



HIGHLY FLEXIBLE COUPLINGS ELPEX-B

HIGHLY FLEXIBLE COUPLINGS

ELPEX-B SERIES



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ELPEX-B
FLENDER

GENERAL



ELPEX-B couplings are highly flexible and free of torsional backlash. Because of their low torsional stiffness and damping capacity, ELPEX-B couplings are especially suitable for coupling machines with a highly non uniform torque pattern. ELPEX-B couplings are also suitable for connecting machines with high shaft misalignment.

Standard ELPEX-B coupling types are designed as shaft-shaft connections. Application-related types can be implemented on request.

Benefits

The ELPEX-B coupling is suitable for horizontal and vertical mounting positions or mounting positions at any required angle.

The elastic tire is slit at the circumference and can be changed without having to move the coupled machines.

The elastic tire is fitted without backlash and gives the coupling linear torsional stiffness, thus the torsional rigidity remains constant as the load on the coupling increases.

The ELPEX-B coupling is especially suitable for reversing operation or operation with changing directions of load. The coupling parts can be arranged as required on the shafts to be connected.

If the elastic tire is irreparably damaged or worn, the metal parts can rotate freely against one another because they are not in contact with one another.

Application

The ELPEX-B coupling is available as a catalog standard in 15 sizes with a rated torque of between 24 Nm and 14500 Nm. The coupling can be fitted with elastic tires made of natural rubber for ambient temperatures of -50 °C to +50 °C and with elastic tires made of chloroprene rubber for -15 °C to +70 °C.

The chloroprene rubber tire is marked FRAS, "Fire-resistant and Antistatic".

GENERAL

Design and configurations

The ELPEX-B coupling's transmission characteristic is determined essentially by the elastic tire. The elastic tire is manufactured from a natural rubber or a chloroprene rubber mixture with a multiply fabric insert. The elastic tire is fastened to the hubs with bolts and two clamping rings.

In type EBWT, the shaft-hub connection is achieved with Taper clamping bushes, in type EBWN with finish-drilled hubs and parallel keys. The type EBWZ connects the machine shafts additionally via a detachable adapter.

Metal part materials

- EN-GJL-250 grey cast iron or steel.

Elastic tire material

Material	Hardness	Marking	Ambient temperature
Natural rubber	70 ShoreA	48	-50 ... +50 °C
Chloroprene rubber	70 ShoreA	068 FRAS	-15 ... +70 °C

10

ELPEX-B coupling types

Type	Description
EBWN	Coupling as a shaft-shaft connection with drilled and grooved hubs
EBWT	Coupling as a shaft-shaft connection with Taper clamping bushes
EBWZ	Coupling as shaft-shaft connection with detachable adapter

Further application-specific coupling types are available; dimension sheets for and information on these are available on request.

The coupling types set up for shaft-hub connections with Taper clamping bushes are designated as follows:

- Variant A: Coupling with part 3 – part 3
- Variant B: Coupling with part 4 – part 4
- Variant AB: Coupling with part 3 – part 4

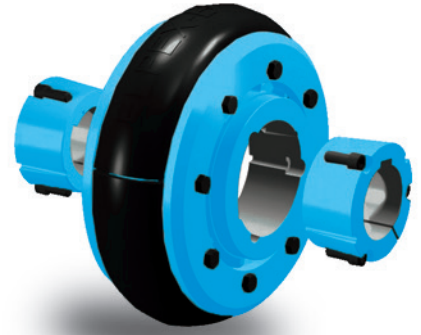
In the case of part 3, the Taper clamping bush is screwed in from the shaft end face side. The coupling half must be fitted before the machines to be connected are pushed together.

In the case of part 4, the Taper clamping bush is screwed in from the machine-housing side. If there is insufficient room, the Taper clamping bushes cannot be fitted from this side. Besides fitting space for the Taper clamping bush bolts, space for the fitting tool (offset screwdriver) must be taken into account.

In the case of coupling type EBWT, part 3 and part 4 can be combined as required. Furthermore, the variant with a Taper clamping bush can be combined with the finish-drilled hub.



Unfitted coupling

Fitted coupling
[shown without connecting shafts]

Fitted elastic tire

The elastic tire can simply be slipped over the hub parts. The elastic tire is held firmly in place by fitting the clamping ring. The connection transmits the torque by frictional engagement.

GENERAL

Technical specifications

Power ratings									
Size	Rated torque	Maximum torque	Overload torque	Fatigue torque	Maximum speed	Dynamic torsional stiffness	Permitted shaft misalignment at $n = 1500$ rpm ¹⁾		
	T_{KN} Nm	T_{Kmax} Nm	T_{KOL} Nm	T_{KW} Nm	n_{Kmax} rpm	C_{Tdyn} Nm/rad	Axial ΔK_a mm	Radial ΔK_r mm	Angle ΔK_w Degree
105	24	48	72	7	4500	285	1.3	1.1	4
135	66	132	200	20	4500	745	1.7	1.3	4
165	125	250	375	38	4000	1500	2	1.6	4
190	250	500	750	75	3600	2350	2.3	1.9	4
210	380	760	1140	114	3100	3600	2.6	2.1	4
235	500	1000	1500	150	3000	5200	3	2.4	4
255	680	1360	2040	204	2600	7200	3.3	2.6	4
280	880	1760	2640	264	2300	10000	3.7	2.9	4
315	1350	2700	4050	405	2050	17000	4	3.2	4
360	2350	4700	7050	705	1800	28000	4.6	3.7	4
400	3800	7600	11400	1140	1600	44500	5.3	4.2	4
470	6300	12600	18900	1890	1500	78500	6	4.8	4
510	9300	18600	27900	2790	1300	110000	6.6	5.3	4
560	11500	23000	34500	3450	1100	160000	7.3	5.8	4
630	14500	29000	43500	4350	1000	200000	8.2	6.6	4

Torsional stiffness and damping

The damping coefficient is $\Psi = 0.9$

The technical data for the elastic tires made of natural rubber and chloroprene rubber are virtually identical.

Torsional stiffness depends on the ambient temperature and the frequency and amplitude of the torsional vibration excitation. More precise torsional stiffness and damping parameters on request.

With flexible couplings the manufacturing process of the rubber elements and their aging primarily influence the stiffness value C_{Tdyn} . For this reason calculation must be made with a tolerance for the dynamic stiffness of ± 20 %. The specified damping coefficient Ψ is a minimum value with the result that the damping performance of the coupling corresponds at least to the specified value.

Permitted shaft misalignment

The permitted shaft misalignment depends on the operating speed. As the speed increases, lower shaft misalignment values are permitted. The correction factors for different speeds are specified in the following table. The maximum speed for the respective coupling size must be noted.

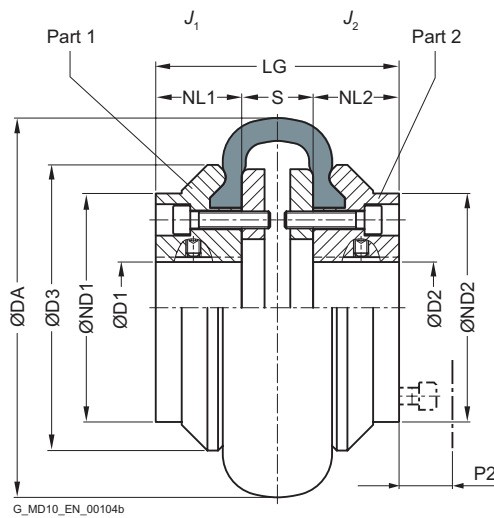
$$\Delta K_{perm} = \Delta K_{1500} \cdot FKV$$

	Speed in rpm			
	500	1000	1500	3000
Correction factor FKV	1.2	1.1	1.0	0.7

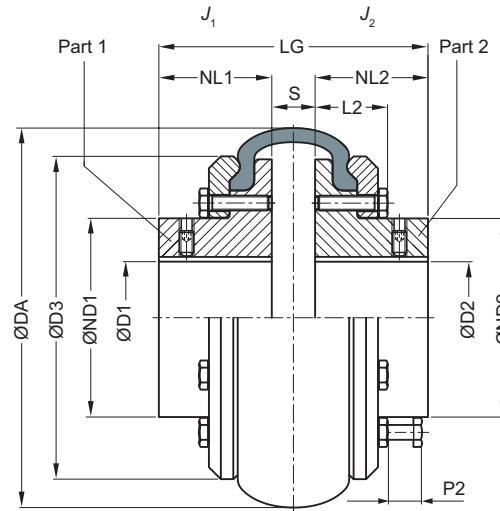
The restorative force (including in the axial direction) depends on speed, system torque and shaft misalignment. Restorative forces on request.

¹⁾ The maximum speed for the respective type must be noted.
For additional information on the allowable shaft misalignment, please refer to the operating instructions.

TYPE EBWN



Sizes 105 ... 165



Sizes 190 ... 630

Size	Rated torque T_{KN} Nm	Dimensions in mm										Mass moment of inertia J_1/J_2 kgm ²	Article no. ¹⁾	Weight m kg
		D1, D2 Keyway DIN 6885-1 min. max.		DA	ND1/ ND2	NL1/ NL2	D3	L2	S	P2	LG			
105	24	–	30	104	70	30	82	–	22	35	82	0.0011	2LC0210-0AA	2.2
135	66	–	38	134	80	40	100	–	25	35	105	0.0025	2LC0210-1AA	3.6
165	125	–	45	165	70	50	125	–	33	35	133	0.0056	2LC0210-2AA	5.4
190	250	–	50	187	80	55	145	36	23	35	133	0.0095	2LC0210-3AA	6.9
210	380	–	60	211	98	65	168	40	25	35	155	0.02	2LC0210-4AA	11
235	500	–	70	235	111	70	188	45	27	35	167	0.023	2LC0210-5AA	14.8
255	680	–	80	254	130	75	216	44	27	35	177	0.06	2LC0210-6AA	20
280	880	–	90	280	145	80	233	45	25	35	185	0.083	2LC0210-7AA	24.5
315	1350	–	95	314	155	90	264	50	29	35	209	0.129	2LC0210-8AA	35
360	2350	–	125	359	200	100	311	50	32	35	232	0.32	2LC0211-0AA	54
400	3800	–	135	402	216	125	345	59	30	35	280	0.55	2LC0211-1AA	78
470	6300	–	160	470	260	140	398	67	46	35	326	1.12	2LC0211-2AA	120
510	9300	–	140	508	250	150	429	73	48	35	348	1.6	2LC0211-3AA	146
		140	180		290							1.7		154
560	11500	–	140	562	250	165	474	82	55	35	385	2.5	2LC0211-4AA	200
		140	180		300							2.7		206
630	14500	80	140	629	250	195	532	82	59	35	449	4.1	2LC0211-5AA	258
		140	180		300							4.4		265

Configurable variants ¹⁾

- ØD1 Without finished bore
With finished bore
- ØD2 Without finished bore
With finished bore

Notes

- Weight and mass moments of inertia apply to maximum bore diameters.
- The article no. applies to elastic tires made of natural rubber.
- P2 = fitting space for dismounting the elastic tire

Ordering example

- ELPEX-B EBWN coupling, size 210
- Part 1: Bore 40H7mm, keyway to DIN 6885-1 and set screw
- Part 2: Bore 45H7 mm, keyway to DIN 6885-1 and set screw

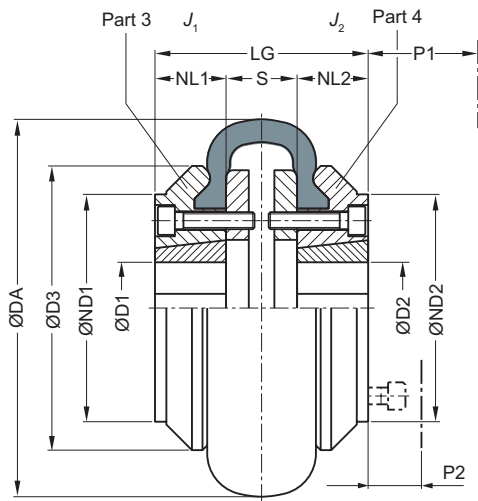
Article no.: 2LC0210-4AA99-0AA0-Z L0W+M1A

¹⁾ To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on [flender.com](https://www.flender.com).

➤ For online configuration on [flender.com](https://www.flender.com), click on the item no.

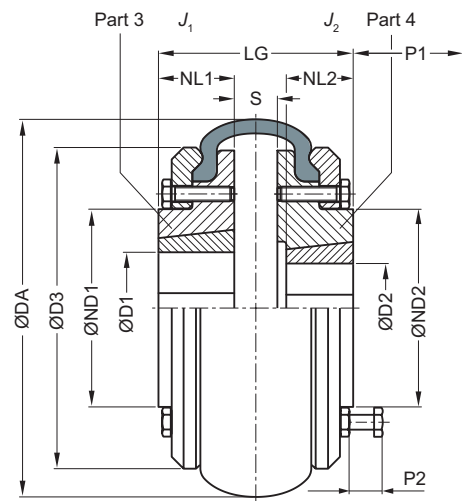
TYPE EBWT

Sizes 105 ... 165



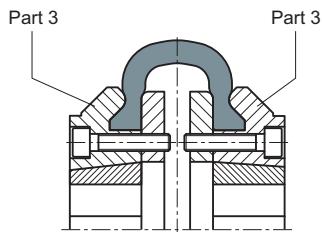
Variant AB

Sizes 190 ... 560

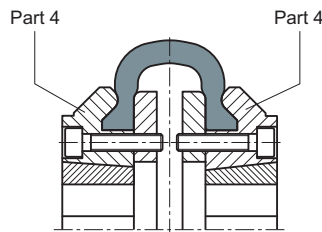


Variant AB

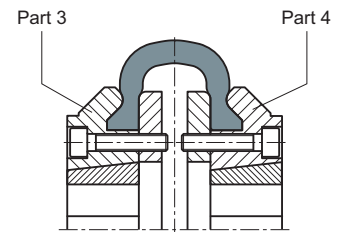
Sizes 105 ... 165



Variant A

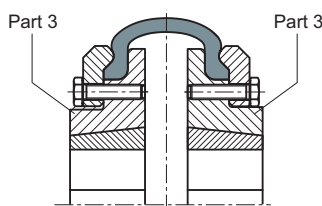


Variant B

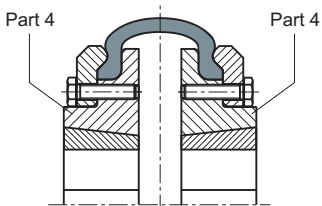


Variant AB

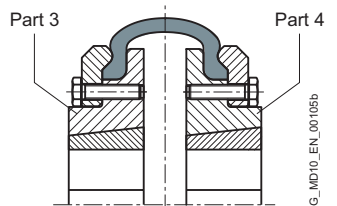
Sizes 190 ... 560



Variant A



Variant B



Variant AB

G_MD10_EN_00105b

Part 3: Screw connection for Taper clamping bush from the shaft end face side

Part 4: Screw connection for Taper clamping bush from the machine-housing side

Size	Rated torque	Part no.	Taper Clamping Bush Size	Dimensions in mm											Mass moment of inertia J_1/J_2 kgm ²	Article no. ¹⁾			Weight m kg
	T_{KN}			D1, D2 Keyway DIN 6885-1 min. max.	DA	ND1/ ND2	NL1/ NL2	D3	S	P1	P2	LG	Type	A		B	AB		
	Nm																		
105	24	$\frac{3}{4}$	1008	10	25	104	–	22	82	22	29	35	66	0.0009	2LC0210-0AB	2LC0210-0AC	2LC0210-0AD	1.8	
135	66	$\frac{3}{4}$	1210	11	32	134	80	25	100	25	38	35	75	0.0019	2LC0210-1AB	2LC0210-1AC	2LC0210-1AD	2.4	
165	125	$\frac{3}{4}$	1610	14	42	165	103	25	125	33	38	35	83	0.0049	2LC0210-2AB	2LC0210-2AC	2LC0210-2AD	4	
190	250	$\frac{3}{4}$	$\frac{2012}{1610}$	$\frac{14}{14}$	$\frac{50}{42}$	187	80	$\frac{32}{25}$	145	23	$\frac{42}{38}$	35	87	0.0085	2LC0210-3AB	2LC0210-3AC	2LC0210-3AD	5.4	
210	380	$\frac{3}{4}$	$\frac{2517}{2012}$	$\frac{16}{14}$	$\frac{60}{50}$	211	98	$\frac{45}{32}$	168	25	$\frac{48}{42}$	35	$\frac{115}{89}$	0.017	2LC0210-4AB	2LC0210-4AC	2LC0210-4AD	8	
235	500	$\frac{3}{4}$	2517	16	60	235	108	46	188	27	48	35	119	0.019	2LC0210-5AB	2LC0210-5AC	2LC0210-5AD	12	
255	680	$\frac{3}{4}$	$\frac{3020}{2517}$	$\frac{25}{16}$	$\frac{75}{60}$	254	$\frac{120}{113}$	$\frac{51}{45}$	216	27	$\frac{55}{48}$	35	$\frac{129}{117}$	0.05	2LC0210-6AB	2LC0210-6AC	2LC0210-6AD	14	
280	880	$\frac{3}{4}$	3020	25	75	280	134	52	233	25	55	35	129	0.075	2LC0210-7AB	2LC0210-7AC	2LC0210-7AD	22	
315	1350	$\frac{3}{4}$	$\frac{3525}{3020}$	$\frac{35}{25}$	$\frac{100}{75}$	314	140	$\frac{66}{51}$	264	29	$\frac{67}{55}$	35	$\frac{161}{131}$	0.11	2LC0210-8AB	2LC0210-8AC	2LC0210-8AD	23	
360	2350	$\frac{3}{4}$	3525	35	100	359	178	65	311	32	67	35	162	0.26	2LC0211-0AB	2LC0211-0AC	2LC0211-0AD	38	
400	3800	$\frac{3}{4}$	4030	40	115	402	200	77	345	30	80	35	184	0.44	2LC0211-1AB	2LC0211-1AC	2LC0211-1AD	54	
470	6300	$\frac{3}{4}$	4535	55	125	470	210	89	398	46	89	35	224	0.8	2LC0211-2AB	2LC0211-2AC	2LC0211-2AD	72	
510	9300	$\frac{3}{4}$	4535	55	125	508	208	89	429	48	89	35	226	1.5	2LC0211-3AB	2LC0211-3AC	2LC0211-3AD	120	
560	11500	$\frac{3}{4}$	5040	70	125	562	224	102	474	55	92	35	259	2	2LC0211-4AB	2LC0211-4AC	2LC0211-4AD	120	

Configurable variants¹⁾

- ØD1 Without finished bore
With finished bore
- ØD2 Without finished bore
With finished bore

Notes

- Weights and mass moments of inertia apply to couplings with Taper clamping bushes with maximum bore diameter.
- The article no. applies to elastic tires made of natural rubber.
- P1 = fitting space for offset screwdriver and ejector bolt for dismantling the Taper clamping bush
- P2 = fitting space for dismantling the elastic tire.

Ordering example

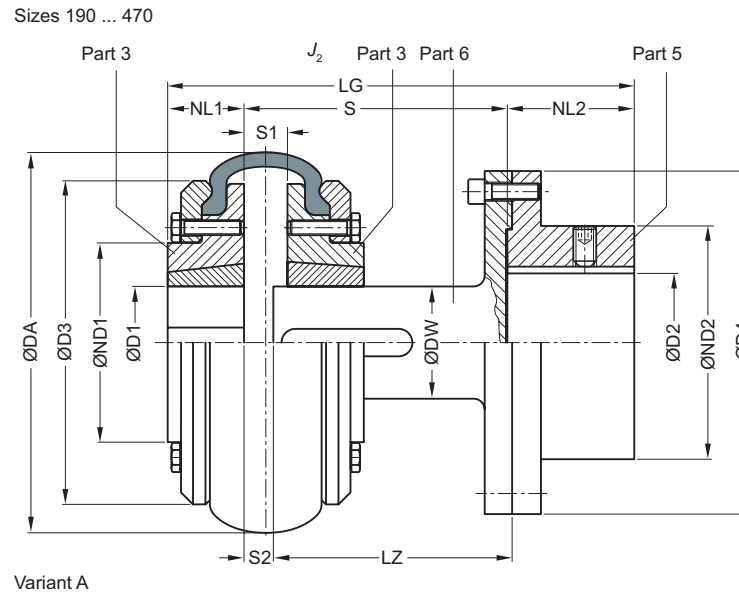
- ELPEX-B EBWT coupling, size 210, variant AB, including Taper clamping bushes
- Part 3: with Taper clamping bush, bore 60 mm
- Part 4: with Taper clamping bush, bore 40 mm

Article no.: 2LC0210-4AD99-0AA0-Z L1E+M0W

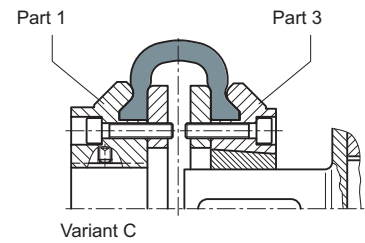
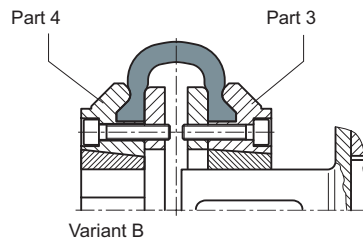
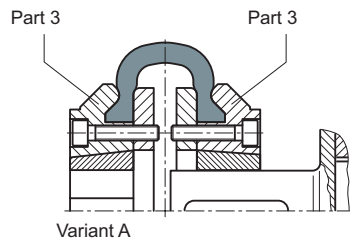
¹⁾ To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on [flender.com](https://www.flender.com).

➤ For online configuration on [flender.com](https://www.flender.com), click on the item no.

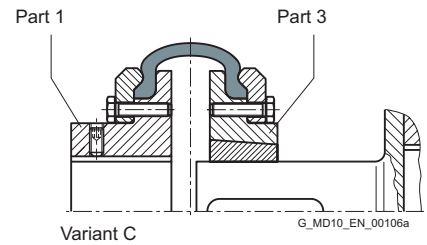
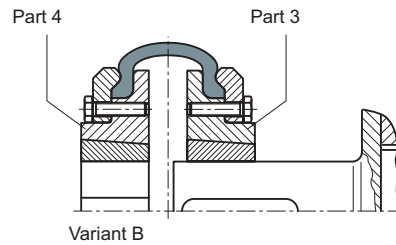
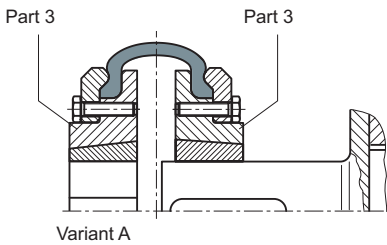
TYPE EBWZ



Sizes 105 ... 165



Sizes 190 ... 470



G_MD10_EN_00106a

Part 3: Screw connection for Taper clamping bush from the shaft end face side

Part 4: Screw connection for Taper clamping bush from the machine-housing side

Size	Rated torque	Dimensions in mm												Mass moment of inertia J_2	Article no. ¹⁾			Weight m	
	T_{KN}	D1, D2 Keyway DIN 6885-1		DA	ND2	D4	DW	NL2	LZ	S		S1	S2		Type	A	B		C
	Nm	min.	max.							min.	max.	min.							
105	24	–	42	104	70	95	25	45	96 133	100 140	116 156	22	6	0.0027	2LC0210-0AG	2LC0210-0AH	2LC0210-0AJ	3.3	
135	66	–	55	134	90	125	32	50	93 133	100 140	116 156	25	9	0.0085	2LC0210-1AG	2LC0210-1AH	2LC0210-1AJ	5.4	
165	125	–	55	165	90	125	32	50	93 133	100 140	124 164	33	9	0.012	2LC0210-2AG	2LC0210-2AH	2LC0210-2AJ	6.2	
190	250	–	75	187	125	180	48	80	93.5 133.5	100 140	114 154	23	9	0.046	2LC0210-3AG	2LC0210-3AH	2LC0210-3AJ	16	
210	380	–	75	211	125	180	48	80	133.5 173.5	140 180	156 196	25	9	0.053	2LC0210-4AG	2LC0210-4AH	2LC0210-4AJ	17	
235	500	–	75	235	125	180	48	80	133.5 173.5	140 180	158 198	27	9	0.056	2LC0210-5AG	2LC0210-5AH	2LC0210-5AJ	25	
255	680	–	90	254	150	225	60	100	133.5 173.5	140 180	158 198	27	9	0.15	2LC0210-6AG	2LC0210-6AH	2LC0210-6AJ	29	
280	880	–	90	280	150	225	60	100	133.5 173.5	140 180	156 196	25	9	0.17	2LC0210-7AG	2LC0210-7AH	2LC0210-7AJ	33	
315	1350	46	100	314	165	250	80	110	134.5 174.5	140 180	160 200	29	9	0.28	2LC0210-8AG	2LC0210-8AH	2LC0210-8AJ	40	
360	2350	46	100	359	165	250	80	110	134.5 174.5	140 180	163 203	32	9	0.43	2LC0211-0AG	2LC0211-0AH	2LC0211-0AJ	48	
400	3800	51	110	402	180	280	90	120	223.5	230	250	30	10	0.88	2LC0211-1AG	2LC0211-1AH	2LC0211-1AJ	73	
470	6300	51	120	470	200	315	100	140	207.5	214	250	46	10	0.97	2LC0211-2AG	2LC0211-2AH	2LC0211-2AJ	104	

Configurable variants ¹⁾

- ØD1 Without finished bore
With finished bore
- ØD2 Without finished bore
With finished bore
- S min. 100 mm
140 mm
180 mm

Notes

- Dimensions D1, ND1, NL1, J1 and fitting space for dismantling elastic tire and Taper clamping bush, see types EBWN or EBWT, **Page 10/7** or **Page 10/8**
- The article no. applies to elastic tires made of natural rubber.
- Mass moment of inertia J_2 and weight m as total of part 3, part 5 and part 6 with maximum bore diameter.

Ordering example

- ELPEX-B EBWZ coupling, size 360
- variant C, for fitting length S min. = 190 mm
- Part 1: Bore 65H7 mm, keyway to DIN 6885-1 and set screw
- Part 5: Bore 70H7 mm, keyway to DIN 6885-1 and set screw

Article no.: 2LC0211-0AJ99-0AC0-Z L1F+M1G

¹⁾ To identify complete item numbers specifying the available finish boring options and – if necessary – further order options, please use our configurators on **fender.com**.

↗ For online configuration on **fender.com**, click on the item no.

SPARE AND WEAR PARTS

Elastic tire

Size	Article No.	Weight kg	Chloroprene rubber	Weight kg
	Natural rubber Identification 048		Identification 068 FRAS	
105	2LC0210-0WA00-0AA0	0.1	2LC0210-0WA00-0AA0-Z K01	0.1
135	2LC0210-1WA00-0AA0	0.2	2LC0210-1WA00-0AA0-Z K01	0.2
165	2LC0210-2WA00-0AA0	0.4	2LC0210-2WA00-0AA0-Z K01	0.4
190	2LC0210-3WA00-0AA0	0.5	2LC0210-3WA00-0AA0-Z K01	0.5
210	2LC0210-4WA00-0AA0	0.8	2LC0210-4WA00-0AA0-Z K01	0.8
235	2LC0210-5WA00-0AA0	1	2LC0210-5WA00-0AA0-Z K01	1
255	2LC0210-6WA00-0AA0	1.2	2LC0210-6WA00-0AA0-Z K01	1.2
280	2LC0210-7WA00-0AA0	1.4	2LC0210-7WA00-0AA0-Z K01	1.4
315	2LC0210-8WA00-0AA0	2.6	2LC0210-8WA00-0AA0-Z K01	2.6
360	2LC0211-0WA00-0AA0	2.9	2LC0211-0WA00-0AA0-Z K01	2.9
400	2LC0211-1WA00-0AA0	3.1	2LC0211-1WA00-0AA0-Z K01	3.1
470	2LC0211-2WA00-0AA0	5.3	2LC0211-2WA00-0AA0-Z K01	5.3
510	2LC0211-3WA00-0AA0	7.8	2LC0211-3WA00-0AA0-Z K01	7.8
560	2LC0211-4WA00-0AA0	10.8	2LC0211-4WA00-0AA0-Z K01	10.8
630	2LC0211-5WA00-0AA0	12.4	2LC0211-5WA00-0AA0-Z K01	12.4

Note

- The elastic tires are wear parts.
The service life depends on the operating conditions.

FLENDER COUPLINGS CATALOG **FLE 10.3** EDITION 2023 EN



WE
MOVE^{the}
WORLD

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