

Type HE-ZS



Type HEW1

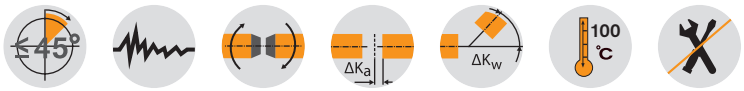


Type HEW2

BoWex-ELASTIC® HEG
Highly flexible flange couplings

Morskate®

Cardan shaft connecting coupling



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 ½"	14"	16"	58	65	75	90	100	120	150	180	l_4	L	2 C	4 C	5 C	6 C	7 C	8,5 C	8 C	L_1	D_4	l_2	l_3		JA [kgm²]	JL [kgm²]
48 [1]	●					●	●	●						8	58.5									163	43.5	8	7	0.03	0.006
		●				●	●	●																			8	0.06	0.006
G 65 [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
G 80 [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] Technical data see page 220
[2] Technical data see page 222

Flywheel connection to SAE-J620

Size	D_A	D_1	z_1	d_1
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 ½"	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]

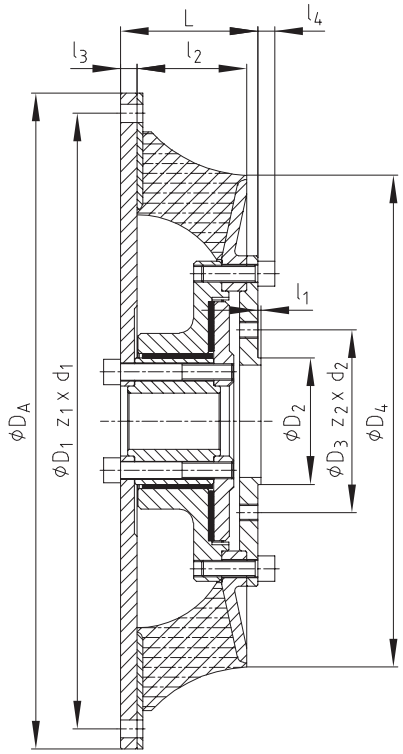
Size	D_2	l_1	D_3	z_2	d_2
58	30	1.0	47.0	4	M5
65	35	1.0	52.0	4	M6
75	42	1.5	62.0	6	M6
90	47	2.0	74.5	4	M8
100	57	2.0	84.0	6	M8
120	75	2.0	101.5	8	M10
150	90	2.5	130.0	8	M12
180	110	3.0	155.5	8	M14

MECHANICS cardan shaft connection HEG2 [mm]

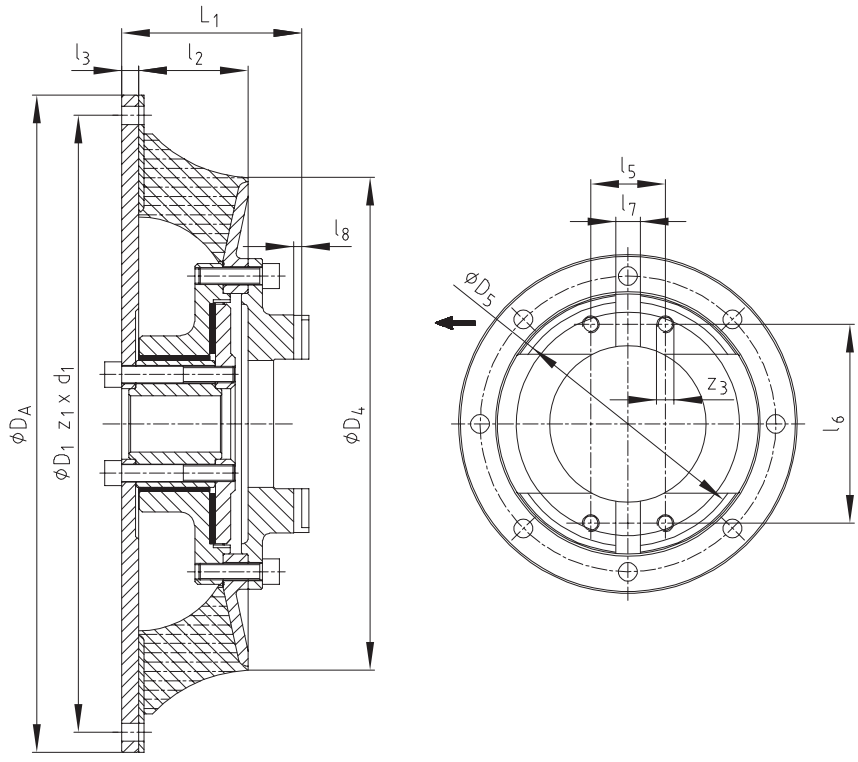
Size	D_5	l_5	l_6	l_7	l_8	z_3
2 C	79.35	33.3	59.5	9.50	3.8	M8
4 C	107.92	36.5	87.3	9.50	3.8	M8
5 C	115.06	42.9	88.9	14.26	5.1	M10
6 C	140.46	42.9	114.3	14.26	5.1	M10
7 C	148.39	49.2	117.5	15.85	6.0	M12
8,5 C	165.08	71.4	123.8	15.85	6.0	M12
8 C	206.32	49.2	174.6	15.85	6.0	M12

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 reducing the high vibratory torques arising in the coupling during the starting process and running through resonance considerably.

Type HEG1



Type HEG2



Morskate®

Any questions? Please contact us.

Morskate Aandrijvingen BV
Oosterveldsingel 47A
7558 PJ Hengelo (Ov)
The Netherlands

NL
T +31 (0)74 - 760 11 11
info@morskateaandrijvingen.nl
www.morskateaandrijvingen.nl

DE
T +49 692 - 222 34 95
info@morskateantriebstechnik.de
www.morskateantriebstechnik.de

EN
T +31 (0)74 - 760 11 11
info@morskatedrivetechnology.com
www.morskatedrivetechnology.com